



laetus in praesens

Alternative view of segmented documents via Kairos

10th September 2008 | Draft

Dynamic Exploration of Value Configurations

Interrelating traditional cultural symbols through animation

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Initially produced on the occasion of the activation of the CERN Large Hadron Collider and presented to a meeting of the World Academy of Art and Science (Hyderabad, 2008)

Introduction

This page provides links to a set of ongoing experiments in interrelating dynamically the 6-fold hexagram of the *Yi Jing* (*I Ching*) with the 6-fold structure of the *Star of David* (Shield of David, *Magen David*). It follows from arguments of earlier papers regarding the 8-fold system of trigrams of the Chinese *BaGua* (*Animation of Classical BaGua Arrangements: a dynamic representation of Neti Neti*, 2008) based on pattern dynamics (*Sustainability through Magically Dancing Patterns: 8x8, 9x9, 19x19*, 2008). The question raised is whether such symbols are more "moving" -- engendering greater psychoactive engagement -- when they are indeed associated with some form of animation (*Moving Symbols: radical change in religious psycho-social energy policy?*, 2008).

An earlier experiment made use of [hypergraph](#) web technology (*Hypergraph Experiment with I Ching Hexagram transformation lines (1-6 + 7-8) applied to transformative conferencing*, 2006).

Fundamental values and strategic pillars

The articulation of strategies by major institutions is now often expressed in terms of "pillars" associated with fundamental values. This phenomenon has been discussed extensively elsewhere (*Coherent Value Frameworks: Pillar-ization, Polarization and Polyhedral frames of reference*, 2008; *Towards Polyhedral Global Governance: complexifying oversimplistic strategic metaphors*, 2008). Those explorations raise the question: **is it possible to represent such strategic "pillars" in ways that give a greater sense of coherence to the underlying set of values that enables governance**, especially with the dynamic possibilities of modern web technology (*Animating the Representation of Europe: visualizing the coherence of international institutions using dynamic animal-like structures*, 2004; *Polyhedral Pattern Language: software facilitation of emergence, representation and transformation of psycho-social organization*, 2008).

On the other hand, **a range of fundamental symbols, exemplifying the values of the cultures with which they are associated, may be understood geometrically as implying configurations of pillars or as indicative of such a configuration**. Such symbols may be fundamental to cultural identity to the point of notably figuring on flags and emblems.

The question is then whether, through a dynamic exploration of such fundamental configurations:

- fruitful associations may be made to articulations of sets of values
- fruitful relationships may be explored between seemingly quite distinct symbols with which values are associated
- **more appropriate insights may be rendered explicit with regard to strategies of development in the light of systems of faith-based governance** representing cultures and civilizations held to be incompatible and clashing (*Future Challenge of Faith-based Governance*, 2003; *Towards Fruitful Patterns of Faith-based Governance*, 2003)

From a geometric perspective, of interest is whether the structure of simpler symbols implies the structure of more complex symbols. Expressed otherwise, how minimalistic can a simple structure be whilst adequately implying more complex structures through a minimum of transformations, typically associated with properties of symmetry? Some of the animations here explore such possibilities.

Truth value of the animations

As an exploratory experiment, the issue of whether the various results and associated mappings are "true" or "correct" is not an immediate concern. Similarly, especially on the occasion of a meeting of the World Academy of Art and Science on values and ethics, the issue of whether the results are of "scientific" or "aesthetic" value is also not an immediate concern. Indeed, the animations may be better understood beyond the binary categorization normally favoured:

- in the latter case, rather than Science or Art, it is a question Science-**And**-Art, or **Neither**-Science-**Nor**-Art.
- in the former case, rather than Truth or Not-Truth, it is a question of Truth-**And**-Not-Truth, or **Neither**-Truth-**Nor**-Not-Truth.
- and similarly, rather than Serious or Not-Serious, it is a question of Serious-**And**-Not-Serious, or **Neither**-Serious-**Nor**-Not-Serious

This is consistent with the arguments for a quadrilemma articulated by Kinhide Mushakoji (*Global Issues and Interparadigmatic Dialogue*. Torino, Albert Meynier, 1988), Hopefully the animations merit the judgement of the Italian aphorism: *Si non e vero, e ben trovato* which might be usefully rendered here as *If it is not true, it is nevertheless appropriate*. Animations can be understood in terms of design, whether their validity is evaluated in terms of scientific or aesthetic criteria -- especially given the elegance considered a characteristic of interesting theories.

It is appropriate to note that the hexagrams that are one feature of the animations form part of the *I Ching* (*Yi Jing* or *Book of Changes*) which were long a feature of governance within the Chinese civilization -- and required reading by entrants to the civil service of the time. The terms traditionally associated with them offer an interesting cognitive bridge between values and strategic decisions (as is evident in the screen shot [below](#)). The possible current relevance of their complex relationships to policy-making cycles can be explored separately (*Interrelationships between 64 Complementary Approaches to Policy-making*, 2007; *Documents relating to Sustainable Policy*, 2006; *Transformation Metaphors*, 1997). The use of the circle of *I Ching* hexagrams was first explored with respect to "networking" (*Networking Alternation: an alternation network of 384 pathways of organizational transformation*, 1983). The case for the exploration of such metaphors, especially those of Asia, has been well argued by Susantha Goonatilake (*Toward a Global Science: mining civilizational knowledge*, 1999).

Access to the animations via web browser: technical considerations

The animations may be viewed in three distinct forms, corresponding to their progressive development indicated in [Table 1](#) below. Some SVG animations may only be viewed in browsers with plugins, others (somewhat simplified) may be viewed with most browsers. Video versions of some have been made in the Windows WMV format, whereas others are accessible in the common Flash (SWF) format. Subsequent to such experiments, a [YouTube version](#) has been made available.

SVG: Since the complex animations have been created directly by program in SVG format, they typically require an SVG plugin for the web browser, unless it is already present. Issues relating to browsers and plugins are discussed in more detail in the [Annex](#) below (useful if the animations do not appear to work in the preferred browser), with comments on how the animations were developed.

Internet Explorer currently offers the easiest access to the complete range of animations (notably those in Group A in [Table 1](#) below). Other browsers may be used for the most recent experiments (notably those in Groups B and C in [Table 1](#)).

Although the animations are not currently interactive, SVG does offer (in IE and Opera only)::

- **Right-click** to bring up a menu of options, most usefully **Pause** and **Zoom**
- **Alt-Right-click** allowing the animation to be moved across the screen, notably when it has been magnified by Zoom

In the animations in Group B and C below, the text labels added successively during the animation cycle provide hyperlinks to pages commenting on each in metaphorical terms from a **Policy** perspective -- from each such page access is also possible (in some browsers) to analogous pages from a **Dialogue**, **Vision**, **Conference**, **Network**, **Community**, or **Lifestyle** perspective (an [overview](#) of this array of links is available).

WMV: As a provisional measure, some SVG animations were crudely converted to the Windows Media Video (WMV) compressed video file format via a screen recording. These can notably be played by Windows Media Player and RealPlayer.

SWF: This is currently the dominant format for displaying animated vector graphics on the web. Plugins to play SWF files in web browsers are available from Adobe for most desktop operating systems, including Microsoft Windows, Apple Mac, and Linux. Given that the animation was generated by program in SVG format, the challenge has been to convert it into SWF. With some simplifications, this has been achieved with the assistance of Gildas Trébaol (as explained [below](#)). This format is, at this stage, the least problematic on any platform.

Animations

The animations indicated below variously show how some of these symbolic elements may be combined. They currently include possibilities of framing the basic animation by a simple circle, a circle of *Yi Jing* hexagrams (as discussed [elsewhere](#) in relation to the logo of this site), and/or by the traditional **Sri Yantra** (Sri Chakra) frame of significance to Hinduism and Buddhism. The [circle of hexagrams](#), if included, may be placed within or around the Star of David. Some versions include the hexagram name.

The purpose in undertaking these experiments is to highlight design possibilities through which greater significance may be discovered in such symbols and their relationships.

Table 1: Star of David / <i>Yi Jing</i> animation options													
Processes													
C: SVG/Javascript adaptation, with some simplification (view via most browsers, or via Flash/SWF)													
B: Mature SVG experiment (view via Chrome, or WMV)													
A: Early SVG experiments (view via Internet Explorer)													
(most recent experiments at top of table)													
Process	Pace (secs.)	Sequence	<i>Yi Jing</i> hexagrams			Concentric features			Emergent symbols	Active phases	Access		
			Hexagram No.	Hexagram Name	Hexagram (in centre)	Ideogram (in centre)	Circle on Star	Circle of <i>Yi Jing</i> hexagrams			Sri Yantra frame	SVG	Video
C	5s	circular order (left)	yes	yes	moving to circumference	corner	-	outside (colour)	visible	64 systematic	64	access 73k	SWF 400k
B	8s	random	yes	yes (see screen shot)	moving to circumference	corner	-	outside (b/w)	visible	64 systematic	64	access 436k	WMV 8mb (selection)
A	5s	.	-	-	-	visible	visible	outside	visible	.	64	access	.
A	5s	.	yes	-	visible	-	-	outside	visible	.	64	access	.
A	5s	.	-	-	visible	-	visible	inside	visible	.	64	access	.
A	1s	.	-	-	visible	-	visible	inside	visible	.	64	access	.
A	0.5s	.	-	-	visible	-	visible	inside	visible	.	64	access	.
A	5s	.	-	-	-	visible	visible	inside	visible	.	64	access	.
A	5s	.	yes	yes	-	visible	visible	inside	visible	.	64	access	.
A	9s	.	-	-	moving	-	-	outside (colour)	visible	some	64	access 390k	.
A	9s	circular order (left)	yes	yes	moving	corner	-	outside (b/w)	visible	some	64	access 410k	.
A	8s	random	yes	yes	moving to circumference	corner	-	outside (b/w)	visible	16 systematic	16	access 111k	WMV 13mb

Cross-cultural symbolism

Six lines are configured in a number of cultures to form a double triangular "hexagram". This is most commonly associated in the West with the Hebrew **Star of David** symbol. It is however also used by Christians (notably the Mormons) and in Islam -- where it is known in Arabic as *Najmat Dawiud* or *Khatem Sulayman* (**Seal of Solomon**), although the latter name may also refer to a pentagram.. Six pointed stars are also to be found in the cosmological diagrams of Hinduism, Buddhism, and Jainism.

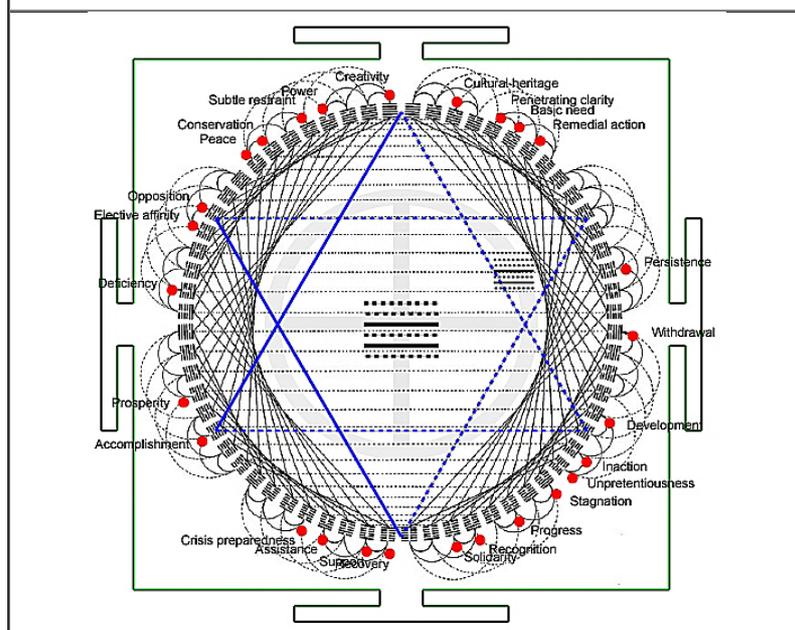
The non-Jewish Kabbalah (also called Christian or Hermetic Kabbalah) interprets the hexagram to mean the divine union of male and female energy. In traditional alchemy, the two triangles represent the reconciliation of the opposites of fire and water. There is a degree of association of the 6-fold star with the 6-petalled lotus representation of the sacral chakra (**Swadhisthana**) of Hinduism and Buddhism.

The earlier exploration noted above (*Sustainability through Magically Dancing Patterns 8x8, 9x9, 19x19 -- I Ching, Tao Te Ching / T'ai Hsüan Ching, Wéiqi*, 2008), used one particular triangular design convention. It is therefore also of interest to explore the configuration of the 6 lines of the *I Ching* hexagram into a double triangle consistent with such traditional symbolic use. That exploration presented a table indicating such possibilities (*Mapping of I Ching hexagram coding onto Star of David*).

The 64 hexagrams in some of the animations are clustered into 8 "houses". Within the Hindu tradition, there are 8 major forms of Devi, the Goddess, known as the Ashta **Matrikas** (8 Mothers). Each has 8 attendants, therefore totalling 64 daikinis or **yoginis**. Each of the 64, according to **Matsyendranath**, is correlated to the currents or winds of the human "etheric" body, or viewed as a type of neurotic or unproductive tendency (if not appropriately balanced) through which forms are born out of desire thereby constructing reality. Just as the *Yi Jing* group of 64 hexagrams is associated with the 81 ideograms of the *Tao Te Ching*, so the 64 yoginis is also associated with a larger set of 81.

Screen shot from a more complex animation
-- shown halfway to completion of cycle of 64 hexagrams
- this version features explicit labelling of completed hexagrams
- the correspondence between the line-coding of the central hexagram and the star may be seen
- a smaller version of the current central hexagram is visible in movement

towards its final position on the circle (on the right)
 - an emerging central symbol (a Medicine Wheel) is faintly visible



Emergent symbols

Later versions of the animations, as indicated in [Table 1](#), also explore the possibility of allowing other fundamental symbols to emerge successively during the course of the animation. This has been done by using the geometry of the star framework to frame the construction of such symbols, possibly with slight distortion of conventional proportions. The 8 symbols currently constructed schematically in this way are:

- a **cross**, namely the Latin or [Christian cross](#) or *crux ordinaria*
- an **ankh** (looped tau cross or ansated cross), namely the Ancient Egyptian symbol of life and fertility, included here in a form that relates more specifically to the [Coptic cross](#) and the [Coptic ankh](#) (used by Gnostic Christians)
- a **Sun cross** (Sunwheel, solar cross or Odin's cross), notably used throughout Native American culture to represent the [Medicine Wheel](#) of life
- **Lorraine Cross** as commonly used in heraldry, included here in a form that relates to the [Patriarchal cross](#).
- **vesica piscis**, also termed mandorla
- **star pentagram**, namely as used by a range of belief systems, most notably Islam
- **dorje** or vajra, of significance to Buddhism, Jainism and Hinduism, but especially to Tibetan Buddhism
- a **square and compass**, of fundamental symbolic significance to freemasonry .

For the purpose of the animation experiment, it has been assumed that each of these 8 can be associated with a single trigram of the [BaGua](#) system -- in this case the upper trigram of the hexagrams successively displayed -- as previously explored ([Animation of Classical BaGua Arrangements](#), 2008). To the extent that each of the 8 such trigrams is indicative of a "house" in the larger system of 64 hexagrams, it might be asked whether such symbols can be fruitfully clustered into "houses" in a larger periodic table of ways of knowing as discussed elsewhere ([Tuning a Periodic Table of Religions, Epistemologies and Spirituality-- including the sciences and other belief systems](#), 2007).

Adaptation of the binary coding template to the configuration of conventional values and strategies

Ignoring the symbolic and cultural dimensions, the binary coding and associated hexagrams may be used experimentally to order values as they are implicit in conventional strategies and the problems they endeavour to address. Such an approach follows from earlier work on comprehensive classification of the complete range of human preoccupations ([Functional Classification in an Integrative Matrix of Human Preoccupations](#), 1982). This was notably developed as a means of access to the [Encyclopedia of World Problems and Human Potential](#) and the integration of its online databases with those of the [Yearbook of International Organizations](#). The [matrix](#) fundamental to this approach, especially its explicit periodic organization, can be fruitfully compared with the periodic clustering of the hexagrams based on their binary code. It is this clustering that is basic to their traditional organization by "houses" and to their periodic circular distribution in the animations (as indicated in the above [screen shot](#)). Close inspection of that circular sequence (notably by zooming in the animations) makes it clear that the lower (inner) trigrams, identical in "house" groups of 8 around the circle, are necessarily each distinguished by 8 distinct upper (outer) trigrams.

The simplest experimental approach is of course just to replace the text labels in the animations for trial purposes. A potentially much more significant approach is to apply the hexagram binary coding to the cells of the [matrix](#) with which categories of preoccupation have been associated there. This approach is suggested by the conventional tabular presentation of 8 "upper" and 8 "lower" trigrams as rows and columns -- with the 64 hexagrams as cells of the table (used as a [lookup guide](#) to the *Yi Jing*). As its [commentary](#) indicates, the periodic organization of preoccupations in that matrix is in fact modelled on that of the [periodic table of chemical elements](#) with its

conventional 8 fundamental groups -- determined by the manner in which electrons fill the innermost (s and p) shells to constitute those "main groups". Use of upper and lower trigrams to encode conventional "groups" and "periods" in the periodic table might also be made, as an exercise in interrelating chemical elements. With respect to any set of fundamental values or strategic "pillars", of interest is whether it is the columns or rows, as groups and periods, that are understood to represent such clusters of (typically) 8 such categories (or 7 plus/minus 2).

In the use of any binary coding system to represent "filling up", of particular interest is any initial assumption as to whether broken and complete lines in the (hexagram) appropriately represent 0 and 1 or, conversely, 1 and 0. The fundamental nature of this seemingly trivial assumption has been explored by [Xavier Sallantin](#) (*L'épistémologie de l'arithmétique: Communication aux Seminaires internationaux d'epistemologie de l'Abbaye de Senanque*, 1976). In the case of shell-filling, is a "1" (complete line) usefully understood as an "electron" and the absence of one as a "valency" -- or either, under different circumstances? Sallantin explains this assumption in terms of how agreement is established (by a referee tossing a coin for captains before a football match) when, depending on culture, "yes" may be denoted by a "nod" or a "shake" of the head. The ambiguity is also recognized in the distinction between perceiving a glass as being "half-full" rather than "half-empty".

Of interest here is the sense in which this implies a form of paradoxical alternation between the implications of both assumptions, as with whether the hexagrams should be read from top to bottom (outside to inside) when displayed in a circle. The challenge of this alternation is discussed in an earlier commentary on the use of this circular representation (*Alternating between Complementary Conditions: for sustainable dialogue, vision, conference, policy, network, community and lifestyle*, 1983).

Using this framework as a guide and avoiding (for now) the complex long-standing debate about how many groups there are and how they are best to be represented, one quick experiment is to treat the preoccupation matrix as a set of 8x8 cells and to substitute its categories in an animation.

Table 2: Association of thematic categories with hexagram coding (indicative for animation experiment only) Note that the original web version of this table permitted users to access problems, strategies or organizations corresponding to each cell. To facilitate use of the circular sequence in the animation, relevant numbers have been added to each cell. Access to SVG animation using these categories.								
	Pattern establishment and consolidation		Pattern maintenance and appreciation		Pattern adaptation and propagation		Pattern innovation and exploitation	
	Domain definition	Organized relations	Differentiated	Contextual renewal	Controlled movement	Communic. reinforcement	Redistrib. of resources	Environmental manipulation
Groups	1	2	3	4	5	6	7	8
	Logic [1]	Emotional fulfilment [34]	Philosophy [5]	Aesthetics [26]	Security [11]	Morals Ethics [9]	Community [14]	Coevolution [43]
	Policymaking Future studies [25]	? [51]	Language [3]	Design [27]	Interdisciplinarity [24]	Individuation Psychoanalysis [42]	Cooperative [21]	Invention [17]
	Science [6]	Experiential activities [40]	History [29]	Culture [4]	Strategy Logistics [7]	Theology [59]	Metapolitics [64]	Agrosciences [47]
	Sociology [33]	Management [62]	Informatics Classification [39]	Ekistics Architecture [52]	Systems Cybernetics [15]	Psychology Behaviour [53]	Economics [56]	Technology [31]
	Research Standards [12]	Health care [16]	Education [8]	Leisure Arts Sports [23]	Defence Police [2]	Religious practice [20]	Government Politics [35]	Agricult. Fisheries [45]
	Society [44]	Social activity Employment [32]	Information [48]	Amenities Necessities [18]	Transport Telecomm [46]	Communication Media [57]	Commerce Finance [50]	Industry Production [28]
	Biosciences [13]	Plant life [55]	Zoology [63]	Invertebrates [22]	Fish Reptiles [36]	Birds Mammals [37]	Humankind [30]	Medicine [49]
	Astronomy [10]	Earth [54]	Meteorology [60]	Climatology [41]	Oceanography [19]	Hydrology [61]	Geophysics [38]	Geology [58]

It should be stressed that the above attributions are purely indicative for the purpose of illustrating their presentation dynamically in the animation. They do however raise interesting issues explored elsewhere with regard to how such an array might be "tuned" (*Tuning a Periodic Table of Religions, Epistemologies and Spirituality -- including the sciences and other belief systems*, 2007) -- especially given

the resemblance of the above table to a [fret](#) through which musical intervals are distinguished. The justification for switching to a sound-based metaphor is presented elsewhere (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007; *Polarities as Pluckable Tensed Strings: hypercomprehension through harmonics of value-based choice-making*, 2006; *A Singable Earth Charter, EU Constitution or Global Ethic?* 2006). The need for mnemonic aids has long been highlighted by the association of the complexities of metabolic pathways with songs (Harold Baum, *The Biochemists' Song Book*, 1982/2003).

Dynamic Interrelationship of Symbols of Coherent Experiential Representation of Nonduality (DISCERN)

The CERN [Large Hadron Collider](#) might be considered as the modern equivalent of the Stonehenge of megalithic science. However the circles of Stonehenge probably also embodied functional equivalents to both the [strategic "pillars"](#) of the European Union and to the set of values of the European Convention on Human Rights -- the so-called '[jewel in the crown](#)' of the Council of Europe. As with the Collider, the challenge of getting Europe to "work" is one of appropriately connecting the strategic pillars with a circle of "lintels". Unfortunately the current condition of Europe might be compared to the current condition of Stonehenge -- most of the pillars are not connected, some have fallen, and the systemic function of their various circles is unclear to most observers.

A comparison of the above animation with the CERN Collider, in terms of the discipline required for appropriate fundamental learnings regarding psychosocial systems, is made in a separate document under the following heading:

- [Introduction](#)
- [Colliding values](#)
- [Uncertainty and risk](#)
- [Unique technical metaphor](#)
- [Metaphorical mirroring of extreme denial](#)
- [Analogous technological challenges](#)
- [Enabling coherence through knowledge cybernetics](#)
- [Interplay of value pillars appropriate to sustainability](#)
- [Hyperdimensional generic coding systems](#)

It might also be instructive to compare such understandings with the science of ancient Egypt, as embodied in the configuration of the largest underground [tomb complex](#) constructed by [Petamenophis](#) (Padiamenopea) -- inscribed with that science as an explicit challenge to its visitors.

Conclusion

Whilst the notions conventionally attached to the hexagrams in the animation have been used as a means of illustrating the potential of animations to interrelate a set of interconnected insights, as a long-recognized coding system these could just as well be used to interrelate any other set of more or less elusive insights. This reflects the more general concern of discovering more powerful mnemonic aids (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007). One of the merits of the simple coding system is that its structure can, and is, used to indicate transformational feedback loops between the conditions denoted by each hexagram as a whole. These loops are the lines between the hexagrams arranged in a circle as explained elsewhere (*Patterning Transformative Change*, 1983).

Of particular interest is the sense in which the fundamental physics, basic to the CERN initiative, hypothesizes a multidimensional reality radically challenging conventional notions of space and time. In this sense, as discussed in that connection, the above animation sequences need to be seen as emblematic of a more complex "timeless" cognitive reality that may indeed variously inspire faith-based governance.

It is somewhat ironic therefore that the SVG animation format, unlike other formats, has a "timeless" aspect to it in that the complete animation sequence of images is effectively "drawn" when it is first accessed. The dynamics of the animation are therefore an appearance achieved only by allowing the different phases originally so drawn to be "visible" at different times -- effectively through temporal shutters. The various phases are essentially "co-present" despite the illusion of their sequential appearance (*Being the Universe - a Metaphoric Frontier: co-existent immanence of evolutionary phases*, 1999).

The key question is whether there is an elusive "geometry" of "cognitive space-time" of which fundamental symbols are indicative, despite the paradox of the conflict between belief systems which knowledge of it engenders (*Evoking Authenticity through polyhedral global configuration of local paradoxes*, 2003). These forms of particular knowledge may stand in relation to one another and to the geometry of the whole as in the dynamics of the resonance hybrid exemplified by the benzene molecule -- also a form of hexagram, as discussed elsewhere (*Configuration of alternatives as a resonance hybrid*, 2008). In this sense Gregory Bateson's much-cited "pattern that connects" may actually take a dynamic form as the process of "patterning that connects" as implied with respect to sustainable design by Jean Gardner (*Understanding the Pattern that Connects: sustainability's role in architectural academe, Thresholds*, 20).

This offers an interesting metaphor for understanding the relation between the various symbolic elements -- as discussed in relation to the physics explored by the Large Hadron Collider. Whereas, with respect to that initiative of physics, it is argued there that it is a "[Metaphorical mirroring of extreme denial](#)", it might be argued that the focused faith-based attachment to particular symbols constitutes another form of extreme denial -- of the elusive nature of the underlying "sacred" geometry. This is perhaps best recognized in [apophatic discourse](#) (*Being What You Want: problematic kataphatic identity vs. potential of apophatic identity?* 2008).

However questionable the credibility of this exploration, it should not be forgotten the extent to which extreme antipathy and violence is currently engendered by identification with particular symbols. Any effort to reframe their relationship in a context that honours that sense of identity, suggesting how other forms of identity may also be possible, therefore merits consideration as an encouragement to further exploration.

Annex: Animations -- technical considerations

Operation of web browsers and plugins:

- Adobe Systems provides an [SVG Viewer](#) (for which support is to be discontinued in January 2009) and has a [plugin test page](#) to determine whether it has been correctly installed.
- Internet Explorer (as of 2008) requires a plugin although IE 6.x comes with the Adobe SVG Viewer plugin pre-installed (that is [reportedly](#) more tolerant of SVG errors). The Adobe plugin can be installed via the [plugin test page](#). Use the test page if there is any doubt whether a working plugin has already been installed
- Mozilla (as of 2008) requires a plugin (but seems to be more difficult to render operational; see [status](#); a particular issue seems to be appropriate use of the namespace definition to enable animations). Consequently, at best, the "animations" below show as a partial STATIC display, but NOT as animations.
- Opera (9.6 beta) does handle part of the animation but either jerks across the screen and/or ignores others phases of the animation; the Opera community does have an [active interest](#) in SVG
- It seems that some browsers (like Google's Chrome) may partially render the STATIC parts of the animation.

Conclusion:

- Use Internet Explorer for the moment. Any feedback on other versions (Mac, etc) would be appreciated.
- As indicated in [Table 1](#) above, in an effort to produce a Flash (SWF) variant, some later animation experiments (Group C) have been produced using SVG supplemented by Javascript. These variants work with IE6 or IE7 and the Adobe plugin, or with Mozilla without that SVG plugin. They also work with Google's Chrome and Opera. (This adaptation was achieved thanks to Gildas Trébaol).

It should be noted that some of the most recent animations listed have web links associated with the text labels displayed. For whatever technical reason, these do not bring up the relevant documents in some animations. Similar difficulties were experienced in incorporating mouseover features. These text labels added successively during the animation cycle provide hyperlinks to pages commenting on each in metaphorical terms from a **Policy** perspective -- from each such page access is also possible to analogous pages from a **Dialogue, Vision, Conference, Network, Community, or Lifestyle** perspective (an [overview](#) of this array of links to 448 such pages is available with relevant commentaries). The hyperlinks from the animation work in Mozilla, Opera and Chrome but not in IE. (This adaptation was achieved thanks to Gildas Trébaol).

Development: Given that the original animation (Group A in [Table 1](#)) was generated by program in [Scalable Vector Graphic \(SVG\)](#) format, the challenge has been to convert it into the [Shockwave Flash \(SWF\)](#) format. This is currently the dominant format for displaying animated vector graphics on the web. Plugins to play SWF files in web browsers are available from Adobe for most desktop operating systems, including Microsoft Windows, Apple Mac, and Linux.

The software for doing so is currently in beta development by Gildas Trébaol ([How to translate SVG documents for viewing them with any Flash player](#)) who provides useful comments on the merits of the SVG to SWF route. His conversion of the SVG to SWF (with some simplifications) can be viewed via IE, Opera and Chrome and in Mozilla (if script blockers are in effect). Otherwise it may be viewed by any Flash player. An extensive comment on this development is available (Gildas Trébaol, [I Ching wheel in SVG and Flash format](#), 2008). This provides useful insights into the relationship of the hexagram structure to the binary coding of such importance to computers.

The software for this conversion is currently in beta development by Gildas Trébaol who provides useful comments on the merits of the SVG to SWF route ([How to translate SVG documents for viewing them with any Flash player](#)). He rewrote the SVG generation of the animation in C with Javascript (enabling the Group B versions in [Table 1](#)) to ensure the successful conversion of the SVG to SWF, as indicated in his extensive comment (Gildas Trébaol, [I Ching wheel in SVG and Flash format](#), 2008, from which access to the animation is also available). He notably took advantage of the binary structure of the circle of hexagrams, as he explains, to generate the circle of hexagrams rather than using a bitmap as in the earlier experiments -- circumventing a bug in the Mozilla browser that prevented its display of the SVG animations. The rewritten animation is, at this stage, somewhat simpler than the final version by the earlier route, notably excluding the phase whereby the Star of David hexagram "engenders" the *I Ching* hexagram and the pairing of the "compass" symbol. But the hexagram representation and movement is more appropriate. However this later version is much more compact, efficient and faster in its use of computer resources, as he describes.

The programming solutions in the initial SVG experiments are definitely not the most efficient and represent a compromise in order to get a workable animation in the absence of the greater expertise that would have rendered them of higher quality, possibly with better effects and greater scope for user interaction. Many such improvements have already been made through the process developed by Gildas Trébaol. The main purpose has been low cost "proof of concept" to obtain a sense of the value of the result.

Design improvements: Some additional features explored were omitted because of difficulties with the program, ambiguities regarding the current status of the SVG format and viewer capacities, or the processing demands for smooth rendering on average computers. Some options could only be implemented in separate animations rather than in a single one.

Of particular importance are the aesthetic choices made, especially given the difficulty for the user to modify those choices. For this reason the examples are distinct SVG files rather than a single file offering user control.

An important consideration has been the timing of the animation, given that some may prefer a slower animation -- whereas others may prefer a faster one. Related to this issue are some technical constraints on the transition from one image to another, where the desirable timing of a smooth transition is undermined by computer processor time in relation to the cumbersome programming solution chosen.

Better solutions may emerge to some of these issues, especially since the code can be freely accessed (and changed as a text file). Indeed, with a minimum of competence in SVG, the timing and other properties may be easily modified. Appropriate sound effects may also be added. The approach taken by Gildas Trébaol creates a platform for many such explorations. It should be noted that whereas the SVG animations of Group A can be downloaded for modification by users from this site, download possibilities for the later SVG and SWF versions, and the programs by which they are generated, are only available from the site of Gildas Trébaol (as he [describes](#)).

In summary, **future design improvements**, might include user choice of: hexagram sequence of movement (clockwise, anti-clockwise, or random), rate/pace, colour of various features, omission/inclusion of various features (text, emergent symbols, Chinese ideograms), inversion of reading of hexagrams in circle (out=top or in=top), inclusion/exclusion of sound. Also of interest is the possibility of substituting a different set of text labels as explored above in a later experiment (*[Adaptation of the binary coding template to the configuration of conventional values and strategies](#)*).



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