



laetus in praesens

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28 December 2015 | Draft

Radical Localization in a Global Systemic Context

Distinguishing normality using playing card suits as a pattern language

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Introduction

There is currently considerable confusion as to what is to be distinguished as "radical" in contrast to "fundamental", "extraordinary", "exceptional" and "extreme". As discussed separately this leads to conflation whereby any exception to the normal is indicated as radical and is readily subject to demonisation and association with terrorism (*Coming Out as a Radical -- or Coming In? Risks of cultivating negative capability in a caliphate of normality*, 2015; *Radicalisation of Existence and Identity*, 2015; *Radicalisation versus Demonisation?* 2015).

The issue is whether there is some useful way of representing the distinction between normality and extremism, as separately considered (*Norms in the Global Struggle against Extremism: "rooting for" normalization vs. "rooting out" extremism?* 2005). In the latter clarification was sought using the Gaussian normal distribution, otherwise commonly known as the [bell curve](#). The argument was that, at least from a statistical perspective, this offered a distinction between those associated with "normality" (however this might be understood) in contrast with various degrees of "extremism" -- of which the lower degrees could be understood in terms of "radical". By using the distinction of the Gaussian distribution in terms of [standard deviations](#) a more precise indication of such degrees of extremism could be offered. That distribution also offered an indication of the proportions of the population likely to hold views of more or less radical nature.

The issue is particularly clear with respect to political ideology in distinguishing the radical left from the radical right. In the argument which follows the approach is further developed by using the standard deviations of the Gaussian distribution as a means of defining concentric circles -- with the centre indicative of average normality ("Us") and the outermost indicative of extremism of lower frequency of occurrence ("Them"). This allows distinctive forms of "radical" to be associated with an orthogonal axis -- namely with that associated with the fundamental reframing of objective reality at one extreme in contrast with that associated with the fundamental reframing of subjective (existential) reality at the other.

Increasing the complexity meriting comprehension in this way raises a further concern, namely the nature of the schematics by which such distinctions could be represented succinctly and comprehensibly as an invitation to richer discourse about them. The challenge can be framed in terms of the quest for an appropriate [pattern language](#) with which most have a degree of familiarity. Use was therefore made of the four basic patterns of the [suit of playing cards](#) (diamond, heart, spade, club).

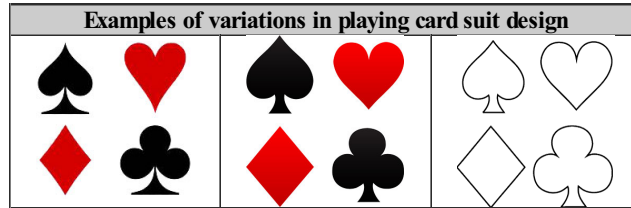
As discussed in the accompanying argument (*Coming Out as a Radical -- or Coming In?* 2015), there is also a case for using such basic patterns in ways suggestive of the insights of the new physics rather than those of the Newtonian worldview within which the distinction of "radical" from "normal" is made in the oversimplistic terms of binary logic. Especially relevant are the notions of [superposition](#), [entanglement](#) and [nonlocality](#) which are characteristic of quantum mechanics. Arguably the confusion of the current psychosocial crises of governance merits such subtle counterintuitive insights -- given the limited strategic options currently offered when framed by the classical perspective.

Playing card suit patterns

Exploration of use of playing cards as the basis for a pattern language is inspired by the extent to which they are so well known, possibly to the point that there is such a set in every home. Familiarity with them dates from early use in games played with children. As distinctive symbols, comparable sets are rare and restricted to particular cultures and educational preferences. Arguably the distinctive

patterns resonate with unconscious modes of distinction -- thereby ensuring their stability over centuries and around the world.

There are many designs of **playing card suits**, Whilst the historical origins of the suits is well known, how they came to have their particular form remains somewhat mysterious (*Origin of French Suit Symbols; The Origin of Playing Cards and their Introduction to European Culture*). Whilst the standard form has 4 suits, there are also **5-suit decks**, **6-suit decks**, and **8-suit decks**. Some are quite distinct from those most commonly used. Even amongst the latter there are variations, of which those depicted below are indicative. For example, clearly the curves of the "heart" lend themselves to a variety of forms -- whether more stylized or not.

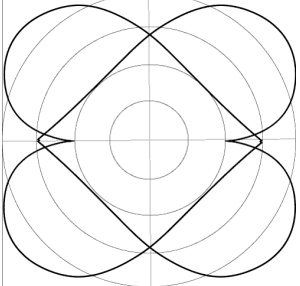
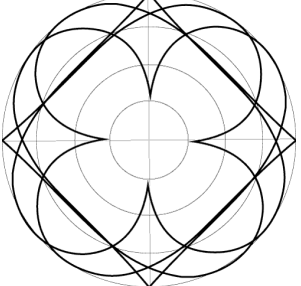
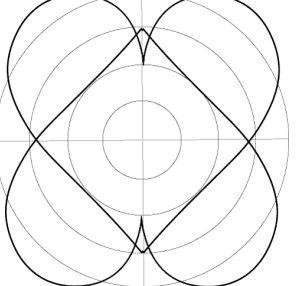


For the purpose of this experimental proof-of-concept exercise, uncoloured outline versions of the central set (as on the right) have been used as the basis of a pattern language. Clearly further experiment could be made with other designs or those which reflect more coherent geometry. The uncoloured outline patterns, when transparent, offer the possibility of superposition, namely the possibility of combining patterns of the same form (or of different forms). The central image below, and that on the right, indicate how the diamond and heart patterns can be respectively nested, for example.

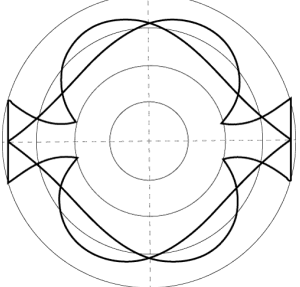
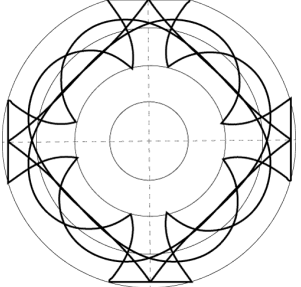
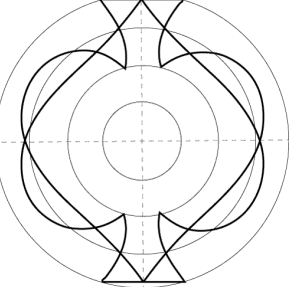
Playing card suit design suggestive of a pattern language		
Gaussian normal distribution indicative of degrees of "extremism"	Use of diamond to clarify simple "linear" distinctions between contrasting degrees of extremism	Use of heart to show nesting of similar patterns oriented horizontally
<p>By dividing the distribution up into standard deviation (σ) units, a known proportion of "extremists" lies within each portion of the curve (either to the right or the left of the norm). Known also as a normal distribution or bell curve, the planar representation above is projected onto concentric circles</p>	<p>Use is made above of the playing card diamond, nested here to distinguish contrasting understandings of radical, fundamental and extreme with respect to their admissibility from a normal perspective. On right and left this corresponds especially to the political / ideological distinction. At bottom this is indicative of that associated with fundamental research calling into question normal understanding of reality. At top this is indicative of excellence, extending into the forms of existential extreme associated with mysticism. Presentation of the diamond along the horizontal axis would be fruitfully suggestive of the conventional challenge to comprehension of the vertical extremes.</p>	<p>Use is made above of the playing card heart, nested to indicate a relationship to the normal distribution curve (on the left). It is appropriate to recall that the form of the normal curve may vary, especially with regard to proportions gathered (increasingly) to left and right, in comparison with those gathered in the centre. Note that the curves of the heart of the rejected suit design approximate more closely to the Gaussian curve.</p>

Clearly the nesting of patterns is achieved by increasing or decreasing the size (scale) of the pattern. The pattern language can be further explored by changing the orientation of the patterns, and duplicating them such that they are superposed, as shown below. In the sets of images which follow, those on the left are based on horizontal overlapping at different scales. Those on the right by vertical overlapping at different scales. In both cases the patterns are variously positioned in relation to the "normality" of the centre or the external "extremes". The images in the central column combine the horizontal and vertical variations from the left and right hand columns

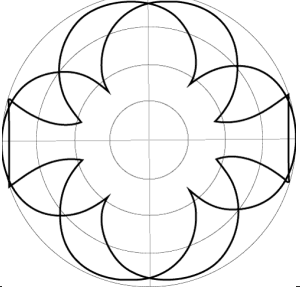
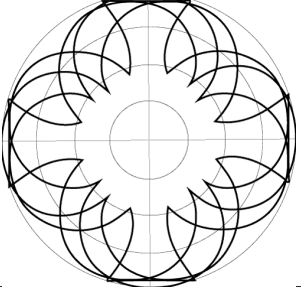
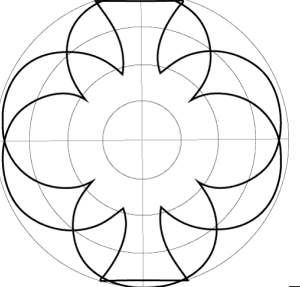
There are many possibilities in each of the three cases. Each is therefore presented as a sequence of images (appearing as an animation) as a means of indicating the richness of this simple pattern language. Clearly such patterns can also be explored using transparencies, namely without recourse to computer-aided display. In this experiment the variants have been scaled (resized) in terms of the concentric circles indicative of increasing degrees of standard deviation, given the interpretation possibilities these then suggest.

Animations of use of playing card heart		
Horizontal overlap of 2 hearts	Overlap of 4 hearts	Vertical overlap of 2 hearts
		

<p>In the image(s) above the emphasis is placed on understandings of "radical" associated with the horizontal axis typical of political/ideological references distinguishing left and right. Together these suggest a modality transcending the right-and-left distinctions -- curiously "governed" by dynamics engendered by the vertical circles</p>	<p>In the image(s) above the horizontal and vertical images from right and left are overlapped. This is suggestive of a mode of transcendence balancing the modalities associated with the images on right and left. Note the emergent diamond-like form.</p>	<p>In the image(s) above the emphasis is placed on understandings of "radical" associated with the vertical axis typical of contrasting distinctions between existential (subjective) radicalism (top) and fundamental (objective) reframing of normality (bottom). Together these suggest a modality transcending the top-and-bottom distinctions -- curiously "governed" by dynamics engendered by the horizontal circles</p>
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Animations of use of playing card spade		
Horizontal overlap of 2 spades	Overlap of 4 spades	Vertical overlap of 2 spades
		

<p>In the image(s) above the emphasis is placed on understandings of "radical" associated with the horizontal axis typical of political/ideological references distinguishing left and right. Of particular interest is the limit indicated by the vertical bar at the base of each spade. Also of interest is the degree of embodiment of the heart pattern.</p>	<p>In the image(s) above the horizontal and vertical images from right and left are overlapped. This is suggestive of a mode of transcendence balancing the modalities associated with the images on right and left. Note the emergent diamond-like form.</p>	<p>In the image(s) above the emphasis is placed on understandings of "radical" associated with the vertical axis typical of contrasting distinctions between existential (subjective) radicalism (top) and fundamental (objective) reframing of normality (bottom). Together these suggest a modality transcending the top-and-bottom distinctions. Of particular interest is the limit indicated by the horizontal bar at the base of each spade. Also of interest is the degree of embodiment of the heart pattern.</p>
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Animations of use of playing card clubs		
Horizontal overlap of 2 clubs	Overlap of 4 clubs	Vertical overlap of 2 clubs
		

<p>In the image(s) above the emphasis is placed on understandings of "radical" associated with the horizontal axis typical of political/ideological references distinguishing left and right. Of particular interest is the limit indicated by the vertical bar at the base of each spade.</p>	<p>In the image(s) above the horizontal and vertical images from right and left are overlapped. This is suggestive of a mode of transcendence balancing the modalities associated with the images on right and left.</p>	<p>In the image(s) above the emphasis is placed on understandings of "radical" associated with the vertical axis typical of contrasting distinctions between existential (subjective) radicalism (top) and fundamental (objective) reframing of normality (bottom). Together these</p>
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suggest a modality transcending the top-and-bottom distinctions. Of particular interest is the limit indicated by the horizontal bar at the base of each spade.

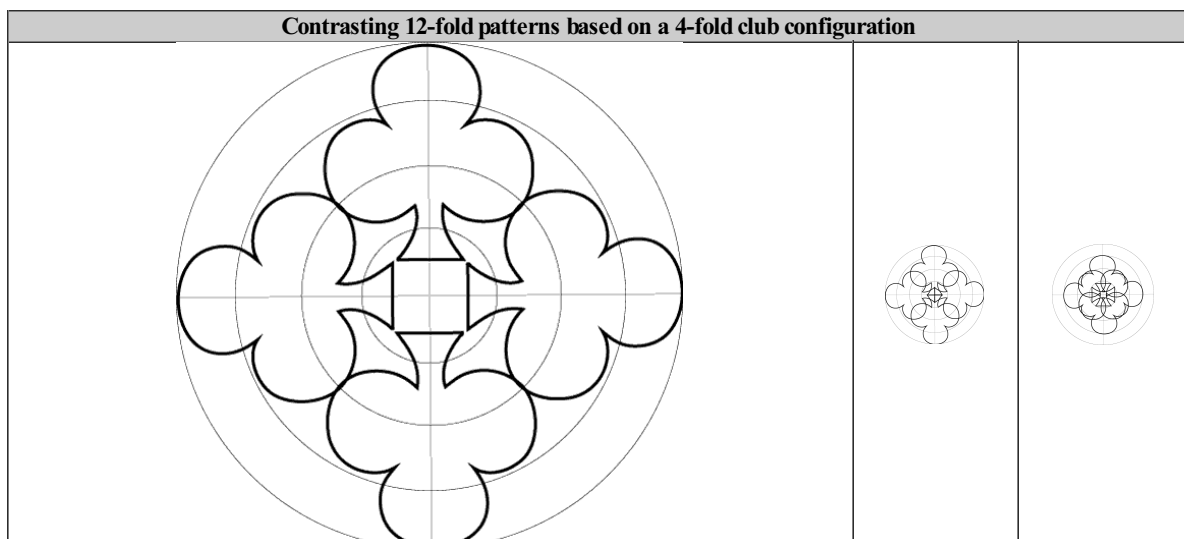
Systemic interpretations of playing card patterns

The particular value of a pattern language lies in its ability to evoke and enable dialogue through speculative interpretation of the significance of the patterns. In so doing it helps to avoid forms of conflation which inhibit the emergence of more subtle insight. Various ways of thinking about such patterns are clustered below.

Systems: Each pattern can be considered as indicative of a systems diagram in which the lines may be directions of movement essential to the coherence of that system. They can be understood as lines of connectivity between disparate functions of some kind.

- **Adaptive cycles and Learning pathways:** The movement can be understood as indicative of an [adaptive cycle](#) through which the [resilience](#) of the system is ensured. This in turn may imply a sense of [learning pathways](#), possibly analogous to [metabolic pathways](#). (*Memetic Analogue to the 20 Amino Acids as vital to Psychosocial Life?* 2015; *Dynamics of polyocular and multifaceted cognitive framing: navigating the adaptive cycle*, 2010)
- **Vicious cycles and Serendipitous cycles:** The pathways may be understood in a cybernetic sense as [positive feedback loops](#) and [negative feedback loops](#). The more complex interlocking loops can be explored in relation to so-called [wicked problems](#) (*Encycling Problematic Wickedness for Potential Humanity*, 2014)
- **"Cyclones":** As cycles, some patterns contain features which recall the cyclones typical of weather reports, offering an implications of cognitive weather in relation to decision-making (*Weather Metaphors as Whether Metaphors*, 2015).
- **Mass effects:** Understood as a centre of mass, the circular movement around it recalls the degree to which light is bent around mass according to the field theories of relativity.
- **Catastrophes:** The movements are also suggestive of various kinds of cognitive catastrophe -- recalling the semiotic interpretations of [catastrophe theory](#) (René Thom (*Semio Physics: A Sketch*, 1990; Peeter Mürsepp, *Semiophysics as a Theoretical Basis for Scientific Creativity*; F.T. Arecchi, *Complexity and Emergence of Meaning: toward a semiophysics*, 2001). There is the tantalizing possibility that a 3-dimensional variant of the patterns of the four suits could be in some way comparable to the elementary catastrophes ([Fold catastrophe](#) (diamond?), [Cusp catastrophe](#) -- heart?, [Swallowtail](#), [catastrophe](#) -- spade?, [Butterfly catastrophe](#) -- clubs?). These are the potential functions of **one** active variable -- in contrast with three additional catastrophes with **two** active variables ([Hyperbolic umbilic catastrophe](#), [Elliptic umbilic catastrophe](#), [Parabolic umbilic catastrophe](#)). Cognitively the set of seven can be explored in relation to distinctive styles of question (*Cognitive Feel for Cognitive Catastrophes: Question Conformality*, 2006). It would be intriguing to discover that the four suit designs reflected an early intuitive understanding of the one-variable catastrophes -- especially since they are characteristic of observable natural phenomena. The additional three might derive from combinations of 3 of the 4 suit patterns (excluding the linear diamond pattern).
- **Ecosystem of diversity:** The distinctive patterns could be explored as cognitive and strategic styles -- a categorization of variety.

Patterns of N-foldness: As presented, distinctive patterns of 2-foldness and 4-foldness are evident. More complex patterns of 8-foldness and 12-foldness can also be derived. Especially interesting in the latter case -- through the 4-fold combination of the club pattern -- are the distinctive foci of 12 possible "voices", as implied in any archetypal round table (*Implication of the 12 Knights in any Strategic Round Table*, 2014). As noted there, particular significance is attached to the 12-fold set (*Checklist of 12-fold Principles, Plans, Symbols and Concepts: web resources*, 2011). There is however little effort to depict what kind of pattern their relationships might form. The following are therefore indicative in this respect.



Of interest in the sequence above is the distinction between the "box" defined by the configuration on the left and the progression indicated by the two other patterns. The first could be considered indicative of the contrast between [thinking outside the box](#) -- in the 12 distinctive domains -- in comparison with thinking "within the box", as a potentially deprecated mode characteristic of the conventions of normality.

The tendency to cluster concepts of any kind into sets of a limited number has been noted separately (*Representation, Comprehension and Communication of Sets: the role of number*, 1978; *Patterns of N-foldness: comparison of integrated multi-set concept schemes as forms of presentation*, 1980)). The question is whether this tendency can be fruitfully supported through a pattern language which suggests possibilities of higher orders of connectivity that merit exploration.

Symbolism: There is a very long tradition of symbolism in the use of playing cards, with many references to a variety of interpretations. The use of the suits as a distinctive pattern language derives from the possibility of exploiting design tools like Adobe Illustrator or Photoshop in order to manipulate and overlap transparent variants of the suit designs. This opens the possibility of a quite distinctive mode of interpretation and engagement with the resulting pattern language. In particular there is a much higher degree of focus on the geometry of the design, the manner in which this "works" aesthetically and cognitively, and the implications for systemic understanding.

Possible lines of further exploration include:

- **Embodying complex insight in a popular gaming device:** It can be argued that there is a particular challenge to embodying insight into a device which encourages buy-in rather than indifference. This is an interesting dilemma in relation to current challenges of governance, as previously argued more generally (*Minding the Future: thought experiment on presenting new information*, 1980).
- **Pattern language use in a game:** The use of playing cards in a wide variety of games is indicative of the possibility of embodying insight into a device which is effectively game-independent, allowing users to choose which game they find meaningful whilst offering a degree of interaction with the underlying patterns. The overlapping explored above allows for 2-person, 4-person, and N-person variants. It is noteworthy that cards are especially used for the 4-person game of [bridge](#) with the connotations that term has for bridging across incomprehension, lack of information and reliance on inference (Giovanni Giachetti, *Playing cards and the rudiments of Bridge*, 2013; Pamela Granovetter, *8 Reasons to Play Bridge, Bridge Today*. The term recalls the importance attached to it by the Emperors of Rome -- as [Pontifex Maximus](#) -- currently one of the [Pope's titles](#). More intriguing is the scarcity of examples of designs of [4-way bridges for transportation](#), but the extensive use of electronic variants (4-way circuit bridges).
- **Mandala/Yantra:** Clearly many of the overlapping patterns indicated above take forms reminiscent of [rose windows](#), [yantras](#), or [mandalas](#). -- with the cognitively integrative functions those may imply, especially those of greater complexity.
- **Hemispheric integration:** The heart pattern is most notably intriguing because of its suggestion of the two hemispheres of the brain and their integration through the [corpus callosum](#), as can be variously argued (*Engendering Viable Global Futures through Hemispheric Integration: a radical challenge to individual imagination*, 2014; *Corpus Callosum of the Global Brain? Locating the integrative function within the world wide web*, 2014). The horizontal integration of right-wing and left-wing ideological perspectives suggested by the heart pattern can then be speculatively complemented by a vertical integration between objective (fundamental) and subjective (existential) perspectives. Arguably, just as two ("horizontal") eyes are required for depth perception, there is another form of stereoscopic perception calling for two ("vertical") eyes with complementary cognitive implications.

Refining appreciation of distinctions by refining pattern geometry

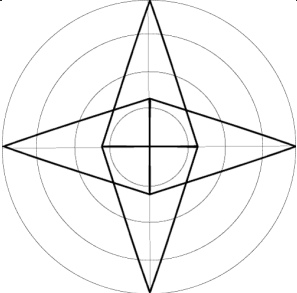
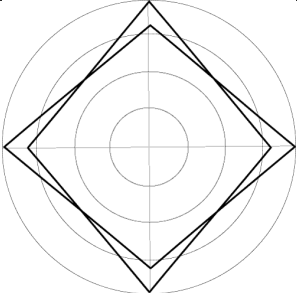
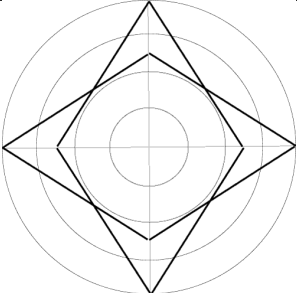
Geometry and design: There is a very long history to playing cards and their design (Catherine Perry Hargrave, *A History of Playing Cards and a Bibliography of Cards and Gaming*, 2012; *A History of Playing Cards: looking at the style and type of the suits*, 2010). Less evident are any studies of why the most common suit designs "work" in their cognitive appeal, as indicated by Joshua Johnson (*Design History: the art of playing cards*, *Design Shack*, 7 November 2011). There is little trace of the considerations governing the proportions of the heart, spade, diamond or club patterns.

As noted above, a particular choice was made in exploring the set of overlapping outlines. In retrospect, the rejected alternative might have been equally instructive -- especially to the extent that the curvature of its heart form appears to approximate more closely to that of the Gaussian distribution curve as represented. It might be suspected that those in common use "work" because of classic proportions embodying the [golden ratio](#), for example.

Golden diamond? This could be evident in the case of the diamond, although it is noteworthy that the sides are slightly bent inward in some variants -- matching curiously the "diamond" patterns engendered by the fourfold overlapping of hearts or spades in the experiments above. Reference is commonly made to the golden rectangle as a basis for proportion in design, most notably in architecture. With respect to the diamond shape, in contrast to the rectangle, there is some corresponding reference to a golden diamond (Koji Miyazaki, *An Adventure in Multidimensional Space: the art and geometry of polygons, polyhedra, and polytope*, 1986; Jay Kappraff, *Connections: the geometric bridge between art and science*, 2001; Steven L. Griffing, *The Golden Section: an Ancient Egyptian and Grecian proportion*, 2007, pp. 161-164).

Griffing notes that a diamond shaped figure can be constructed using two isosceles triangles -- inverted so that they share a base. Additionally it is noted (p. 69) that the variant of the isosceles triangle, known as the [golden triangle](#), has a ratio of either leg to the base equal to the golden ratio and is used in the formation of a [logarithmic spiral](#). It has been known historically as the Sublime Triangle, the Triangle of Plutarch, and the Triangle of the Pentalpha. Each corner of a pentagram is a golden triangle. With respect to any refinement

to the design of the spade or club pattern, consideration could be given to use of a golden triangle as the base.

Comparison of diamond pattern designs in the light of the golden rectangle		
Isocetes-based golden rectangle (golden ratio between side of rectangle and base of triangle)	Playing-card design	Diagonal-based golden rectangle (golden ratio between longer side of rectangle and shorter side of rectangle)
		
Major distinctions are evident on rotation. The implication is that sensitivity to extremes with regard to the ideological axis are matched by minimal sensitivity to the extremes represented by the vertical axis of subjectivity/objectivity). Correspondingly, when there is greater sensitivity to extreme distinctions on the vertical axis, there is relative lack of distinction on the ideological axis.	On rotation, the card suit design makes little distinction between the horizontal and vertical axis as these might distinguish extreme conditions	This variant suggests less contrast on rotation between the sensitivity to extremes on the vertical and horizontal axes.

The contrasting "stories" implied by the pattern designs above recall some of the distinctions made in appreciation in classical Greece of the [golden mean](#) between extremes, notably featuring in consideration of proportions of relevance to governance in an ideal state as envisaged in dialogues by Plato (*Republic*, 619; *Laws*, 691c, 756e-757a). In that respect, many aspect of the arguments regarding ordering patterns in space have their equivalent with respect to patterns of tones over time, as notably articulated by [Ernest G. McClain](#) (*The Myth of Invariance: the origins of the Gods, Mathematics and Music from the Rg Veda to Plato*, 1976; *The Pythagorean Plato: prelude to the song itself*, 1978; *Meditations Through the Quran: tonal images in an oral culture*, 1981). This consideration features in a separate discussion (*Designing Global Self-governance for the Future: patterns of dynamic integration of the netherworld*, 2010).



With respect to comprehension and its extremes (especially with regard to "radical" at the present time), of relevance from that classical Greek perspective is the understanding of *hyponoia*, as discussed separately (*Transforming from Paranoia through Metanoia and Hyponoia?* 2013). A conventional use of the term is associated with deficient or sluggish mental activity or imagination. This pathological condition is also called *hypopsychosis*. Controversially this might be seen as as the condition deliberately sought through the [dumbing down](#) of the population, especially via the media, more effectively to ensure its exploitation.

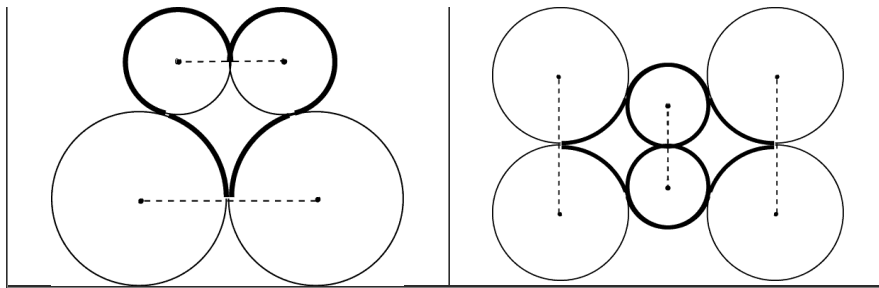
Much more interesting are the historical uses of the term as indicated by this [comment](#) cited in *AlphaDictionary.com* (from the [Etext Center of the University of Virginia Library](#)):

... *Hyponoia* was the term which, [Plutarch](#) tells us (*De audiendis poetic* 4.19), the "ancients" had used, and it implies a hidden meaning, a conjectural or suppositious sense, buried under the literal surface. Plato (*Republic II*. 378d), [Euripides](#) (*Phoenicians* 1131-33), [Aristophanes](#) (*Frogs* 1425-31), [Xenophon](#) (*Symposium III*, 6), all use *hyponoia* to mean what is later subsumed under allegory ([Pépin](#), pp. 85-86). *Hyponoia* furthermore has a noetic character; the reader or listener will have to think his way through a semantic barrier, beyond which lies a realm of mystic knowledge. Thus [Philo Judaeus](#) may equate the *hyponoia* of a text with its latent theme, its mystery, its secret, its unexpressed, unseen, nonliteral, or simply intelligible meaning.

Recent commentary notes that *hyponoia*, as used in the classical period, referred to hidden or allusive meanings, what is now termed [allegory](#). It is indicative of the "veiling function of language" or "an allusion to". [Rosario Garc?a Del Pozo](#) (*The Mirror of Interpretations and Husserlian Discourse, Analecta Husserliana*, 29, 1990, pp. 309-321) notes the suspicion that underneath language, in the shadow of what is said, lies the most important meaning; what the Greeks called "allegory" and "hyponoia". This calls for further exploration in relation to any understanding of "radical", "extreme" and "fundamental".

Engendering the heart pattern using phi: It is to be suspected that the design of the heart pattern has such lasting appeal because it is based in some way on the [golden ratio](#) (denoted by ϕ). The following images are an illustration of this possibility.

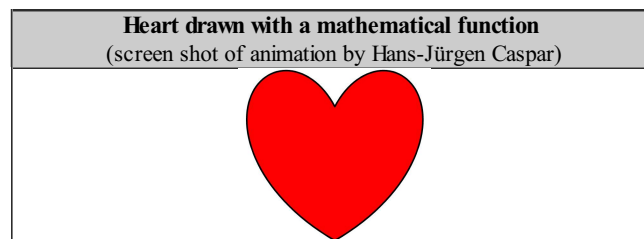
Defining the heart pattern using the golden ratio (ϕ)	
Heart pattern framed by 4 circles (ϕ is the ratio of separation of centres of the smaller circles to that separating the larger)	Heart pattern on the left overlaid (highlighting the relation to the form of the Gaussian distribution curve above)
	



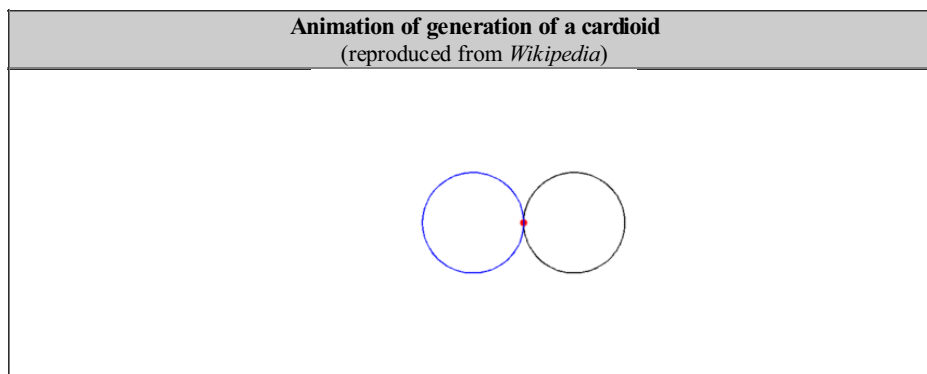
The image on the left invites reflection on its relation to the chambers of the heart and to the dynamics basic to the function of the heart as they might be represented by expansion or extraction of the various circles, possibly with phi as a norm. Also of interest is the sense in which the smaller circles define the pattern from **within**, whereas the larger circles define it from **without**. These considerations then invite reflection on the image on the right (notably in relation to the form of the final animation below).

Heart curve: Many approaches to drawing a heart with mathematical assistance are listed by Jürgen Köller (*Heart Curve*, 2004) with numerous examples and links. A useful overview of heart variants and the functions generating them is provided by Eric W. Weisstein (*Heart Curve*, *MathWorld*). Notable is the freeware available for generating many such variants (Rick Parris, *Winplot for Windows*; application [examples](#)).

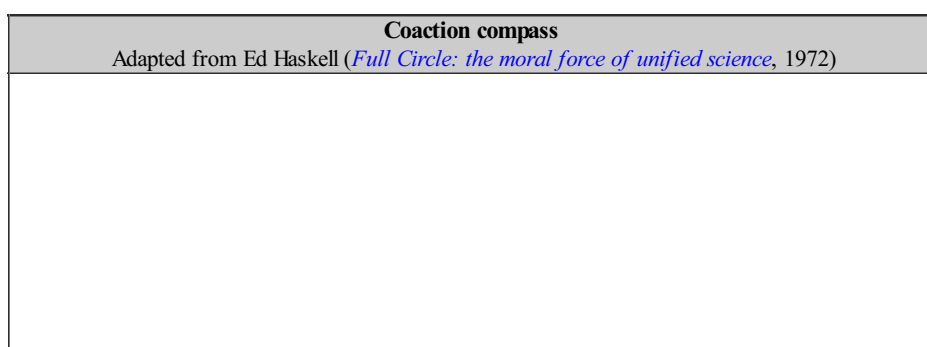
One mathematical formula for rendering of a more standard variant of the heart is presented by Hans-Jürgen Caspar (*Draw a Heart*; *Program script*; *Ausgewählte, in der Analysis untersuchte Kurven*).

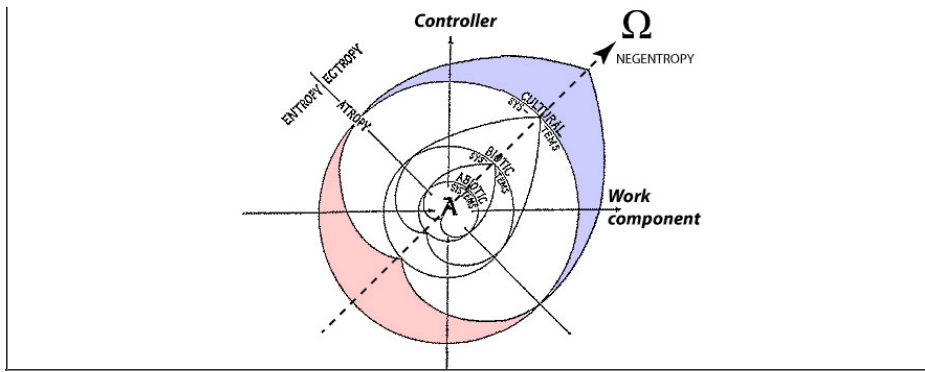


Reframing the heart pattern in terms of the cardioid: It is also to be suspected that the form of the heart pattern might conform to a particular mathematical function. One such function, the **cardioid** (meaning "heart") does not engender the heart as commonly designed. The manner of its generation in geometry -- as shown by the animation from the *Wikipedia* description below -- is however of potential interest to further investigation of systems dynamics.



As separately discussed (*Cardioid Attractor Fundamental to Sustainability: 8 transactional games forming the heart of sustainable relationship*, 2005), such a pattern, suggestive of the heart pattern design, merits further exploration in the light of the extensive work of [Edward Haskell](#) on the coaction cardioid, as schematically summarized below. This usefully distinguishes the mathematical form of the cardioid (and the manner by which it is generated) from the typical representation of the heart suit pattern. Note that the cardioid is nested **within** a pattern with which Haskell has associated a form more closely recalling that of the heart suit -- by supplementing the cardioid with a colour-shaded area (and its complement).



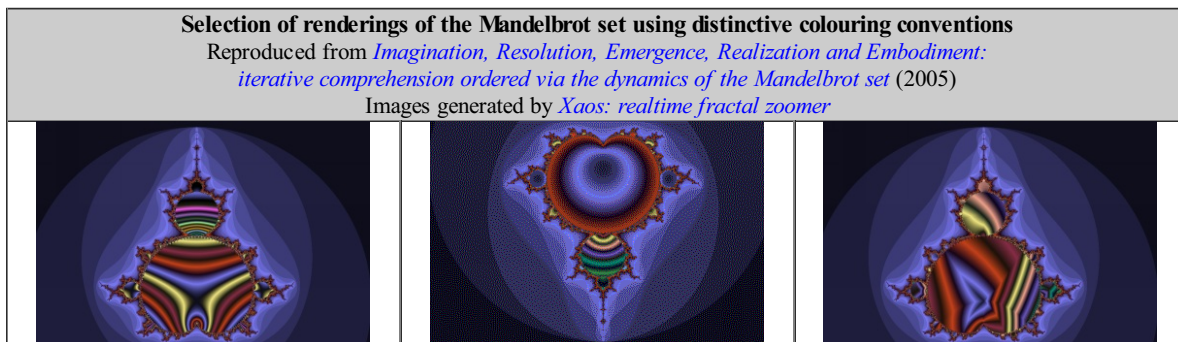


The implications of the coaction cardioid have notably been a preoccupation of [Timothy Wilken](#) (*UnCommon Science*, 2001). Also of relevance is the form of the [evolute of the cardioid](#).

Mandelbrot heart or set of clubs? The cardioid merits much further attention in that it is the principal feature of the visual rendering of the [Mandelbrot set](#), as discussed separately (*Sustainability through the Dynamics of Strategic Dilemmas -- in the light of the coherence and visual form of the Mandelbrot set*, 2005; *Psycho-social Significance of the Mandelbrot Set: a sustainable boundary between chaos and order*, 2005).

To the extent that "radical localization" requires consideration of non-linear functions, the Mandelbrot set fractal corresponds to the simplest nonlinear function -- but is also as complicated as a fractal can get. It distinguishes the simplest boundary between chaos and order. This sense is clearly central to conventional strategic security preoccupation with the chaotic challenge of any radical extreme -- as a manifestation of disorder disruptive of ordered normality. With respect to the relationship between the form of the cardioid and that of the heart, and missing from the cardioid approximation to the heart, is the manner in which the Mandelbrot rendering (appropriately oriented) could be understood to have a significant "tail" complementing the "cleft" at the other end.

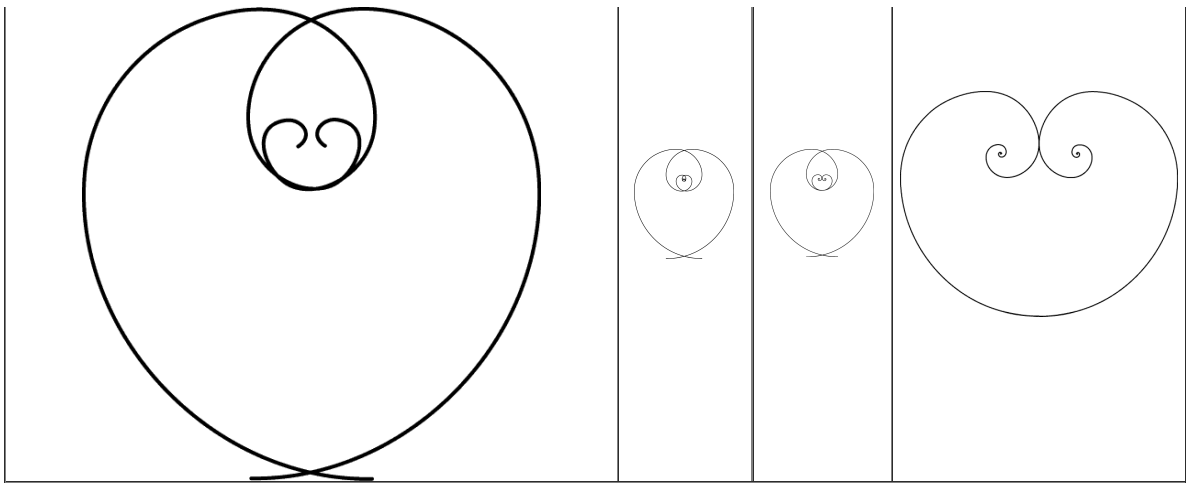
As indicated by the images below, of further interest is the possibility of rendering the set with colours so as to highlight zones both inside and outside the main boundary of the form. These suggest a means of exploring degrees of both normality and extremism in a new way -- whilst offering another way of framing the nature of the boundary between them. The emergence of what are termed "bulbs" around the central cardioid correspond to a curious degree to the design of the clubs pattern (if the [period](#) does not exceed 3). The rendering thus combines associations to both heart and clubs.



Given that the preoccupation with radical location (and the "misbehaviour" of extremists) is framed in terms of [risk analysis](#), it is appropriate to note the recognized relevance of the Mandelbrot set to risk analysis in the financial markets ([Benoit Mandelbrot](#) and Richard L. Hudson, *The Misbehavior of Markets: a fractal view of financial turbulence*, 2006; Justin Fox, *Why didn't people in finance pay attention to Benoit Mandelbrot?* Reuters, 18 October 2010; Martin Hutchinson, *What We Can Learn From The Stock Market Genius That Wall Street Loves to Ignore*, Money Morning, 20 October 2010). Given the normal distribution by which the above argument has been developed, it is noteworthy that Mandelbrot introduced an understanding of [seven states of randomness](#) with respect in probability theory, fractals and risk analysis as an extensions of the concept of randomness as modeled by that normal distribution. His classification builds upon the three main states of randomness: mild, slow and wild. Understanding of radical extremism merits exploration in such terms, as suggested by Judith K. Boyd (*Solving homegrown violent extremism through fractal geometry?* Homeland Security Watch, 14 May 2010).

Experimental use of Fibonacci spiral to "reverse engineer" the heart and other patterns: In the absence clear indications of the origin of the semi-standard suit designs, the question is whether there is a geometrically "purer" design based on proportions of known aesthetic significance. In that respect it is the [Fibonacci spiral](#) which is of special interest as one of the approximations to the [golden spiral](#) with its particular embodiment of the golden ratio, indicated by the Greek letter phi (Mario Livio, *The Golden Ratio: the story of phi -- the world's most astonishing number*, 2002). Although [contested](#), the heartbeat has itself been related by some to phi and the Fibonacci pattern (Gary Meisner, *Human Heartbeat and Fibonacci Patterns*, GoldenRatio.net, 13 May 2012).

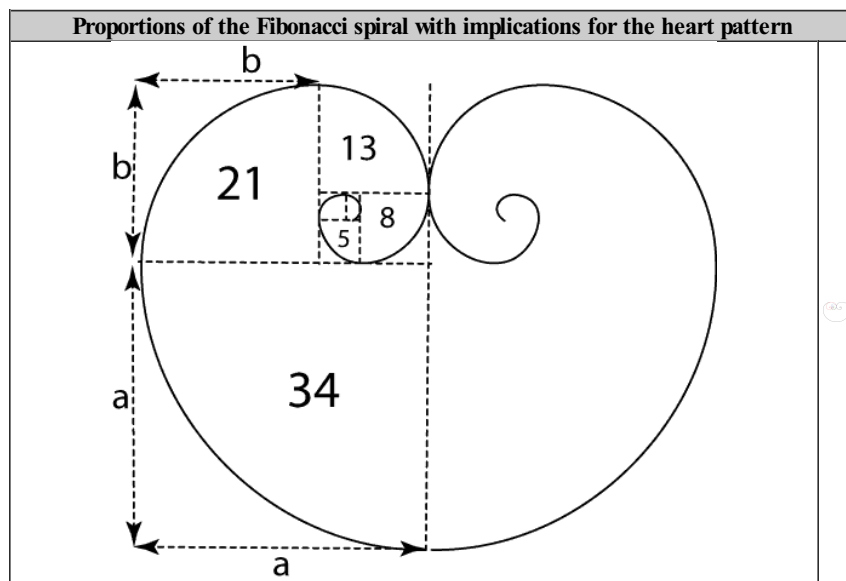
Stages in progressive pairing of mirror images of Fibonacci spiral to derive a cardioid-like variant of the heart pattern			



Of further interest is the degree to which approximations to standard suit designs could be derived from the pairing of the Fibonacci spiral in the image on the right above. The question is whether relevant curves could be used from within the paired pattern. Possibilities are indicated below without rescaling any constituent portions of the pattern.

Experimental derivation of suit designs from Fibonacci spiral		
Heart pattern	Spade pattern	Club pattern

Of interest in relation to this argument are the proportions of the Fibonacci spiral with their implications for the heart pattern. These are illustrated by the following. The golden ratio is derived from the proportions a/b from the image on the left, namely 1.618. How might such a proportion be of significance to the appropriate proportions of "radicals" in any group?



The value of the Fibonacci spiral has also been discussed separately with respect to designing a mapping of a Chinese metaphorical pattern language (*Adaptive Hypercycle of Sustainable Psychosocial Self-organization*, 2010). It is noteworthy that one of its manifestations in nature, the [marine nautilus](#), is valued both as a symbol of educational development and of strategic appropriateness ([New Zealand Curriculum Nautilus](#), [Nautilus Institute for Security and Sustainable Development](#)).

Exploration of the pairing of the spirals can be seen as consistent with the existence of both clockwise and counter-clockwise variants, namely the issue of their [chirality](#) (Chaorong Li, et al, *Stressed Fibonacci spiral patterns of definite chirality*, *Applied Physics Letters*, 90, 2007, 164102; Lisa Zyga, *Scientists find clues to the formation of Fibonacci spirals in nature*, *Phys.org*, 1 May 2007; Chaorong Li, et al,

Stressed Triangular Tessellations and Fibonacci Parastichous Spirals, *Advanced Materials*, 28 August 2009). The relevance to social systems is indicated by related commentary, included valuable illustrations by David Petch (*Stock Market Cycles Chirality and Chiral Inversions*, *Market Oracle*, 22 October 2013; *The Contracting Fibonacci Spiral*, *Technical Analysis of Stocks and Commodities*, April 2013; *Markets Trapped in a Contracting Fibonacci Spiral, Point of Singularity in 2019*, *Financial Sense*, 13 July 2011).

Finding the radicalising and the radical in a systemic context

The point of departure for this argument was the distinction made with the aid of the Gaussian distribution, namely those based on the standard deviation from the normal. A particular distinction is made between 1, 2 and 3 standard deviations. The question raised in whether a useful understanding of "extreme" and "radical" can be recognized in terms of such deviations from the norm.

Six Sigma: Of particular interest in this respect is the **Six Sigma** approach (notably as summarized in the *Wikipedia* commentary). This is a disciplined, data-driven approach and methodology for eliminating defects (driving toward six standard deviations between the mean and the nearest specification limit) in any process -- from manufacturing to transactional and from product to service. The process is one in which 99.99966% of all opportunities to produce some feature of a part are statistically expected to be free of defects (3.4 defective features per million opportunities). It therefore extends the deviation in the schematics above from 3 sigma to 6 sigma -- implying an even greater degree of exclusion of the exceptional, the anomalous and the abnormal in the quest for normality of the highest "purity".

The earlier study of *Norms in the Global Struggle against Extremism: "rooting for" normalization vs. "rooting out" extremism?* (2005) explored the relevance of this approach with respect to extremism, notably elaborating the following table.

Estimate of number of Muslim "extremists" according to different definitions of "extremism" (reproduced from <i>Extremism as a quality control problem (Six Sigma methodology)</i> , 2005)					
Six Sigma "Extremism" (incl. sigma +1.5 process correction)	UK Muslim "extremists" (in population of ca. 1,600,000)	US Muslim "extremists" (in population of ca. 6,500,000)	World Muslim "extremists" (in population of ca. 1,600,000,000)	Standard deviation "Extremism" (excluding 1.5 sigma drift factor)	
				percentage	sigma (σ)
Sigma 1 ("normal")	(1,104,000)	(4,485,000)	(1,104,000,000)	68.268957%	1
Sigma 2	492,800	2,002,000	492,800,000	4.55003%	2
Sigma 3	106,880	434,200	106,880,000	0.26998%	3
Sigma 4	9,936	40,365	9,936,000	0.00634%	4
Sigma 5	368	1,495	368,000	0.00006%	5
Sigma 6	5.4	22.1	5,440	0.000036%	6

From this perspective, the earlier study concluded that with respect to the Muslim population of the UK (as an example):

- extremism beyond the **Sigma 6** level, suggests that there would be of the order of 5 such extremist individuals in the UK Muslim population. This might well be seen as corresponding to the number of "radical clerics" which it is planned to exclude from the UK.
- extremism beyond the **Sigma 5** level, would presumably correspond to the number of individuals with a propensity for **active terrorism** against the UK and its citizens.
- extremism beyond the **Sigma 4** level, would presumably correspond to the number of individuals providing some form of **active support** for those playing a more active role.
- extremism beyond the **Sigma 3** level, would presumably correspond to the number of individuals providing some form of **passive support** for those playing a more active role. These would presumably correspond to the *Daily Telegraph's* survey results showing, for example, that 6% of British Muslims -- 100,000 people -- believed the London bombings were fully justified.
- extremism beyond the **Sigma 2** might correspond to the numbers with a **sympathy for extremist action**. A poll in the UK (22 July 2005), indicated that around a quarter of British Muslims (namely of the order of 400,000) have some sympathy with the motives of the London bombers, if not their methods while a third believe Western society is "immoral" [more]
- the average Muslim (**Sigma 1**), representing some 68% of the UK Muslim population, would not have tendencies defined as extremist. It is primarily they who are being challenged to root out the "death cult" in their midst. It is however they who are experiencing the consequences of profiling by the new policing and surveillance policies, and the scapegoating by other groups in the British population.

Extremism framed mistakenly in unidirectional terms: The value of the use of concentric circles in the argument above is that it highlights the existence of extreme deviation from the norm in **multiple directions (rather than a single direction)**, notably contrasting those emerging at the extremes of the left-right ideological spectrum. In particular it highlights the orthogonal spectrum from the extreme ("objective") fundamentalism of physics to that of ("subjective") existential experience.

Clearly, understood in this way the question is raised in which "direction" it is fruitful to search for the "radical" and to expect to locate those embodying such worldviews as "radicalists". Expressed otherwise, **what is the "direction" of radicalisation** and how is the process to be recognized with respect to any orientation between the axes identified in that way?

Rather than radicalisation being understood simplistically as a unidirectional process, **radicalisation clearly has multidimensional**

implications. These are currently ignored in political and media framings and presentations. As noted separately, there is considerable irony to the appreciation conventionally accorded to exemplars such as Jesus, Einstein, Galileo, Pope Francis, and Prince Charles -- all of whom have been described as "radical" (*Radical exemplars disruptive of normality* 2015).

Extremism as "them" in contrast with "us": There is obviously a sense in which the collective "us" -- people "like us" -- is associated with the norm as the central circle in the schematic above. The concentric circles of greater diameter then define where those "less like us" (to varying degrees) are to be found. It is in the outer circle that those "least like us" are to be found -- naturally then to be understood as embodying "extremism" and appropriately labelled "extremist".

The difficulty again is the axis on which this difference is perceived. How is the existential fundamentalism of radical philosophy to be distinguished from that framed as political and ideological? A second difficulty of course is that the norm for any group (on any axis) relocates the set of concentric circles -- thereby potentially positioning as extreme what is otherwise defined as normal, as in what is considered distinctively normal in different cultures. Hence the statement: *One man's terrorist is the other man's freedom fighter*

Incomprehension associated with extremism: The concentric circles around the norm offers further insight through recognition that the inner circle is indicative of a mode and degree of comprehension considered normal -- even average. Surrounding circles are then suggestive of degrees of incomprehension or relative comprehension in terms of the normal perspective. Any higher degree of comprehension may be associated with incomprehensibility from a normal perspective. The outermost circle is then indicative of forms of comprehension which are inherently incomprehensible from any normal perspective -- typically requiring that they be reframed through simplification, stereotypes and caricature.

Obvious examples of this are provided by the radical insights of physics, comprehensible only to the very few from a normal perspective. Mystics offer another example.

Especially intriguing is how normal understanding is framed from such extreme perspectives. As is to be expected, a degree of deprecation (possibly regretful) and caricature is evident in this process.

Extreme individualism in relation to community normality: Clearly there is an implication that the central norms are defined by the larger community of "people like us". The concentric circles then offer a way of understanding increasing individualism as a form of increasing extremism -- whether in terms of political ideology (right or left), fundamental physics, or mysticism of some kind.

Extreme fear and terror: The set of concentric circles offers a means of exploring degrees of fear with which extremism and radicalism may be associated. The implication is then that normal "people like us" are best understood as living lives free of fear, or that any fear is somehow integrated as a characteristic stimulus of daily existence. Greater fear, challenging that norm, is then to be associated with surrounding circles of increasing diameter.

Of particular interest is the curious extent to which those living a normal existence cultivate the experience of fear to varying degrees:

- **Movies:** This is most obvious in daily consumption of "scary" movies and TV programmes as notably documented by *Wikipedia* (*List of natural horror films; List of horror films; List of monster movies; Vampire movies*). These are variously rated (*Top 100 Horror Movies*).
- **Violent online games:** These may be appreciated because of the thrills they offer and specifically the identification with terror engendered and experienced (*List of controversial video games*). It is appropriate to note that the phrase *gruesome but necessary* features prominently on the web in relation to one such game *World of Warcraft*. This was used as a training simulation by a westerner prior to an act of homegrown terrorism, with implications separately explored (*Gruesome but Necessary: Global Governance in the 21st Century? Extreme normality as indicator of systemic negligence*, 2011).
- **Dangerous sports:** Clearly some sports are cultivated because of the associated risk and the "adrenalin rush" they offer. This is especially evident in the case of **extreme sports**. The quest for speed -- as with bikes, cars, skis -- can be explored in such terms.
- **Fairground rides:** Many are designed to offer degrees of fear and these are enthusiastically explored or rejected as "too scary"

The curious relation to "terror" can be recognized in the very common appreciation of experience as "terrific" -- including sexual intercourse, despite any commonly associated fears. It could even be said that failure to qualify an experience in such terms would be a significant indicator that its repetition would not be sought, with major commercial implications if it was provided as a service. How much "terror" do people tend to require in their daily lives -- and what is felt to be missing if it is removed?

Of relevance is understanding of a culture of fear in which fear is deliberately incited in the general public to achieve political goals (Uli Linke and Danielle Smith, *Cultures of Fear: a critical reader*, 2009; Frances Moore Lappe and Jeffrey Perkins, *You Have the Power: choosing courage in a culture of fear*, 2005; Frank Furedi, *Politics of Fear: beyond left and right*, 2005; Wole Soyinka, *The Climate of Fear*, 2004; David L. Altheide, *Creating Fear: news and the construction of a crisis*, 2002).

The focus on terrorism can be explored in such terms, as discussed separately (*Promoting a Singular Global Threat -- Terrorism: strategy of choice for world governance*, 2002). It could even be said that the daily media coverage of the reality violence and disaster offers a perverse form of entertainment increasingly indistinguishable from that offered virtually in fictional form.

More generally, given the existential fears with which daily life is associated (food, health, unemployment, social security, etc), normal people may have increasing resource to psychoactive substances to mitigate any such sense of fear. Ironically the addiction to "terrific" experience is then complemented by addiction to substances which suppress or regulate that experience -- or offer terrific experiences in another mode.

Dynamics and nonlocality: A significant implication of the above patterns is the suggestion of movement, whether understood in system terms as dynamic connectivity or as learning pathways. Both are of relevance to resilience and any recognition of an adaptive cycle in response to contextual change. This reframes the question of "where" any "radical" might be located when this might well be

more appropriately understood in terms of an [uncertainty principle](#). This would then call into question the precision with which the position and momentum of a "radical" might be determined. The possibility of an analogue has been envisaged for the social sciences ([Garrison Sposito, Does a generalized Heisenberg Principle operate in the social sciences? Inquiry](#), 12, 1969, 3, pp. 356-361).

This suggests the curious possibility that from a normal perspective the location and identity of a "radical" may be readily determined, whereas from the perspective of a "radical" identity may well be primarily associated with movement -- with little attachment to a fixed location, whether physically or in cognitive terms. In the physical case this is consistent with guerilla tactics and the corporate appreciation of strategic nimbleness. In the cognitive case this may well be fundamental to the innovative creativity through which multiple possibilities are explored. The essence of radical creativity may well be understood in terms of the cognitive capacity to move between domains.

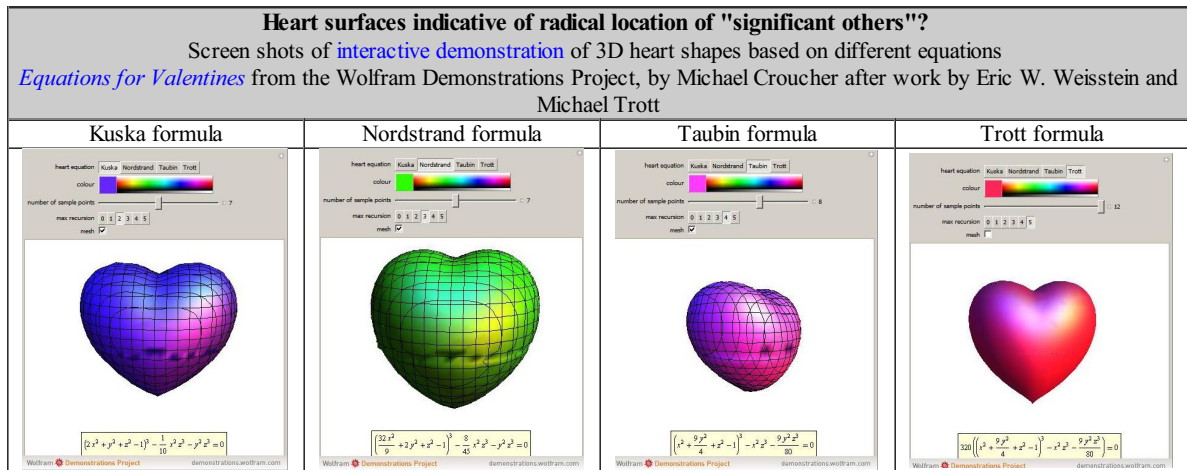
In the light of the reframing offered by fundamental physics (as noted above), this raises the question of the relevance of [nonlocality](#) with respect to any conventional effort to "locate" a "radical" in a global context. In terms of the existential philosophy of [Jnana Yoga](#) and [Advaita Vedanta](#), this recalls the Sanskrit expression *Neti Neti* -- meaning "not this, not this", or "neither this, nor that".

The advocated use of playing card suits as a pattern language then serves to highlight one of the most common uses of such cards, namely in [gambling](#). Understood as making a decisive commitment (notably an investment through [bidding](#)) in prediction of an outcome, the process clarifies the degree of uncertainty with which localizing "radical" may be associated -- and the risky manner in which resources are committed to any prediction. The point is further emphasized in the use of playing cards in the (fairground) [confidence game](#) commonly known as [Find the Lady](#) (or Three-card Monte). Are insights to be derived from this -- perhaps reframed as Find the Radical? Is this the game that government and the media may find it convenient to play with the general public in framing what should be most feared?

Ironically there is even the possibility that the playing card pattern language could be used to explore the extent to which current formulation of global governance bears any resemblance to the long tradition of [cartomancy](#), as a means of fortune telling -- variously exploited by governors of the past.

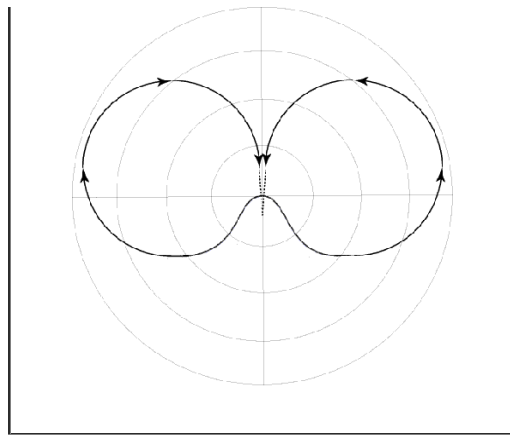
Pattern enfoldment and 3-dimensionality: Of particular interest is the manner in which the patterns could take 3-dimensional form, with all that that might imply cognitively. Each of the basic patterns (heart, diamond, spade, clubs) could for example be rotated on the vertical axis (possibly when inverted). Some would then be strikingly reminiscent of the architecture of domed buildings, like mosques, the White House, or St Peters (Rome).

There are various approaches to generation of 3D heart shapes. Least relevant are those which give depth to the 2D image ([Four Ways to 3D Hearts, Graphicssoft.about.com](#)). The [Bonne map projection](#) has the globe projected onto a heart-like shape. Of greater relevance is the work of [Gabriel Taubin](#) and Eric W. Weisstein, as variously noted ([Heart Surface MathWorld](#); Ivars Peterson, [Algebraic Hearts, ScienceNews](#), 6 February 2002). Recalling the comments above on the relevance to catastrophe theory, the latter notes that a heart surface has several singularities, including a sharp point at the bottom and a deep indentation at the top. Images are presented by [Michael Trott](#) of a heart surface coloured according to Gaussian curvature and direction.



Especially interesting however is the possibility that the planar set of concentric circles (within which the patterns are portrayed above) could "fold up" (or "curl up") from the outer circle, closing over the central focus with which normality is associated. In 3 dimensions the central cleft in the heart pattern would then be reminiscent of that between the hemispheres of the brain, as mentioned above with respect to hemispheric integration. A speculative indication of variants of this process (using the cardioid and fibonacci forms) is offered below as an aid to reflection

Speculative animation of extremes "informing" the norm
(and suggestive of other variants)



This would be especially significant to the extent that each concentric layer towards the extreme is indicative of increasing self-reflexivity -- a higher order of cybernetics in the sense explored by [Maurice Yolles](#) and Gerhard Fink (*A General Theory of Generic Modelling and Paradigm Shifts*, *Kybernetes*, 44, 2015). With respect to discussion above of the focus of Six Sigma on six standard deviations (increasing the depiction of concentric circles to six), this helps to frame the question of the relative frequency with which different orders of cybernetics come into play. With the Six Sigma methodology so framed, this calls for appreciation of the kinds of questions asked to achieve self-reflexivity of such a high order.

However this might be comprehended, the folding back to the centre recalls arguments regarding the cognitive implication of radicalising the present moment of ordinary normality, notably explored by [Francisco Varela](#) (*The Embodied Mind: cognitive science and human experience*, 1991) -- namely the radically reframed understanding of *nowness* discussed separately (*Present Moment Research: exploration of nowness*, 2001).

Radical embodiment? Such self-reflexivity features notably in the work of [Douglas Hofstadter](#) (*I Am a Strange Loop*, 2007). Is it only in periods of crisis that **extreme thinking becomes the norm** in this way -- for example, as variously argued (Ché Ramsden, *COP21: forget 'the future', we need a more radical present*, *Open Democracy*, 30 November 2015; James Zogby, *The 'New Normal'*, *The Huffington Post*, 2 January 2016) ?

This suggests an avenue of exploration of the cognitive space of the jihadist and offers a particular twist to future consideration of the emergence of so-called "homegrown terrorism". Any reference to the central "cleft" of the heart pattern, positioned in relation to a rock-like central norm (as implied images in the above animation), then offers the provocative association to the popular Christian hymn *Rock of Ages, Cleft for Me* -- especially with its second line: *Let me hide myself in Thee*. As noted in the *Wikipedia* description, the words have been held to be the most profound, inspiring, encouraging, sacred, devotional, and precious words ever penned.

The visual rendering of the movement in the animation above is reminiscent of what is learnt from the aerodynamics of the flight of birds, as explored separately in relation to extremes (*Counteracting Extremes Enabling Normal Flying: insights for global governance from birds on the wing and the dodo*, 2015). The spectrum through the normal, as echoed by the political right and left, is curiously reminiscent of the current strategic quest for **full-spectrum dominance**, as separately argued (*Embodying Global Hegemony through a Sustaining Pattern of Discourse: cognitive challenge of dominion over all one surveys*, 2015).

Learning as radicalising? As now conventionally framed, radicalising is understood in linear terms as mistaken acquisition of perspectives on the political/ideological axis -- readily conflated with Islamisation, despite indications of right-wing radicalisation. Understood as linear thinking this excludes consideration of what has until recently been valued as **lateral thinking**, non-linear or **vertical thinking**, as variously discussed (Peter H. Diamandis, *The Difference Between Linear and Exponential Thinking*; Adriana Gil Miner, *Mind Maps: non-linear thinking*; Eric D. Brown, *The Problem(s) with Linear Thinking*, 2007; Kim Hudson, *Are You a Circular or a Linear Thinker? Two Culture Talks*, 2013)

Restriction to linear thinking therefore precludes consideration of forms of learning characteristic of the development of the valued creativity and inspiration associated with fundamental physics, radical art and mystical philosophy, however these may be appreciated or deprecated from a conventional perspective. In a global civilization in crisis, it also precludes the need of many urgently to radicalise their thinking in order to adapt more appropriately to changing circumstances, as separately explored (*Radicalisation of Existence and Identity*, 2015). Presumably the thousands of migrants fleeing zones exposed to "radical" military strategies of bombardment are usefully to be understood as radicalising their worldview in contrast to the normality endangered by that bombing.

In the current period it would appear that the learning associated with radical perspectives -- radicalising -- is increasingly framed as a monopoly of jihadism. No academic environment could now dare to promote "radical thinking" or imply that their environment enabled the development of "radical insights" through a learning process which might otherwise be termed "radicalising" and potentially enabled by **critical thinking**. Curiously it could be said that this effectively confines academia to thinking "in-the-box" (as noted above) -- for fear of exposure to the dangers of the abnormal and the condemnation which such contagion might attract.

Government, corporations and the military are similarly precluded from elaborating "radical solutions" to the crises of the times -- at least in terms which might invite public commentary. It is then to be expected that replicating the failures of the past is to become the norm, according to insights such as the following:

- [George Santayana](#): *Those who cannot remember the past are condemned to repeat it*
- Albert Einstein:

- *The significant problems we face can not be solved at the same level of thinking we were at when we created them.*
- *To repeat the same thing over and over again, and yet to expect a different result, this is a form of insanity.*

Strangely this suggests the re-emergence of a form of fortress mentality with a degree of replication of cognitive analogues to the defensive architectural features of the **fortress** of the past (**bastion**, **embrasure**, **casemate**, moat, drawbridge, and the like). Those taking the form of layers of concentric walls around a central keep are of particular interest -- especially in terms of the design of gates and the features from which outsiders could be repelled -- with provision for retreat to a central **keep**. Construction of military bases, corporate facilities, prisons, gated communities, and the walling of countries, are physical manifestations of this trend. It could be considered a failure of authority to engage playfully with otherness, as can be variously explored (*Playing the Great Game with Intelligence: Authority versus the People*, 2013; *Reframing the Dynamics of Engaging with Otherness*, 2011; *Radical Unknowing: engaging with otherness through ignorance and emptiness*, 2011).

Future experiment: The card pattern outlines lend themselves to presentation on a simple computer application enabling users to "play" with their superposition, rotation, multiplication, relative scaling, combination, etc -- even colouring them distinctively. These could well be adapted to use in so-called **slot machines** in casinos. Clearly there is the possibility of geometrically "purer" designs to benefit from the aesthetics of the golden ratio. However the purpose is not the design of better playing cards but rather enabling people to play with them as patterns variously evocative of significance. There is further significance to the possibility that the four patterns may constitute particular "solutions", in mathematical terms, to a single more fundamental pattern.

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