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Reframing the Dynamics of Engaging with Otherness

Triadic correspondences between Topology, Kama Sutra and I Ching

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Introduction

The challenge of engaging with "others" and their "otherness" is fundamental to the difficulties of governance at every level of society -- from the global to the individual. One extreme approach is to argue for mutual tolerance between diverse worldviews, as in the [Dialogue among Civilizations](#) adopted as the United Nations Year of Dialogue Among Civilizations (2001). The other is to assert that [you're either with us, or against us](#), as was central to US foreign policy from 2001, and discussed separately ([Us and Them: Relating to Challenging Others](#), 2009). There would seem to be few clues to more fruitful approaches, despite the many group dynamics proposals made by various parties over decades.

There is therefore a case for more radical exploration of ways of reframing the engagement with others -- however speculative the endeavour. In fact it possibly the case that a more radical approach is essential since conventional approaches have proven to be so inadequate. The approach which follows takes three extremely different ways of framing the dynamics of "relationships" -- if not maximally different ways -- and speculates on the possibility of fruitful equivalences between them. This follows from previous arguments for seeking ways of engaging with the improbable ([Engaging with the Inexplicable, the Incomprehensible and the Unexpected](#), 2010). In selecting them, one criterion is that they should be, to a degree, mutually "alienating".

The three selected are:

- **Topology**: as a branch of pure mathematics, this is necessarily abstract and meaningless to most, although through its generality it encompasses many forms of relationship. It is discipline dating back only a century and characteristic of **Western science**. It has many potential applications. Features of it have been "borrowed", most controversially, by psychoanalysis to frame certain understandings of human psychodynamics. It is the least "popular" but the most academically acceptable.
- **I Ching**: this is one of the earliest products of classical **Chinese thinking**. At one extreme it is an exercise of high abstraction, highly valued for its numerous philosophical implications. It centres on the ideas of the dynamic balance of opposites, the

evolution of events as a process, and acceptance of the inevitability of change. It provided inspiration for the binary coding system on which modern computer operations are based. However it is articulated for wider comprehension in poetic form using metaphor. It has been a fundamental guide to strategic decision-making in imperial China. It was also "borrowed", most controversially, by some western alternative movements since the 1960s.

- ***Kama Sutra***: this is one of the classics of **Hindu culture**, written by **Vatsyayana**, and considered to be the standard work on **human sexual behavior** in **Sanskrit literature**. It focuses on many aspects of the relationship between male and female, most notably prior to and during sexual intercourse. It has been "borrowed", very controversially, by various western subcultures as an articulation of what is otherwise widely held to be unmentionable -- however central and fundamental to the preoccupations and processes associated with interpersonal relationships. Focusing on "attraction", its subject matter is most widely and readily understood, whether or not discussion of it is curtailed or suppressed in public.

It is the very differences between the three selected that suggests that their "confrontation" may highlight new possibilities for engaging with "otherness". **Does the degree of difference between them correspond to that between "othernesses" undermining coherent dynamics in the psychosocial system?** Is the "shock" that each implies for adherents of the others a useful criterion? Does this imply the kind of **requisite variety** that is essential for a viable system?

Can speculation on their possible relationship elicit higher orders of meaning from their juxtaposition? Given the importance of sexual attraction and sexual relations to human society, and to the exponential increase in the world population, any insights that enable them to be reframed should merit consideration -- however speculative and tentative.

To what extent are contrasting frameworks, associated with implicit metaphors, conditioning both dominant cultures and those that are emerging -- as argued by Susantha Goonatilake (*Toward a Global Science: mining civilizational knowledge*, 1999) -- and separately discussed (*Enhancing the Quality of Knowing through Integration of East-West metaphors*, 2000) ?

Essentially **the concern here is whether "confrontation" of a set of unconventional approaches, characterized by disparate cognitive languages, can enable new forms of "traction"** -- in a world where the many marvellous models, strategies and worldviews are much challenged to ensure **political traction, social traction, and psychological traction** in relation to global challenges.

Of special interest in the three cases selected is the manner in which each constitutes a distinct form of pattern language. The question is whether such languages, together, reframe a context for more fruitful "human intercourse".

Qualitative similarities and differences

The three selected cases reflect the following criteria:

- possessing a degree of legitimacy to quite different disciplines and audiences, each being likely to deprecate (or to consider meaningless) the preoccupations of the other -- even distasteful and totally alien
- emerging from totally distinct cultural frameworks, conditioning the associated "language" of each
- potentially understood as implying very fundamentally comprehensive perspectives, which encompass (if only metaphorically) the fundamentals of relationship
- implying profound significance, irrespective of the "superficial" uses to which they may be primarily put
- encompassing the dynamics of relationship which readily elude conventional comprehension -- typically reliant on static categories and thereby engendering the (problematic) catastrophes characteristic of psychosocial dynamics
- descriptive of different kinds of "connectivity", from the logico-mathematical approach of topology, through the philosophical-relational dynamic of the *I Ching*, to that of the interpersonal relationships in the *Kama Sutra*

Individually, or in combination (typically of two, excluding one other), they hold:

- an implicit, all-encompassing philosophical framework, namely subject to interpretation from a philosophical perspective
- an ordered articulation of diversity and its inherent dynamic
- a logico-mathematical articulation or encoding
- a metaphorically apt means of enabling wider understanding, notably through their distinct use of symbolism and its engagement of cognition
- an engagement with an emergent future, and possibly with an associated sense of potential and entelechy
- typically reduced to more mundane preoccupations, variously deprecated: applied maths, divination, and sex.

The commonality which triggered this exploration is the intriguing role played by the 64-fold pattern in all three cases. It remains to be discussed whether this enables a fruitful degree of cross-mapping between the domains.

Especially relevant is the connectivity implied by each pattern, namely the extent and nature to which a degree of connectivity is recognized through use of each -- possibly through metaphorical associations and correspondences.

Each may be understood as related to ways of "doing twoness", of "doing binary relations", or even of "forms of intercourse" (*Human Intercourse: Intercourse with Nature and Intercourse with the Other*, 2007). This suggests a possibility of identifying variety in what is otherwise undifferentiated in the seeming simplicity of binary relations (*Us and Them: Relating to Challenging Others*, 2009) .

In the sections which immediately follow, the pattern of 64 is highlighted in each of the three cases separately -- for ***Topology, I Ching***, and ***Kama Sutra***. Thereafter the binary correspondences between them are explored in pairs: **Topology ∞ Kama Sutra, I Ching ∞ Topology**, and **Kama Sutra ∞ I Ching**. Use of the infinity symbol as a conjunction in those titles follows from a separate argument

regarding the cognitive relevance of the [Möbius strip](#) and the nature of the complementarity of otherness (*¿ Defining the objective ∞ Refining the subjective ?! Explaining reality ∞ Embodying realization*, 2011).

Unitary: Language of Topology

As a major branch of mathematics, *Topology* is concerned with properties of forms that are preserved under continuous deformation. These include stretching, but no tearing or gluing. The discipline emerged through the development of concepts from geometry and set theory, such as space, dimension, and transformation. It has a notable interest in degrees of connectivity. Related applications include [graph theory](#) and [knot theory](#).

The innovative exploration of *Topology* and catastrophe theory by [Rene Thom](#) (*Structural Stability and Morphogenesis: an outline of a general theory of models*, 1972), further developed by [Christopher Zeeman](#) (*Catastrophe theory. Selected papers, 1972-1977*, 1977), offered a formalization of the intuitive insights of authors from a variety of disciplines (David Aubin, *Forms of Explanations in the Catastrophe Theory of Rene Thom: topology, morphogenesis, and structuralism*, 2004). As noted by Claude Tannery (*Malraux, the absolute agnostic, or, Metamorphosis as universal law*, 1991):

Already today the mathematical and abstract models of [D'Arcy Thompson](#) and Rene Thom strongly suggest that the creation of new forms and the maintenance of old forms depend on fields of action and chreodes (from *chre*, necessary, and *odos*, path), whose subtle combinations bring about not only the crafty bountifulness of nature but also that of our brains. Like magnetic or gravitational fields, the fields that create forms are immaterial, abstract... Rene Thom wondered whether a form of forms might exist, an archetypal chreode which extended into families of forms, and whether, on the tree of these families, those [various] tools and organs might occupy homologous positions. Malraux, too, at the most advanced stage of his meditation on forms created by artists, had to ask himself whether there might exist "a language of forms which transcends civilizations" and whether there might exist forms that he preferred to call primordial rather than archetypal... Rene Thom's rigorous equations give a phenomenal foundation to the intuitions of Goethe and Malraux. (p. 261-262)

Topology has a variety of applications of considerable significance at this time, whereas catastrophe theory has fallen out of fashion in recent decades.

Design and operation of computer processors: For example, as noted by Shih Kuo (*Intel® 64 Architecture Processor Topology Enumeration*, *Intel® Software Network*, 27 September 2010):

Processor topology information is important for a number of processor-resource management practices, ranging from task/thread scheduling, licensing policy enforcement, affinity control/migration, etc. Topology information of the cache hierarchy can be important to optimizing software performance.

Crystallography: *Topology* offers a valuable approach to the study and description of complex crystal structures, notably with respect to the design of new organo-metallic materials with valuable properties. (M. O'Keefe, *Periodic Structures and Crystal Chemistry aka the Topological Approach to Crystal Chemistry*. 2010; M. M. J. Treacy, K. H. Randall, S. Rao, J. A. Perry and D. J. Chadi (1997). *Enumeration of periodic tetrahedral frameworks*. *Zeitschrift für Kristallographie*: 212, 1997, 11, pp. 768-791). O'Keefe has for example categorized and published details of 64 of the 128 optimized uninodal tetrahedral frameworks.

Protein structure: As noted by Minh N. Nguyen and M. S. Madhusudhan (*Biological insights from topology independent comparison of protein 3D structures*. *Nucleic Acids Research*, 19 May 2011):

Comparing and classifying the three-dimensional (3D) structures of proteins is of crucial importance to molecular biology, from helping to determine the function of a protein to determining its evolutionary relationships. Traditionally, 3D structures are classified into groups of families that closely resemble the grouping according to their primary sequence. However, significant structural similarities exist at multiple levels between proteins that belong to these different structural families.... Structural comparison is effected by matching cliques of points... (i) 9537 pair-wise alignments between two structures with the same topology; (ii) 64 alignments from set (i) that were considered to constitute difficult alignment cases; (iii) 199 pair-wise alignments between proteins with similar structure but different topology; and (iv) 1275 pair-wise alignments of RNA structures. This second data set is used to quantitatively assess the performance... when structure similarity is low, as in the case of distant homologues. They include 64 pair-wise alignments

Security and surveillance: Extensive use is made of graph theory in the analysis of complex networks of transactions (telephone communications, financial transfers, etc) in an effort to identify potential threats to security or fraudulent activity. Notable examples of such applications include that of [Netmap Analytics](#).

Social networking: Some use is made of graph theory in applications to analyze or represent social networks, notably using the extensive data sets now offered by social media.

Knowledge representation: An increasing variety of uses is made in the analysis and representation of networks of concepts, as networks, but with relatively little effort to extend the analysis into the higher forms of order which are so characteristic of the preoccupations of *Topology* (*Knowledge-Representation in a Computer-Supported Environment*, 1977; *Preliminary NetMap Studies of Databases on Questions, World Problems, Global Strategies, and Values*, 2006)

Simulation: Extensive use of *Topology*, knot theory and graph theory has been variously considered in the simulation of international relations and global modelling (*Simulating a Global Brain: using networks of international organizations, world problems, strategies, and values*, 2001; *Computer-aided Visualization of Psycho-social Structures Peace as an evolving balance of conceptual and organizational relationships*, 1971; Norman Schofield, *A topological model of international relations*. Paper presented to Peace Research International meeting, London, 1971).

Questionable applications: The application to the elicitation of intelligence for targeted assassination, from surreptitious surveillance, is of special concern (*From ECHELON to NOLEHCE: enabling a strategic conversion to a faith-based global brain*, 2007).

Unitary: Language of I Ching

There is a considerable literature on the philosophy and logic of the *I Ching* (*Yi Jing, The Book of Changes*) as well as on its symbolic implications, especially from a Taoist perspective. As one of the earliest Chinese classics, its structure and use are also closely related to those of the *Tao Te Ching* (*Dao De Jing*) and the *T'ai Hsüan Ching* (*Tai Xuan Jing, Canon of Supreme Mystery*).

The coding systems used in each case, but especially in the *I Ching*, have elicited a considerable literature of commentary, notably with respect to possible logico-mathematical implications (Z. D. Sung, *The Symbols of Yi King or the Symbols of the Chinese Logic of Changes*, 1934). As noted above, the binary coding system -- giving rise to 64 hexagrams -- has been an inspiration for the development of the binary coding basic to computer processors.

Both the coding system, and the metaphorical language of the classic commentary, have encouraged numerous translations and interpretations from a wide variety of perspectives.

Divination: The *I Ching* has long been valued for its guidance in the analysis of decision-making in strategic situations,, notably with respect to the identification of possible choices through divination. It continues to be valued for this purpose within certain communities (*Engaging with the Future with Insights of the Past*, 2010).

Governance: As a purportedly comprehensive set of conditions of change and transformation, the relevance of the *I Ching* to current challenges of governance can also be fruitfully explored (*Transformation Metaphors derived experimentally from the Chinese Book of Changes (I Ching) for sustainable dialogue, vision, conferencing, policy, network, community and lifestyle*, 1997).

Symbolism: The significance of the *I Ching* for his psychocultural explorations as a psychoanalyst was summarized in the **foreword** by Carl Jung to the translation by his colleague **Richard Wilhelm** (*The I Ching or Book of Changes*, 1950). As Jung states:

In order to understand what such a book is all about, it is imperative to cast off certain prejudices of the Western mind.... The axioms of causality are being shaken to their foundations: we know now that what we term natural laws are merely statistical truths and thus must necessarily allow for exceptions. We have not sufficiently taken into account as yet that we need the laboratory with its incisive restrictions in order to demonstrate the invariable validity of natural law. If we leave things to nature, we see a very different picture: every process is partially or totally interfered with by chance, so much so that under natural circumstances a course of events absolutely conforming to specific laws is almost an exception. The Chinese mind, as I see it at work in the *I Ching*, seems to be exclusively preoccupied with the chance aspect of events. What we call coincidence seems to be the chief concern of this peculiar mind, and what we worship as causality passes almost unnoticed.

This insight resulted in Jung's subsequent preoccupation with **synchronicity** (*Synchronicity: an acausal connecting principle*, 1972).

Questionable applications: Current uses of the *I Ching* for purposes of divination, following from the classical use for this purpose, are deprecated in modern societies reliant on the extremes of science and religion, despite challenges to their efficacy and deceptiveness (*Uncritical Strategic Dependence on Little-known Metrics*, 2009; Dan Gardner, *Future Babble: why expert predictions are next to worthless, and you can do better*, 2011).

Unitary: Language of Kama Sutra

The *Kama Sutra* is a classical Sanskrit text providing guidance on virtuous and gracious living through a structured discussion of the nature of love, family life and the pleasure to be derived from living. It has been described as a classical curriculum of sacred sciences, studies, arts and skills of cultured living compiled from other Hindu texts. Whilst this includes sexual pleasure, it is more generally concerned with sensual pleasure, and is therefore inappropriately considered as a simple sex manual, as is the popular misperception. It is composed of a mix of poetry and prose, as a structured set of aphorisms.

The text is structured in terms of 64 arts (*Kala64, Orientalia -- dictionary of Hindu religion*). These are the the 64 secret arts (*abhyantara kala*) of erotic love and the 64 practical arts (*bahya kala*) appropriate to cultured persons. The latter range through singing, clothing and adornment, making music, poetry, gardening, decorative clothing, and physical culture. They might be compared to the aesthetic skills associated with Renaissance "practical magic" of Ficino ***

The secret arts of the *Kama Sutra* are readily associated with the language (and literature) of **Tantra**, which deals primarily with spiritual practices and ritual forms of worship that aim at liberation from ignorance and rebirth -- the universe being regarded as the divine play of **Shakti** and **Shiva**. In one mode, ritual sexual intercourse may then be employed as a way of entering into the underlying processes and structure of the universe. Such practices may be further conflated with those of **tantric sexuality** and recent "neotantric" adaptations focused primarily on sexual pleasure. With respect to the arts of erotic love, the *Kama Sutra* distinguishes 8 "main" sexual positions, which may then divided into 8 "sub" poses giving a total of $8 \times 8 = 64$ "positions", although the focus may be placed on a more limited set of 24.

As a sequel to the hypertext cult novel (Cong Huyen Ron Nu Nha Trang and Willia L Pensinger, *The Moon of Hoa Binh*, 1994), of highly unusual structure, the protagonist, Derek Dillon (*Strategic Assessment Part 8*) offers this comment:

The purpose behind the *Kama Sutra*, unlike that of internet porn, is to move *conscious awareness* back up the [Tree of Life](#) from its genitally-fixated and fetishized bottom-end state.

Questionable applications: The use of the *Kama Sutra* purely as a sex manual is both valued for the satisfaction it offers to curiosity in cultures with a tendency to prudery, and deprecated for its encouragement of hedonism.

Whilst the merit of the *Kama Sutra* may indeed be questioned from other perspectives (as required by the above-mentioned "criteria"), the extent of use of sexual metaphors in strategic discourse at the highest level (and in all cultures) cannot be denied, as separately noted (*Backside to the Future: coherence and conflation of dominant strategic metaphors*, 2003). Dan F. Hahn, for example, offers a chapter on *Sexual Language and Politics (Political Communication Rhetoric, Government, and Citizens*, 2003).

The pattern is similar to the use of military metaphors, held to be more respectable (*Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors*, 1998). But it might be asked whether a complexification of simplistic sexual metaphors would lead to the recognition of fruitful new "positions" -- as might be suggested by the systematic approach of the *Kama Sutra*.

Binary: Topology ∞ Kama Sutra

Considering *Topology* as a branch of mathematics, and the *Kama Sutra* as a semi-poetic work about love in all its forms, aspects of this relationship might be said to have been highlighted in poetic form in the collection of 150 poems compiled by [Sarah Glaz](#) and [JoAnne Growney](#) (*Strange Attractors: Poems of Love and Mathematics*, 2008). The Nobel Laureate, [J. M. Coetzee](#), introduces his remarkable [review](#) of this compilation for the American Mathematical Society (*Notices of the AMS*, 56, 8, 2009) as follows:

The highest type of intelligence, says Aristotle, manifests itself in an ability to see connections where no one has seen them before, that is, to think analogically. The spark of true poetry -- according to one influential school of poets -- flashes when ideas are juxtaposed that no one has yet thought of bringing together. Scientific discoveries often start with a hunch that there is some connection between apparently unrelated phenomena. So there are a priori grounds for thinking of poetry and mathematics together, as two rarefied forms of symbolic activity based on the power of the human mind to detect hidden analogies.

Pattern language: Both *Topology* and the *Kama Sutra* are variously concerned with attraction and "attractors". In the case of the above-mentioned work of Rene Thom (*Structural Stability and Morphogenesis: an outline of a general theory of models*, 1972), the focus is on the limit towards which trajectories of change move within a dynamical system -- with attractors generally lying within basins of attraction. He offers a language of archetypal forms by which such processes can be identified.

This can be related to the preoccupation with the [pattern language](#) through which the nature of a attractive "place to be" is identified, as extensively explored from a design perspective by [Christopher Alexander](#) and colleagues (*A Pattern Language*, with Ishikawa and Silverstein, 1977; *The Timeless Way of Building*, 1979). He effectively offers a "topology of places". However both the "erotic" and "non-erotic" themes of the *Kama Sutra* may also be understood as a pattern language, with the latter focusing on dimensions largely implicit in the preoccupations of Alexander. Alexander's approach can however be used as a metaphorical "template" to generate patterns more closely related to the *Kama Sutra's* aesthetic concerns with an attractive psychosocial environment (*5-fold Pattern Language*, 1984).

Alexander's influential early work (*Notes on the Synthesis of Form*, 1964) can be seen as anticipating his most recent work in quest of a geometrical approach to harmony (*Harmony-Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole*, *International Journal for Unconventional Computing (IJUC)*, 2009), as separately discussed (*Harmony-Comprehension and Wholeness-Engendering: eliciting psychosocial transformational principles from design*, 2010)

Mathematics and sex: Exploration of this relationship is clearly a challenge in cultures for which sex is a highly charged and deprecated topic -- and where even the [rhythm method](#) is controversial. One exception is a book by Clio Cresswell (*Mathematics and Sex*, 2004). Clifford A. Pickover (*A Passion for Mathematics: numbers, puzzles, madness, religion, and the quest for reality*, 2005) has highlighted the difficult mathematical problems lurking in the *Kama Sutra*. Robyn Williams (*Kama Sutra and Mathematics*, 2003) comments on its relation to the study of Indian mathematics by George Gheverghese Joseph (*The Crest of the Peacock: Non-European Roots of Mathematics*, 2000). One mathematician reports briefly under the heading (*Tantric Topology*, 31 May 2007):

In what has to be my most bizarre and disturbing mathematical thought so far, I spent a good twenty minutes today in the Sexuality section of my local Borders puzzling over an illustrated copy of the *Kama Sutra*. After enduring many embarrassed glances from other shoppers and a few accusatory stares of employees, I satisfied myself that topologically speaking, there is really only one position, since all can be smoothly transformed into any other.

This is reminiscent of a standard joke by other mathematicians about topologists: a topologist can't tell the difference between a mug of coffee and a doughnut! This is because the mug of coffee and the doughnut are both, topologically, a torus.

Janice Padula (*The Kama Sutra, Romeo and Juliet, and mathematics: studying mathematics for pleasure*, *Australian Senior Mathematics Journal*, July 2005) emphasizes that mathematics may be better appreciated through the relevance to students' lives -- notably in terms of sex and romance.

Patterns of sexual activity: It is curious that the "application" of *Topology* to sexual relations has seemingly been restricted to its value for processing statistical analyses of networks of sexual partnerships and of the propagation of sexually transmitted diseases. For example:

- Aral S.O. and Lawrence J.S. *The Dynamic Topology of Sex Work in Tallinn*, Estonia. 2005.
- Jeffrey C. Sandler and Naomi J. Freeman. *Topology of Female Sex Offenders. Sexual Abuse: a journal of research and treatment*, June 2007
- Derek Evan and Antonette M. Zeiss (*Catastrophe theory: a topological reconceptualization of sexual orientation. New Ideas in Psychology*, 2, 3, 1984, pp. 235-251)

As noted in a [blog](#), finding out the "topology of sex" may be upheld as important in the ever-changing web of human existence. So it is not at all surprising that a "scientific research tool", [The World Sexual Relationship Database](#) was created by the World Health Optimization Management (W.H.O.M.). Like *Wikipedia*, anyone may edit the sexual histories.

Topology of "positions": Despite the above comments, it is however extraordinary that mathematicians with any sexual instinct have seemingly failed to offer a topological representation of the "positions" defined by the *Kama Sutra*. The possibility is intriguing in relation to:

- the basic physical attractors for both male and female prior to intercourse, which lend themselves to description as a class of curves and their associated dynamics (notably of relevance to the increasing sophistication of media animation)
- the intangible attractors, associated to a degree with the tangible forms (but possibly of higher dimensionality), potentially to be understood in terms of catastrophe theory
- the topological variety associated with sexual intercourse itself, with respect to both "positions" and dynamics, which presumably lend themselves to mathematical description

It is particularly interesting that the relational processes held to be the most controversial, in terms of censorship and prohibition in society, have been apparently least examined by the discipline that has a long-established claim to the subtlest insight into the analysis of relationships. This constitutes a failed opportunity at a time when unexamined sexual dynamics are driving processes:

- which are increasingly problematic in terms of resource use
- which engender dilemmas with respect to their natural consequences (family planning, abortion, domestic violence, displacement activity, etc)
- for which surrogate attractors are themselves associated with severe social problems (drugs, prostitution, sexual trafficking, pedophilia, etc)

Of further potential relevance is the fundamental symbolic significance of sexuality and the manner in which this conditions reflection on a wide variety of processes and consequential actions. This is most evident in the widespread use of sexual metaphors -- notably in business, sport and the military, as noted above. The issue is whether greater insight can contribute to the refinement and diversification of such metaphors to enable new forms of social "intercourse".

The human body is well described topologically by a variety of curves and it might be assumed that these required some degree of definition, if only for virtual worlds and special effects. More interesting is how such curves, and the dynamics associated with them, function as attractors and may even be understood as the expression of attractors -- mathematically understood. More intriguing still is the nature of the topological constraints on relationships and the extent to which the *Kama Sutra* may have endeavoured to encode what might be topological "solutions" to the possibility of such relationships. Of potential relevance, as noted above, is the involvement of Thom in a semiotic analysis of the human body in motion (Paul Virilio, et. al., 1994).

Given the deliberately ambiguous reference above to "[strange attractors](#)" -- of special mathematical significance in addition to its value in sexual attraction -- it might be asked whether *Topology* can enhance the formalism of the *Kama Sutra* to identify more powerful attractors. With what characteristics might an "erotic" attractor be identified topologically? One blogger has even outlined the scope of a possible book ([Riemann and Lobachevsky's Kama Sutra, Halfbakery](#), 2002), with positions, "freed from the constraints of Euclidian flat space", to include those in positively or negatively curved spaces.

How is the "strange attractiveness" of what is valued to be more formally understood ([Human Values as Strange Attractors: coevolution of classes of governance principles](#), 1993)?

"Catastrophic" nature of encounters: There is however the radical possibility that sexual attraction (or repulsion), as a fundamental behavioural discontinuity, is intimately related to psychological engagement with the spatio-temporal forms and patterns (as "catastrophes") of interpersonal encounter. An "attractor" is distinguished in the work on dynamics of Rene Thom (*Structural Stability and Morphogenesis: an outline of a general theory of models*, 1972) as the limit towards which trajectories of change within a dynamical system move; attractors generally lie within basins of attraction.

This is exemplified by the discontinuity of "falling in love". To what extent is eye movement over the body of another associated with a response to forms that lend themselves to mathematical description as "catastrophes"? Human beauty has indeed been analyzed in terms of geometric proportion. The shapes of the body that are a focus of attraction can be closely related to the shapes descriptive of sections of the elementary catastrophes -- even without taking into account dynamics associated with them (cf [Gurman Kaur, Mathematics in the Nude](#)).

The relationship between sensory input regarding the human body and its movements, and their semantic implications, as described above by Wolfgang Wildgen ([Catastrophe theoretical models in semantics](#), 2004; [Morphogenesis of limits: the relevance of dynamic systems theory for cognitive linguistics](#), 2005) raises issues about the nature of attractors and repellers in interpersonal encounter in relation to the shapes of elementary catastrophes. Wildgen focuses only on a neutral subset of the range of Thom's archetypal

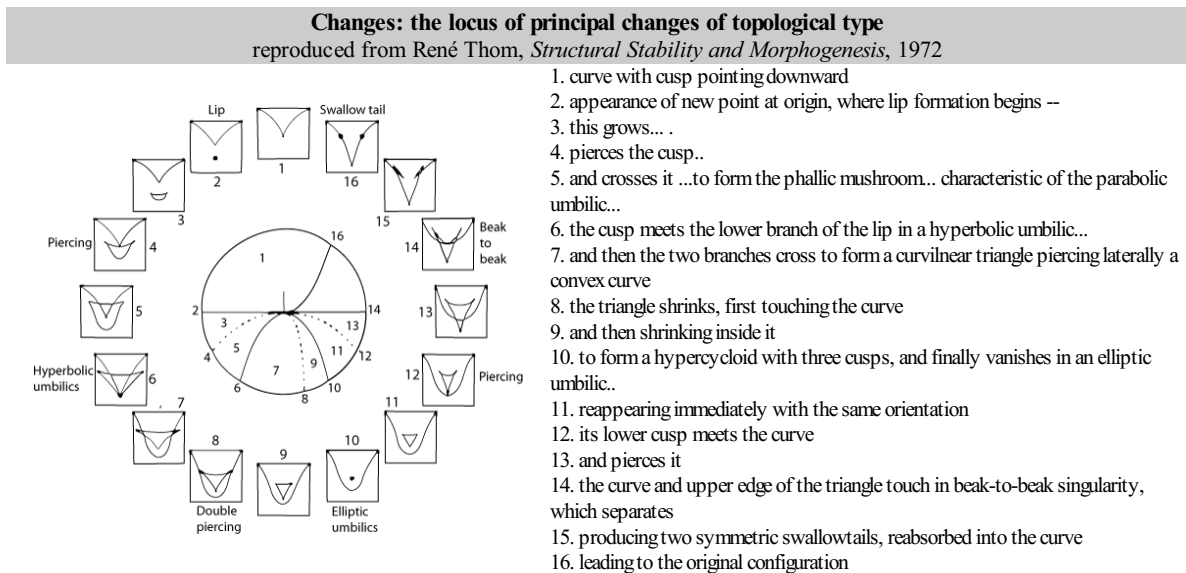
morphologies in his investigation.

Thom's study offers numerous pointers of relevance to this argument, even including references to "genital chreods", the morphogenesis of the penis, elementary topological models for the formation of the gonads, male and female, female invagination, and the process of gastrulation (pp. 1972, 191-193). Despite this, his presentation makes no reference to the topological "precursor" configurations presented in the "erotic" sections of the *Kama Sutra*. However that, and later studies encompassing the semiotic implications, might well be said to address the "non-erotic" themes elaborated as a desirable context for the former set -- "setting the scene", "creating the atmosphere", and engendering the dynamics of "predisposition".

It is also intriguing that the emphasis in Thom's presentation on "dynamics" seemingly avoids reference to the dynamics relating to the attractors characteristic of the different "erotic" positions. This did not however prevent his participation in a semiotic analysis of the human body in motion (Paul Virilio, Valerie Preston-Dunlop and René Thom, *Traces of Dance: choreographers' drawings and notations*, 1994). Although it would seem that the various forms of [dance notation](#) ([Labanotation](#), etc) might have been applied to the positional dynamics of the *Kama Sutra* and/or sexual intercourse, curiously this does not appear to be the case (irrespective of any topological formalization). Practitioners claim that Labanotation is a result of very intense cognitive activity -- a conscious analysis of movement (János Fügedi, *Dance Notation as a Cognitive Aid*). Of potential relevance is the Indian tradition of dance notation (G. Venu, *The Language of Kathakali*) and current efforts to encode non-verbal communication.

It is therefore a "provocative" challenge to read the "generalization" characteristic of the argument of Thom's original study as including - or "implying" -- the structural stability and morphogenesis of intercourse in both its physical and non-physical forms ([Human Intercourse: Intercourse with Nature and Intercourse with the Other](#), 2007). **Can catastrophe theory, and the associated bifurcation theory, be read as "intercourse theory" -- effectively making them a topological "Kama Sutra of intercourse"?**

From this perspective it is interesting to recognize the "suggestive" nature of the following sequence of 16 images -- possibly to be understood as "visual primitives" characteristic of the attraction dynamics of intercourse, in its specific and general senses..



Attraction and arousal: The dynamics of arousal and intercourse have however been explored using catastrophe theory by H. M. Hubey (*Catastrophe Theory and Human Sexual Response*, 1991)

A nonlinear differential equation model and its associated catastrophe is shown to model the simplest version of the sexual response of humans. The mathematical model is derived via well-known and non-controversial aspects of sexual orgasm as can be found in the literature. Two different and independent derivations of the equation are given; the equilibrium-oscillation model and the slow-fast dual equation model...

Not every process in the world is continuous and slowly changing. The particular combination of continuous (and often slow) changes vs. discontinuous (rapid) changes (effects) can probably be best described/modelled in terms of a new theory invented by Thom [1975] and which has benefited from the many contributions by E.C. Zeeman [1977]. This branch of mathematics is known, appropriately enough, as Catastrophe Theory. The literature is replete with scientific papers applying catastrophe theory to various social, psychological and biological phenomena [for example, Zeeman, 1977].

Dynamics: Curiously the "positions" identified in the *Kama Sutra* and its imagery, place little emphasis on any associated "dynamics" -- dynamics which are also evident in the non-sexual content which may be underpinned by well-researched mathematics (singing, music, etc). It is therefore interesting to consider mathematical studies of human behaviour, such as those of [Ralph H. Abraham](#) (*Dynamics, the Geometry of Behavior*, 1992; *The Geometry of the Soul*, 1991). The question is then why have such studies not been extended to the dynamics associated with intercourse or those forms of behaviour of which it is used as a metaphor.

It might be argued that the "static" approach to the intercourse implied by the *Kama Sutra* "positions" is based on a misconception similar to that which undermined the significance of the genetic focus of the [Human Genome Project](#). Only after its completion was it "discovered" -- with recognition of a degree of "failure" -- that more significant patterns of information were carried dynamically by

"epigenetics".

Pattern recognition: Whilst processes of "pattern recognition" are studied in relation to images considered to be potentially sexually stimulating, these are primarily limited to non-mathematical approaches. The refinement of image search engines has resulted in a burgeoning literature with its own journal (*Pattern Recognition and Image Analysis*). With the increasing concern at the dissemination of images variously framed as obscene, there is pressure to adapt pattern recognition algorithms to the automatic identification of images with various degrees of sexual content. The potential relevance to advertising is evident.

It is therefore of interest to consider how such algorithms may function, and the variants in imagery considered to be attractive and erotic -- an issue for which the *Kama Sutra* has been an inspiration, if only for Hindu temple architecture.

Aesthetics: Curiously, [Salvador Dalí](#) as a surrealist painter renowned for his attention to women, devoted several of his last works to *Topology*, inspired by Rene Thom. As reported by Thomas F. Banchoff (*The Fourth Dimension and the Theology of Edwin Abbott Abbott*):

Salvador Dalí's painting *Corpus Hypercubus* of Christ crucified on a hypercube, symbolizes the infinite folded down into the finite for our benefit... We do not see things completely; we only see them in their illusions. Dalí's final painting includes inflection points, and a swallowtail catastrophe, which forms the image of a chalice, once again combining mathematics and theology.

One of Dalí's final works was entitled *Topological Contortion of a Female Figure* (1983). It might be assumed that, as an artist, Dalí recognized the relationship of the attractive shapes of the body of a woman to the forms of the elementary catastrophes. Of related interest are three poems of Mary Jo Bang (*The Eye Like a Strange Balloon*, 2004) on the topic of catastrophe theory.

Poetry: There is long-standing preoccupation with poetry by mathematicians, as notably documented by one of the instigators of mathematical poetics, [Solomon Marcus](#) (*Mathematische Poetik*, 1973). There, as in the above-mentioned compilation of Sarah Glaz and Growney (*Strange Attractors: Poems of Love and Mathematics*, 2008) no specific reference appears to be made to *Topology* or to the *Kama Sutra*. It is somewhat as though mathematically inspired poets have followed the pattern of mystical poets of the past in alluding to relationships whilst avoiding the explicit articulation for which *Topology* is designed. One website, [Intersections -- Poetry with Mathematics](#), emphasizes the use of mathematical language to heighten the imagery of a poem, arguing that a mathematical structure can deepen its effect.

Any reference to sexual intercourse is avoided, as in the religious case, by focusing on relational aesthetics (M. Birken and A.C. Coon, *Discovering Patterns in Mathematics and Poetry*, 2008). This is of course consistent with the non-sexual preoccupations of the *Kama Sutra* in setting the context for intercourse. This is evident in the case of other works by Sarah Glaz (*The Poetry of Prime Numbers*, 2011; *The Enigmatic Number e: A History in Verse and its Uses in the Mathematics Classroom*, 2010; *Poetry Inspired by Mathematics*, 2010).

Psychoanalysis and philosophy: Significant use of the term "topology" has been made in philosophy, most notably with respect to the sense of place (Jeff Malpas, *Heidegger's Topology Being, Place, World*, 2007; *Disclosing the Depths of Heidegger's Topology: A Response to Relph*).

Topology has also provided central metaphors, especially through [knot theory](#), to the psychoanalytic work of [Jacques Lacan](#) and [R. D. Laing](#) -- notably focused on sexuality and sexual identity (R. D. Laing, *Knots*, 1970). Controversially, [Alan D. Sokal](#) and [Jean Bricmont](#) (*Fashionable Nonsense: postmodern intellectuals' abuse of science*, Picador, 1999) have criticised Lacan's use of terms from mathematical fields such as topology, accusing him of "superficial erudition" and of abusing scientific concepts that he does not understand.

This topological focus was extended, equally controversially, to "invagination" -- a theme central to postmodernist and feminist studies (*Invagination in Psychosocial Terms: understandings from web resources*, 2010). This "topology", of extreme relevance to sexuality, can also be explored in terms of its socio-political significance (*Engendering Invagination and Gastrulation of Globalization*, 2010).

As noted by Peeter Müürsepp (*Structural Stability as the Core of Rene Thom's Philosophy: from Aristotle to contemporary science*, 2010):

The core of the philosophy of Rene Thom is a conception derived from mathematics and generalized for philosophical approach, structural stability. The attempt to make sense of the objective reality has lead Thom to the creation of semio physics, the physics of sense, which is based on the theory of salience and pregnance... The context makes it possible to address an intriguing topic of the relationship of science and magic... The closing section of the book is dedicated to social science.

Eliciting relationships: The explosion of social media and social networking on the web, and the patterns of information to which these give rise, suggests the probability that *Topology* may go beyond tracking such networks to eliciting more fruitful patterns -- beyond the current simplicity of profile-based facilitation of dating (*Group Questing or Twelving*, 1976). Are such possibilities implied by any successful topological analysis of the *Kama Sutra*?

Semiotics: As implied by T. van Gelder and R. Port (*Beyond symbolic: towards a kama-sutra of compositionality*, 1994), is there a cognitive dynamic to interpersonal encounters of which the 64 positions of the *Kama Sutra* could be considered an enactable code for multi-dimensional understandings that cannot be verbally articulated? (cf Boris Saulnier, *Au-delà du représentationnalisme symbolique : la modélisation constructiviste et morphodynamique des systèmes, et le défi de la compositionnalité*, 2003). Such possibilities relate to the explorations of [tantric yoga](#). Intercourse might then be understood as "dancing with discontinuity" and with the associated questions and

answers -- expressed non-verbally through to their consummation and "semantic" union (cf O E Rasmussen. *The Dance of Meaning: the fundamentals of interpersonal reasoning and sense-making*. European Chaos/ Complexity in Organisations Network (ECCON), 2005) .

Such considerations can only be suggestively reinforced through an applet such as that of Lucien Dujardin (*Catastrophe Teacher: an introduction for experimentalists -- parabolic umbilic*, 2005) through which 4 parameters can be variously controlled.

Drama: As argued separately (*Taxonomies of Dramatic Situations*, 2009), the spectrum of the dynamics of relationships between "us" and "them" is reflected to a fairly high degree in literary explorations and folk tales. These are necessarily obliged to recognize the subtleties through which protagonists play out their relationships over time -- beyond any initial binary stand off. They encompass and hold a higher degree of complexity which is only recognizable, if at all, as implicit in the binary condition. They include dynamics such as **enantiodromia** -- perhaps embarrassingly evident in the manner in which the USA and Russia have progressively taken on each other's characteristics and borrowed each other's narratives, however much this may be denied.

A **fictional plot** is the sequence of interrelated events arranged to form a logical pattern and achieve an intended effect. The classic approach to organizing the dynamics of such plots is that of **Georges Polti** (*The Thirty-Six Dramatic Situations*, 1916) who endeavoured to categorize every dramatic situation that might occur in a story or performance -- building on the earlier work of **Carlo Gozzi**. Jon Adams (*Plot Taxonomies and Intentionality, Philosophy and Literature*, 32, 1, April 2008) considers that most of these thirty-six situations are so vague as to admit almost any plotline, and certainly with too many plotlines as to successfully serve as boundaries.

Binary: I Ching ∞ Topology

There is a very extensive literature using mathematical techniques, most notably *Topology*, to explore the *I Ching* (*Yi Jing*) and related taoist coding systems. Andreas Schöter provides a page of commentary and links of a fairly technical nature, generally assuming some background knowledge of the *I Ching* (*Mathematical Material*). He is also the author of one of a number of papers on the matter presented to a recent conference (Andreas Schöter, *The Yijing: Metaphysics and Physics*, Proceedings of the 13th I-Ching World Conference, 2010, pp. 686-695). Another relevant presentation is that of Ting-Chao Chou (*Yijing Concept in Contemporary Mathematics, Topology and Sciences*, 13th I-Ching World Conference).

A set of documents with many references to other studies is available separately (*Documents relating to Patterns of I Ching / Tao Te Ching*). Patterning possibilities are illustrated by the titles (*Tao of Engagement -- Weaponised Violence and Beyond*, 2010; *9-fold Higher Order Patterning of Tao Te Ching Insights*, 2006; *Patterning Transformative Change: dialogue, vision, conference, policy, network, community and lifestyle*, 1983).

As emphasized above, both the *I Ching* and *Topology* may be explored as distinct pattern languages. Both have been widely applied to domains beyond what purists consider appropriate. In the case of catastrophe theory this has been specifically deprecated as noted above, with the use of *Topology* itself in post-modernist literature being specifically challenged. This has not prevented a degree of active exploration of the intersection between the logic of the *I Ching* and that of *Topology*.

Binary: Kama Sutra ∞ I Ching

It is appropriate to stress again the aesthetic preoccupations of the "non-erotic" portions of the *Kama Sutra* and to compare them with the ethical preoccupations of the *I Ching*. As sets of aphorisms in each case -- articulated through poetic metaphor -- both may be considered as complementary pattern languages. It remains to be determined whether each can "inform" the other from these contrasting perspectives. Both however endeavour to define a context for appropriate interpersonal relationships -- with the *I Ching* highlighting familial relationships and the *Kama Sutra* on inducing sexual intimacy.

The purely sexual focus of the *Kama Sutra* is readily emphasized in the West, obscuring the subtler psychological and symbolic implications. It is the challenge of the latter to conventional thinking -- disguised by "sex" -- for which the *I Ching* may offer a fruitful formalism. It however remains the case that it is the psychoactive engagement with "sex" which is readily lost in sterile formalism characteristic of modern "models".

It is thus the "64 sexual positions" identified by the *Kama Sutra* that point to a potential correspondence to the 64 conditions of transformative change encoded by the hexagrams of the *I Ching*. This potential relationship between the *Kama Sutra* and the *I Ching* has been variously noted:

- in introducing his book, Stephen Mitchell (*The Second Book of the Tao*, 2009) remarks that he had not realized at the time that, of course, there are 64 chapters in the *I Ching*, and 64 squares in a chessboard, and 64 basic positions in the *Kama Sutra*.
- as remarked by Satyaki Aparajita (*Sexual I Ching*, 2010), in explaining why the *Kama Sutra* is occasionally referred to as the "Sex Ching" [most notably in the case of those with an interest in porn]: 8x8 the 64 squares and the hierarchical pyramid of feudal order. It may say something of the origin of chess that Hindu teaching guides us to the 64 abilities a man must master, or the 64 combinations of the 8 categories of erotic acts in the kama sutra, amongst other similar combinations.

A web resource on **sacred sex** comments on the definition of "*ching*", and its Chinese alternates (*jing*, *tsing*, etc), that these can be understood as "sexual energy"?? distinguished as the three mutually interdependent and interconnected life forces: physical sexual matter (*ching-ye*), energetic sexual matter (*ching chi*), consciousness (*ching-shen*). According to Chinese medicine, *ching* is the basis of life and health. If there is little *ching* (life force) then health suffers and life is shortened. This is the basis for sexual continence or retention of the sexual matter. In **Taoist alchemy**, this understanding is extended to the basis for immortality. In the most ancient Chinese dictionary, *ching* is defined as "cleaned rice, seed, source of life." This corresponds to the mystical symbolism in other traditions of rice, wheat, or corn as a reference for the sexual matter.

The underlying complementarity is however more evident through the interpretation of the *yin* and *yang* symbols composing the 64 hexagrams of the *I Ching*. Whilst these can indeed be understood as female and male, they are indicative of much greater generality, although uniquely well-expressed through female and male. It is in this sense that the *I Ching* is usefully understood as being as "sexy" as the *Kama Sutra* -- but emphasizing the higher, or more fundamental, nature of sexuality. It has the additional quality of articulating the balance between. However, unique to the *I Ching*, is the manner in which this balance is articulated through encoding the transformative dynamic shift between the 64 positions (usefully represented by the logo at the top of this document, and its [explanation](#)).

Ternary complementarity of metaphorical language

Conceptual metaphor: *Topology*, *I Ching* and *Kama Sutra* can be considered metaphorical pattern languages -- whatever weight is given to their formalization. The original arguments regarding [conceptual metaphor](#) and [cognitive linguistics](#) by [George Lakoff](#) and [Mark Johnson](#) (*Metaphors We Live By*, 1980) have given rise to an extensive literature. Most recently Paul H. Thibodeau and Lera Boroditsky (*Metaphors We Think With: the role of metaphor in reasoning*, *PlosOne*, 6, 2010, 2) make the point:

The way we talk about complex and abstract ideas is suffused with metaphor. In five experiments, we explore how these metaphors influence the way that we reason about complex issues and forage for further information about them. We find that even the subtlest instantiation of a metaphor (via a single word) can have a powerful influence over how people attempt to solve social problems like crime and how they gather information to make "well-informed"?? decisions. Interestingly, we find that the influence of the metaphorical framing effect is covert: people do not recognize metaphors as influential in their decisions; instead they point to more "substantive"?? (often numerical) information as the motivation for their problem-solving decision. Metaphors in language appear to instantiate frame-consistent knowledge structures and invite structurally consistent inferences. Far from being mere rhetorical flourishes, metaphors have profound influences on how we conceptualize and act with respect to important societal issues. We find that exposure to even a single metaphor can induce substantial differences in opinion about how to solve social problems: differences that are larger, for example, than pre-existing differences in opinion between Democrats and Republicans.

David Punter (*Metaphor: the new critical idiom*, 2007) helpfully cites [Bryan W. Van Norden](#) ([Review of Jean-Paul Reding, Comparative Essays in Early Greek and Chinese Rational Thinking](#), *Notre Dame Philosophical Reviews* 2004) to the effect that:

Those who compare Western and Chinese philosophy are generally struck by the differences: formal logic never developed in china; metaphor seems to be emphasized over more rigorous argument forms in china... [There is an] ironical situation that Plato and Aristotle regard metaphors as second-rate tools for expressing truth, yet they frequently invent metaphors. In contrast, Chinese thinkers express no qualms about metaphors, but often use repeatedly the same metaphors. (p. 1-3)

Punter notes Van Norden's claim that this is because of the fundamental distinction between Chinese and Western metaphors. In the West, metaphor has been typically used to demonstrate a correspondence between two ontologically distinct domains, but Van Norden indicates the situation as being different in China:

[The philosopher] Gaozi says that human nature is like water. Just as water will equally flow east or west depending on its environment, so will humans become good or bad depending on their environment. Mengzi [in the course of a famous debate] acknowledges that water is indifferent between east and west, but observes that it does show a preference for low over high... This exchange has puzzled many interpreters, who see in the clash of metaphors empty rhetoric. However, chinese thinkers often assume what has been called 'correlative cosmology', according to which superficially diverse phenomena manifest the same qualitative patterns. Thus, 'the Chinese metaphor does not try to establish a parallelism between two domains, but rather wants to show that there is a *convergence* between them: the nature of water behaves in exactly the same way as the nature of man' (p. 4)

Clash vs. Complementarity: In the approach taken above, rather than the well-recognized, problematic dynamics between "Democrats" and "Republicans", examples have been given of three sets of binary relationships, each of them with fundamental metaphorical implications, whatever the contrasts between their respective formal languages. The interest here is whether influential arguments, such as those of [Sam P. Huntington](#) (*Clash of Civilizations; remaking of world order*, 1996), should be better understood as a "clash of metaphors" ([Michael Bradie](#), *A Clash of Competing Metaphors*, *Behavioral and Brain Sciences*, 1999).

It is therefore of interest to note the use of "wave" and "particle" -- effectively fundamental metaphors in physics. The relationship between these cognitive modalities is well-articulated by the [Heisenberg Uncertainty Principle](#) of which a psychosocial analogue has been hypothesized ([Garrison Sposito](#), *Does a generalized Heisenberg Principle operate in the social sciences? Inquiry*, 1969).

The point can be made otherwise through the widely-cited tale of Isaiah Berlin (*The Hedgehog and the Fox: an essay on Tolstoy's view of history*, 1953). Berlin develops a classical idea to divide writers and thinkers into two categories: hedgehogs, who view the world through the lens of a single defining idea (examples given include Plato, Lucretius, Dante, Pascal, Hegel, Dostoevsky, Nietzsche, Ibsen, and Proust) and foxes who draw on a wide variety of experiences and for whom the world cannot be boiled down to a single idea (as with Herodotus, Aristotle, Shakespeare, Goethe, Pushkin, Balzac). [Michelle Laena Miller](#) argues that while foxes and hedgehogs may seem ill suited to judicial robes, the "metaphorical clash" between these two different ways of thinking is well illustrated in a major legal difference of opinion in the US (*The Fox vs. the Hedgehog: why purely emotional damages should be recoverable Under 11 U.S.C. 362(h)*, *DePaul Bus. and Comm. L.J.* 497, Spring, 2006, 4).

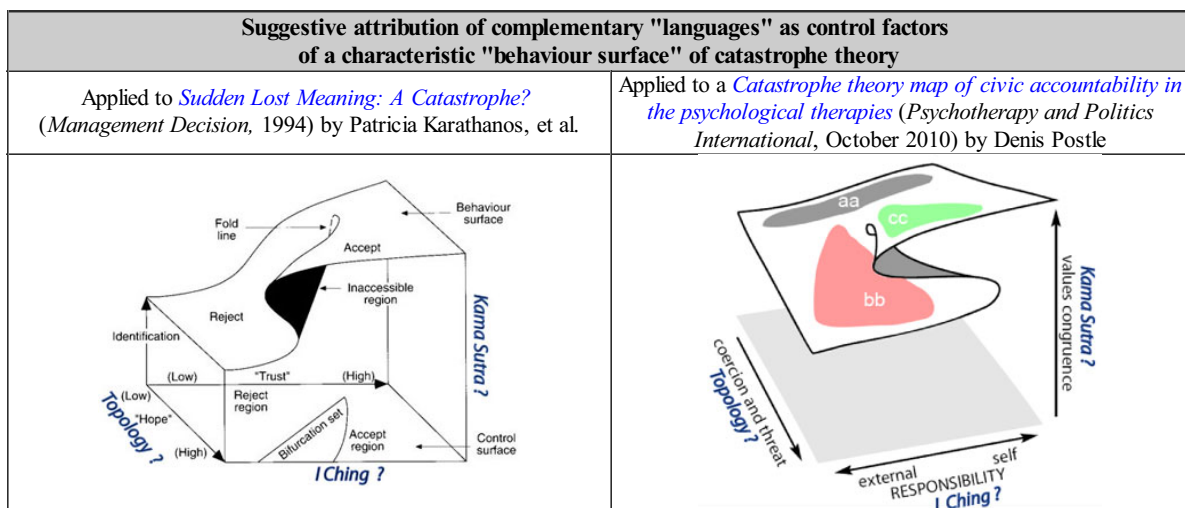
Three-fold complementarity: An interesting distinction -- potentially basic to their complementarity -- can be made between:

- Topology, as relationship at its **most abstract with no distinction** treated as intrinsic to the elements related
- I Ching, in which the **fundamental binary distinction** is made in terms variously described as positive/negative, male/female, creative/receptive
- Kama Sutra, in which the emphasis is placed on **distinguishing "enfleshed" relationships** implied in the dynamic of the male/female relationship

The last case implies the challenge of the previous ones as highlighted by George Lakoff and Mark Johnson (*Philosophy In The Flesh: the embodied mind and its challenge to Western Thought*, 1999). Together their collective operation as attractors implies the question raised by George Lakoff and Rafael Nuñez (*Where Mathematics Comes From: how the embodied mind brings mathematics into being*, Basic Books, 2001)

The question raised by the three "ways of thinking" of this argument is whether they stand in relation to one another through a kind of **triadic uncertainty principle**, rather than a binary one. Just as with "wave" and "particle", or with "hedgehog" and "fox", each of the three domains implies a different kind of dynamic and connectivity. The question is whether they are radically different to a sufficient degree to frame emergent possibilities. A three-fold pattern is of course very common in many symbol systems and religions, perhaps most notably in the Christian Trinity. The challenge of their comprehension may then be elevated to the level of a mystery -- as with the experiential challenge of the "eternal triangle". Of special relevance is the manner in which each mode of thinking can "call into question" the others -- setting boundaries on the scope of each..

In considering a three-fold complementarity, it is interesting that **the "viability" of any two metaphoric languages can then be understood as undermined by the absence of a third perspective** -- a "missing ingredient", or even a "missing link". This raises the question of what is "hidden" in any two-dimensional representation as highlighted tentatively by the following attributions of such languages as control factors to a characteristic behaviour surface of catastrophe theory. What is then "hidden" might then reinforce the "subunderstanding" to which [Magoroh Maruyama](#) refers when arguing for "polyocular vision" (Polyocular Vision or Subunderstanding? *Organization Studies*, 2004).



The question which follows from the "competing" metaphorical languages presented above is therefore **how can the differences between the metaphors be more fruitfully used than is implied by the "clash" metaphor**. The latter has of course been remarkably influential in reinforcing competitive and aggressive foreign policies over recent years, in accordance with preferred ideological and religious worldviews. The confrontation of three such metaphors suggests a shift to a "ternary" or "triadic" approach.

Triangulation of incommensurable concepts for global configuration

This theme is explored in an [Annex](#) with the following sections:

- [Triadic logic?](#)
- [Triadic dialectics](#)
- [Triadic strategic applications](#)
- [Triadic conceptualization](#)
- [Triadic education](#)
- [Interrelating multiple triadic approaches](#)
- [Integrative thinking](#)
- [Enhancing coherence through spherical triangulation](#)
- [Navigation of the strategic universe](#)

Psychosocial traction: en-kno-belle?

Traction: The term "traction" is increasingly now indicative of the capacity for an issue to hold attention and engage action in consequence, as the following indicate. As might be expected, "sexual traction" and the ability to "pull" a partner of the opposite sex,

remains a central concern in many interpersonal relationships -- and is therefore a central feature of much marketing.

Traction can be considered a reframing of the classical "pull" strategy basic to much marketing and to many products and services (cosmetics, foodstuffs, fashion, status symbols, entertainment, media products). Going beyond traditional techniques, it can imply the new skills of [neuromarketing](#) employing insights into consumers' sensorimotor, cognitive, and affective response to marketing stimuli. Strategically this can imply multiple senses, rather than the visual sense and its metaphors (*Strategic Challenge of Polysensorial Knowledge: bringing the "elephant" into "focus"*, 2008).

The argument above suggests that the "confrontation" of unconventional approaches to disparate cognitive languages can enable new forms of "traction" -- in a world where the many marvellous models and worldviews are much challenged to ensure **political traction**, **social traction**, and **psychological traction** in relation to global challenges.

- **Political traction:** This may be related to earlier (and continuing) articulations of the challenge of engendering the "political will to change" (*International Organizations and the Generation of the Will to Change the information systems required*, 1970). It is also associated with concerns about the alienation of voters and the democratic deficit.
 - Richard D. Wolff (*Can socialism in whatever form gain political traction in Europe without revolution?* rdwolff.com)
 - Tom Curry (*Why torture issue hasn't had political traction*, msnbc.com, 15 February 2005)
 - Fred Hutchison (*Conservatism gains political traction: from Wilson to Taft (1912 - 1952)*, *Renew America*, 7 May 2008)
- **Social traction:** The term "social traction" has recently emerged as a goal of marketing to ensure appropriate forms of continuing client engagement -- most notably as framed by the challenges of social media and the blogosphere (Sally Witzky, *Top 10 best ways to get social traction for your blog*, 25 September 2009). It can be otherwise understood in terms of engagement in social issues, now articulated in terms of "care fatigue" or a care deficit".
- **Psychological traction:** Underlying the facts above is the psychological engagement with externalities as variously understood:
 - Jason Robert Baldwin (*Social Requirement Theory of Moral Obligation*, 2008) argues that: *Demands must reach a kind of critical social mass if they are to obligate morally. This is due, at least in part, to the kind of psychological traction that we expect moral obligations to have.... a demand that was not widespread throughout a culture would be too easy to evade.... people generally care about their moral obligations, and they cannot change obligations -- their own or others -- by simple acts of will. Idiosyncratic demands do not support either of these features of moral obligation.*
 - Justin D'Arms and Daniel Jacobson (*Anthropocentric Constraints on Human Value*, 2005) argue that: *There are very good reasons, then, for adopting norms that have significant psychological traction with our emotional propensities.*
 - Leon Botstein (*Redefining "Meaningful Work"* *Big Think*, 3 January 2011) argues that: *How can we construct a plausible set of values that have psychological traction and can lead to social structures and habits that provide a sense of purpose to people's lives through work? A redefinition of service and of artisanship may hold promise, but so much of what we might invent will depend on the imagination: on learning and literacy, not on brute strength. The issue of play and leisure, and more important, the relationship of individual behavior to the realization of ideas of justice, all have to be considered. The big idea facing us is that the best of all possible worlds will never come if we continue doing what we're doing now.*
 - Joo-Cheong Tham and Jude McCulloch (*Secrecy, silence and state terror: the government's 'anti-terrorist' laws promote fear and secrecy as they undermine democracy*. *Arena Magazine*, 1 June 2005) argue that: *This 'tough and reliable' image gains the greatest psychological traction and political mileage when the public feels fearful and insecure.*

Fibonacci pattern as key to psychosocial traction: The argument above highlights the challenge of integrating metaphorical pattern languages of different complexity, of different existential intimacy, and of different degrees of engagement with externalities.

Of particular interest, as a means of indicating and integrating such variety, is the [Fibonacci spiral pattern](#) well-known to mathematicians, especially in the light of its relationship to the [Golden Spiral](#). The spiral is commonly represented by the spiral symmetry of the [Nautilus shell](#) -- notably used as a [symbol for educational development](#). The patterning possibility of the pattern is discussed separately (*Tao of Engagement -- Weaponised Interactions and Beyond: Fibonacci's magic carpet of games to be played for sustainable global governance*, 2010).

Fundamental triadic operation: en-kno-belle? As a mnemonic trigger, it is potentially useful to interrelate the contrasting "languages" of the three domains by use of the term "en-kno-belle":

- **En:** enaction / engender -- in the light of the arguments for [enactivism](#) in engaging with otherness
- **Kno:** knowledge -- as a self-reflexive embodiment of externality
- **Belle:** embellishment, aesthetic, discernment of elegance and beauty -- a belief in the appreciative refinement of otherness

This could be seen as a play on "ennoble", understood as the attribution of nobility, honour or grace to an individual. As "en-kno-belle", however, this is indicative of the potential of each to ennoble otherness, whether manifested in other individuals or in the environment. This accords with the skill of the artist and the poet. It corresponds to conscious recognition of Gregory Bateson's ["patterns which connect"](#): *The pattern which connects is a metapattern. It is a pattern of patterns. It is that metapattern which defines the vast generalization that, indeed, it is patterns which connect.* (*Mind and Nature*, 1979, p.11)

Expressed otherwise it is a process of engaging with externalities such as to "raise them up" (*Existential Embodiment of Externalities*,

2009) -- exemplified by Atkin's process of seeing the geometry of a triangle whole. Speculatively it might also be expressed in terms of the cult term "grok" (*Authentic Grokking: Emergence of Homo conjugens*, 2003). As with the IMF, it might even be a key to the future "conditionality" imposed by extraterrestrials on humanity (*Self-reflective Embodiment of Transdisciplinary Integration (SETI): the universal criteria of species maturity?* 2008).

Metaphor initiatives

The relevance of the above preoccupation with a ternary pattern of complementary metaphors is potentially highlighted by the launching of a major new programme -- [The Metaphor Program](#) of the US [Intelligence Advanced Research Projects Activity](#) (Alexis Madrigal (*Why Are Spy Researchers Building a 'Metaphor Program'? The Atlantic*, 25 May 2011)). A significant participant is the [US Army Research Laboratory](#) -- slogan: *Technology Driven - Warfighter Focused*.

This program of the U.S. government's intelligence establishment seeks to understand how speakers of Farsi, Russian, English, and Spanish use metaphor to carry meaning. It will develop computer software that automatically evaluates their use of metaphors -- most probably with the use of techniques derived from *Topology* -- to probe how a people's language reveals their mindset. In a two-phase process the program will exploit the fact that metaphors are pervasive in everyday talk and reveal the underlying beliefs and worldviews of members of a culture:

- In the first phase, performers will develop automated tools and techniques for recognizing, defining and categorizing linguistic metaphors associated with target concepts and found in large amounts of native-language text. The resulting conceptual metaphors will be validated using empirical social science methods.
- In the second phase, the program will characterize differing cultural perspectives associated with case studies of the types of interest to the Intelligence Community. Performers will apply the methodology established in the first phase and will identify the conceptual metaphors used by the various protagonists, organizing and structuring them to reveal the contrastive stances.

The launching of the above program follows upon a number of very modestly funded earlier initiatives:

- [Conceptual metaphor program](#) launched by George Lakoff and Mark Johnson (*Metaphors We Live By*, 1980) as a stimulus to cognitive linguistics ([Center for the Cognitive Science of Metaphor Online](#))
- [Metaphor Project](#) developed within the context of the *Encyclopedia of World Problems and Human Potential* to explore the range of communication possibilities and constraints of metaphor, pattern and symbol in relation to the possibility of governance through metaphor. It arose from participation in the Forms of Presentation project of the Goals, Processes and Indicators of Development project of the United Nations University. It has focused on:
 - **Metaphors of alternation:** The 1991 edition presented descriptions of 88 metaphors elaborated as an editorial experiment in facilitating comprehension of transition and change, especially in some ordered manner between complementary alternatives (see *Metaphors of Alternation an exploration of their significance for development policy-making*, 1984). The phenomena selected as substrates for the metaphors include: those familiar to everybody (eg walking, breathing), those especially significant to rural communities (eg crop-rotation, getting water, animal movement), those familiar to industrialized societies (eg driving, media diets, vitamins) and some key physical or technological phenomena (eg electric motors, metabolic pathways, magnetic containment of plasma).
 - **Transformation metaphors:** Earlier editions of the Encyclopedia used the Chinese *Book of Changes* as a template for the generation of metaphors relevant to networking (1986) and policy-cycles (1991), now combined in the above-mentioned document (*Transformation Metaphors derived experimentally from the Chinese Book of Changes (I Ching) for sustainable dialogue, vision, conferencing, policy, network, community and lifestyle This is accompanied by a commentary*, 1997).
 - **Pattern language:** The pattern language work of Christopher Alexander suggests the possibility that the physical pattern he explores in relation to architecture and urban planning may be of relevance as templates to organization at the social, conceptual and psychic levels. Of his 253 patterns, 66 have been explored in this way (*5-fold Pattern Language*, 1984).
 - **Adapting formal declarations:**
 - *Universal Declaration of the Rights of Human Organization:* an experimental extension of the Universal Declaration of Human Rights (60k)
 - *Convention on the Rights of the Child Within.* Exercise in adapting the UN Convention on the Rights of the Child (1990)

Subsequent work has focused on the strategic value of metaphor for governance (*Documents relating to Metaphor for Governance*).

- [The Metaphor Project](#) founded by Susan C. Strong in 1997, to assist American progressives and liberals in mainstreaming their messages by framing them as part of the ideal American story. Ideas about peace, justice, and a healthy, sustainable environment are presented as part of the best American dream -- a fair, just, and prosperous nation that does the right thing at home and abroad.
- [Metaphor Analysis Project](#) initiated in 2006 as a research project funded by the ESRC's National Centre for Research Methodology and a continuing focus of the Metaphor Network (MetNet). It is concerned with use of metaphors in the dynamics of language use (in discourse rather than in poetic metaphor).
- [Metaphor Project](#) of the Robotics Institute Carnegie Mellon University working on techniques to understand, to design for, and to

better manage change in the development of architecturally similar real-time software solutions (Carol L. Hoover and Pradeep K. Khosla, *The Metaphor Project Summary Report: technology for analyzing change and composing reusable, real-time components and applications*, 1998) 10.11.89.9247.pdf **

- Generative Metaphor Intervention of the [Appreciative Inquiry](#) initiative instigated at the Weatherhead School of Management at Case Western Reserve University (Frank J Barrett and David L Cooperrider, *Generative Metaphor Intervention: a new approach for working with systems divided by conflict and caught in defensive perception*, 2001)
- [Metaphor Project](#) focused on alternative forms of education (insurgent storytelling, world weaving, R.A.D. research, witchcraft, queering) enabled by a collection of stories and a network of storytellers that can inspire creative expression, and extending the lives of endangered cultures and world-views.
- Jean-Pierre Van Noppen, et al. (Comp.):
 - *Metaphor: a bibliography of post-1970 publications*, 1985);
 - *Metaphor II; a classified bibliography of publications from 1985-1990.*, 1990
- Wikipedia offers a [List of political metaphors](#)

Conclusion

The launching at this time of [The Metaphor Program](#) of the US [Intelligence Advanced Research Projects Activity](#) (IARPA) -- with participation of the [US Army Research Laboratory](#) -- would seem to be in response to recognition of the challenges of the battle for "hearts and minds" in the encounter with other cultures of strategic concern to the USA (Joseph R. Didziulis, *Winning The Battle For Hearts and Minds: operationalizing cultural awareness during stability operations*, 2008). To the extent that metaphor is significantly carried by poetic language in those cultures, this opens new perspectives consistent with the poetic articulation of the *I Ching* and the *Kama Sutra* (*Poetic Engagement with Afghanistan, Caucasus and Iran: an unexplored strategic opportunity?* 2009; *Strategic Jousting through Poetic Wrestling Aesthetic reframing of the clash of civilizations*, 2009).

As a use of "soft power", the IARPA initiative offers an appropriate contrast to past reliance on ever more sophisticated military hardware -- whose destructive capacity is continually enhanced by advances in physics. The challenge for physics is that it has been deeply "embedded" in research for military purposes -- exemplified by the destructive capacity it proudly enables and for whose consequences it can deny all responsibility. Physics has become strangely complicit in situations from which it would in principle prefer to be dissociated -- without being able to offer any insights of significance to challenges of governance of civilization, considered "too complex" or "uninteresting".

The role of poetic metaphor, in enabling comprehension of higher order of connectivity in response to such complexity, is clarified by Gregory Bateson in explaining why "we are our own metaphor":

One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we're not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity. ([Mary Catherine Bateson](#), *Our Own Metaphor; a personal account of a conference on the effects of conscious purpose on human adaptation*. 1972, pp. 288-289)

The criticism by physicists of the "superficial erudition" associated with the abusive metaphorical use of topology to articulate psychosocial insights was noted above. It is exemplified by the [Sokal Affair](#) (Alan D. Sokal and Jean Bricmont, *Fashionable Nonsense: postmodern intellectuals' abuse of science*, 1999). Any validity to such arguments needs now to be reframed in the light of the failure of "hard power" strategies enabled by physics -- and the willingness to consider other possibilities as suggested by the IARPA initiative. The challenge for the "hard sciences" is whether they have insights of value to the challenges of global governance, given a pattern of recent complicity (Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: how a handful of scientists obscured the truth on issues from tobacco smoke to global warming*, 2010). The pattern of failure of technology-enabled global initiatives is currently highlighted by the scandals regarding "misreporting" by physicists in the nuclear industry in Japan and France, following similar instances in the USA (*Fukushima operators Tepco: Japan's mendacious energy giant; La sécurité des centrales nucléaires françaises est de plus en plus mise en cause*, 14 juin 2011; *EDF signale une anomalie dans 19 réacteurs nucléaires*, 17 février 2011).

The pattern and frequency of sexual scandal, at the very highest level of decision-making, also calls for ways of reframing psychosocial dynamics. It is dangerously naive to assume repeatedly that governance is dissociated from sexuality and the attractors it represents. At the time of writing, in addition to a scandal involving the Director of the IMF, an issue of *The Economist* has as its cover title and lead editorial ([Silvio Berlusconi's record: The man who screwed an entire country](#), 9 June 2011). It is in this sense that the structured preoccupations of the *Kama Sutra* are seen here as offering a valuable complementary pattern language -- enhanced by insights from *Topology* and catastrophe theory. Irrespective of such scandals, the role of sexual preoccupation as the primary attractor merits its integration into a more fruitful cognitive framework -- rather than the prevailing pattern of denial and cover-up, despite its explicit role in marketing worldwide.

Curiously the so-called "clash of civilizations" might be usefully considered to be a clash between conscious civilization and its "unconscious" form -- of which the hedonism and sexuality of the "bunga-bunga" culture is the most evident manifestation (John Ralston

Saul, *The Unconscious Civilization*, 1995). The binary nature of this mindset is seemingly implicit in the framing of the IARPA Metaphor Program in that it is designed to enhance the strategic advantage of the USA at the expense of other cultures -- hopefully to be brought within its sphere of cultural influence by the "spread of democracy" as a form of surrogate religion.

This raises the question as to whether the analytical tools (*Topology?*) applied by IARPA to comprehension of the metaphoric vehicles of "other" cultures will effectively reinforce the current linear mindset, echoing the strategic situation which resulted in the "loss" of the Vietnam war -- with the US assuming it was playing chess while in fact the Chinese strategists were playing *go* (*wei-ch'i*), as argued by Scott Boorman (*The Protracted Game: a wei ch'i interpretation of Mao's revolutionary strategy*, 1971). If the intention of IARPA is to derive a "singular" metaphoric strategy as a key to future **memetic warfare**, there is a case for recognizing how dependence on a singular metaphoric language is intimately related to **groupthink** and the "failure of imagination" by which the intelligence community was formally characterized following 9/11 (*Groupthink: the Search for Archaeoraptor as a Metaphoric Tale*, 2002).

For IARPA, the **key would appear to be the dynamic patterning of the metaphors -- possibly configured spherically -- rather than their interpretation in isolation in "laundry lists"**. It is from the ability to shift coherently between them, to "play" them as with the notes on a musical instrument, that more integrative coherence can emerge (*Enacting Transformative Integral Thinking through Playful Elegance*, 2010; *Engaging with Globality through Playful Re-categorizing*, 2009). Ironically this "playfulness" is especially well-recognized in sexual intercourse. However the latter may also be used metaphorically to caricature an unfortunately destructive approach to reality -- as currently promoted by physicists and politicians (*Beyond Harassment of Reality and Grasping Future Possibilities: learnings from sexual harassment as a metaphor*, 1996).

In reflecting on the disparagement by which the *I Ching* and the *Kama Sutra* are commonly framed as obsolete metaphorical languages -- in contrast with the analytical possibilities of *Topology* -- it is useful to consider how cognitive tools can be designed so as to survive the collapse of empires and civilizations. As ancient "languages", their survival would seem to be associated with a special kind of psychoactive engagement, which they have evoked across the centuries -- raising the question of how the 21st century might do better (*Minding the Future: a thought experiment on presenting new information*, 1980).

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