



laetus in praesens

Alternative view of segmented documents via Kairos

24 June 2013 | Draft

World Introversion through Paracycling Global potential for living sustainably "outside-inside"

-- / --

Introduction

Incoherence of external reality

Transformation of worldview from "inside-outside" to "outside-inside"

Imagining a window of strategic opportunity for change

Insightful confusion: outside-in, inversion, introversion?

Alleviating the "weight" of external matters

Alternation of worldview between "inside-outside" and "outside-inside"

Paradoxical cycling between "inside-outside" and "outside-inside"

Paracycling: towards a terminological and visual clarification

Sphere eversion as guide to the cognitive twist of global introversion?

Imagining transcendence appropriately challenging to comprehension

Approaches to distinguishing requisite cognitive variety

Paradoxically dynamic coherence of internalized "pantheons"

Engaging with "peaceful" and "wrathful" deities

Embodying the world as a strategic opportunity

References

Produced on the occasion of the [G8 Summit](#) in Eniskillen (Ireland)

Introduction

At a time of considerable social unrest in various countries of the world, with more foreseen exacerbated by unresolved environmental issues, it is not to be expected that any meeting of the G8 will be able to address matters coherently, creatively and responsibly -- despite declarations to the media to the contrary. Any actions taken as a result will in all probability further exacerbate the situation -- despite denials of any such consequences.

The question meriting reflection is whether the courageous protests against the mindset of those who claim capacity to govern society could be set aside to enable exploration of other modalities. Clearly such protests will continue and will be met with ever more severe repression by "security forces" in the name of "law and order" -- framing any form of protest as instigated by "terrorists" (recently exemplified in the US by [protest regarding water quality](#)). The possibility that there are other forms of "security" thereby neglected (and alternative understandings of "order" which merit consideration) has been discussed separately (*Law and Order vs. Lore and Orders? Imagining otherwise the forceful engagement of singularity with plurality*, 2013). There is clearly a case for recognizing that **the form of security currently promoted as paramount is only achieved at the cost of exacerbating other forms of insecurity currently considered irrelevant.**

Potential of imaginative personal reframing: The concern here is **how to reframe the situation for oneself in one's own imagination -- without succumbing to the dysfunctional authoritarians worldviews so widely promoted.** The situation could be compared to the prehistoric period when the dinosaurs roamed the planet threatening other lifeforms. The question is then what strategies to explore personally in order to coexist with "gloriously terrifying monstrosities", as speculatively suggested previously (*Systemic Biomimicry of Dinosaurs by Multinational Corporations: clearing the ground for future psychosocial evolution*, 2011).

Another way to frame the challenge is evoked by the recent disclosures regarding the level of invasive surveillance by the US National Security Agency and its collaborators, as separately discussed (*Vigorous Application of Derivative Thinking to Derivative Problems*, 2013). Science fiction, through the *Star Trek* series, has conveniently imagined the **Borg Collective** inhabiting interconnected box-like space-vessels -- usefully reminiscent of the NSA "boxes" at Fort Meade and Bluffdale. Such imagination is echoed by that of the *Matrix* series (a title exploited in the *Wired* magazine reporting in 2012 on the NSA Bluffdale installation). All such speculations frame challenges

to "security", whether physical or cognitive.

Untrustworthiness and cultivation of fear: Most curiously, the case for invasive surveillance -- as with the argument for assimilation into the [hive mind](#) of Borg-society -- is promoted as a defence against societal disruption and erosion of "human values", currently framed as threatened by elusive "terrorists" to be feared above all else. This cultivation of fear is reminiscent of that promoted, with the assistance of the [Tonton Macoute](#), at the height of voodooism in Haitian society through fear of [Baron Samedi](#) (aka Osama bin Laden?) as the epitome of evil.

Use of "human values" and "human rights" in the declarations of those cultivating such fear can be compared to a fig leaf carefully adjusted to disguise invasive intentions of the most reprehensible nature. Those declarations have been proven to be no longer trustworthy -- or rather any confidence in them merits recognition as a significant risk to the person according it. Their artfulness lies in the capacity to make new promises, whilst reframing broken promises of the past to appear unbroken.

The untrustworthiness of the powerful has been most recently exemplified by revelations of the surveillance of participants by the UK at a [G20 Summit](#) hosted in London as well as of more comprehensive operations complementary to that of the NSA (Ewen MacAskill, et al., [GCHQ intercepted foreign politicians' communications at G20 summits](#), *The Guardian*, 17 June 2013; [GCHQ taps fibre-optic cables for secret access to world's communications](#), *The Guardian*, 21 June 2013). This pattern had been made evident with respect to the UN itself, as previously documented ([Alleged Breach of UN Treaty Obligations by US: press coverage and commentary following WikiLeaks cable dissemination](#), 2010). Recent [response to concerned questioning on the role of Australia](#) reinforces the supposition that cooperation on sharing such intelligence may be ensured through the Anglosphere [Five Eyes](#) security organization. However all such "disclosures" may well be a form of [false flag](#) operation to achieve public habituation to invasive surveillance, as suggested by [Naomi Wolf](#) (Joe Coscarelli, [Naomi Wolf Thinks Edward Snowden and His Sexy Girlfriend Might Be Government Plants](#), *NYmag.com*, 14 June 2013).

The difficult for the powerful is their inability to provide concrete proof of the veracity of whatever they claim to be truth -- given their ability to fabricate any evidence, if the cost justifies such fabrication in relation to their strategic assessment.

"Outside-Inside": Rather than engaging fruitlessly with such processes, **the following exploration concerns the radical possibility of "internalizing" the "externalities" whose manipulation by those empowered to do so is far from engendering a quality of meaningful coherence in resonance with the values to which individuals may aspire.** The possibility has been variously articulated in previous discussions ([Being the Universe : a Metaphoric Frontier](#), 1999; [Existential Embodiment of Externalities: radical cognitive engagement with environmental categories and disciplines](#), 2009; [Psychology of Sustainability: embodying cyclic environmental processes](#), 2002).

Rather than simply arguing for the freedom of subjectivity (and introversion) in contrast to entrapment in objectivity (and extroversion), the argument here concerns the cyclic dynamic of the paradoxical relationship between them ([Defining the objective ∞ Refining the subjective ?!: Explaining reality ∞ Embodying realization](#), 2011).

Riding a paradoxical cycle: Indicative images are offered by the sense in which the dynamic can be framed metaphorically as walking or use of a bicycle -- echoed in the first case by use of "left" and "right" in politics. The suggestion here, however, is that these readily comprehensible images obscure the paradoxical nature of that relationship. This is only too evident in the problematic relationship of such dualities in politics, especially in efforts to achieve bipartisan consensus and coordination. The question is then the possibility of transcending the limitations implied by such metaphors ([Transcending Simplistic Binary Contractual Relationships](#), 2012).

Rather than metaphorically acquiring the capacity to "ride a bicycle", it would seem that the challenge is better framed as one of "riding a paradoxical cycle" relating the conventions of "inside-outside." to the underexplored potential of living "outside-inside". This recalls the arguments for "simple living" as articulated by [Duane Elgin](#) ([Voluntary Simplicity: toward a way of life that is outwardly simple, inwardly rich](#), 2010) and those more recently made by Susan Cain ([Quiet: The Power of Introverts in a World That Can't Stop Talking](#), 2012).

This paradoxical cycle is notably recognized to a degree in developmental psychology, as by [Willis F. Overton](#) ([Metaphor, recursive systems, and paradox in science and developmental theory. Advances in Child Development and Behavior](#), 1991). Use is made here of the geometry of a "paracycle" to frame the dynamics of such a cycle as a "cognitive vehicle". This is partially inspired by the paradoxical nature of the [Möbius strip](#), and taking account of the arguments of [Steven M. Rosen](#) ([Science, Paradox and the Möbius Principle: the evolution of the transcultural approach to wholeness](#), 1994). Use is also made of the paradoxical insights into [sphere eversion](#) whereby a sphere can be turned "outside in".

Incoherence of external reality

Incoherence of external reality: Every effort is of course made to emphasize the "reality" of the "outside" world within which people are called upon to dwell -- a reality most susceptible to manipulation by empowered authorities. This is the "objective" world about which no reasonable disagreement is considered appropriate. The difficulty is that the most evident characteristic of this "outside" world is the amount of disagreement it engenders amongst authorities of every kind -- most notably between governments and their agencies.

Disputes between the sciences are pathetic to behold -- most notably between the natural sciences and the social sciences, as previously discussed ([Knowledge Processes Neglected by Science: insights from the crisis of science and belief](#) , 2012). Fundamental physics is artful in presenting the most abstruse articulations of this reality, supposedly consistent with experiment, but evoking unresolved questions as to the relationship of "consciousness" to it.

Incoherence of religious claims: The religions do of course attach great significance to forms of subtlety with which consciousness is variously considered to be associated -- the "supernatural". As is only too evident however, in the current bloody conflicts engendered and sustained by the Abrahamic religions and their sects, religions have proven themselves to be fundamentally incompetent in reconciling understandings of external reality in the light of their acclaimed insights and wisdom.

Incoherence of philosophy: As discussed separately (*Cognitive Systematization*, 1983), [Nicholas Rescher](#) has explored the reason for systematization in the cognitive domain and shows how this is one of the crucial features of the development of knowledge (*Cognitive Systematization; a system-theoretic approach to a coherent theory of knowledge*, 1979). It is to be expected that the pattern of insights and conclusions would be relevant to development in general. Rescher identifies eleven definitive characteristics of systematicity: wholeness, completeness, self-sufficiency, cohesiveness, consonance, architectonic structure, functional unity, functional regularity, functional simplicity, mutual supportiveness, and functional efficacy.

Arguably philosophers have engaged in noble efforts to clarify the context within which all-encompassing theories emerge and decline. It is very challenging to engage cognitively with that context and the process, especially given the commitment to the next emerging theory and the exciting claims made for it. The process has been partially addressed in the debate over the contrasting perspectives of [T. S. Kuhn](#) (*The Structure of Scientific Revolutions*, 1962) and [Karl Popper](#) (*Conjectures and Refutations: the growth of scientific knowledge*, 1963). However Rescher concludes his study of such distinctly unintegrative conflict with the comment:

For centuries, most philosophers who have reflected on the matter have been intimidated by the strife of systems. But the time has come to put this behind us -- not the strife, that is, which is ineliminable, but the felt need to somehow end it rather than simply accept it and take it in stride. To reemphasize the salient point: it would be bizarre to think that philosophy is not of value because philosophical positions are bound to reflect the particular values we hold. (*The Strife of Systems: an essay on the grounds and implications of philosophical diversity*, 1985)

Incoherence in the abstract sciences: As discussed separately (*Unrecognized strategic implications of paradox and logical fallacy*, 2008), one helpful review of the challenges is provided by [John Woods](#) (*Paradox and Paraconsistency: conflict resolution in the abstract sciences*, 2003). He notes that in a world plagued by disagreement and conflict, it might be expected that the exact sciences of logic and mathematics would provide a safe harbour. In fact, however, these disciplines are rife with internal divisions between different, often incompatible systems -- an example of a situation highlighted in the quotation above from Nicholas Rescher (1985). As Woods notes, there are apparently intractable disagreements in logic and the foundations of mathematics. Woods himself worked on conflict resolution strategies for intractable disagreements in questions of public policy through the research group on Fallacies as Violations of Rules for Argumentative Discourse (of the [Netherlands Institute for Advanced Study](#)).

As documented by [Peter Woit](#) (*Not Even Wrong: the failure of string theory and the continuing challenge to unify the laws of physics*, 2006), the dominant "superstring theory" of fundamental physics actually refers not to a well-defined theory but rather to the unrealized hopes that one might exist. Such unrealized hopes might similarly be said to dominate thinking regarding the possibility of global governance. Woods (2003) provides an insightful framing of post modern logical developments governing current understanding of objectivity and realism relevant to both domains:

One of these developments is a tolerant and substantial *pluralism* that has taken root and flourished in logical theory. This pluralism relates significantly to the toleration of it. The greater the latter, the more the former does damage to presumptions of objectivity and realism. The greater the latter, the greater the likelihood that theoretical rivalries will be interpreted in such ways that conflict resolution does not matter -- or even that it would be a misplaced thing to try to bring off. The other historical development is what could be called the *received view* of the significance of the paradoxes, on estimates of the damage done by them, and on the general character of strategies for set theoretic and semantic recovery. This too... puts in a false light objectivity and realism in mathematic and formal semantics. (pp. xi)

The exploration of "paracycling" in what follows might be considered a crude -- but somewhat comprehensible -- engagement by the individual with the [paraconsistency](#) of more theoretical concern to Woods. A paraconsistent logic is a logical system that attempts to deal with contradictions in a discriminating way. Alternatively, paraconsistent logic is the subfield of logic that is concerned with studying and developing paraconsistent (or "inconsistency-tolerant") systems of logic. Unfortunately the wider comprehensibility of the underlying arguments is not a criterion in their explication.

Inability to "make sense": As noted previously, individuals are thus confronted by claims made assertively by authorities, with different degrees of arrogance, regarding the nature of external reality and possibilities for the future (*Self-reflexive Challenges of Integrative Futures*, 2008). These claims may be framed as what it is appropriate to believe in -- or even what it is required to believe in (for fear of "excommunication" or death in some cases).

Those making such claims seem however to demonstrate on a daily basis their incompetence in making sense of "reality". At one extreme this justifies the arguments and initiatives of the [Global Sensemaking](#) network. However "sense" is not about to be made. Any [Theory of Everything](#), as foreseen by physics, is as likely to be as incomprehensible and incommunicable to most as the worldviews of individual religions have proven to be -- with the possibility that it will sustain other forms of violence, as has been the case in the light of profound spiritual insights. This is possible as a consequence of being variously understood (but only partially).

Transformation of worldview from "inside-outside" to "outside-inside"

There is a fundamental sense in which an "external" global worldview is essentially cognitively disempowering for the individual. The possibilities of comprehending and engaging with "globalization" are curiously "unsatisfactory" and "unintegrative" -- whether in the geographical or cognitive sense of global (*Future Generation through Global Conversation: in quest of collective well-being through conversation in the present moment*, 1997). The contrary is potentially the case with an "internal" global worldview -- "outside in" -- as various geometrical metaphors imply (*Metaphorical Geometry in Quest of Globality -- in response to global governance challenges*,

2009).

Detachment from externality: There is therefore a case for individuals to displace their psychic centre of identity from being understood as somehow "implanted" within external (objective) reality to being centered within internal (subjective) reality.

The authorities of external reality will of course continue to define any individual to their satisfaction in terms of objective criteria (age, sex, colour, height, weight, retina scan, DNA, etc), and will be fully confident that the profile provides a unique sense of identity. Surveillance and security systems will feel confident with that definition. To it they will add keywords derived from social networking, web usage, surveys and forms of surveillance, increasing their confidence in the definition and the behavioural predictivity they offer.

It is extraordinary that this obsessive quest for certainty regarding individual identity on the part of such authorities should be framed as a quest to isolate the essentially terrorist threat on the part of unidentified individuals -- in a period when individuals are themselves are much challenged by determining the sense of their own identity (irrespective of the criteria favoured by authorities).

Being otherwise through worldmaking: Many individuals already do not "identify" with such objective criteria however. They experience themselves "otherwise" inspired by their particular subjective reality (*Being Other Wise: dynamics of a meaningfully sustainable lifestyle*, 1998). Their worlds are not constrained by the objective realities so authoritatively and variously defined by authorities typically in conflict (possibly bloody).

In a sense many individuals have already discovered the capacity to "make their own world" and to engage imaginatively in "world-making" -- irrespective of the degree to which this may be deprecated by any authority (Nelson Goodman, *Ways of Worldmaking*, 1978; Vera Nünning, et al., *Cultural Ways of Worldmaking: media and narratives*, 2010). In principle this capacity is acknowledged as freedom of opinion (***) . Some variants may of course be framed as pathological or extremist by authorities with a clear sense of "normality".

Possibilities of "emigration" -- or "immigration": Missing as yet is enabling language through which to ensure this displacement from "outside" to "inside". How does one imagine the shift in perspective in a "disciplined" manner? What are the metaphors which might facilitate this shift?

In their absence, it can of course be readily argued that this shift is widely enabled through use of narcotic substances, alcohol, and a variety of physical experiences (sex, sport, etc).

Some of the language is available from disciplines of meditation and spiritual exercises, from psychotherapy, or from the flow psychology variously articulated by Mihaly Csikszentmihalyi (*Finding Flow: the psychology of engagement with everyday life*, 1996). There is some irony to the fact that the term "mindfulness" (and the disciplines which enable it) is consistent with the "world introversion" explored in this argument. Bill George, as Professor of Management Practice at the Harvard Business School, writes of *The Tipping Point for Mindfulness* (*The Huffington Post*, 21 June 2013):

Mindfulness practices like meditation have been in existence for thousands of years, but only now are they reaching the tipping point in the Western world. Today's pace and stress are so great that people are searching for new practices to find resilience in the midst of chaos, and mindfulness programs are helping them find better ways to live. Mindfulness, the practice of self-observation without judgment, encompasses an array of activities in which we focus inward on our minds and our inner voices.

Imagining a window of strategic opportunity for change

The reservoir of prefixes offer a means of identifying a window of opportunity -- contrasting an "external" with an "internal" focus (*Exploration of Prefixes of Global Discourse: implications for sustainable confidelity*, 2011; *New Paradigms via a Renewed Set of Prefixes: dependence of international policy-making on an array of operational terms*, 2003).

Examples of terms favoured with respect to transformation (terms in bold are especially threatening psychosocially; terms <i>italicized in parentheses</i> are unused)									
Prefixes	Term suffixes								
	<i>-version</i>	<i>-traction</i>	<i>-duction</i>	<i>-volution</i>	<i>-fusion</i>	<i>-struction</i>	<i>-spiration</i>	<i>-flation</i>	
A	con-	conversion	contraction	conduction	convolution	confusion	construction	conspiration	conflation
	di-	diversion	di(s)traction	<i>(diduction)</i>	<i>(divolution)</i>	di(f)fusion	<i>(distruction)</i>	dispiration	di(s)flation
	de-	<i>(deversion)</i>	detraction	deduction	devolution	defusion	destruction	despiration	deflation
B	re-	reversion	retraction	reduction	revolution	refusion	<i>(restruction)</i>	respiration	reflation
	sub-	subversion	subtraction	subduction	subvolution	<i>(subfusion)</i>	substruction	<i>(subspiration)</i>	subflation
	a-	aversion	a(t)traction	a(d)duction	<i>(avolution)</i>	a(f)fusion	(astruction)	aspiration	a(f)flation
C	e-	eversion	e(x)traction	eduction	evolution	e(f)fusion	<i>(estruction)</i>	<i>(espiration)</i>	<i>(eflation)</i>
	in-	inversion	<i>(intraction)</i>	induction	involution	infusion	instruction	inspiration	inflation

These are variously suggestive of approaches to transformation -- whether of "external" or "internal" reality -- clustered here by row for the purpose of discussion:

- **Cluster A: Engaging with others (consensus and dissent):** The ubiquity of strategic concerns framed by "con-" has been explored separately (*Considerable Conglomeration of "Cons" of Global Concern: eightfold constraint on constructive conflict control?* 2012). It is appropriate to note the strategic preference accorded to "conversion" by Christianity and Islam -- a preference which continues to perpetuate the bloody conflicts engendered over centuries, and variously involving Judaism. The terms in this cluster could be caricatured as variously associated with persuasion and spin -- and aversion.

- **Cluster B: Transformation through potentially invasive "structural adjustment"**: The terms in this cluster could be framed as typical of "development" -- generously interpreted. Especially striking is the extreme concern with "revolution", "subversion" and "destruction" as a fundamental preoccupation of "security forces" seeking to main "law and order". The latter is framed as dangerously threatened by "extremists" and "terrorists" -- essentially anybody disagreeing with the norms of "us" (*Us and Them: Relating to Challenging Others -- patterns in the shadow dance between "good" and "evil"*, 2009; *Norms in the Global Struggle against Extremism: "rooting for" normalization vs. "rooting out" extremism?* 2005).

Curiously it could be said that respect to "revolution" that authorities are locked into an unsustainable mindset reminiscent of that of **Catholic detraction of Galileo's** recognition of the process of revolution -- of the Earth around the Sun. Seemingly little has been learned in the realm of governance from the extensive discussion of **scientific revolution** -- despite pleas for "new thinking". There is a sense in which the "extraordinary" should be ignored, deprecated, demonized or criminalized -- in the expectation that the "ordinary" will be "fit for purpose", despite extensive evidence to the contrary, as discussed separately (*Considering All the Strategic Options: whilst ignoring alternatives and disclaiming cognitive protectionism*, 2009; *Framing the Global Future by Ignoring Alternatives: unfreezing categories as a vital necessity*, 2009).

- **Cluster C: Transformation by reframing**: In contrast to the clusters above, this appears to constitute a window of non-invasive/non-destructive strategic opportunity less exposed to the well-known resistances of the other clusters and their capacity to engender reactive conflict. It is the processes indicated by the terms in the first column (in green) which are explored here as a window of opportunity.

Insightful confusion: outside-in, inversion, introversion?

Outside-in: There is a degree of confusion in the literature regarding the terms labelling the process of "turning the outside in" -- itself naturally associated with "turning the inside out". It is however striking to note the degree of importance attached relatively recently to the distinctions in business (and other strategies) before considering the use of "introversion" in relation to "inversion":

- **business organization**:
 - Walter Lim: *Inside-Out Versus Outside-In* (*Cooler Insights: Business, Management, Branding, Marketing, PR, Social Media, Events, Lifestyle*, August 2012)
 - Niels Pflaeging: *Turn Your Company Outside-In!*, (a special edition paper on cell structure design by the BetaCodex Network- formerly the Beyond Budgeting Transformation Network, 30 July 2012)
 - Harley Manning , Kerry Bodine and Josh Bernoff: *Outside In: the power of putting customers at the center of your business* (New Harvest, 2012)
 - Craig Reid: *Business Process Review: Turning it outside-in* (*Flying Solo*, 21 January 2010)
 - Wendy Tanaka: *The Value Of An 'Outside-In' Strategy* (*Forbes*, 12 January 2010)
 - Howard Fienberg: *Review of CRC Report: Turning Research Outside In by Deb Hartman* (*researchwisdom.org*, 20 September 2012)
 - David Butcher: *Turning Your Business Outside-In* (*Management Focus*, Cranfield University, 28)
 - Sarah Jane Gilbert: *The Outside-In Approach to Customer Service* (*Harvard Business School Working Knowledge*, 16 February 2010)
 - John Bottom: *Turning the B2B world inside-out. Or is outside-in?* (*BaseOne*, 23 July 2009) -- reporting on *Outside-in v. inside-out: the great debate*, (under the image of a Mobius strip), and concluding the answer is that we should definitely care - and we should understand the merits of the different approaches. The speakers for and against the motion put forward some excellent arguments.
- **social organization**:
 - Anthony Reese: *Turning Nonprofit Finance Outside-In* (Olive Grove, 2013)
 - Doc Searls: *EOF: Turning the Internet Outside In* (*Linux Journal*, 2009, 186)
 - D. R. Burke and V. A. Howard: *On turning the philosophy of education outside-in* (*British Journal of Educational Studies*, 17, 1969, 1, pp. 5-15)
 - Tim Bulkeley: *Turning Libraries Outside-In* (*Sansblogue*, 18 November 2010)
 - Alice E. MacGillivray: *Turning Leadership Outside In: boundary spanners' internal boundary work* (2009)
 - David McKay Wilson: *Outside In: Michelle Rhee's vision for Washington, DC, schools is turning the system inside out* (John F. Kennedy School of Government, 8 January 2009)
 - Vanessa E Munro: *Turning Rights from the Outside In: re-visiting the politics of separation in prison mother and baby units* (*Child and Family Law Quarterly*, 17, 2005, 4)
- **psychology**:
 - Joan Berzoff, Laura Melano Flanagan and Patricia Hertz: *Inside Out and Outside In: psychodynamic clinical theory and practice in contemporary multicultural contexts* (Jason Aronson, 2008)
 - Creative Space Learning: *Inside-Out performance project* argues that: When selfhood develops then everything has been turned "outside-in" as the illusionary authority figure in the head or controller attempts to grasp and label life. An inner landscape grows in the brain mirroring the world outside. More and more we identify not with the real world but with the map in our heads. This seems to distance us from what we are, we disengage through thinking. In turning this around again intimacy of being is restored-life is vibrant and spontaneous.)
- **meditation / spirituality**:
 - Pir Vilayat Inayat Khan: *Turning Within* (*Universel: a course of meditation*, 2002)
 - Ignaz Anderson: *Turning outside in....* (Iona Stichting, 2012)

- Arlene K Unger: *Turning Outside Chaos into Inside Calm: how can I better cope with a chaotic world?* (2009)
- Dylan Charles: *17 Krishnamurti Quotes That Will Turn Your World View Outside In* (*Waking Times*, 30 June 2012)
- **universe**: The unusual explorations of the possibility of turning the universe inside-out (*Turning the Universe Inside-Out*) have been related to variants of the long-deprecated **Hollow Earth** theory (Donald E. Simanek, *Turning the Universe Inside-Out: Ulysses Grant Morrow's Naples Experiment*, 2011).

It is also appropriate to note use of "outing" and "outed", especially in relation to sexual orientation. There is however no corresponding use of "inning" or "inned".

Introversion:

- **psychology**: There is a very extensive literature on **introversion** as a psychological process, and more specifically on introvert as a personality type in contrast to extrovert. This derives from the 4-fold distinction of **psychological types** originally developed by **Carl Jung** (1923), although both the popular understanding and psychological usage now differ from his original intent. The characteristic has been developed and emphasized in subsequent type theories, notably the **Myers-Briggs Type Indicator**. Introversion is variously understood as the state of (or tendency toward) being wholly or predominantly concerned with and interested in one's own mental life. It can also be understood in relation to "inner-centered" or "inner-directed" (as explored by **David Riesman**, **Nathan Glazer**, and **Reuel Denney**, *The Lonely Crowd: a study of the changing American character.*, 1950)
- **geometry/topology**: Understood as a description of "turning the outside in", there is potentially a literature on the geometry of introversion, but with few examples. There are a significant number relating to topology, but few with a psychological dimension, with the notable exception of Alexander Tolor (*Introversion-extraversion and topological representations of self and others. Journal of Clinical Psychology*, 1975). With respect to the "outside-inside" aspect of this argument, it is relevant to note the exploration of topology made by psychoanalysts such as **Jacques Lacan** and **R. D Laing**. Lacan is noted by Jean-Pierre Petit (2006) as having an interest in forms closely related to sphere eversion (discussed below); Laing was especially interested in knot theory, for example. [Framed as an "abuse of science", this focus was highlighted by the **Sokal Affair**]
- **biology**: The turning outside in, more or less completely, of an organ, or the resulting condition. The process bears some relationship to that of **invagination** as a morphogenetic process, suggesting a more general understanding of the latter (*Engendering Invagination and Gastrulation of Globalization*, 2010; *Invagination in Psychosocial Terms: understandings from web resources*, 2010). Embryo development has been explored in relation to sphere eversion (Patrick Popescu-Pampu, *Sphères et développement embryonnaire, Pour la Science*, Octobre-Décembre 2003; Luciano Boi, *Un exemple de morphogenèse mathématique dans le monde vivant: l'éversion topologique et le processus de gastrulation, Scripta Philosophiae Naturalis*, 30 December 2012).

[It is appropriate to note that in the medicine of the 19th century the traditional ideas of the body, whereby women were regarded as smaller versions of men, and 'turned outside in' (i.e. with internal rather than external sexual organs) were gradually superseded by a binary concept of sexual determinism, in which difference governed all aspects of physiology, health and social behaviour, *Health and Medicine in the 19th Century*]

- **physiology**: Discussion of the psychology of introversion may relate, if only metaphorically, to processes of ingestion and digestion, as with the argument of Antonia Macaro and Julian Baggini (*What's the problem with introversion? FT.com*, 12 May 2012):

Introversion is to engagement as digestion is to ingestion. We need to feed our minds with good ideas and accurate information, and that requires an attentiveness to the world and others incompatible with pathological navel-gazing. But having done so, none of that helps us to grow mentally unless we can chew it over, digest what is nutritious and expel the waste.

Inversion: There appear to be distinct uses of this term which could otherwise be confused with "introversion":

- **geometry/topology**: Here the primary sense is of "turning upside down" or "turning downside up". Inversion is a distinctly important process in topology (**set inversion**, inversion symmetry, inversion on a topological group). This is illustrated by one description of the classic challenge of turning a sphere "inside out" (see below). Thus one blogger writes regarding a program to perform the mathematical transformation of "inversion with respect to a sphere" (*Turning your world inside out*, 28 July 2007). Responding to the question: How does a mathematician capture a lion in the desert ?, the blogger responds:

He builds a circular cage, enters it and locks it. He then performs an inversion with respect to the cage. Now he is outside and the lion is locked in the cage. Inversion can be intuitively understood as a way of turning the entire world inside out. That is, it moves everything outside a given sphere (the inversion sphere) to the inside and everything inside it to the outside.

- **societal**: In this case the implication is of "turning things on their head", most notably with respect to hierarchical structures where advantage is seen to giving primacy to those otherwise associated with the bottom of a hierarchy.

Eversion: Two main uses are distinguished:

- **anatomy**: Sea cucumbers, in a form of **autotomy**, are able to eject their internal organs as a defensive strategy (to distract predators) -- a process which some might compare to experiences in external reality described as "having their guts torn out". The term is also used in kinesiology to describe the anatomical motion of the sole of the foot away from the median plane.
- **geometry**: As the process of turning a shape inside out without causing creases, in particular the challenge of **sphere eversion** --

turning a sphere "inside out" or "outside in" (as discussed below).

Whatever the term, **there is clearly a case for acknowledging intuitive recognition of a form of "cognitive topology" -- and the possibility of its transformation -- with potentially valuable psychosocial implications.**

Alleviating the "weight" of external matters

Being part of the problem: The currently recommended posture is to subscribe to the reality of the pattern of external problems and to engage with strategies framed by external authorities. In this mode individuals are assumed to become pieces in the puzzle enabling a solution -- perhaps well-framed as the "iotas" in "public policy". This is framed in terms of variants of the adage attributed to [Eldridge Cleaver](#): *If you are not part of the solution, you are part of the problem*. This is curiously reminiscent of the cautionary adage with respect to free (internet) facilities: *If you're not paying for it, you become the product* (*Forbes*, 3 May 2012). A French variant framed for adolescents by [Michel Rocard](#) is: *Si vous ne vous occupez pas de la politique, elle s'occupera de vous*. These all obscure recognition of the possibility that: *If one does not understand how one is part of the problem, one cannot understand the nature of the solution required*.

Suspect articulation of problems: As argued above, the articulation of problems by authorities is increasingly suspect -- whether or not carefully selected "facts" are offered in support of particular problems, perhaps reinforced by catastrophe-engendering [false flag operations](#) (as noted above). Clearly missing is any effort to explore problems as a system from which significant factors may have been carefully excluded by "conceptual gerrymandering", as separately discussed (*Vigorous Application of Derivative Thinking to Derivative Problems*, 2013; *Scientific Gerrymandering of Boundaries of Overpopulation Debate*, 2012).

Most regrettable is that problems presented as dramatic and serious typically avoid any consideration of the "problems" of any remedial action (*Recognizing the Psychosocial Boundaries of Remedial Action*, 2009). The external reality is characterized by a pattern of denial (*Map of Systemic Interdependencies None Dares Name: 12-fold challenge of global life and death*, 2011).

Variable gravity: At the same time people are faced psychologically with a stressful sense of the "weight" and "gravity" of external "matters" -- supported by "weighty arguments" by "intellectual heavyweights" -- possibly to be construed globally as framing "foreign affairs". Their gravity is somehow increased by doom-mongering on the part of some authorities, whilst others are able somehow to alleviate it -- through hope-mongering. This extraordinary capacity to alter the metaphorical gravity of external matters merits careful attention especially given assumptions regarding its constancy in the universe. Clearly the process is also applied to celebrated authorities, whether among themselves or by the wider population.

The process might be described in terms of the phrase "talking it up" -- matched by the much less used "talking it down", more commonly recognized in terms of negative campaigning and blacklisting.

Withholding respect: Whether as the "weight" or "gravity" of "matters", or of "heavy" issues, the same metaphors may be used to frame authorities -- perhaps recognized as endowed with "gravitas". This is especially evident in the case of the "respect" this recognition may engender. However it is only too evident how readily these attributions may be "withdrawn". In the case of problems this is to be seen with respect to environment or poverty. this process may be partially recognized in terms of "withdrawing support", "increasing indifference" or "apathy" -- most obviously on the part of voters. It is also evident in disaffiliation from organized religion (whether or not this is recognized as apostasy, punishable by death)

In the case of people this can be seen in the case of the presidents of countries (Barack Obama, etc) or of religious leaders (Pope Benedict XVI, Dalai Lama, etc.). Especially intriguing is the manner in which a form of "negative" weight or respect may be associated with some leaders by others (as with Osama bin Laden, Fidel Castro, Mahmoud Ahmadinejad, Kim Jong-un, etc).

Arrogance of authorities: Provocatively and ironically, it could be suggested that it is probable that astrophysics will reach a meaningful understanding of **gravity** when science in general is able to understand the **arrogance** inherent in its processes -- gravity and arrogance being equally mysterious. Strangely the ego challenges of authorities are widely acknowledged -- but without the slightest ability to integrate what they represent into any explanatory process. Similarly science recognizes by an ill-defined process that reputation adds "weight" to an argument -- especially when the argument is articulated with the *gravitas* of those esteemed most reputable. This might even be recognized as "bending light" within a "well of arrogance" in psychosocial spacetime, much as does mass within a "gravity well". Is scientific arrogance -- so systemically denied within the psychosocial universe -- to be considered in some mysterious way as analogous to the dark matter/energy of the universe?

Diminishing external significance: The question here is how these external phenomena can be deprived of significance. How can the significance arrogated to authorities -- often by themselves -- be removed so as to enable individuals to live otherwise rather than be subject to their effects? Or is it a matter of transforming that "external" significance into an "internal" form with which the individual can engage otherwise?

It is appropriate to note the attention given to this process in certain spiritual disciplines and in the practice of some intentional communities.

"Hot air": Some processes through which "self-alleviation" might be said to be evident can be seen in recognition of the "hot air" which politicians are recognized to be producing on a daily basis -- with the expectation that it be taken seriously (*Sins of Hot Air Emission, Omission, Commission and Promise: the political challenge of responding to global crises*, 2009). This can of course lend itself to comparison with the "hot air" associated with climate change as presented.

The "hot air" metaphor can also be adapted to the manner in which strategic expectations are inflated by such discourse -- even through "talking things up" (*Globallooming: Strategic Inflation of Expectations and Inconsequential Drift*, 2009). This offers a curious mockery

of "enlightenment".

Strategic fantasies: Although held to be "weighty" matters, there is clearly a sense in which they can be reframed as fantasies -- at least from the perspective of others in the "external" reality (*Cultivating Global Strategic Fantasies of Choice: learnings from Islamic Al-Qaida and the Republican Tea Party movement*, 2010). The latter discussion noted the cognitively liberating process intrinsic to American **neocon** strategy -- as allegedly described to **Ron Suskind** (*Without a Doubt*, *The New York Times*, In: *The Magazine*, 17 October 2004):

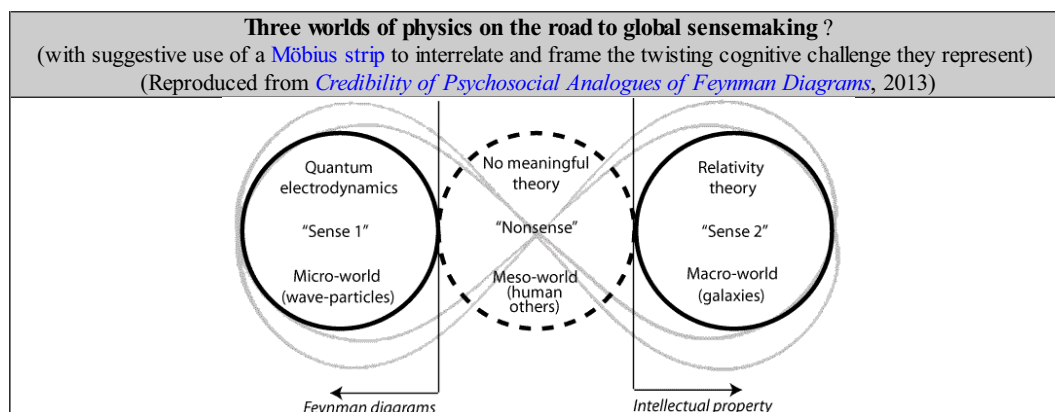
The aide said that guys like me were "in what we call the reality-based community," which he defined as people who "believe that solutions emerge from your judicious study of discernible reality." I nodded and murmured something about enlightenment principles and empiricism. He cut me off. "That's not the way the world really works anymore," he continued. "We're an empire now, and when we act, we create our own reality. *And while you're studying that reality -- judiciously, as you will -- we'll act again, creating other new realities, which you can study too, and that's how things will sort out.* We're history's actors . . . and you, all of you, will be left to just study what we do." [emphasis added]

Clearly any person could frame themselves "internally" as one of "history's actors" by rewriting "external" reality into some "internal" modality (*Reinventing Your Metaphoric Habitat*, 1992). Perhaps with an adaptation of that "neocon codicil" to apply to "external" authorities: **and you, all of you, will be left to just study what we do.**

The "fantasies" of conventional authorities, and the "weighty" matters to which they seek to draw critical attention, can be fruitfully interrelated through the classic tales of *The Emperor's New Clothes* and *The Boy Who Cried Wolf* (*Entangled Tales of Memetic Disaster: mutual implication of the Emperor and the Little Boy*, 2009).

Clues suggested by astrophysics: A further set of clues is offered by the relationship of the globe to its astrophysical context. Both "weight" and "gravity" are carefully associated with "massive" distant objects -- the planets, the Moon, the Sun, distant galaxies, etc. Their influence can however be readily ignored. Traditionally great significance has been attached to these objects by astrology -- again influences which can be readily ignored as inconsequential, if not deprecated. It is however appropriate to note approaches to their "internalization" (**Joseph Campbell**, *The Inner Reaches of Outer Space: metaphor as myth and as religion*, 1986). The historical contribution of **Marsilio Ficino**, as Renaissance pioneer, is especially interesting (**Thomas Moore**, *The Planets Within: the astrological psychology of Marsilio Ficino*, 1990), as discussed separately (*Composing the Present Moment: celebrating the insights of Marsilio Ficino interpreted by Thomas Moore*, 2001).

As a preoccupation of fundamental physics, the astrophysical externalities offer further insight in the light of the significance variously attributed to them in relation to the origins of the universe, the nature of matter, and the aspirations to travel to distant objects in the solar system -- all of which may be of the most limited significance to the tax payers required to fund such enterprises. They are all the converse of the matters considered "weighty" by many -- namely the "gravity" of the crises of the globe and the experience of daily living.



Forms of transcendence through "escape": Three forms of "escape" offer further clues -- recognizing that each may be effectively a metaphor of the other:

- **Space travel to other worlds:** Especially symbolic is the sense in which distant planets may be viewed enthusiastically as options for humanity if it proves unable to resolve the foreseeable global issues. A degree of displacement is evident in the imaginative focus on such possibilities -- and the arguments for allocation of resources to that end. (cf. Clara Moskowitz, *Stephen Hawking Says Humanity Won't Survive Without Leaving Earth*, *SPACE.com*, 10 August 2010; John M. Smart, *The Transcension Hypothesis: sufficiently advanced civilizations invariably leave our universe, and implications for METI and SETI*. *Acta Astronautica*, 78, September-October 2012).
- **Virtual worlds:** The possibility of construction and occupation of virtual worlds, such as **Second Life**, may be understood as a form of escape from the external reality of daily life. Other possibilities are offered in the **Active Worlds** facility. It is to be expected that virtual worlds will offer increasing cognitive enablement of "outside-in" (*Entering Alternative Realities -- Astronautics vs Noonautics: isomorphism between launching aerospace vehicles and launching vehicles of awareness*, 2002; *Towards an Astrophysics of the Knowledge Universe: from astronautics to noonautics?* 2006).
- **"Ascent":** Clues from a variety of disciplines may be considered, including spiritual disciplines (*Navigating Alternative*

Conceptual Realities: clues to the dynamics of enacting new paradigms through movement, 2002).

The argument here could be understood as framing a more practical possibility than the widely appreciated sentiment articulated through song: *Stop the World -- I Want to Get Off*

Intellectual property: Of curious relevance is the manner in which astrophysical preoccupations are indicative of the significance attached to "property" and the obsessive effort to claim ownership of it in "external" reality. This undeclared agenda of the exploration of space echoes that of the sea bed and Antarctica. The process is especially evident in the "intellectual property" through which meaning is articulated in copyrighted publications (possibly confidential) -- irrespective of whether the research has been funded by tax payers subsequently obliged to pay for access to it. Curiously no account of these processes is taken by astrophysics in its sophisticated consideration of the relative movement of frames of reference in relation to one another (*Einstein's Implicit Theory of Relativity - of Cognitive Property? Unexamined influence of patenting procedures*, 2007).

Concern with "property" is curiously entangled with what it constitutes as an "investment" -- and therefore as an "asset" (relative to the wealth of others). The psychological investment in any model or belief system (possibly as a vehicle for identity) is not however matched by the flexibility typically associated with financial speculation. The value of an asset may indeed rise and fall and it may be fruitful to "disinvest" or to "diversify" any portfolio of assets.

The requisite flexibility for the "outside-in" transformation can be usefully related to the traditional strategy for catching a monkey by placing food inside a jar such that, when grasped through the neck of the jar, the clenched fist cannot be withdrawn (*The Monkey's Fist: An Ancient Parable for Modern Times*). The challenge of Jerusalem for the Abrahamic religions is their preoccupation with grasping what amounts to the "packaging", thereby restricting ability to engage with the contents of the package (of higher dimensionality) -- and with its more fundamental significance they potentially share -- transcending that superficial focus (of lower dimensionality). Both examples are indicative of the transformative potential of engaging with higher dimensionality, as suggested by the arguments of Ron Atkin (*Multidimensional Man; can man live in 3-dimensional space?* 1981), and separately summarized (*Comprehension: Social organization determined by incommunicability of insights*).

Curiously, with respect to the effort to obtain an exclusive grasp of intellectual property in external reality, there is every possibility that this corresponds to the pattern exemplified by the [Human Genome Project](#) and its assumption regarding the explanatory power of genes - and its failure to anticipate the relative importance of [epigenetics](#). This pattern is likely to play out with respect to [memetics](#), as discussed separately (*Epimemetics, biomimetics, epimimetics and biomemetics*, 2013).

Alternation of worldview between "inside-outside" and "outside-inside"

There is clearly a challenge to the shift from "inside-outside" to "outside-inside" -- effectively a process of "world introversion". It could be argued that neither worldview is inherently stable or sustainable over time. This suggests that any degree of **sustainability and coherence may derive from the dynamics of the shift between the two worldviews -- namely that it is necessary to keep moving between them**, shifting the cognitive "centre of gravity" from one to the other (*Living as an Imaginal Bridge between Worlds: global implications of "betwixt and between" and liminality*, 2011). This is consistent with recognition that people fluctuate in their behaviour all the time along a continuum between introversion and extroversion. Again as noted by [Antonia Macaro](#) and [Julian Baggini](#) (*What's the problem with introversion?* *FT.com*, 12 May 2012):

Inwardness should not be seen as an alternative to outwardness, but its necessary accompaniment. Philosophy is an excellent example of this. Apart from Bertrand Russell and A.N. Whitehead's treatise on mathematical logic, no major work on the subject has ever been co-authored. Yet every major philosopher engaged in endless dialogue with colleagues and critics. Even Descartes' *Meditations* was published with a series of objections and replies. Introversion is to engagement as digestion is to ingestion.

The metaphors of walking and use of a bicycle are valuable in this respect. It is indeed possible to walk on one leg through "hopping", just as it is possible to ride a monocycle. Both are somewhat ungainly and a challenge emphasizing the need for a heightened sense of balance and its development. Arguably "hopping" or "monocycling" is however precisely what so many are encouraged to do -- in the extreme case through advocacy of either left-wing politics or right-wing politics as the "only correct" solution -- and as with the unquestionable promotion of "growth" at all costs. Whilst it may take time for a child to learn to walk (or ride a bicycle), there are clearly considerable advantages to such forms of locomotion.

Other metaphors of alternation can be usefully considered (*Metaphors of Alternation: an exploration of their significance for development policy-making*, 1984). Development itself may well call for a form of alternation, if only as suggested by the traditional value of crop rotation (*Policy Alternation for Development*, 1984). An argument can be made that "transdisciplinarity" calls for a form of "walking" (*Transdisciplinarity-3 as the Emergence of Patterned Experience: transcending duality as the conceptual equivalent of learning to walk*, 1994).

Of particular interest is the possibility that the many "problems" which are such a dramatic focus of attention in "external" reality can benefit from being recognized as cyclic features of "internal" reality -- external "worries" thereby reframed through world introversion. Rather than experience a sense of impotence at their overwhelming nature in external reality -- problems about which one can effectively do nothing -- incorporating them into internal reality may offer quite different ways of engaging with them. Some implications are discussed separately (*Psychology of Sustainability: embodying cyclic environmental processes*, 2002)

There is of course the sense in which those problems, otherwise assumed to be characteristic of "external" reality, effectively invade "internal" reality in the absence of any more disciplined way of framing this process. The consequence typically manifests as stress of some form -- or even depression. The external/internal boundary becomes dysfunctionally porous with external problems effectively

framed as unwelcome "immigrants" with all the challenges that imagery then implies (*Implication of Personal Despair in Planetary Despair: avoiding entrapment in hopeful anticipation*, 2010; *Cognitive Implications of Lifestyle Diseases of Rich and Poor: transforming personal entanglement with the natural environment*, 2010).

Paradoxical cycling between "inside-outside" and "outside-inside"

World introversion: Missing from the argument above, notably as illustrated by the admirable articulation of Edward de Bono (*Six Thinking Hats*, 1985), is the paradoxical process of "world introversion". It is one thing to "change hats" according to his metaphor -- a process difficult in its own right -- but it is another matter to shift the cognitive centre of identity from "inside-outside" to "outside-inside". Thus whilst a particular "hat" can indeed offer a distinct "objective" window on external reality -- if one can successfully "put it on" -- introverting the worldview of that framing implies a fundamental paradox and a distinct challenge to the imagination. Some, such as [radical constructivists](#), would of course usefully argue that it is the "external" reality that is imagined, rather than the "internal" one ([Paul Watzlawick](#), *The Invented Reality: how do we know what we believe we know?*, 1984)

Mobius strip: It is here that the apparent simplicity of the Mobius strip is helpful -- so readily made with simple twist in a paper strip, before joining the ends. The conventional "objective" sense of "inside-outside" can be associated with one side of the strip. The often-deprecated "subjective" sense of "outside-inside" can be associated with the other. The twist in the strip then offers the paradox of one side being continuous with the other, whilst offering the "illusion" that this is not the case at any particular point.

The illusory distinction can only be "managed" by effectively travelling the circuit of the strip -- riding the paradoxical cycle -- if not "paracycling" (as discussed below). The transcendent reality is associated with that dynamic cognitive skill -- much as in the distinct perspective acquired through the art of balance required in riding a bicycle. Curiously it is easier to recognize and to acquire that skill than that of the more complex art of riding a monocycle.

Klein bottle: The process of imaginatively exploring the dynamics of the relationship between "inside-outside" and "outside-inside" can be extended through consideration of the Klein bottle (see below) as a paradoxical form of higher dimensionality than the Mobius strip -- although combining two such strips is one means of forming a Klein bottle (which cannot "exist" in three dimensions). Considerable attention has been given to the cognitive implications of the Klein bottle by Steven M. Rosen further to his earlier consideration of the Mobius strip (*Science, Paradox and the Moebius Principle: the evolution of a "transcultural" approach to wholeness*, 1994). There he notes that the philosopher [Oliver Leslie Reiser](#) (*Cosmic Humanism: a theory of the eight-dimensional cosmos based on integrative principles from science, religion, and art*, 1966):

...speculated that "the atom is a galaxy turned inside out, rotated through a higher dimension" (1966, p. 412). But while Reiser emphasized the general importance of "circumversion" (the action of turning inside out [Reiser, 1966, p. 495]) and stated that it is only possible by a hyperdimensional movement, he was uncertain as to just how the performance of such an operation might be conceived. The topology of the Moebius surface offers a clue in this regard: it provides a basis for the occurrence of circumversion through a natural, internal transformation. (p. 14).

Earlier Rosen proposed a dialectical, double-aspect model of general interaction as a means of visualizing existence (*A Plea for the Possibility of Visualizing Existence*, *Scientia: International Review of Scientific Synthesis*, 1973). This was constructed from observation of the transformational properties of the Moebius surface, with hyperdimensional extrapolation to the Klein bottle. The interaction of systems is viewed there as a process of circumversion whereby systems exchange relations, become mutually negated, then exchange identities.

Cognitive locus: The emphasis here is however on the cognitive locus of the "rider" of the "paracycle" -- as implied by the transcendent cognitive locus of the rider of a bicycle. The question is how, as "rider", to hold the capacity to transition between "inside-outside" and "outside-inside" in the paradoxical cycle. In particular how does this apply to "wrestling" with realities widely acclaimed to be "external" -- and disempoweringly so -- far beyond the individual capacity of "mortals". Through "world introversion", transforming those "realities" into features of one's psychic space, one is empowered to "wrestle" with them otherwise. Such wrestling can be helpfully reframed in terms of Eastern martial arts and the philosophy associated with them (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006).

The argument in terms of representation can be taken further by combining traditional philosophical consideration of [Plato's cave](#) with current explorations of how technically to enhance visual presence in wrap-around virtual reality -- and the cognitive implications this embedding then imaginatively implies. Also helpful is the work of [Erik Davis](#) (*TechGnosis: Myth, Magic, and Mysticism in the Age of Information*, 1998). Exploiting the Mobius representation, the locus of the "rider" can be assumed to be at the illusory nexus of the twist between the appearances of "inside-outside" and "outside-inside" -- with the distinct curves suggesting contrasting screens in the sense of Plato's cave (but two rather than one).

Another helpful image is the widely cited tale of the [butterfly dream](#) of [Chuang Tzu](#) -- considered to be the most celebrated dream ever to be recorded in the history of Chinese Philosophy:

Once Zhuangzi dreamt he was a butterfly, a butterfly flitting and fluttering around, happy with himself and doing as he pleased. He didn't know he was Zhuangzi. Suddenly he woke up and there he was, solid and unmistakable Zhuangzi. But he didn't know if he was Zhuangzi who had dreamt he was a butterfly, or a butterfly dreaming he was Zhuangzi. Between Zhuangzi and a butterfly there must be some distinction! This is called the Transformation of Things.

Positive vs. Negative: Any contrasting colouring of the "two sides" of the Mobius strip, for purposes of illustration -- using black and white, for example -- is also of value in addressing the preoccupation with emphasizing the "positive" and deprecating the "negative" (Barbara Ehrenreich, *Smile Or Die: how positive thinking fooled America and the world.*, 2010). Both to enable the "rider" to be effective and in the light of the cybernetics of human cognition, the paradoxical relationship between the two needs to be internalized and transcended. This suggests the possibility of integrating the relationship between doom-mongering and hope-mongering worldviews and the questionable efforts to see matters one way to the exclusion of the other. The argument takes on dramatic dimensions in the experiential reality of those with bipolar disorder. Whilst the cybernetics of human cognition does indeed point to possibilities, its current disadvantage lies in the nature of its abstractions -- especially with respect to self-reference. These are difficult to internalize and render widely meaningful.

Recognitions of a paradoxical cycle: Understandings of "paradoxical cycle" have been articulated in contrasting ways, for example:

- Cindy Lindsay (*Paradoxes of Organizational Diversity: living within the paradoxes*, *Academy of Management Proceedings*, 1990) proposes three paradoxical cycles of incorporating diverse members in organizations: paradox of values: paradox of fit; and paradox of categories. Disclosure is suggested and explained as a method for living within these paradoxes. The work is based on the paradoxical perspective expounded by Smith and Berg (1987).
- Tjeerd B. Jongeling, Teun Koetsier and Evert Wattel (*Self-Reference in Finite and Infinite Paradoxes Logique and Analyse*, 2002) present a mathematical proof that for a certain class of paradoxes the following result holds: if the paradox is finite (consists of a finite number of sentences), self-reference is necessarily involved, while if the paradox is infinite, no self-reference need be involved. This result suggests how the viewpoints of those who see self-reference as essential and those who see it as inessential can be combined.
- Willis F. Overton (*Metaphor, recursive systems, and paradox in science and developmental theory*. *Advances in Child Development and Behavior*, 1991) argues that:

The contradictions found at any level of abstraction among concepts such as subject-object, whole-part, synthesis-analysis, metaphor-observation, organicism-mechanism, and interpretationism-realism cannot be eliminated or resolved at that level. They can, however, be reconciled into productive paradoxes by recognizing them as components of recursive systems. The resolution of the paradox occurs only at the next higher level of abstraction where a synthesis can be established. However, this synthesis at the next higher level entails its own contradictions. These can again be reconciled into productive paradoxes through the recognition of broader recursive systems. This progressive solution continues at each iteration, or level or recursion,... the innermost cycle represents the knowing organism, knowing in the paradoxical cycle of metaphor-assumptions-concepts-observations. This knowing organism is explained and hence understood, and the paradoxes reconciled, only by moving to the next level of recursive cycle.

In more recent work, Overton's focus on "dual system" competence may prove especially relevant to the above argument (Robert B. Ricco and Willis F. Overton, *Dual systems Competence -- Procedural Processing: a relational developmental systems approach to reasoning*, *Developmental Review*, 2011).

Cyclic identity embodied in paradoxical cycles: There is no lack of commentary on the extent to which "being human" and "human nature" is characterized by paradox, contradiction and inconsistency -- typically acknowledged with a degree of humour imply a higher order of integrity (*Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity*, 2005). Rather than the simplistic understanding of identity framed by external authorities, the challenging question is then threefold:

- how an "individual" is embodied by one or more cycles, as is well-recognized at the metabolic level (*Emergence of Cyclical Psycho-social Identity: sustainability as "psychically" defined*, 2007)
- how those cycles "interlock" to frame an identity which transcends them, as explored with respect to externality (*Spherical Configuration of Interlocking Roundtables: internet enhancement of global self-organization through patterns of dialogue*, 1998; *Transcending One-eyed Global Modelling Perspectives Incorporating under-currents into global circulation of value*, 2010)
- how to engage with the associated paradoxes, as variously explored (*Embodying the Paradoxes and Contradictions of the Pursuit of Happiness: en-joying the world through en-joying oneself*, 2011; *Intercourse with Globality through Enacting a Klein bottle: cognitive implication in a polysensorial "lens"*, 2009)

Paracycling: towards a terminological and visual clarification

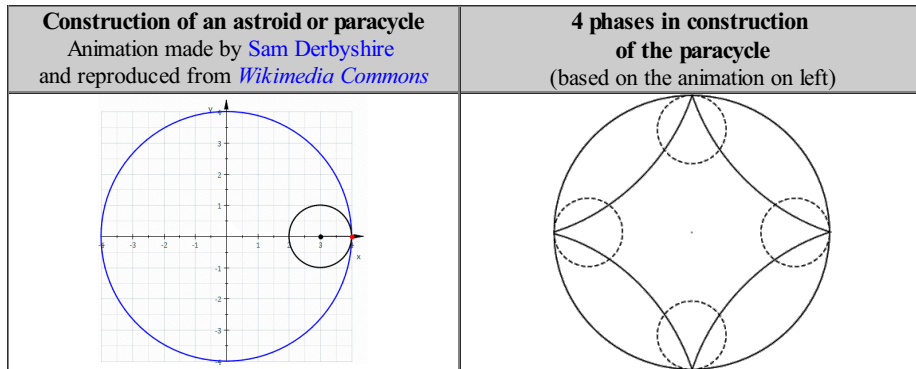
As explored below, the term paracycle has long been applied to what is now more commonly known to mathematicians as the **astroid**. It was first discussed by Johann Bernoulli in 1691-92 and appears in the correspondence of Leibniz in 1715. Having four cusps, it has been called the tetracuspid. It has also been known as the cubocycloid. The entry in *Wikipedia* provides an overview and links to more comprehensive commentary.

As "para-cycling" the term is now used to refer to the disability cycling process governed by the **Union Cycliste Internationale** (UCI). "Para-Cycle" has however been trademarked with reference to a **powered parachute** integrated with a recumbent bicycle -- a "street-legal ultralight aircraft". It can be pedalled on the ground like a bicycle and flown through the air like a powered parachute. Powered parachuting is recognized as the safest form of flight ever invented.

By contrast, "paracycling" as used here is suggestive of the nature of engagement in the cognitive dynamic of a process implying a paradoxical cycle -- itself variously understood (as noted above). The discussion below benefits from mathematical reflection on the astroid and its visualization. There is however a case for exploring the potential relevance of the associations to disability and "powered flight" -- cognitively understood. Of further interest is the association to the possibility of a "psychopter" as explored by Arthur Young

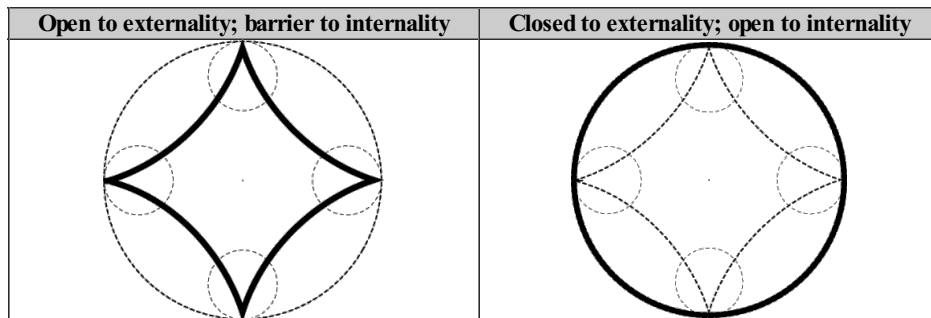
(as mentioned below).

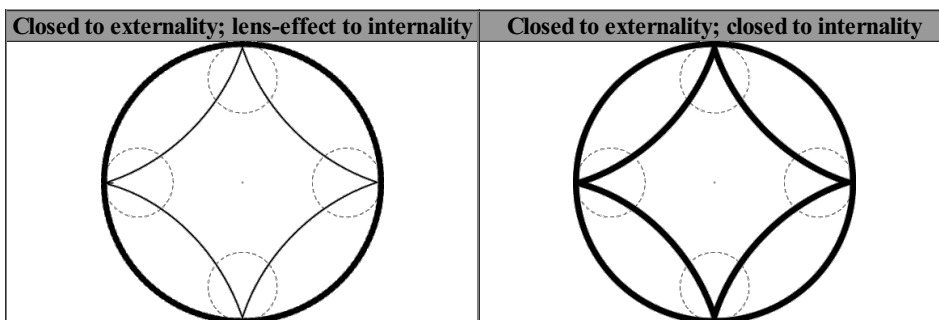
It should be emphasized that the concern here is however to use the mathematical form, and its dynamic, to provide an imaginative pattern of clues through which to interweave a (requisite) variety of insights as previously suggested (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007; *Interweaving Thematic Threads and Learning Pathways*, 2010). The mode of construction of the astroid-paracycle, as indicated in the following animation, is notably reminiscent of the image used separately to interrelate the 4-fold pattern of problematique-resolutique-imaginatique-ludique (*Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation*, 2007).

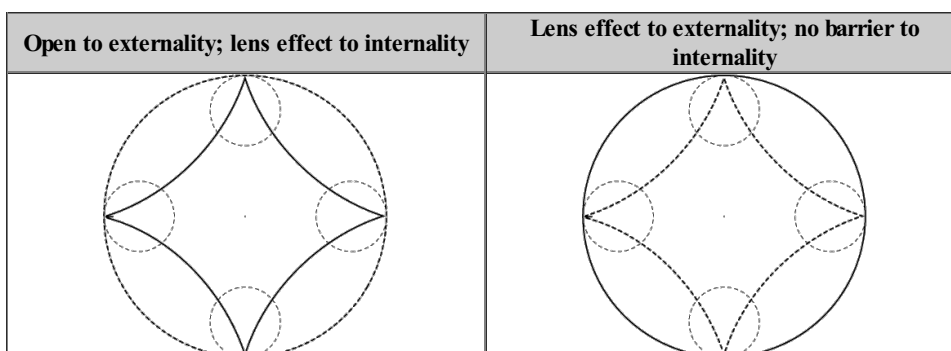


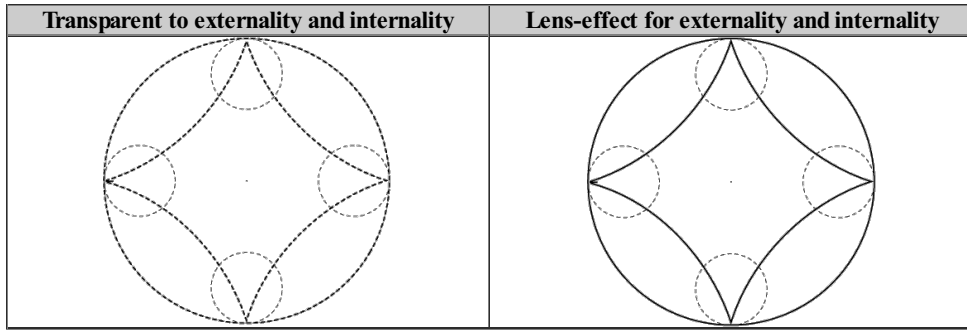
The set of eight images below are used as a means of offering an indication of various implications of "inside-outside" and "outside-inside" exploiting the manner in which they can be understood as modifying the transmission or reflection of "light" or "information" (as most generally understood).

The thickness of the lines is used to suggest ways in which "light" (communication, insight) might be transformed under distinct conditions. A **thick line** as is then suggestive of non-transparency (opacity) and reflection. A **thin line** is suggestive of transparency possibly with lens-like functions. A **dotted line** is the absence of a barrier to light.

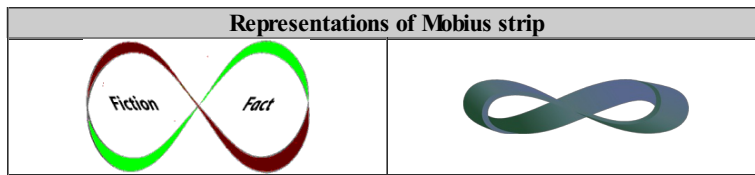




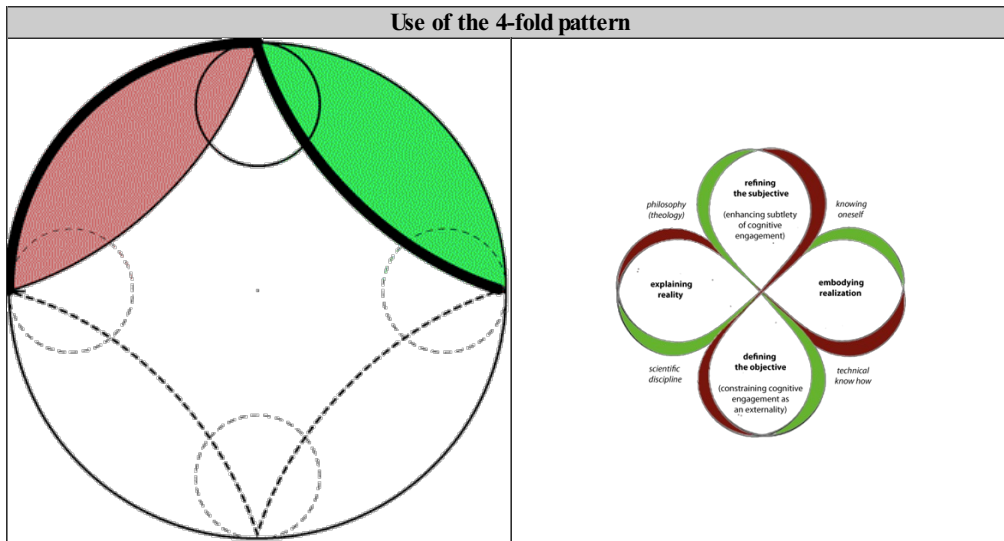




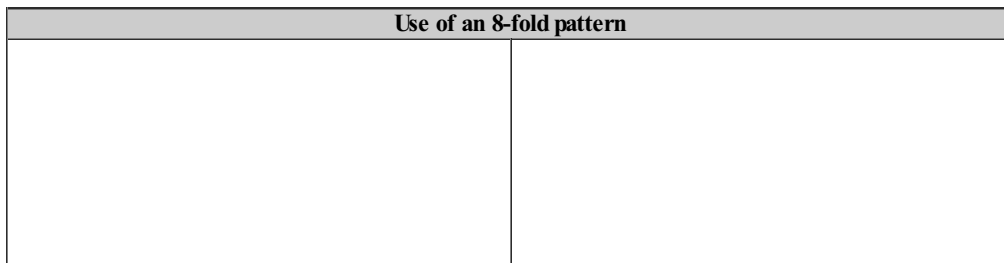
As suggested above, the paracycle (astroid) may be used as a mnemonic device to interrelate threads of the argument. The four small circles in the images can then be understood as distinct zones of transition of a complex and paradoxical nature. As such each can then also be associated with a "deity" implying the need for a transcendent perspective -- a "cognitive twist". Each image might then be understood in terms of circular chain of linked Mobius strips with the "twist" at the illusory centre of each strip as suggested below. This is curiously reminiscent of the cognitive processes associated with circlets of beads (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000). The set of images is also reminiscent of the cognitive implications of the 10 Ox-herding images of Zen.

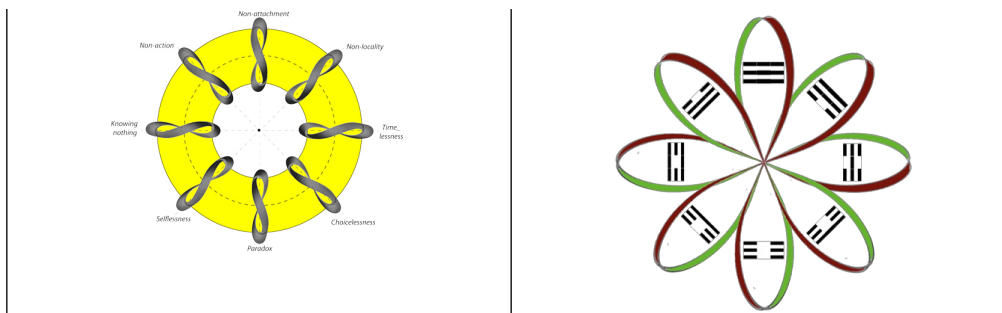


The images below are suggestions as to how the paracycle might be variously understood as "chaining" together a set of Mobius strips -- with emphasis placed on the "cognitive twist" of the paradoxical transition zone.

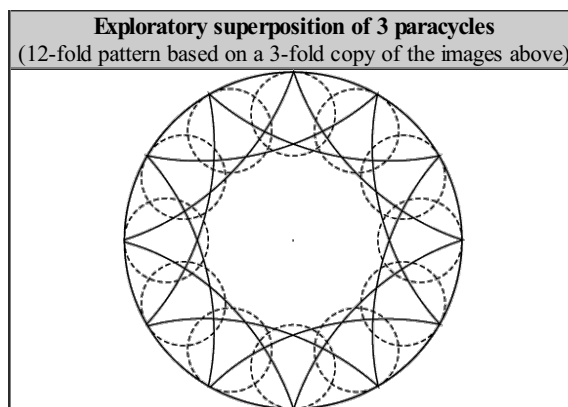


A second 4-fold pattern can of course be superimposed on the first to give an 8-fold pattern. The image on the left below is derived from associated explorations of "nothingness" (*Emerging Significance of Nothing*, 2012; *Configuring the Varieties of Experiential Nothingness*, 2012; *Orbiting Round Nothingness across Communication Space*, 2012). The images on the right (below and above) are derived from a discussion of the paradoxical relationship between subjectivity and objectivity (*Defining the objective & Refining the subjective ?! Explaining reality & Embodying realization*, 2011). That on the right below is used to associate the conditions of the 8-fold *Ba Gua* pattern (discussed below)





The image on the right below is indicative of a way of understanding the 12-fold pattern (of "deities") discussed earlier ([Topological Clues to a Memorable 12-fold Systemic Pattern](#), 2011). Attribution of distinct qualities to each "deity" is a means of providing a cognitive "handle" on the particular nature of the associated "cognitive twist". In effect each is a requirement to "think otherwise" -- perhaps to be associated with a challenging question (like a *koan*) or a riddle.



The concern here is not to address the question of a 12-fold pattern versus an 8-fold pattern. There are many indications of preferences for one over the other. The implication is that these can only be effectively "correlated" through geometry of higher dimensionality, as argued with respect to the symbolic preferences of Islam and Judaism ([Middle East Peace Potential through Dynamics in Spherical Geometry: engendering connectivity from incommensurable 5-fold and 6-fold conceptual frameworks](#), 2012).

It is interesting to note that the collective cognitive challenge of the times can be usefully framed in terms of the historical transition from the Ptolemaic [epicycle approach](#) to (geocentric) order in the solar system to a heliocentric approach to order. The various sectors of human preoccupation are seemingly held to be related by a questionable pattern of "cognitive epicycles" with little enthusiasm for exploring the cognitive shift to whatever might be understood as a "heliocentric pattern", as discussed separately ([Cognitive epicycles -- prefiguring more fundamental insight?](#) 2013). Given the level of incoherence noted above, it is appropriate that an "epicyclic" understanding is now deprecated as an exemplar of "bad science".

Use of a "paracycle" as represented above, visually recognizes (to a degree) the "epicyclic" approach whilst drawing attention to the counter-intuitive nature of the paradoxical order fundamental to the pattern as a whole -- implying some form of "heliocentric" dynamic. The shift in perspective would seem to require a form of cognitive shift of which the 8 (or 12) "deities" are "guardians" -- through the dynamic of their relationship. Hence the quest for understanding of the nature of the "cognitive twist", as separately discussed ([Enantiotromia: cycling through the 'cognitive twist'](#), 2007).

There is every reason to suspect that the cognitive challenge of the times calls for engagement with high orders of 'twistedness', if only to counter the deviousness now widely recognized in the response to the challenges of global governance ([Twistedness in Psycho-social Systems: challenge to logic, morality, leadership and personal development](#), 2004; [Engaging with Questions of Higher Order: cognitive vigilance required for higher degrees of twistedness](#), 2004). The need for twistedness in DNA, as the key to human integrity over generations, suggests the potential relevance of such complexity to navigating the adaptive cycle ([DNA Supercoiling as a Pattern for Understanding Psycho-social Twistedness](#), 2004).

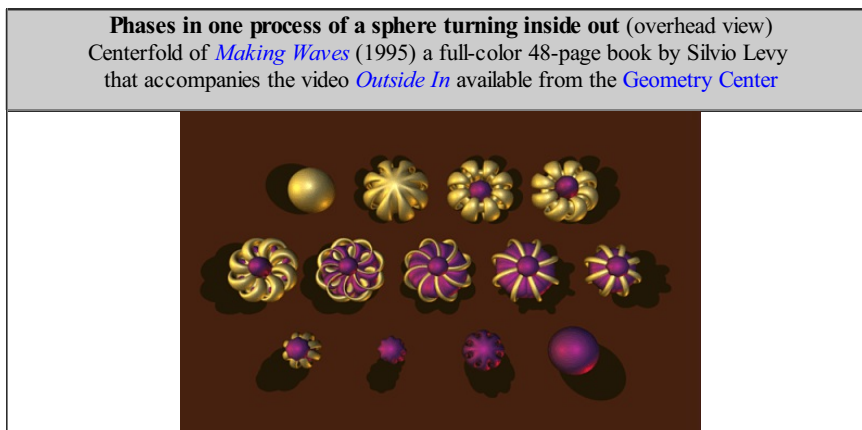
Sphere eversion as a guide to the cognitive twist of global introversion?

Sphere eversion is associated with [Smale's paradox](#) which states that it is possible to turn a sphere inside out (or outside in) in a three-dimensional space with possible self-intersections but without creating any crease. Curiously in his discussion of paradox and paraconsistency (mentioned above), John Woods (2003) makes no mention of that paradox -- nor does he offer any visualization to aid comprehension of the coherence of his argument.

The paradoxical nature of the sphere eversion process is a helpful reminder of the nature of the "cognitive twist" (discussed above). In relation to this argument, it potentially offers a psychological key to the individual significance of "globalization" in that it renders comprehensible the motion of a spherical surface through itself so that, without tearing or creasing, the surface is turned inside out. The same process could also offer insight into the annihilation of individual identity.

Many graphical methods have been applied to the challenge. As noted by John M. Sullivan (*Sphere Eversions: from Smale through the "Optiverse"*, 2002) sphere eversion has been a favorite subject for mathematical visualization -- a nontrivial problem of remarkable complexity and compelling beauty. The Optiverse (1998) video shows minimax eversions, computed automatically by minimizing elastic bending energy using Brakke's Evolver. Sullivan contrasts these geometrically optimal eversions with earlier ones. Various illustrations and videos give some sense of the process (Justin Ruckman, *How to Turn a Sphere Inside Out*; John M. Sullivan, *The Optiverse and Other Sphere Eversions*, 1999). See also *What is the 'non-intuitive' part in sphere eversion (turning inside out)?* (*MathOverflow*). As described at the [Geometry Center](#):

... the computer animation *Outside In* (1994) explains the amazing discovery, made by [Steve Smale](#) in 1957, that a sphere can be turned inside out by means of smooth motions and self-intersections. Through a combination of dialogue and exposition accessible to anyone who has some interest in mathematics, *Outside In* builds up to the grand finale: [Bill Thurston's](#) "corrugations" method of turning the sphere inside out.



As a possible guide to "world introversion" the phases in the above process merit very careful consideration with respect to transformation of any worldview -- both "outside-inside" and "inside-outside" (cf. Vincent Borrelli *Les trois défis*). The question is whether and how the stages of transformation can "carry" cognitive relationships and associations -- maintaining a degree of connectivity and coherence through a process recalling the work of [René Thom](#) (*Structural Stability and Morphogenesis*, 1972; *Semio Physics: A Sketch*, 1990).

As noted above, the matter has been of interest to Jacques Lacan and French-speaking colleagues. Thom noted the challenge of the global-local relation in terms of an individual confronted by a space in movement, with the individual "returning on his traces" (*retournement*). He specifically regrets the lack of concern for the "mathematics of intelligibility" (*Les réels et le calcul différentiel, ou la mathématique essentielle*, 1982). Whereas the literature in English has focused on the aesthetics of graphical representations of the process, that in French, inspired by Thom, has also ventured into its cognitive and philosophical significance (cf. Christine Belcikowski, *Le retournement de la sphère, La Dormeuse*). Of some socio-political relevance is the association in French between "retournement" and "turncoat". Also of interest is its use in relation to protest and "globalization" (cf. [Bertrand Badie](#) and Marie-Claude Smouts, *Le Retournement du monde: sociologie de la scène internationale*, 1999; [Hervé Juvin](#), *Le renversement des relations internationales*, 2011).

As a preliminary, this calls for a way of mapping such relationships onto a sphere, as previously explored (*Spherical Configuration of Categories -- to reflect systemic patterns of environmental checks and balances*, 1994; *Spherical Accounting using geometry to embody developmental integrity*, 2004). The possible transformations of a spherically symmetrical polyhedron are then helpful in indicating (if only metaphorically) how the process might proceed.

It is helpful to note the mandala-like configurations of some of the stages in the image above -- again as suggestive of how cognitive insight might be "explicated" and "implicated" through what amounts to a form of [holomovement](#) in the sense explored by [David Bohm](#) (*Wholeness and the Implicate Order*, 1980). This is a concept in his interpretation of quantum mechanics bringing together the holistic principle of "undivided wholeness" with the idea that everything is in a state of process or becoming (or what he termed a "universal flux"). The forms are also usefully reminiscent of [Chladni resonance patterns](#) -- suggesting other ways of thinking of the nature of the transformation. The 8-fold pattern of the images immediately recalls those presented with respect to the paracycle.

Not to be forgotten is that the process is one which takes account of paradox. Especially intriguing is the cognitive significance of the constraints (noted above) for sphere eversion:

- **self-intersection:** This suggests a relationship to the issues of self-reference so extensively reviewed in the work of [Douglas Hofstadter](#) (*Gödel, Escher, Bach: an Eternal Golden Braid*, 1979; *I Am a Strange Loop*, 2007). The argument could be that subtler forms of organization only become viable in "external reality" to the extent that their coherence can be experienced in "internal reality"
- **absence of creasing:** This is especially interesting in relation to the non-emergence of intractable boundaries and discontinuities -- again suggesting the need to experience a degree of transcendent coherence in "internal reality" in order to sustain the credibility and viability of certain forms in "external reality"

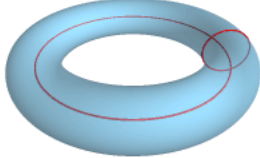
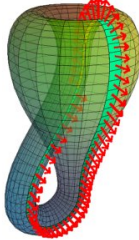
Further reflection is merited regarding whether the "sphere eversion" process helps to clarify personal cognitive engagement with:

- the relationship between "global" and "local" as in the 1992 Earth Summit slogan: *Think globally, Act locally* -- and as otherwise

explored (*Configuring Globally and Contending Locally shaping the global network of local bargains by decoding and mapping Earth Summit inter-sectoral issues*, 1992)

- the operation of the Oxfam doughnut, as presented by Kate Raworth (*A Safe and Just Space for Humanity: can we live within the doughnut?*, Oxfam, February 2012), and discussed separately (*Exploring the Hidden Mysteries of Oxfam's Doughnut: recognizing the systemic negligence of an Earth summit*, 2012)

Imagining transcendence appropriately challenging to comprehension

Animation of Sphere-Torus transformation (Reproduced from Wikimedia Commons)	Animation of Klein bottle (by Konrad Polthier) <i>(Imaging Maths: inside the Klein bottle, +Plus Magazine, September 2003;</i> [click for animated version or explore java applet]
	

A true Klein bottle in four dimensions does not intersect itself where it crosses the side. It is a closed but borderless surface with no inside or outside, which can be embedded only in a four-dimensional space. Again numerous images are available illustrating the Klein bottle. That on the WolframMathWorld site enables interaction with it [[more](#)].

Whether "subjective" or "objective", "internal" or "external", there is a case for recognizing the challenge that "problems" and "values" constitute for "appropriate" comprehension (*Comprehension of Appropriateness*, 1986; *Towards the Dynamic Art of Partial Comprehension*, 2012). Their elusive nature as cognitive entities cannot be readily encompassed -- despite the simplistic definitions that may be offered in terms of conventional labels, definitions which are typically inadequate in practice. Both are typically "unbounded" in cognitive terms. These matters have been addressed at greater length with respect to the [World Problems Project](#) and the [Human Values Project](#) (*Problem disguises and problem evasion*, 1995; *Value confusion*, 1995).

The patterning evident in the images of the sphere eversion process suggests the need for further consideration of how problems are clustered ("packaged") into sets for cognitive convenience (*Representation, Comprehension and Communication of Sets: the role of number*, 1978). This patterning may also need to be understood as transitional -- with the distinctions variously "explicated" and "implicated" through the "world introversion" process.

Problems and values as reminiscent of "deities": It is for this reason that the cognitive significance of "deities" merit consideration -- as they have been used in the pantheons of many cultures to frame the distinctively "transcendent" characteristics of both problems and values. One merit to their use is the popular familiarity with "deities" whatever the culture -- a contrast from the arid abstractions on offer from the sciences currently claiming authority in such matters. Functionally however, a case may be made for the manner in which **the concepts in any valued set are effectively upheld as "deities" -- in the "pantheon" constituted by the set**. The functions, individually or collectively, may be effectively "worshipped" as ordering principles in a manner reminiscent of the relation with deities of the past.

The incomprehensibility of "transcendence" is implied in both problems, as associated with the dynamics of complex systems, and in values as fruitfully understood as strange attractors (*Human Values as Strange Attractors*, 1993). This transcendence reinforces the sense in which neither is readily to be "grasped", irrespective of suggestions that one or both are therefore "illusory".

Consensus delusion: The arguments of such as [Richard Dawkins](#) (*The God Delusion*, 2006) are then usefully to be addressed through recognition that aspiration to consensus in external reality is a form of delusion with respect to the response to problems informed by values (*The Consensus Delusion: mysterious attractor undermining global civilization as currently imagined*, 2011). Ironically it is only by cultivating the illusion of an ultimate threat (from evil, or terrorism, or Martians, etc) that a form of consensus can now be cultivated and imposed -- a theme of [Noam Chomsky](#) and [Edward S. Herman](#) (*Manufacturing Consent: the political economy of the mass media*, 1988).

Elusive systemic relationships: Framed in this way, the "deities" of global civilization today can be usefully understood metaphorically as "zones of relative incomprehensibility" -- distinguished qualitatively, with each having a distinct "feel". One exploitation of this understanding is that of [Charles B. Handy](#) (*Gods of Management: the changing work of organisations*, 1995) who associated organizational cultures with four contrasting Greek deities: Zeus, Apollo, Athena and Dionysus. Another framing of the zones is as domains of paradoxical nonduality (*Epistemological Panic in the face of Nonduality: does nothing matter?* 2010).

A particular merit of a pantheon is that it implies elusive systemic relationships within a complete set of contrasting qualities of whose subtle nature it may only be possible to give a sense through myth -- then readily comprehensible to many however. A potentially useful point of departure for such an investigation (for the Western world) is the set of 12 deities of classical Greece, or their counterparts in the Roman Empire. These continue individually to provide a symbolic focus for intergovernmental agencies and programs -- quite possibly systemically unrelated otherwise (*Religious "Plastic Turkeys" -- Hermes vs. the Hijab*, 2003).

Ubiquity of 12-fold pattern: There is also a case for recognizing how a 12-fold pattern is variously valued in the articulation of

initiatives, as separately noted (*Eliciting a 12-fold Pattern of Generic Operational Insights: recognition of memory constraints on collective strategic comprehension*, 2011; *Checklist of 12-fold Principles, Plans, Symbols and Concepts: web resources*, 2011). It can be argued that the pattern is then not "too simple" to fail to encode requisite variety, but not "too complex" to elude an adequate degree of comprehension. Of particular interest is how its 3-fold and 4-fold factors can be combined to enable such comprehension, despite the well-recognized restrictions on information processing by the human brain, as discussed separately (*Geometry of meaning: an alchemical Rosetta Stone?* 2013)

Internal functional implication of "deities": Whilst qualities, values and "sectoral" problems have long been associated with such deities, and continue to be so symbolically by intergovernmental agencies (to some degree), the argument here is not focused on the "external" representation of deities but on their "internal" significance -- as they undoubtedly had in the cultures from which they originated in the formation of European/Western culture. What symbolic traces remain active as "archetypes", especially as a consequence of the renewed use actively made of them through various media -- most notably by the young in role-playing games?

The argument here is not especially focused on the Greek and Roman deities, it also applies to the distinctions assiduously attributed by Christianity to the 12 Apostles, by Shi'a Islam to the 12 Imams, or by Judaism to the 12 Tribes of Israel (notably as speculatively discussed separately, *Generic Reframing of the 12 Tribes of "Israel"*, 2009). The argument can also be explored in secular terms by identification of any pattern of sectors of government preoccupation, or by a pattern of problems as they may (or may not) be explicitly associated with those sectors.

Alternatives to 12-fold pattern: Whilst the argument emphasizes the merit of a 12-fold pattern, for the reasons indicated above, more restricted patterns could also be considered, notably as they may imply contrasting approaches to (global) governance. The G8 group offers one important example in that it may imply a degree of variety less than that of a 12-fold pattern, and therefore specially constrained (and potentially inadequate) in some way -- or in which some systemic relationships are implicit (rather than explicit) to a higher degree than in a 12-fold pattern. At the other extreme, the G20 group may hold a greater variety of relationships but be more challenging to comprehension of the distinctions it represents.

G8 group as a pantheon: As mentioned above, the current meeting of the G8 group merits consideration as the functional counterpart to a pantheon of "deities" -- meeting in this case at Eniskillen in Ireland rather than on Mount Olympus, as claimed of the 12 of the Greek pantheon. The question to be considered is how the G8 "deities" of today, meeting in that way, hold significance in the imagination of individuals -- given the powers and qualities they variously represent.

Some such considerations will be crafted by media spin surrounding the event in an effort to give it significance -- perhaps by specifically citing its "symbolic" significance, without being able to communicate what that might mean. However, rather than understanding such deities as powers in the "external" world about which the individual can do so little, can those deities be "internalized" as suggested above?

Just as mysteriously "supernatural" significance is associated with the deities of any pantheon "in the realm of the gods", can the secretive ("mysterious"), "transnational" nature of the G8 powers in the "global realm" be given internal significance in individual imagination? What might this imply with respect to the so-called [international community](#) -- corresponding as it does to a "realm of the gods", perhaps reminiscent of the [Valhalla](#) of Norse mythology? Could their internal significance empower the individual cognitively?

Expressed otherwise, can the powers claimed by the G8 over individuals in the external world be "reclaimed" by the individual through introversion -- as powers over the G8 as represented internally by any individual? The deities of the G8 are thereby transformed into deities within the individual's psychic world.

Approaches to distinguishing requisite cognitive variety

Irrespective of the precise number, for the purpose of this argument the "deities" can be considered as indicative of different modes of thinking, action, cognitive bias, and the like -- as articulated by various authors, separately summarized (*Systems of Categories Distinguishing Cultural Biases*, 1993):

- System of Magoroh Maruyama (*Mindscapes, social patterns and future development of scientific theory types*. Cybernetica, 1980, 23, 1, pp. 5-25)
- System of Geert Hofstede (*Culture's Consequences: international differences in work-related values*. Sage, 1984)
- System of Kinhide Mushakoji (*Scientific revolution and interparadigmatic dialogue*. Tokyo, United Nations University, GPID project, 1978)
- System of Will McWhinney (*Paths of Change: strategic choices for organizations and society*. Sage, 1991)
- System of S Pepper (*World Hypotheses: a study in evidence*. University of California Press, 1942)
- System of Mary Douglas (*Natural Symbols: explorations in cosmology*. Pelikan, 1973)
- System of Howard Gardner (*Frames of Mind: the theory of multiple intelligences*. Heinemann, 1984)
- System of W T Jones (*The Romantic Syndrome: toward a new method in cultural anthropology and the history of ideas*. Martinus Nijhoff, 1961)
- System of Emmanuel Todd (*La Troisième Planète: structures familiales et systèmes idéologiques*. Paris, 1983)

Edward de Bono is especially articulate on the value of alternating perspective between those in a set -- expressed in his case in terms of changing between variously coloured "hats" or "shoes" through which engagement with reality is "framed" (*Six Thinking Hats*, 1985; *Six Action Shoes*, 1991; *Six Value Medals*, 2005; *Six Frames: For Thinking About Information*, 2008) . He is focused on the external "reality" of the strategic world (of business) but the argument can also be applied to an "internal" reality -- as might be the case of "appealing" in meditation to a different deity or saintly apostle, or embodying particular qualities, as separately discussed (*Embodying the lore: taking the lore into one's own hands*, 2013) .

There is the delightful irony to traces of the use of "pray" in secular discourse for analogous purposes in addressing any authority (and especially funding agencies): *Je vous prie de m'accorder...* and use of "prithoe" in relation to "pray" in Early Modern English.

Paradoxically dynamic coherence of internalized "pantheons"

It is intriguing to note that, despite the many pantheons which have been assiduously documented, relatively little attention (if any) is given to the relationships between the deities in a given pantheon. These may indeed take the form of myth, as noted above, but the extant myths are not presented such as to highlight the system -- and enable some understanding of its cognitive implications, whether or not interpreted in the language of cybernetics. A valuable exception are the musical studies of Ernest McClain (*Myth of Invariance: the origins of the gods, mathematics and music from the Rg Veda to Plato*, 1976).

A related argument may be made with respect to psychological types with which "deities" may well be associated as archetypes. This point could well be contested from various perspectives, as in the case of the AQAL system or that of the enneagram, for example (A. G. E. Blake, *The Intelligent Enneagram*, 1996) The question is however the degree to which individual identification is enabled with the dynamics between all the "types" identified in such systems -- rather than with one or other type on a learning pathway..

Ironically, given the degree to which it is deprecated, the pattern offered by the traditional zodiac offers an illustrative contrast -- especially given the association of deities with its features. Of relevance to this argument is the manner in which this pattern has been used in relation to dimensions of which the pilot of a helicopter needs to be cognizant -- through the work of Arthur M. Young (*Geometry of Meaning*, 1976). Subsequent to his development of the Bell helicopter, his interest lay in the possibility of a "psychopter", understood as a "winged self" (*Engendering a Psychopter through Biomimicry and Technomimicry: insights from the process of helicopter development*, 2011). The argument in this connection has been developed separately in the light of the work of Rene Thom on archetypal morphologies (*Geometry of meaning: an alchemical Rosetta Stone?* 2013)

The question raised in that argument was whether the actual calligraphy of the distinct zodiacal symbols suggested an approach to understanding the distinctive cognitive modes of the individual deity-cum-signs.

- **Circulation of light:** The question can be dissociated from that controversial framing by switching to an optical metaphor. This has the value of relating to the strategic importance attached to vision and envisaging -- as well as the importance attached by the individual to perspective and imagination. Given the extensive geometric understanding of optical systems, it also offers the possibility of using a mathematical language to clarify such distinctions.

In these terms the distinction between the "deities", or between their cognitive correspondences, becomes one of distinguishing a coherent set of transformations of light with which individuals are variously familiar -- transformations which are themselves "geometrically" or "topologically" related. "Light" can in this sense be usefully related to issues of communication and comprehension (*Circulation of the Light: essential metaphor of global sustainability?* 2010). Light has the advantage of offering "illusory" images which are variously exploited. Possible transformations include: reflection, refraction, mirroring, and the like.

- **Transactional game-playing:** Another approach is to consider the relationship between the deities in terms of game-playing, as separately explored (*Cardioid Attractor Fundamental to Sustainability: 8 transactional games forming the heart of sustainable relationship*, 2005).

Cycles of "deity refreshment": The tendency to articulate patterns of "categories" readily ignores a vital requirement for "deities" to work, namely the need for their "refreshment" -- less provocatively framed as the refreshment of values. In terms of any cognitive "nourishment" (or "cognitive diet"), as with nourishment of the body there is a need for "fresh foodstuffs" -- in addition to "non-perishable" foods, or especially to those which have "passed their sell-by date". There is a tendency to articulate patterns with a mindset akin to that of sterile building construction or to forms of urban planning which minimize the need for the "green spaces" through which the environment is "renewed".

It is in this sense that the classical 8-fold *Ba Gua* pattern of Chinese culture merits attention. It specifically associates the changing cyclic processes of the environment with conceptual distinctions. It is the changing conditions -- as with the changing seasons -- which effectively refresh the functional significance attributed to distinct categories. These have a marked tendency to lose their freshness and become "stale".

Of relevance to this cognitive "refreshment" is the manner in which the environmental conditions indicated by the *Ba Gua* pattern can be recognized as closely associated with styles of "recreation": sky, lake, fire, thunder, wind, water, mountain, earth. It is through these that people can be understood (especially through "deep ecology") as achieving different forms of "refreshment" -- potentially implicit in periodic engagement in distinct forms of tourism (*En-minding the Extended Body: enactive engagement in conceptual shapeshifting and deep ecology*, 2003).

Engaging with "peaceful" and "wrathful" deities

Some pantheons offer a valuable contrast between "peaceful" and "wrathful" deities. The former are fruitfully associated with valued qualities and the latter with problematic conditions. There are notably checklists of war-mongering deities (*List of war deities*), but with much less developed recognition of peace deities (*Peace goddesses?*; *Peace gods?*), presumably because "peaceful" is primarily associated with other functions (*health deities, knowledge deities, nature deities*, etc).

An interesting challenge in both cases, given any possible formalization of the cognitive function of deities, is whether the contrasting sets of deities might lend themselves to "topological" representation -- possibly understood as enhancement or distortion of light. Might it then be possible to recognize:

- a coherent set of distinctive forms of cognitive "elegance" to be associated with "peaceful" deities -- perhaps as higher order of symmetry? Would this offer an approach to distinguishing "fundamental values" and the manner in which their articulation in any form of "global ethic" merits consideration?
- a coherent set of distinctive forms of cognitive "problem" to be associated with "wrathful" deities -- perhaps as higher orders of twistedness? Would this offer a formalization of the "fundamental problems" of society and an understanding of how a coherent global strategy might be formulated?

Beyond the focus on pantheons of deities of limited size, of interest is how Eastern religions (most notably Hinduism) have been able to offer a degree of coherence to a pantheon with a multitudes of deities, especially since the numbers may be of the same order as the number of perceived "world problems" as profiled by the World Problems Project. Of further relevance to this argument is the manner in which -- more fundamentally -- both "peaceful" and "wrathful" deities are held to be illusory from the perspective of Tibetan Buddhism.

With respect to the "inside-outside" aspect, is there a theory of (unsolved) problems, yet to be grounded in mathematics, which could inform the strategic challenges of governance? Could these be recognized as a class of problems in cybernetic terms -- perhaps as an extension of catastrophe theory?

Embodying the world as a strategic opportunity

The paradoxical window of opportunity framed by this argument is associated with the cognitive possibility of embodying "outside-inside". The significance is most readily understood in terms of the environment. Arguably, **until it is possible to "re-cognize" the features of the "external" natural environment as features of "internal" reality, it is the current pattern of dysfunctional dissociation which is sustained.** Embodying the environment offers a mode of cognitive engagement with its processes which engenders the condition intuitively associated with "sustainability" and its promotion, as discussed separately (*Psychology of Sustainability: embodying cyclic environmental processes*, 2002; *Degrees of Cognitive Engagement with Interrelated Global Categories*, 2009).

The argument can be extended to enable an alternative mode of engagement with problematic conditions of the socio-economic environment (*Existential Embodiment of Externalities: radical cognitive engagement with environmental categories and disciplines*, 2009)

To the extent that "sustainability" implies engagement with time, the cognitive significance of time then merits consideration from a more radical perspective:

- *Strategic Embodiment of Time: configuring questions fundamental to change* (2010)
- *Embodying a Timeship vs. Empowering a Spaceship* (2003)
- *The Isdom of the Wisdom Society: embodying time as the heartland of humanity* (2003)
- *Embodying the Sphere of Change: reframing metaphors of the I Ching as a codification of the patterns of change* (2001)

The argument suggests the possibility of a radical existential reframing of deeply personal significance, as variously explored in the following:

- *¿ Embodying a Way Round Pointlessness ?* (2012)
- *Stepping into, or through, the Mirror: embodying alternative scenario patterns* (2008)
- *Embodying Values Dynamically through Alternation: integrating sets of polarized static values through indicative metaphor* (2008)
- *Embodying the Paradoxes and Contradictions of the Pursuit of Happiness: en-joying the world through en-joying oneself* (2011)
- *Embodiment of Identity in Conscious Creativity: challenge of encompassing "con"* (2011)

Whilst the argument is focused on the "outside-inside" transformation for the coherence it offers, the necessary alternation with the "inside-outside" transformation has the potential to engender coherence, most notably with respect to "health", whether personal or collective:

- *Patterns Essential to Individual and Global Health?* (2010)
- *Wholth as Sustaining Dynamic of Health and Wealth: cognitive dynamics sustaining the meta-pattern that connects* (2013)
- *Remedies to Global Crisis: "Allopathic" or "Homeopathic"? Metaphorical complementarity of "conventional" and "alternative" models* (2009)
- *Memetic and Information Diseases in a Knowledge Society: speculations towards the development of cures and preventive measures* (2008)
- *Cognitive Implications of Lifestyle Diseases of Rich and Poor: transforming personal entanglement with the natural environment* (2010)

References

Ron Atkin. *Multidimensional Man; can man live in 3-dimensional space?* Penguin, 1981

Bertrand Badie and Marie-Claude Smouts. *Le Retournement du monde: sociologie de la scène internationale.* Presses de Sciences Po / Dalloz, 1999 [review]

Christine Belcikowski. *Le retournement de la sphère.* [text]

Jim Berg. *Topology of Experience.* [text]

Joan Berzoff, Laura Melano Flanagan and Patricia Hertz. *Inside Out and Outside In: psychodynamic clinical theory and practice in contemporary multicultural contexts*. Jason Aronson, 2008

Bob Becking (Ed.). *Orthodoxy, Liberalism, and Adaptation: essays on ways of worldmaking in times of change from biblical, historical and systematic perspectives*. Brill Academic, 2011

A. G. E. Blake. *The Intelligent Enneagram*. Shambhala, 1996

David Bohm. *Wholeness and the Implicate Order*. Routledge, 1980

Markus Brüderlin. *Du musst Dein Leben umstülpen; Rudolf Steiner und das moderne Prinzip des Inside Out*. [\[text\]](#)

Susan Cain. *Quiet: The Power of Introverts in a World That Can't Stop Talking*. Broadway Books, 2012

Joseph Campbell. *The Inner Reaches of Outer Space: metaphor as myth and as religion*. Alfred van der Marck Editions, 1986 [\[summary\]](#)

Noam Chomsky and Edward S. Herman. *Manufacturing Consent: the political economy of the mass media*. Pantheon Books, 1988

Mihaly Csikszentmihalyi:

- *Finding Flow: the psychology of engagement with everyday life*. Basic Books, 1996
- *Good Business: leadership, flow, and the making of meaning*. Penguin, 2003

Erik Davis. *TechGnosis: Myth, Magic, and Mysticism in the Age of Information*. Harmony Books, 1998

Richard Dawkins. *The God Delusion*. Bantam Books, 2006

Edward de Bono:

- *Six Thinking Hats*. Back Bay Books, 1985
- *Six Action Shoes*. Longman Higher Education, 1991
- *Six Value Medals: the essential tool for success in the 21st Century*. Ebury Press, 2005
- *Six Frames: For Thinking About Information*. Vermilion, 2008

Barbara Ehrenreich:

- *Bright-sided: how the relentless promotion of positive thinking has undermined America*. Metropolitan Books, 2009
- *Smile Or Die: how positive thinking fooled America and the world*. Granta Books, 2010? [\[summary\]](#)

Duane Elgin. *Voluntary Simplicity: toward a way of life that is outwardly simple, inwardly rich*. Harper, 2010 [\[summary\]](#)

Sandra Squire Fluck. *Realizing Introversion in an Extroverted World: Review of Quiet: The Power of Introverts in a World That Can't Stop Talking* by Susan Cain. *bookcover2cover*, 5 June 2012 [\[text\]](#)

George K. Francis. *Sphere Eversions*. In: *A Topological Picturebook*, Springer, 2007, pp 99-124

George K. Francis. *Drawing Surfaces and their Deformations: the tobacco pouch eversions of the sphere*. *Mathematical Modelling*, 1, 1980, 4, pp. 273-281 [\[abstract\]](#)

George K. Francis, John M. Sullivan and Chris Hartman. *Computing Sphere Eversions*. In: *Mathematical Visualization*, Springer, 1998, pp 237-255

George K. Francis and John M. Sullivan. *Visualizing a Sphere Eversion*. *IEEE Transactions on Visualization and Computer Graphics*, 10, 2004, 5, pp. 509-515

James Geary. *I is an Other: the secret life of metaphor and how it shapes the way we see the world*. Harper Perennial, 2012

Nelson Goodman. *Ways of Worldmaking*. Hackett, 1978

Charles B. Handy. *Gods of Management: the changing work of organisations*. Oxford University Press, 1995

Douglas Hofstadter:

- *Gödel, Escher, Bach: an Eternal Golden Braid*. Basic Books, 1979
- *Fluid Concepts and Creative Analogies*. Harvester Wheatsheaf, 1995
- *I Am a Strange Loop*. Basic Books, 2007

Douglas Hofstadter and Emmanuel Sander:

- *Surfaces and Essences: analogy as the fuel and fire of thinking*. Basic Books, 2013
- *L'Analogie. Coeur de la pensée*. Editions Odile Jacob, 2013

Marion Frances Holstein. *An Inquiry Into the Relation Existing Between Introversion-Extroversion and Susceptibility to Certain Geometrical Optical Illusions*. Loyola University College, 1945 [\[text\]](#)

Kyle Idleman. *Gods at War: defeating the Idols that battle for your heart*. Zondervan, 2013

Tjeerd B. Jongeling, Teun Koetsier and Evert Wattel. *Self-Reference in Finite and Infinite Paradoxes*. *Logique and Analyse*, 2002 [\[text\]](#)

Dieter A.W. Junker. *Dual Turning Inside-Out Solid Tetrahedron-Tetrahedron*. 2006 [\[text\]](#)

T. S. Kuhn. *The Structure of Scientific Revolutions*. Continuum, 1962 [[summary](#)]

F. Laudenbach. *De la transversalité de Thom au h-principe de Gromov: transversalité sous contrainte, retournement de la sphère. Leçons de mathématiques d'aujourd'hui*, Apmep, 2010

Silvio Levy. *Making Waves: A Guide to the Ideas Behind Outside In*. A K Peters, 1995.

Cindy Lindsay. Paradoxes of Organizational Diversity: living within the paradoxes. *Academy of Management Proceedings*, 1990, pp. 374-378 [[abstract](#)]

Antonia Macaro and Julian Baggini. What's the problem with introversion? *FT.com*, 12 May 2012 [[text](#)]

Nelson Max. My Six Years to Evert a Sphere. *IEEE Annals of the History of Computing-Series*, 20, 1998, pp. 42 [[text](#)]

Delle Maxwell. Sharing the Mind's Eye: computer animation in visualizing geometry. [[text](#)]

Ernest G. McClain. *Myth of Invariance: the origins of the gods, mathematics and music from the Rg Veda to Plato*. Nicolas-Hays, 1976 [[text](#)]

Thomas Moore. *The Planets Within: the astrological psychology of Marsilio Ficino*. Lindisfarne Press, 1990

Bernard Morin and Jean-Pierre Petit. Le retournement de la sphere. In: *Les Progres des Mathematiques*, 1979, pp. 32-45.

Vera Nünning, Ansgar Nünning, Birgit Neumann and Mirjam Horn (Eds.). *Cultural Ways of Worldmaking: media and narratives*. De Gruyter, 2010

Willis F. Overton. Metaphor, recursive systems, and paradox in science and developmental theory. *Advances in Child Development and Behavior*, 23, 1991, pp. 59-71 [[text](#)]

René Passet. *Les Grandes Représentations du Monde et de l'Economie: de l'univers magique au tourbillon créateur. Les Liens qui Libèrent*, 2010 [[summary](#)]

Jean-Pierre Petit. *Le Topologicon*. Berlin Editions, 1985 [[text](#)]

Jean-Pierre Petit and Fabrice Guyod. Récit des trois rencontres entre Jean-Pierre Petit et Jacques Lacan, tournant autour de la surface du cross-cap et de la surface de Boy. *Figures de la psychanalyse*, 2006/2, 14, pp. 181-204 [[text](#)]

Anthony Phillips. Turning a sphere inside out. *Scientific American*, 214, 1966, pp. 112-120

Karl Popper. *Conjectures and Refutations: the growth of scientific knowledge*. Routledge, 1963 [[summary](#)]

Kate Raworth. *A Safe and Just Space for Humanity: can we live within the doughnut?*, Oxfam, February 2012 [[text](#)]

Oliver Leslie Reiser. *Cosmic Humanism: a theory of the eight-dimensional cosmos based on integrative principles from science, religion, and art*. Schenkman Publishing, 1966

Nicholas Rescher:

- *Cognitive Systematization; a system-theoretic approach to a coherent theory of knowledge*. Blackwell, 1979
- *The Strife of Systems: an essay on the grounds and implications of philosophical diversity*. University of Pittsburgh Press, 1985

Robert B. Ricco and Willis F. Overton. Dual systems Competence -- Procedural Processing: a relational developmental systems approach to reasoning. *Developmental Review*, 31, 2011, pp. 119-150 [[text](#)]

David Riesman, Nathan Glazer and Reuel Denney. *The Lonely Crowd: a study of the changing American character*. Yale University Press, 1950 [[summary](#)]

Steven M. Rosen:

- *Topologies of the Flesh: a multidimensional exploration of the lifeworld*. Ohio University Press, 2006 [[excerpts](#)]
- *Dimensions of Apeiron: a topological phenomenology of space, time, and individuation*. Value Inquiry Book Series of Editions Rodopi, 2004 [[excerpts](#)]
- *Science, Paradox and the Moebius Principle: the evolution of a "transcultural" approach to wholeness*. State University of New York Press, 1994 [[summary](#)]
- *A Plea for the Possibility of Visualizing Existence*. *Scientia: International Review of Scientific Synthesis*, 108, 1973, pp. 789-802 [[abstract](#)]

Elaine Scarry. *The Body in Pain: the making and unmaking of the world*. Oxford University Press, 1987

Roger N. Shepard and Lynn A. Cooper. *Mental Images and Their Transformations*. MIT Press, 1982

John M. Sullivan. *Sphere Eversions: from Smale through the "Optiverse"*. 2002 [[text](#)]

René Thom:

- *Structural Stability and Morphogenesis*. W. A. Benjamin, 1972
- *Semio Physics: A Sketch*. Addison Wesley, 1990
- *Apologie du Logos*. Hachette, 1990
- *Les réels et le calcul différentiel, ou la mathématique essentielle*, 1982. In: *Apologie du Logos*, pp. 314-331
- *Topologie et signification*. In: *Modèles mathématiques de la Morphogénèse*, 1980, pp. 175-176

Alexander Tolor. Introversion-extraversion and topological representations of self and others. *Journal of Clinical Psychology*, 31, 1975, 4, pp. 662-3 [[abstract](#)]

Phillip van den Bossche and Ronnie Dusoior. *Orbis Terrarum: ways of worldmaking*. Ludion Editions, 2000

Paul Watzlawick. *The Invented Reality: how do we know what we believe we know?* W W Norton, 1984

Peter Woit. *Not Even Wrong: the failure of string theory and the continuing challenge to unify the laws of physics*. Jonathan Cape, 2006

John Woods. *Paradox and Paraconsistency: conflict resolution in th abstract sciences*. Cambridge University Press, 2003

Arthur M. Young:

- *Geometry of Meaning*. Delacorte Press, 1976
- *Zodiac: An Analysis of Symbolic Degrees* by Eric Schroeder. Robert Briggs Associates, 1982
- *The Reflexive Universe: evolution of consciousness*. Delacorte Press, 1976
- *The Bell Notes: a journey from physics to metaphysics*. Delacorte Press, 1979



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

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