



# laetus in praesens

Alternative view of segmented documents via Kairos

24 February 2009 | Draft

## Intercourse with Globality through Enacting a Klein bottle

### Cognitive implication in a polysensorial "lens"

-- / --

**Annex D** of *Engaging with Globality through Knowing Thyself* (2008), **Dimension 4** of a four-fold exploration. [*Engaging with Globality* -- Dimension 1: *Cognitive Realignment*; Dimension 2: *Cognitive Circlets*; Dimension 3: *Cognitive Crowns*; Dimension 4: *Knowing Thyself*]

[Overview of Engaging with Globality](#)

[Introduction](#)

[Klein bottle: enacting a cognitive process](#)

["Distracting" aids to comprehension](#)

[Psychodynamics of sexual experience](#)

[References](#)

## Introduction

The following is one example of an exercise envisaged in *Playfully engaging with globality through re-categorization and re-classification* (in **Dimension 4**). The context for this exploration of a metaphor with sexual connotations is the subject of a series of comments provided separately as **Annex A** (*Engaging with Globality through Playful Re-categorizing*):

[Humour](#) | [Playful examples](#) | [Logical vs Aesthetic correspondences](#) | [Meaningful connectivity](#)  
[Surfaces and orifices](#) | [Consumption and consumerism](#) | ["Knowing" another](#) | [Courtship](#) | [Kama Sutra](#)

The cognitive implications of the metaphor are initially developed in **Annex B** (*Global Governance via a Double-breasted Strange Attractor*) and further developed in **Annex C** (*Engaging with Globality through Dynamic Complexity*) as an introduction to what follows here.

The exploration is premised on the assumption that **sustainable governance is necessarily sexy -- and if it is not then it is unlikely to be sustainable**. By designing sex out of governance, sex has become identified with the problematic [shadow of humanity](#).

If arguments regarding the consequence of sex (namely population increase) are as well-founded as those which sustained the financial system prior to its crash in 2008, then the argument of economists regarding population stabilization should be viewed with the deepest suspicion. They obscure surprises as unexpected as the crash of the financial system.

Perhaps the mystification associated with "lost knowledge" could, in the case of governance, be associated with a lost capacity to integrate the complex cognitive implications of sexual dynamics into decision-making. More to the point, **in the absence of the cognitive dynamic associated with sexuality, is there any indication that the international community "engendered" anything recognizably "new"?**

From the perspective of many cultures of governance, notably for males, a "Klein bottle" is indeed considered an admirable approach to finding the answer -- notably by enabling the question to be forgotten. However, if the entheogenic associations to "triple crown cognition" (in **Dimension 3**) are valid, this approach may offer a fruitful approximation in the absence of anything better.

## Klein bottle: enacting a cognitive process

In contrast to the indications of Annex B (*Global Governance via a Double-breasted Strange Attractor*) regarding the "externalities" of engagement with globality -- to be caricatured as the "outer-game of sex" -- the focus here is on what might be termed the **"inner-game of sex"** (a term seemingly first used by Robert Shea, *The Inner Game of Sex*, Playboy, October 1978). The focus advocated here

addresses the cognitive insights associated with the processes of "making love" with otherness, however radical, rather than "making war" -- a theme implicit in theology ("love thine enemy") and the politics of intercourse.

Globality is held, and intuited, to be closely associated with a sphere -- and how roundness and sphericity are understood and experienced. However the paradoxes of experiencing globality in that case -- as with the necessary diurnal rhythms of night and day -- call for a degree of cognitive engagement that implies a more complex form of cognitive "convoluted involution". These imply a dynamic beyond that associated with the "revolution" of the sphere.

Curiously there is a terminological confusion with revolution on an axis -- as in "[revolution per minute](#)" -- otherwise termed "[rotation](#)". "Revolution" is more correctly applied to [orbital movement](#), as with a planet around a sun. This confusion may well be reflected in the psychosocial use of the term. The torus may be understood as a topological development of the sphere -- suggested by the manner in which it traces the path of (orbital) "revolution" of a sphere around the axis of a central "hole". The cognitive challenge for greater engagement with globality is a form of enantiodromia that "involves" a process of cognitive "inside-outing" and "outside-inning" -- hence the potential insides from a Klein bottle -- as a further development beyond the sphere and the torus.

**Complexity of conventional explication:** For the exploration here to be fruitful, it is appropriate to expect that the nature of any proposed construct -- and the understandings it might be used to interrelate -- may readily invite an inhibiting degree of complexity in any explication. This would be fundamentally counterproductive to its role in facilitating insight into the engagement with globality that is the focus of this quest. In a sense, its very form elicits the explicatory challenges for which it might be used to provide clarification.

**Re-cognizing the body:** It would appear that it is in relation to lacanian topology that most attention has been given to such possibilities; topology is used to situate psychoanalytic concepts in structures that convey interdependent relations. But Elizabeth Gorsz ([Volatile Bodies: towards a corporeal feminism](#), 1994) refigures the body so that it moves to the center of discourses on subjectivity. She offers a theorization of the female body based on the Möbius strip as a corrective to the male-biased theories of Freud, Lacan, Merleau-Ponty, Foucault, Deleuze, Derrida, etc. on the subject of the body -- notably challenging the visual bias of Merleau-Ponty.

In showing how images promote assumptions and conceal tensions in philosophical works, how images persuade, and how they limit debate and exclude ideas, Marguerite La Caze ([The Analytic Imaginary](#), 2002) suggests that a more open-ended and reflexive approach can result in richer, more fruitful insight. She cites Grosz's understanding of the Möbius strip, as the way the body is both imbued with subjectivity and the way subjectivity is material:

The strip has the advantage of showing the inflection of mind into body and body into mind, the ways in which, through a kind of twisting or inversion, one side becomes another. This model also provides a way of problematizing and rethinking the relations between the inside and the outside of the subject, its psychological interior and its corporeal exterior, by showing not their fundamental identity or reducibility but the torsion of one into the other, the passage, vector, or uncontrollable drift of the inside into the outside and the outside into the inside. (p. xii)

Intriguing however is the manner in which two such strips of different orientation constitute a Klein bottle. This is a theme extensively explored by Melanie Claire Purcell ([Towards a New E.R.A.: epistemological resolution analysis in, from and through Klein bottle wholeness and transdisciplinary education](#). 2006; [Imperatives for Unbiased Holistic Education: the Klein bottle, a universal structure: an archetypal image](#), 1999).

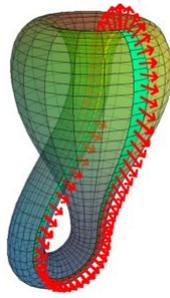
**Paradoxical recursion:** The [Klein bottle](#) is recognized as offering a means of giving visual expression to the paradoxical cognitive challenges of self-reflexivity and to the psychodynamics of "knowing thyself". It has been held to be the most unifying topological structure by various authors, including David Bohm and Steven Rosen ([What is Radical Recursion?](#)) -- as clarified by Melanie Claire Purcell (2006). Its role in this respect is consistent with arguments originally made by the psychoanalyst Jacques Lacan. Purcell, for example, sees it as integrating the characteristics of wholeness, formative causation, and an ontological bridge for comprehending consciousness through an epistemology that invokes pantheism as the most universal spiritual construct.

**Visualization:** In mathematics, the Klein bottle is a surface, apparently taking the form of a "bottle" in three-dimensions, with no distinct "inner" and "outer" sides, nor any boundary (in contrast with the sphere). Being only a surface, it cannot act as a container. It is related to the better known [Möbius strip](#) which is a two dimensional surface, having only one side, but with a single boundary. These structures need to be visualized in three dimensions to be partially comprehended. Better still the visualization needs to be dynamic to gain fuller comprehension -- especially in the case of the Klein bottle. Of the many visualizations available on the web, the following were noted as especially clear:

#### Representations of the Klein bottle

Konrad Polthier ([Imaging Maths: inside the Klein bottle](#),  
+*Plus Magazine*, September 2003;  
View Polthier's [animated version](#) (997K) or  
explore his [java applet](#)

Screenshot from video of formation of Klein  
bottle  
developed by University of Hannover  
([available](#) with others on YouTube)



In fact, as is acknowledged, a three dimensional representation in the latter case is itself completely inadequate (and misleading) -- implying an inappropriate distortion that is nevertheless significant to what follows. The Klein bottle is essentially a four dimensional construct -- beyond conventional representation.

**Representation of globality:** The argument here is that it is precisely such paradoxical subtleties that address the widespread assumption that the challenges of engaging with globality can be explicated with simpler and more readily comprehensible forms. But, to the extent that such subtleties are commonly experienced, the Klein bottle provides a surface with which they may be experientially associated.

Globality is "universally" represented by the ideal form of a sphere -- perhaps driven by traces of the original instinctual attraction of an egg for a sperm, as required for fertilization and reproduction. This shape is however not sufficiently complex to hold the psychodynamics of engaging with the globality of an apparently "external" world whilst sustaining an integrative ("global") sense of one's own personal "inner" identity. Topological forms such as the Klein bottle, mathematically related as they are as developments of the sphere, are therefore at the limit of the forms of comprehensibility with which it is possible readily to identify. Hence the interest of the explorations of lacanian psychoanalysis such as those of Rosine Lefort and Robert Lefort (*Birth of the Other / Naissance de l'Autre*, 1980 / 1994) citing Bernard Morin et Jean-Pierre Petit (Le Retournement de la Sphère, *Pour la Science*, janvier 1977).

The limitations of the spherical **globe** in this respect are helpfully illustrated by the distinction between night and day as experienced on the surface of the planet. Definitive **local** assertions are brought into question by its **rotation**. This results in symbolically significant encounters with "shadow" and the celebration of "enlightenment" (externally lit) -- a cognitive dynamic essentially excluded from **static** metaphoric representations of global and globalization. The Klein bottle offers a richer means of comprehending the paradoxical continuity between seemingly definitive judgements.

**Identification rather than representation:** The stress in what follows is precisely with respect to experiential identification rather than with description or representation. Assumptions regarding the conventional objectivity of description are in fact called into question (*Creative Cognitive Engagement: beyond the limitations of descriptive patterning*, 2006). In a sense, in order to carry and focus the significance of "know thyself", the challenge is to enable and give form to the cognitive process through the paradoxical complexity of the Klein bottle.

In effect that form must be cognitively embodied or "felt" as a dynamic process, rather than visualized statically and "looked at". It is sensed through familiarity with a process with which one is identified rather than through detached observation. This is consistent with arguments made elsewhere (*Stepping into, or through, the Mirror: embodying alternative scenario patterns*, 2008; *Strategic Challenge of Polysensorial Knowledge: bringing the "elephant" into "focus"*, 2008).

## "Distracting" aids to comprehension

The challenge is to locate clues to enable comprehension of such embodiment (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007). These may perhaps be understood as mnemotechnics or *Ars Memorativa* (Frances A. Yates, *The Art of Memory*, 1966).

Whilst many of these are associated with extensive and insightful commentary (as with that of Melanie Claire Purcell), the suggestion here is that it is the more radically experiential "aid" (of the **subsequent section**) on the *Psychodynamics of sexual experience* that is more fruitful than what immediately follows. These clues are then best used for possible clarification and as a source of complementary insight. Arguably they may even be understood as various symptoms of the problem of the challenge of communication of insight. They might also be considered, following the arguments of **Dimension 2**, as forming a circllet that implies the subsequent cognitive focus.

**Text:** The challenge of conventional discursive text explanations may be caricatured by the classic example of any effort to provide a text description of a spiral staircase (or sexual intercourse) for those who have never had the experience. Carolyn G. Guertin (*Quantum Feminist Mnemotechnics: the archival text, digital narrative and the limits of memory*, 1996) provides a helpful review of many of the issues -- but in a text that is necessarily subject to the reservations that she highlights (as with this one, or that of Melanie Claire Purcell).

The problematic assumptions conventionally made regarding text are discussed in detail in *Beyond the plane: form and medium in terms of the calculus of indications* (part of *Comprehension of Requisite Variety for Sustainable Psychosocial Dynamics: Transforming a matrix classification onto intertwined tori*, 2006). The arguments made there with regard to the torus are also relevant to consideration of the Klein bottle.

Specifically, in summary, in contrast to the plane surface of a simple matrix, a torus holds an interesting position in the discussion of the relationship between form and medium as fundamental to advanced theories of communication. This notably featured in the work of Niklas Luhmann (*Die Gesellschaft der Gesellschaft*, 1997) and discussed by Michael Schiltz (*Form and Medium: a mathematical*

*reconstruction, Image [&] Narrative*, 6, 2003) in relation to the calculus of indications of [George Spencer-Brown](#) (*Laws of Form*, 1969/1994). Schiltz notes that form/medium is "the image for systemic connectivity and concatenation", as described by [Humberto Maturana](#) and [Francesco Varela](#). Schiltz notes, that the notion of "space" is the key to reflexivity appropriate to any discussion of form and medium, citing Spencer-Brown as follows:

In all mathematics it becomes apparent, at some stage, that we have for some time been following a rule without being aware of it. This might be described as the use of a *covert convention*. [...] Its use can be considered as the presence of an arrangement in the absence of an agreement. For example, in the statement and theorem.... it is arranged (although not agreed) that we shall write on a plane surface. **If we write on the surface of a torus the theorem is not true** [...] The fact that men have for centuries used a plane surface for writing means that, at this point in the text, both author and reader are ready to be conned into the assumption of a plane writing surface without question. But, like any other assumption, it is not unquestionable, and the fact that we can question it here means that we can question it elsewhere [...]

To what extent are the various approaches to sustainable development, and the search for alternative paradigms, to be considered as efforts to achieve new -- and more encompassing -- forms of closure?

**Poetry:** One clue is to be found in the pattern of associations held succinctly in poetic form, as with that of [T S Eliot](#) (in *Little Gidding*, 1942), echoing the life-cycle experience of a salmon:

*We shall not cease from exploration  
And the end of all our exploring  
Will be to arrive where we started  
And know the place for the first time.*

**Haiku** may be understood as specifically serving such a purpose (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006), although the more general relevance of poetry remains to be explored (*Poetry-making and Policy-making: arranging a marriage between Beauty and the Beast*, 1993)

**Plato's Cave:** Another clue might be to suggest that the much cited cognitive challenge of Plato's *Allegory of the Cave* might be more appropriately understood if it took the form of a Klein bottle. However, whilst the traditional symbol of the **Ouroboros** is consistent with the cognitive challenge posed by the Klein bottle, its meaning as a symbol has to be derived elsewhere.

**Music:** For the musical, Robert W. Peck (Klein-Bottle Tonnetze, *Music Theory Online*, 9, 3, August 2003) departs from the toroidal *Tonnetz* of neo-Riemannian theory, to construct a generalized Klein-bottle *Tonnetz*. He then examines associated transformational graphs and analytical contexts, using various cyclic group operators. He ends by considering relationships among entire Klein-bottle *Tonnetze*, and places them into recursive supernetworks. Ernest G. McLain (*The Myth of Invariance: the origins of the gods, mathematics and music from the Rg Veda to Plato*, Shambhala, 1978) \*\*\*

**Reflexivity:** The exploration of [Douglas Hofstadter](#) beyond the reflexivity of *Gödel, Escher, Bach: an Eternal Golden Braid* (1979) is exemplified by the title of his more recent work, *I Am a Strange Loop* (2007), which is indicative of the cognitive challenge.

**Psychoanalysis:** The pioneering work of [Jacques Lacan](#) and his followers, informed by topology and knot theory, is clearly vital in offering indications, especially with respect to the significance of the manner in which the surface of the Klein bottle appears to be intersected by a portion of itself. \*\*\*\*

This diagram [the Möbius strip can be considered the basis of a sort of essential inscription at the origin, in the knot which constitutes the subject. This goes much further than you may think at first, because you can search for the sort of surface able to receive such inscriptions. You can perhaps see that the sphere, that old symbol for totality, is unsuitable. A torus, a Klein bottle, a cross-cut surface, are able to receive such a cut. And this diversity is very important as it explains many things about the structure of mental disease. If one can symbolize the subject by this fundamental cut, in the same way one can show that a cut on a torus corresponds to the neurotic subject, and on a cross-cut surface to another sort of mental disease. [Lacan (1970), pp. 192-193]

In this space of *jouissance*, to take something bounded, closed, is a location, and to speak about it is a topology. ...What does the most recent development of topology allow us to put forward concerning the location of the Other, of this sex as Other, as absolute Other? I will put forward the notion of compactness. Nothing is more compact than a fracture; clearly, the intersection of everything that closes being admitted as existing on an infinite number of sets, it follows that the intersection implies this infinite number. It is the very definition of compactness [Lacan (1975)]

Such issues are the subject of extensive relevant comment by subsequent psychoanalysts of lacanian persuasion:

- Charles Shepherdson, *The Intimate Alterity of the Real: A Response to Reader Commentary on "History and the Real"* (*Postmodern Culture*, 6, 3, May, 1996)
- Jacques-Alain Miller. *The symptom: universalism versus globalization*
  - *Extimity*, 2008
  - *Elements of Epistemology*, 2008
- Gérard Wajcman, translated by Ron Estes, Jr. (*Intimate Extorted, Intimate Exposed*, *Journal for the Jan van Eyck for Lacanian Ideology Critique*, 1, 2008, pp. 58-77)

**Misrepresentation:** However it is precisely these paragraphs of Lacan that are cited as an example of [pseudoscience](#) by the mathematician Kuroki Gen (*Lacan*, 30 August 1999). It was such argumentation by Lacan that was incorporated into an article by mathematician [Alan Sokal](#), submitted for publication in a respected journal as a deliberate hoax -- resulting in the notorious [Sokal Affair](#) (Alan Sokal, *Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity*, *Social Text* 46/47, Spring/Summer 1996, pp. 217-252).

**Beyond binary logic:** But whatever the merits of Sokal's perspective, the many comments on his Affair offer a remarkable illustration of the range of binary perspectives (open/closed, right/wrong, agreement/disagreement, knowledge/ignorance, reality/illusion, objectivity/subjectivity, identification/detachment) that any richer understanding of globality must necessarily embody. They offer a metaphor of many "two culture" challenges of "clashing civilizations" and the arrogant discrimination these evoke as a reaction to perceived naivety and gullibility. Such perspectives might therefore be fruitfully mapped onto the Klein bottle to hold the continuity between such apparently incommensurable perspectives.

A particular justification for this 4-dimensional transcendence of binary logic is in relation to the polarity subject/object, especially as it is highlighted by feminist scholars and lacanian psychoanalysts with respect to women framed as a sexual "object". Hence the value of the sexual metaphors explored here in order to reframe this simplistic distinction. Of related interest is the study by Max Deutscher (*Subjecting and Objecting : an essay in objectivity*, 1983).

Curiously Sokal would seem to have had little insight to offer into these matters (outside his discipline), despite the fundamental cognitive challenges posed by paradoxes to physicists (Etienne Klein, *Conversations with the Sphinx: paradoxes in physics*, 1996) . The understanding he brings to bear on the cognitive challenges are not of requisite complexity to encompass their diversity and scope -- and the gullibility of those who expected more of him.

## Psychodynamics of sexual experience

Associations of the Klein bottle with sexuality -- especially its pathology -- have been a theme of the lacanian approach to topology. The more radical argument here is that, rather than explore such "explanations" as discursive text and its comprehension, more fruitful is the use of the form itself as a psychoactive "inplanation". At issue is not how to communicate or transmit insights to others but the very nature of mutually meaningful intercourse with another ("*Human Intercourse*": "*Intercourse with Nature*" and "*Intercourse with the Other*", 2007). This may be understood in terms of:

- the richer psychoactive function of symbols (*Moving Symbols: radical change in religious psycho-social energy policy?* 2008).
- the arguments [above](#) of Michael Schiltz (*Form and Medium: a mathematical reconstruction*, *Image [ & ] Narrative*, 6, 2003)
- senses other than vision (*Strategic Challenge of Polysensorial Knowledge: bringing the "elephant" into "focus"*, 2008)
- configurations of values (*Topology of Valuing: psychodynamics of collective engagement with polyhedral value configurations*, 2008)
- the contrast with intimacy as articulated by:
  - Jacques-Alain Miller (*Extimity, The symptom: universalism versus globalization*, 2008)
  - Gérard Wajcman (*Intimate Extorted, Intimate Exposed*, 2008)

These dimensions relate in various ways to arguments regarding embodiment and the understandings of [enactivism](#) (George Lakoff and Mark Johnson, *Philosophy In The Flesh: the embodied mind and its challenge to western thought*, 1999; [Francisco Varela](#) et al. *The Embodied Mind*, 1991. *En-minding the Extended Body Enactive engagement in conceptual shapeshifting and deep ecology*, 2003). The form is then not to be "looked at" as signifying something "elsewhere", rather it is to be experienced in the flow (in the sense of [process philosophy](#) or [flow psychology](#)) as the embodiment of an essentially sexual dynamic, however generically this is understood.

\*\*\*\*recursion -- image of itself -- mirroring

**Dynamics (4D):** Whilst any concept of a 4th dimension is not normally associated with time as understood by physicists, this tends to obscure other understandings of time, notably its circularity -- as exemplified by the poem of T. S. Eliot (above) or perhaps the symbol of the Ouroboros. The argument here is that there is an intimate relation to time that offers an experiential understanding of a pattern of dynamics, notably as in any sensational process such as intercourse -- of which the Klein bottle offers a formal representation -- but challenged by some instances of greater/vaster scope (enantiodromia) of that pattern.

In this sense, in its 4-dimensionality, the Klein bottle might be understood as a standing wave in a flow process -- cycling through an attractor that transforms (enantiodromia). Failure to encompass the cyclic process results in a sense of discontinuity -- as intimated by the broken circlets of [Dimension 2](#). The challenge to time-bound learning is one of entering into that wave in ways reminiscent of the engagement of surfers -- learning to traverse the cycle as is called for in the literature on the resilience required in engaging in an adaptive cycle..

**Enantiodromia:** The possible implications of such a process have been discussed elsewhere (*Psychosocial Energy from Polarization within a Cyclic Pattern of Enantiodromia*, 2007; *Patterns of alternation: toward an enantiomorphic policy*)

**Polarization:** This cognitive tendency is widely recognized as a major challenge. Associated experiences are suggestively addressed by lacanian psychoanalysts as noted above, notably with respect to "image" vs. "reality". The latter polarity is intriguingly addressed by mathematicians in their understanding of the [complex plane](#) and the real and imaginary axes in terms of which it may be represented. The Klein bottle, as with the Möbius strip, reframes possible understandings of polarization which otherwise constrain responses to psychosocial dynamics.

In addition to its implications for enantiodromia, the issues are further considered elsewhere (*Polarities as Pluckable Tensed Strings: hypercomprehension through harmonics of value-based choice-making*, 2006; *Discovering Richer Patterns of Comprehension to Reframe*

*Polarization*, 1998; *Responding to Conceptual and Value Polarities: learnings from sexuality*, 1998; *Antagonistic Dualities: Polarization and Paradox*, 1983).

**"Triple crown":** Given the arguments in [Dimension 3](#), it is intriguing to look at the Klein bottle as a form of triple crown -- possibly partially projected into the form of the pharaonic triple crown. Are three possible cognitive stages to be distinguished in the process of knowing represented by the Klein bottle? Are these to be associated with stages in some drug-enhanced psychedelic experience as implied there? Is the crown, to be understood as evolving through geometric transformations: sphere, torus, etc?

What might such insights apply for engaging with globality in the development of strategy by those so crowned?

**Mirroring:** The implications of mirroring are a theme of lacanian insights. The relationship between the Möbius strip and the Klein bottle are of interest in that respect. They have been discussed elsewhere in terms of the implications of the [mirror recognition test](#) of self-awareness (*Self-reflective Embodiment of Transdisciplinary Integration (SETI) the universal criterion of species maturity?* 2008).

Does the Klein bottle imply the possibility of a 3-fold mirroring -- the requisite complexity to encompass experiential paradox?

**Attractor:** If the Klein bottle form is effectively to be cognitively enacted, how is any attractor to be perceived so as to ensure the cyclicity of the process of enantiodromia? This implies issues of mystery and "perspective" potentially well-illustrated by sexual courtship and intercourse -- perhaps best understood generically, through "grokking", to encompass all the forms of engagement through the senses.

This implies cognitive processes of:

- encompassing that by which one is encompassed
- engulfing that by which one is engulfed
- enfolding that by which one is enfolded
- enveloping that by which one is enveloped
- enthralling that by which one is enthralled
- embodying that by which one is embodied
- embedding that in which one is embedded

Of potentially greater interest is the manner in which values function as attractors (*Human Values as Strange Attractors: coevolution of classes of governance principles*, 1993).

**Pathology:** Again it is the lacanian psychoanalysts that have been very interested in the sense in which the Klein bottle is "cut" by the intersection in 3-dimensions (which is not apparent in 4). Also of interest is the possibility of "stretching" in different ways as potentially indicative -- through the degrees of asymmetry -- of different cognitive pathologies.

**Symbolism:** As noted above, Melanie Claire Purcell (2006; 1999) has commented extensively on the relation between the Klein bottle and the well-known taoist [Taijitu symbol](#) -- the one being potentially a 2D projection of the other. This relationship is also discussed in *Snoring of The Other: a politically relevant psycho-spiritual metaphor?* (2006).

Some quotes from the *Tao Te Ching* are suggestive of experiential understandings associated with cognitive "exploration" of the Klein bottle as a process experience.

#### *Tao: The Great Mother*

as related to the cognitive experience of a Klein bottle process?

*The Valley Spirit never dies  
It is named the Mysterious Female.  
And the doorway of the Mysterious Female  
Is the base from which Heaven and Earth sprang.  
It is there within us all the while;  
Draw upon it as you will, it never runs dry. (chap. 6)*

*The Tao doesn't take sides;  
it gives birth to both good and evil...  
The Tao is like a bellows:  
it is empty yet infinitely capable.  
The more you use it, the more it produces;  
the more you talk of it, the less you understand. (ch. 5)*

*The Tao is called the Great Mother:  
empty yet inexhaustible,  
it gives birth to infinite worlds.  
It is always present within you.  
You can use it any way you want. (ch. 6)*

*The Tao is infinite, eternal.  
Why is it eternal?  
It was never born;  
thus it can never die.  
Why is it infinite?  
It has no desires for itself;  
thus it is present for all beings.*

*How do I know this is true?  
By looking inside myself. (ch. 54)*



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#).

For further updates on this site, [subscribe here](#)