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Psychology of Sustainability Embodying cyclic environmental processes

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This paper is a contribution to reflection on viable strategies for sustainable development on the occasion of the UN World Summit on Sustainable Development (Johannesburg, 2002)

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Introduction

The term 'psychology of sustainability' seems to have been launched as the title of a paper by Alice Jones (1996) although described in 1995 by her as follows:

I call it loosely "the psychology of sustainability", and it has to do with the very **personal**, **individual**, and sometimes **conflicting** experience of talking the talk of sustainability and then trying to walk the walk. My take on this is that we **can't** have a meaningful discussion about a national sustainability policy, or even a community sustainability policy without **explicitly** considering the very personal nature of what is implied. [[more](#)]

According to Giuseppe Carrus and Mirilia Bonnes (2002):

Although the concept of sustainable development has been criticized for being too vague, anyway there is a considerable agreement among different scientific fields that it should remain the main aim to be pursued in the management of natural and human resources. Now sustainability is a trans-disciplinary concept which calls into question issues that are central in several social and human sciences and disciplines, ranging from economics, legal sciences, philosophy, psychology: within social and environmental psychology, in particular, some authors have recently proposed the term "psychology of sustainability" or "new ecological psychology" (Bonnes and Bonaiuto, 2001). These terms identify those theoretical and empirical contribution aiming at better understanding the psychological processes involved in the development of a positive environmental awareness and concern in people's use of natural resources. A considerable effort in the direction of supporting the above-mentioned "integrated perspective" in ecological science, as well the concept of sustainable development, particularly for what it concerns the institution and management of natural protected areas, came also from the UNESCO Program on Man and Biosphere (MAB)...

Throughout the past decade, there has been increasing interest in eco-psychology, notably through the creation of an Ecopsychology Institute and the availability of ecopsychological resources on the web [\[more\]](#). But it is interesting that the emphasis is to a significant degree on the personal implications: the skillful application of ecological insight to the practice of psychotherapy; the study of our emotional bond with the Earth; the search for an environmentally-based standard of mental health; and re-defining "sanity" as if the whole world mattered. It is perhaps the latter focus that is closest to the preoccupation of this paper with the psychology of sustainability.

A related pattern of significance is associated with 'psychological sustainability', as in the case of Esalen's proposed approach to prosperity:

The word prosperous derives from the Latin *pro* plus the root of *sperare*, "to hope." Today, with the rest of the world, we face dangerous challenges and intriguing possibilities. At best, with the help of the larger Esalen community, we hope over the next several years to create a world model of physical and psychological sustainability, of vision without dogma, adding up to a new way of understanding an old but most important word: prosperity. [\[more\]](#)

The focus below is to follow Alice Jones with respect to the 'very personal nature of what is implied'. However the emphasis here is less on adopting personal behaviours consistent with sustainable environmental programmes and more on understanding how any ability to act in the environment in a sustainable manner is intimately dependent on the ability to act in a sustainable manner with respect to one's own internal psychological environment. Indeed it is argued that unless experiential understanding of one's psychological environment consciously embodies analogous cyclic patterns and processes, it is unlikely that social behaviours with respect to the environment will themselves be sustainable -- however strong the declarations of intent or the initial commitment to sustainable patterns of action.

The 'pattern that connects'

Sustainability might be usefully understood as the 'pattern that connects' which Gregory Bateson highlighted in suggesting that if it is broken all quality is then destroyed. This is most obviously seen in the case of broken food webs which result in the destruction of ecosystems. It is also evident in the case of water and weather systems, whether the broken patterns lead to flooding or desertification.

The challenge of sustainability is that people in industrialized societies have little obvious reason to care for loss of such quality -- despite continuing creative attempts to encourage them to understand otherwise. Fundamentally such patterns are distant and irrelevant to an urbanized population. When 'dirty' water is flushed and 'clean' water comes out of a tap or a bottle, the sense of the water cycle is lost -- or even desperately repressed to avoid recognition of the path taken by the recycled water that is available for consumption.

The challenges of sustainability are typically presented in **linear** terms as the increasing threat of: global warming, environmental pollution, shortage of water, loss of biodiversity, and the like. The solutions are presented in corresponding terms of the necessarily linear counter-measures required: reduction of emissions, water conservation, protection of species, etc. Neither the descriptions of the problems, nor of the solutions, recognize the **cyclic** nature of the patterns that need to be engendered for any change to be sustainable. Indicators focus on linear measures of increase. There are few, if any, measures of the nature of cycles. Even the 'recycling' advocated in relation to sustainability programmes is subject to linear measurement.

The question to be asked is whether a linear framework can engender or engage a cyclic perspective. More specifically, **can a linear framework ensure sustainability that is dependent on cyclic behaviour?** The pattern that connects to ensure sustainability necessarily involves behavioural cycles -- whether habits, instincts or rituals. Linear initiatives, whether framed as growth or remedial programmes, are necessarily characterized by a beginning and an end that defines them as unsustainable -- however much lip service may be paid to building in follow-through processes. Programmes are instruments of linear thinking and as such are incompatible with the cyclic quality of the behaviours necessary to sustainability.

Elusiveness of sustainability

Many have remarked on the vagueness of 'sustainability' -- and the abuse of the term which this encourages. There is a sense that what is signified by the term can only be described by unsustainable practices, namely by measures of unsustainability.

A major challenge of the arts is to describe the positive conditions of 'living happily ever after'. In practice this can only be briefly suggested as a sequel to (or in dramatic anticipation of) the violence and tensions with which it is contrasted. The same might be said of sustainability. In practice it is simply boring over any extended period of time. Nothing 'happens' -- or is likely to happen -- which, ironically, may be the future of sustainable development strategies as currently envisaged.

The challenge of any description of sustainability is further highlighted by Francisco Varela:

In contrast with what is commonly assumed, a description, when carefully inspected, reveals the properties of the observer. We observe, distinguish ourselves precisely by distinguishing what we apparently are not, the world.

There is a sense therefore in which it is unsustainability that lends itself to description, whereas description is essentially alien to the processes and conditions of sustainability. Description can perhaps denote the boundaries of sustainability, namely the grey areas of transition from sustainability to unsustainability, and in so doing indicate by inference the nature of the processes that lie within those boundaries. As with the challenge of containing plasma in nuclear fusion, sustainability has to be held away from the walls of the conceptual container that brings it into being -- in order to avoid it being 'quenched'.

Environmental learning

In 1997 Alice Jones with Steven Gordon pointed to the value of 'thinking like a watershed' as a key to stormwater management. This suggests a more generic case for exploring **psychological patterns that may be mnemonically isomorphic with cyclic processes in the environment**. The point of doing so is to obtain an intimate sense of what is important to one's psychic well-being in such processes that may then give new meaning to caring for processes in the external environment. Again, **if one cannot sense the importance of certain cycles in oneself, caring for their external counterparts ultimately lacks significance and is essentially irrelevant** -- whatever the exhortations regarding future threats.

Movement in nature may prove to be a key to sustainable strategies. These are exemplified by weather cycles with which people are most familiar. Examples include:

- wind, wind storms -- possibly in the light of experience with sailing and hang-gliding
- water, waterfalls, rain, rivers and flooding -- possibly in the light of kayaking and white water rafting
- earth, dust, sand and landslides -- possibly in the light of gardening, rock climbing, and caving
- wildfires, volcanoes -- possibly in the expectation of light sailing

Curiously it is the Chinese, over millennia, who have seized upon such phenomena as the metaphorical key to a comprehensive system of transformational processes considered by them to be basic to the many aspects of governance -- whether by an emperor or by any individual. As explicated in the *I Ching*, this 'Book of Changes' is a major challenge to the post-modern world to create a 'model' of greater relevance and interest to people at every level of society [[more](#); [more](#)]. The [Encyclopedia of World Problems and Human Potential](#) explored its use as a template for the generation of metaphors relevant to networking (1986) and policy-cycles (1991). The web variant has extended the experiment to apply to: dialogue, vision, transformative conferencing, policy-cycles, networking, sustainable community and sustainable lifestyles [[more](#)]. For those inclined to such taoist perspectives, it may well be the 'happening of nothing' that is the key.

Contemporary ironies of sustainability

There is an historical irony to the fact that the recent period, which has seen emergence of interest in sustainability as a policy issue for states, has also seen the emergence into public debate of the challenges of male impotence and erectile dysfunction -- namely the unsustainability of erections. The special twist to this irony is that the uncontrollable pursuit of traditional remedial aphrodisiacs has been a major factor in exacerbating the consequences of trade in endangered species and products derived from them (eg powdered rhino horn, dried penises of various species, etc). The decimation of some species, such as tigers and rhinos, has been linked to the continuing popularity of centuries-old sexual and other medicinal folk remedies in Asian cultures. In Chinese traditional medicine, animal parts -- known in East Asia as *pu* foods -- are reputed to endow a man with the potency of the animal itself, or with the potency implied by the shape of the appendage.

The importance attached to 'sustainability' in this sense has been powerfully demonstrated in the West by the popularity of Viagra and similar products. In Europe an estimated 36 million men suffer from erectile dysfunction. These include those decision-makers most responsible for developing an effective response to the challenges of sustainability -- such as Eurocrats, and Members of the European Parliament, who have a Viagra allowance of around £35 a month ([Guardian, 9 Aug 2002](#)). In the USA, more than 7 million men have used it to improve their sexual function. It has been prescribed there more than 22 million times. It is available in more than 90 countries worldwide. It is claimed to work for up to 82% of users. Arguably more attention, publicity and resources, has been given to the need for 'sustainable erections' than to 'sustainable development'. The importance of such potency to human reproduction and its contribution to the increasing challenges of over-population need no comment. But the psychological implications of erectile dysfunction and impotency on policy directives relating to sustainable development merit some reflection.

In this light, it is also ironic that thinking about sustainable development tends to be undertaken using a masculine mind-set [[Janis Birkeland, 1999](#)]. Chris Dutilh and Gerda Casimir (2002), for example, review the main forces counteracting sustainable development. Their hypothesis is that those forces are inherent to the dualistic nature of each individual, having both an outgoing (masculine) element which aims to manifest itself, as well as a caring (feminine) element which is concerned about continuity and future generations. They conclude:

We hypothesised that the broadly felt unease about the sustainability of our society is in part caused by the fact that short-term-oriented masculine attitude is overruling long-term-oriented feminine behaviour. In that respect it is amazing to see that almost all solutions proposed so far to overcome this distorted development are part of the masculine domain: technological developments and product improvements are all meant to compensate for consumer behaviour.

This is now becoming evident in the focus on the information and 'knowledge' required for sustainable development -- framed as the need for male-dominated computer technology and software, and as ensuring the penetration of the internet 'across the digital divide'. As marketable products, such 'hard' information will be the prime characteristic of the UN's World Summit on the Information Society (Geneva, 2003; Tunis, 2005). There is little understanding of the 'soft' information and insight required in the process of giving substance to alternative realities -- the kinds of information notably documented by Darrell Posey (1999) and furthered by Terralingua [[more](#)]. UNESCO, as the agency responsible for the UN Summit, could be usefully challenged to rectify any such imbalance, especially given its transversal concern with women and non-western cultures.

Dutilh and Casimir see the challenge to be one of identifying responses to unsustainable development from a complementary perspective. Indeed, for a planet ravaged by masculine initiatives and the exploitation of non-renewable resources, it is only too appropriate for a

'sustainable system' that such a period should be associated with male impotence -- a condition which the raped often wish upon their rapists. It is also ironic that a dangerous consequence of pollution and environmental stress has been the proliferation of oestrogen surrogates, falling sperm counts, scrambling of the male hormone, all leading to the 'feminization of nature' [more]. But in the search for balance from a softer perspective, the question is who is acknowledging the dysfunctionalities that are liable to become obvious as a consequence of feminine initiatives -- in an immediate future in which, ironically, the fertility of the planet may prove inadequate to sustain the human population.

In a 'blip' culture habituated to 'zapping', sustaining attention is increasingly recognized as a challenge by educators, advertisers, and controllers of complex systems. Over-exposed to the stress of modern life, individuals (notably children) can suffer from various 'attention-deficiency disorders' with symptoms such as: inattention, distractibility, disorganization, daydreaming, lack of foresight, carelessness, forgetfulness, lack of motivation, lack of persistence, procrastination, hyperactivity, restlessness, excessive talking, and impulsiveness. These all undermine any ability to recognize or respond to longer cycle concerns fundamental to sustainability.

As a political cause, sustainability is subject to the observations of Geoffrey Miller's controversial suggestions that political opinions are effectively courtship displays (in: *Political Peacocks, Demos Quarterly*). Miller's hypothesis explains a number of aspects of political culture supposedly baffling without it: the interest in politics of the politically impotent; the disproportionate favour 'caring' politics find with women (not actually the case in Britain); the drift away from 'stimulating' radical opinions to reassuring ones in later years. He explains sudden upsurges in political interest like those he observed at college in terms of the 'frequency-dependent selection' biologists observe in animal courtship, where certain signs are only attractive if popularly reproduced. [more]

Ironical also is the extent to which those promoting sustainable development exemplify their linear thinking through the focus on 'targets' of 'campaigns' requiring 'mobilization' -- namely through the use of military metaphors which might well be considered as fundamentally incompatible with the mind-set required to achieve sustainability. Even more curious is their use of the phrase 'meeting targets' -- which in that context might be as meaningful as an encounter between George Bush and Osama bin Laden. As the former has perhaps realized, the latter is not standing still in anticipation of being 'acquired' as a target. Ideally the static "target", once "hit", is conditioned by the "impact" of the (powerpoint) "bullet" into some new pattern of behaviour. In the real world however, "targets" are on the move and will be induced to move even more unpredictably by being "targeted" or "hit". Unless the "targets" are to be considered as fundamentally masochistic or stupid, they will tend to react "negatively" to being "hit" and having their behaviour "modified". But perhaps those "hitting" such "targets" see the situation more as do cattle herders, or abattoir slaughter-men, who direct cattle by using electrical prods? Any such framings of course raise questions about the supposedly two-way nature of the communication process. [more]

Given the focus on military metaphors in the pursuit of sustainable development, perhaps the most profound irony relates to contemporary attitudes to death itself. Animals of every kind are slaughtered unthinkingly in their millions -- many to the point of extinction, or at least to the point of their exhaustion as a food stock (cf overfishing, etc) -- with the complicity of the FAO. The 20th century has seen the highest slaughter of human beings in the history of the species. And substances are deliberately produced and consumed that have a high probability of causing ill-health and death -- with the complicity of the WHO. But at the same time, there has never been greater concern to sustain human life beyond previous natural limits, to the point of expending the major proportion of medical resources on the last three months of a life. If immortality treatments were available, no cost would be spared by the few to benefit from them -- whatever the effects on the many. Through systematic denial, the challenge of responding to the effects of overpopulation on sustainability has been effectively delegated to such 'culling' procedures as war, starvation and disease. Although some continue to follow the outmoded tradition of being prepared to die for their country or people (most recently as 'terrorists') -- few, if any, are prepared to die for the planet. This is in marked contrast to the approach to human sacrifice in many cultures of the past.

Sustainability and spin

In the past decade 'spin' has become recognized as the distinguishing feature of contemporary politics and governance and of how business is done by those of any competence (supported by 'creative accounting'). The mediatisation of politics and commerce has encouraged the competitive use of spin to ensure that a positive light is cast upon any proposed initiative to minimize recognition of its negative consequences. In fact, presentations in support of new projects essentially require that a 'positive spin' be placed upon a proposal in comparison with 'negative spins' that may be deliberately or inadvertently associated with competing proposals. When initiatives subsequently fail in any way, suggesting incompetence on the part of those who undertook them, then damage limitation again calls extensively upon such spin techniques -- again possibly through placing some form of 'negative spin' on those making such suggestions.

In this sense it might be said that the perception of sustainability is intimately related to spin -- whether in accusations of unsustainability or in claims in favour of it. In both cases, claims have been made in such a way as to be deliberately misleading in order to make political points. It is of course correct that buried beneath such spun facts are those which validate arguments. The challenge of modern society is that adequate resources can always be deployed to conceal or devalue such facts through spin. Ultimately it is only situations such as when houses are flooded that might be said to escape the use of presentational spin -- although even then it is immediately deployed to cast blame elsewhere.

Given the preponderance of spin, it may be useful to explore the extent to which all sustainable collective initiatives are necessarily characterized by spin. In this sense spin ensures forms of stability and coherence that are prime characteristics of sustainability. This recalls the use of 'spin' as a property of fundamental particles or of planetary rotation. In the case of particles, it is defined in the terms such as the following:

Spin is the name for the angular momentum carried by a particle. For composite particles, the spin is made up from the combination of the spins of the constituents plus the angular momentum of their motion around one-another. For fundamental

particles spin is an intrinsic and inherently quantum property, it cannot be understood in terms of motions internal to the object. The intrinsic spin must be included in applications of conservation of angular momentum. Spin is given in units of \hbar , which is the quantum unit of angular momentum, typically giving rise to spins of 0, 1/2, 1, 3/2.

In the case of astronomy, two forms of 'spin' are distinguished:

- Orbital revolution, ranging from 1 year in the case of the Earth to 230 million years for the Sun around the galaxy, associated with the notion of orbital stability
- Axial rotation (confusingly described in mechanics by rpm), ranging from 24 hours in the case of Earth, through 0.5-10 days for young stars, to some 10^8 years in the case of the galaxy, with pulsars having a rotation period of 0.001 to 10 seconds; axial rotation contributes significantly to planetary stability, notably in compensating for the gravitational forces associated with orbiting a powerful attractor

The concerns of particle physics and astronomy for spin are linked in the focus of mathematics and physics on 'spinors'. Spinors have played a crucial role in both throughout the past. Spinors are used extensively in physics, but they may offer a means of understanding relationships between social groups identifying with alternative realities. It is widely accepted that they are more fundamental than tensors (of which they are the 'square root'), and the easy way to see this is through the results obtained in general relativity theory by using spinors -- results that could not have been obtained by using tensor methods only [more]. The foundation of the concept of spinors is groups; spinors appear as representations of groups. Spinors and groups are both widely used in the theory of elementary particles :

Discovered in 1913 by Cartan in his investigations of the representation theory of the orthogonal groups, spinors first appeared in physics in the 1920's in the guise of Pauli's spin matrices and in Dirac's relativistic theory of electron spin. Since that time, spinors, spin structures and their attendant Dirac operators have remained of fundamental importance in quantum physics and in many areas of mathematics, especially those dealing with the relation between geometry, topology and analysis. In mathematics they provide key insights into many questions, including index theorems for elliptic operators, the integrality of characteristic numbers, existence of metrics of positive scalar curvature, twistor spaces, and (most recently) Seiberg-Witten theory. [more]

There may well be a case for exploring insights into the pattern of distinctions between fundamental particles as a source of clues to why conceptual models (and their social manifestations) are 'charged' positively or negatively with respect to their perceptions of each other -- and so determining their interactions. Might it be possible that there are parallels deriving from constraints on human thinking (cf Lakoff and Núñez, 2000, on the cognitive science of mathematics) with properties of quarks such as strangeness, charm, topness, bottomness, and flavour [more] ?

It is curious that the degree of complexity and sophistication considered necessary and admissible to handle the phenomena of astronomy and fundamental particles is several orders greater than that considered appropriate to the challenge of sustainable development and its governance. And yet in the case of fundamental physics its results are sufficiently concrete to produce nuclear weapons and power stations. But in the case of the far less sophisticated models considered adequate for sustainable development and conflict resolution, the results have proven more than inadequate to a challenge of ever-increasing magnitude. In the case of physics success is of course achieved by extreme reduction in the focus to conditions under which all parameters can be effectively controlled. Sustainable development, on the other hand, has to deal with open systems -- which would surely argue for conceptual models of greater complexity than are required for the 'simpler' systems of nuclear physics. Perhaps those concerned with sustainable development could learn from the multidimensional tools with which physics is obliged to work -- rather than assuming that the tasks can be handled with the tools with which they feel comfortable.

Openness and closure

Achieving sustainability calls for a response to the openness by which humanity is surrounded. Unfortunately the only conceptual tools available are tools of closure. Closure has been defined as the property of a system to maintain its own internal order and identity within defined and permanent boundaries. Circularity is fundamental to most notions of closure.

In this sense it is useful to look anew at the process of closure as has been done by the philosopher Hilary Lawson (*Closure: a story of everything*, 2001). For him:

We are lost, both as individuals and as a culture. For over 2,000 years we have believed in the possibility of a single true account of the world. Now this age, the age of truth, is coming to a close. As a result there is much unease. In the new, relative, post-modern era, there is no unique history, no agreed morality, and no uncontested knowledge. In their place a mass of alternative and sometimes incompatible theories, from 'chaos' and 'string' theory to 'fuzzy logic' and 'consilience', proposing a theory of everything. *Closure* is a response to this crisis: a means to understand our experience and our circumstances in an age without truth. It is a radically new story about the nature of ourselves and of the world.

Instead of seeing the world as a thing, a universe, whose truths we might uncover through for example the procedures of science, *Closure* proposes that we regard the world as open and it is we who close it through our stories. The resulting framework offers solutions to the central questions of contemporary philosophy: the character of language and meaning, of the individual and consciousness, of truth and reality. As a theory of knowledge *Closure* has dramatic consequences for our understanding of the sciences, changing what we think science is about and how it is able to do it. It also accounts for why we need and desire both art and religion. It reshapes our understanding of ourselves and the organization of society, our goals and our capacity to achieve them. But above all it makes sense of where we are and who we are.

To what extent are the various approaches to sustainable development, and the search for alternative paradigms, to be considered as efforts to achieve new -- and more encompassing -- forms of closure? In contrast to Ken Wilber's (*A Theory of Everything: an integral vision for business, politics, science, and spirituality*, 2000), and without reference to it, Lawson's 'story of everything' engages in the self-reflexive process of reviewing itself as an exercise in closure. Lawson however fails to cite Orrin E Klapp who used the metaphor of the operation of the iris of the human eye, in response to light, to discuss the challenges of responding to information overload (*Opening and closing: Strategies of information adaptation in society*, 1978).

What is humanity trying to achieve through global frameworks, programmes, and strategic initiatives?

Sustainability of collective initiatives -- and the dependence on spin

Prime examples of collective initiatives -- that must necessarily distinguish themselves by an alternative modality within society to ensure their sustainability and identity -- include:

- monasteries
- prisons
- corporations
- exclusive hotels
- laboratories and think tanks
- custom zones
- universities
- libraries and information systems
- intentional communities

In each case, a physical barrier may be used to encircle the initiative and separate it from society -- especially if it is secret. This may be matched by physical security procedures and by formalities restricting right of access to 'authorized personnel' -- or even to differential pays scales, privileges and perks (as exemplified by the European Commission). At the same time importance may be attached to the image of the initiative to the wider world -- requiring attention to how it is presented and 'spun', especially if it may be perceived as controversial. In a real sense therefore the initiative may be understood as having to spin in order to ensure its coherence, integrity and sustainability. With respect to social experiments towards sustainability, this is especially interesting in the case of intentional communities. Curiously many of these physically bounded alternatives require 'a key' to be turned to open portals between their reality and the outer world -- a process also evident in the case of entering space vessels.

All such initiatives may be viewed as 'models', and as members of a more general set of conceptual models of which only some take material or organizational form. As with the material examples, all models (including belief systems) may then be understood as 'conceptual fortresses' operating in a different mode (responding to the sound of a 'different drummer') from their environment and requiring a particular dynamic to ensure an identity distinct from it. Individual egos might also be usefully seen as each associated with a form of spin through which personal identity is sustained. The 'whirling dervishes' deliberately spin to enter a different reality [\[more\]](#).

In this sense there is a transition from the environment 'into' the space of the model that is most obviously marked by security procedures, but possibly by jargon or language (as explored by David Cooperrider and colleagues [\[more; more\]](#)). Within the model, people tend to use different points of reference and to have a different dynamic. As for people on the Earth, it is the rest of the solar system that spins around it. Such a transition is well understood when stepping onto a roundabout rotating in a playground -- or onto other spinning fairground rides (of much greater complexity) which offer thrilling experiences that contrast with the reference framework of normal gravity. The problems of this transition are also illustrated by the challenges of astronautics to match velocity and orientation with a spinning satellite before docking with it or landing on it. In neither case can the spin be 'stopped' as desired by the musical: *Stop the World I Want to Get Off* (1962) !

Expressed in such terms, it becomes clear that sustainability as a policy goal needs to be seen in terms of the dynamic relationship it has as a model with the larger social environment. Such an environment is composed of many other models spun in different ways by their proponents or in relation to those that oppose them. Whether or not a sustainable initiative encompasses such unsustainable initiatives in some way, or merely competes with them, the spin that characterizes each of them with respect to the others calls for special attention to the process of transiting from one to the other. From an astronomical perspective, different degrees of sustainability might be associated with models of different rates of spin. How sustainable is a model with a very high rate of spin?

Spinning an alternative

It is curious that the industrial civilization that is such a challenge to sustainable development was initiated by an industrial 'revolution' -- and long-heralded by the invention of the 'wheel'. It is equally curious that radical socio-political transformations have long been described as 'revolutions' -- just as advances in knowledge are described as conceptual 'revolutions'. What is it that 'revolves' and with respect to what? How might this help to understand a sustainable development 'revolution' -- or has 'sustainable' been implicitly defined in that context as having no 'revolutionary' characteristics? Is any alternative to unsustainable development possible without some form of spin?

Space colonies are seen by some as an alternative to the challenges of an over-crowded planet -- although with remarkably little effort to determine how to overcome the psychosocial dynamics that have created the problems on Earth. It is curious that astronautics has made it clear that construction of habitable space colonies will in all probability require that they be 'spun' to create a sense of gravity to make them viable for humans. In physical terms it becomes clear that such spin is required with respect to the surrounding environment.

Access to such environments will then typically be via the axis of spin -- although, ironically again, the docking manoeuvres and terminology recall the challenges of consummating a courtship relationship.

In psychosocial terms in interpersonal relationships, 'spinning' also has a long history. This starts with the process of 'spinning a tale' to young children. It is however a characteristic of the role of any good storyteller. The process draws the listener into the framework of an alternative reality -- to make it 'real'. The importance of this process in modern finance is described with the phrase 'talking up' -- typically used to boost confidence in a failing currency or corporation, to make 'real' a condition which may otherwise appear contrary to the facts available to those who are otherwise informed. The problems of spinning by corporations have been strongly highlighted during 2002 through the use of 'creative accounting' -- and the dramatic loss of confidence in the financial reporting of even the most reputable companies and the failure to sustain share prices in the stock market. Sustaining confidence is fundamental to the capitalist system -- and to any sustainable reality.

The notion of 'spinning a line' to present an alternative reality was perhaps at the origin of the term 'spin'. Corporations in particular have used it to keep out of trouble. Consultants are now arguing that it does not work in the long term. For example, Reputation Quest specialises in risk communication, teaching organizations how to be pro-active in managing issues in order to deliver a 'sustainable reputation'.

Spinning a line is also described in terms such as 'doing a number' on someone to entrap them in an alternative framework, possibly as part of a courtship process governed by the criteria that 'all is fair in love and war'. It is most often used by commercial representatives in the selling process. Various forms of entrapment may be considered [[more](#)].

The process by which coalitions emerge, through an increasing degree of self-reference and self-citation, can be understood as a form of spinning -- associated with the process of 'talking it up' and 'psyching up' the participants. As with space colonies, individuals and groups may also be understood to be 'spinning a habitat' for themselves -- the psychosocial form of 'cocooning'. It is a way to protect oneself sustainably from the harsh, unpredictable realities of the outside world [[more](#)]. Gated communities can be considered as armoured cocoons -- currently providing a form of psychological sustainability for 4 million Americans. The nomenclature constituted by the Communist elite was effectively a form of politico-administrative gated community offering immense economic privileges -- now echoed to a considerable degree by the eurocracy of the European Union [[more](#); [game](#)]. Psychosocial cocooning is considered most problematic in the case of certain forms of sect.

The concept of cocooning points to other lessons from its metaphorical roots -- the cocoons spun by silkworms, other insects and spiders. The features juxtaposed to create a psychosocial cocoon, and the resultant web of mnemonic associations, recall the mnemo-technical role of structures such as 'memory theatres' (see Frances Yates, *The Art of Memory*). Such devices compensate for attention-deficiency disorders, erosion of collective memory [[Judge, 1980](#)] and the inability to comprehend the longer-term cycles fundamental to sustainability. The traditional mnemonic role of beaded circlets in this respect merits wider recognition with respect to the challenges of sustainability [[Judge, 2000](#)].

Language itself may be understood as an intimate (deep structural) equivalent to such mnemo-technical structures -- a web by which an alternative reality can be sustained [[more](#)]. In this light it would be interesting to compare natural languages in terms of their capacity to sustain sustainability. Given the more than 290 artificial (non-computer) languages identified on the web [[more](#)], it might even be possible to craft such a language to have significant advantages in this respect -- as a secular 'wholly' language for reasons analogous to the need for 'holy' languages [[more](#)]. Alternatively much might be accomplished by envisaging its characteristics, notably in contrast to one impregnated with military metaphors. Given the call for a compensating feminine influence, it would be intriguing to discover whether explicit use of gender, as in languages such as French, remedied to any degree the tendencies to pseudo-neutrality evident in policy English -- criticized by ecofeminists as 'manstream' and based on problematic assumptions relating to environmental ethics and the dialogue between ecofeminism and deep ecology (see Greta Gaard, *Ecofeminism*. 1993) [[more](#)].

Alternative realities can perhaps be usefully understood as 'strange attractors' engendered by particular sets or structurings of human values [[Judge, 1993](#)]. Such attractors give rise to spin-type psychosocial activity in their neighbourhoods --- as with moths around a candle flame. The future may see interesting explorations of the relationship between attractors and spinors in the light of the multidimensional spaces explored in astronomy [[more](#)]. A form of spin or hype may be used to 'talk up' realities that do not exist -- or which might exist with a different way of seeing. Ambitious conferences of modest success, focusing on vital issues relating to alternative psychosocial realities, can be transformed in this way to provide role models for the future [cf experiments with [psycocommunities](#), [transdisciplinarity](#), and [culture](#)]. How could this be most creatively done for the UN World Summit on Sustainable Development (Johannesburg, 2002)?

Transiting between realities

A fundamental challenge of the psychology of sustainability is the relative status of alternatives, whether to a dominant mind-set or to one another. As with religions, ideologies or opposing schools of thought, how are they to be understood as co-existing? How does anyone enter or exit such realities -- especially in the light of the challenges of any necessary 'indoctrination' in order to get in and of any 'deprogramming' in order to get out? These challenges are complicated by the zealotry of those providing the indoctrination or opposing any subsequent deprogramming. They are further complicated when experienced as traumatically radicalizing (in the case of politics) or as profoundly intimate (in the case of religious conversions). A thesis, or argument, considered 'sustainable' within one reality may be viewed as absolutely untenable or 'unsustainable' within another.

Under such circumstances, it is not sufficient to consider that alternative realities and paradigms can simply be explained rationally and explored in that mode. This is only true in the case of relatively trivial, or specialized, alternative models that lend themselves to purely intellectual exercises or to exploration as in any new game. This assumption ignores the complexities of the experiential dimension.

In the light of the above points regarding spin, it is more interesting to consider the relationship of one reality to another as like the challenge of getting onto a moving roundabout at a playground. Although, if the roundabout is framed as the classic 'rat race', the challenge is how to get off it. More complex is the case where there are many roundabouts on the playground, operating each at different speeds -- and where the playground itself is a much larger roundabout. Depending on the speed, getting from one roundabout to another can be very dangerous, even for the nimble. One can understand the reluctance of the less nimble to shift to an alternative reality, especially if their capacity to move is challenged in other ways (vision, hearing, etc). The challenge is even greater if the roundabouts are effectively tumbling in relation to one another -- as usefully portrayed in the science fiction movie *Contact* [[machine](#)] endorsed by the [SETI Institute](#). Interestingly traffic 'roundabouts' are vital to directional transitions in vehicle movement [[more](#)]. Virtual reality offers interesting possibilities for simulating such transitions -- which might even be used in navigating between 'levels' of a website, a webring, or a more complex configuration of sites.

The earlier example of docking with a space satellite is also illustrative of the highly disciplined approach required to any transition. In such a three dimensional case, axial docking is clearly the preferred manner of transiting from one to the other. The problem becomes extremely challenging if one or other (or both) are tumbling unpredictably with respect to several axes (possibly rolling, yawing, and pitching).

Is this how the challenge of sustainability can be usefully framed -- in contrast to assumptions widely made about the self-evident simplicity of shifting to an alternative paradigm? The response to proselytizing missionaries with respect to their invitations to convert to their preferred reality should be a warning. Would door-to-door 'sustainable development missionaries' have a better reception or success rate? Why has sustainable development not generated the dedication to sustain such missionary activity? Should its advocates go the route of Christian charismatics with their rallies and media outreach? Ironically, give or take a few years, the urgency of the sustainable development crisis is framed as being subject to almost precisely the same 'deadlines' as Armageddon.

Missionaries of any kind also face a communication challenge. It is too readily assumed that communication in a 'common' language passes readily between realities effectively moving in relation to one another. Einstein's theory of relativity has pointed to the difficulties on a larger scale. The point is well made in the difficulties of communication between Americans and British in Winston Churchill's classic phrase: 'two peoples separated by a common language'. Extensive studies of the problem have been made with respect to the challenges of management in multicultural organizations.

The assertion might well be made that: 'a straight answer cannot be expected from someone operating within an alternative reality'. The dialogue between pro- and anti-forces on any issue is faced with this difficulty. Each necessarily perceives the other as devious and throwing 'curved balls'. This would be the case with space vehicles moving at high speed with respect to one another -- according to the theory of relativity. It may also be true of people moving past each other -- where 'red shifts' and 'döppler shifts' do not apply. The theory of relativity might be given immediate relevance if 'light years' were equated to the necessary 'years of learning' required for some communication between alternative realities to be 'enlightening'.

Transiting amongst a set of complementary alternatives

The challenge becomes far more complex as the number of conceptual axes increases on which relative 'tumbling' occurs. The differences between cultures may well be only mapped using more than three axes. One study suggests seven [[Jones, 1961](#)]. Here again the work of Darrell A. Posey (*Cultural and Spiritual Values of Biodiversity: a complementary contribution to Global Biodiversity Assessment*, 1999) offers valuable insight with respect to indigenous cultures around the world. It is profoundly naive to expect the differences between any such cultures and the dominant western culture to be bridged by essentially simplistic frameworks of sustainable development. The point is perhaps sadly made by the interpersonal interface with those that appear to be mad (including eye-rolling symptoms), or who believe the world around them is mad.

This challenge was considered in an earlier paper [[Judge, 1998](#)] in the light of the extreme difficulties faced by the Aboriginal tribes people of Australia in relating to the western mind-set (and vice versa). An earlier version was prepared for the Spirit of the Land Foundation [[more](#)] and translated by Diana James into a more appropriate metaphor [[more](#)]. The approach taken was to envisage the design of a pattern of initiatives. These initiatives would be "positioned" at different "stages" between western economic rationality and a cultural framework more congenial to local or traditional cultures. Those closest to the economic rationale would naturally be easiest to develop and sustain according to conventional business approaches. Those closest to a traditional cultural framework would require most creativity in ensuring their economic viability. They might however offer the greatest opportunities for challenging new insight to conventional mindsets -- as well as being of most value to the local and traditional communities themselves.

The initiatives required in this design can best be understood as interface contexts, whatever their organizational or material form. They would be designed to facilitate interaction between cultures or paradigms. It is to be expected that people and processes would transfer with greatest facility between neighbouring initiatives. Cultural acclimatization at any particular "stage" might be required before transferring on to another stage - whether towards western economic rationality or towards a local traditional community cultural context. The pattern of initiatives might therefore be understood metaphorically like a sequence of sub-surface staging posts at which divers can work -- or like a series of camps required in the course of climbing the highest of mountains. They might also be thought of as a paradigm "bridge".

This case makes the point that **the challenge of sustainable development may not be one of transiting from one less-sustainable reality to another more-sustainable reality** but rather providing the possibility of transitions amongst a set of distinct realities based on different principles. In the interpretation for Aborigines, Diana James used the metaphor of a set of 'camp fires' each assembling people with a different (but complementary) preoccupation. This sense of a pattern of alternatives recalls the Eastern metaphor of the seven primary chakras (and a further hundred secondary chakras) essential to the healthy sustainability of individual human life [[more](#)]. Traditionally each chakra is understood as spinning and each is the vehicle for a different, but complementary, understanding of reality.

The challenge of any transition between realities is fruitfully illustrated, in all its complexity, by a much more familiar situation, namely that of parenting and of communication between co-existing generations. An adult -- and especially an elder -- may lay some claim to have a more sustainable perspective deriving from life experience and cultural insights from previous generations. There are many approaches to communicating such insights to growing children and teenagers. The dramatic failure of such communication for many in industrialized societies is an indication of the challenge in rendering sustainable development meaningful in communications from those 'who know' (or believe they know) to those who are 'ignorant' (or who are believed to be so). Also familiar is the transition between the realities of different roles: at home, at work, in the pub, in sport, in worship, etc.

The challenge can also be explored in the light of preparation for possible dialogue with extraterrestrials after contact is made [[Judge, 2000](#)]. Aliens may embody quite different cycles.

Of special interest is the fact that many forms of movement are associated with the interface between realities governed by different cycles -- as is obvious to a cyclist, or even a walker. This raises the question of controlling the direction of movement resulting from this meshing of realities at the point of transition -- a point relevant to speculation about the operation of spinning UFOs. In the case of alternative realities associated with sustainable development, what is the nature of the movement occasioned at the interface with a reality considered outmoded?

Also of interest is the manner in which industrialization has in many ways been about domesticating rotation and revolution - especially as a source of energy and a means of powering movement. It is almost as though humanity's progress was empowered by control of such interfaces to realities that are otherwise oriented. Does this point to the underlying challenging for sustainable development -- namely to relate to cycles of rotation and revolution that echo in psychosocial terms what has been achieved in material terms? Are we awaiting the invention of the psychosocial equivalent of the 'wheel', the 'bicycle', the 'rollerblade', the 'dynamo', and the 'motor'?

Reality, relativity and relativism

If alternative realities have to be adequately 'spun' to acquire integrity as attractors, how are 'local' and 'regional' alternatives to be reconciled with 'global' frameworks? Put differently, how is adequate spin to be given to 'local' initiatives to act as an attractor for local people and to give them an attractive identity distinct from any 'global' framework?

In a highly turbulent evolving knowledge society, who would want a a single dominant view to constrain the multiplicity of extant perspectives? Is tolerance of the apparent confusion of multiple realities to be rejected as unrealistic relativism? Such questions become increasingly pertinent in a web environment in which millions of sites advocate particular perspectives to users -- perspectives that may well be totally incompatible with those advocated on other sites. The number of sites is predicted to increase exponentially over the coming years. Each site, like a flower, is endeavouring to entice visitors as a means of reproducing its memetic structure. Aside from attention deficiency disorders, how is anyone to gain more than a 'local' understanding of this universe of knowledge?

Not only is there a proliferation in contrasting perspectives, there is also a proliferation in quantity on a particular topic -- to the point of being the focus of whole libraries and information systems. As one concrete example, of a specialized sector, consider the number of sites concerned with 'global governance', or the number of reports on the matter for consideration in relation to the UN World Summit on Sustainable Development (Johannesburg, 2002). Who will choose to read such documents attentively and how will their insights be processed together as an exemplification of the conceptual and policy challenges of the governance of sustainable development? What insights submitted will be deliberately or inadvertently marginalized by this process and what insights will not be fed into that context because of the predictably problematic nature of the process? How will the insights at that event be related to those at preceding and following events on global governance? How will any coherent sense of a desirable alternative reality emerge from such a global process? How will it acquire local significance -- especially if local significance is not adequately reflected in global frameworks?

How will the spin given to the final declarations and outcomes of conferences on global governance and sustainable development relate to the reality of the alternatives advocated? What has been learnt over the past decade, if not since the [UN Conference on the Human Environment](#) (Stockholm, 1972), with respect to the credibility given to alternatives, as opposed to 'business as usual'?

Astronomy suggests a way of thinking about a society with a multiplicity of alternative frameworks -- and shows how communication between them might be understood. Perhaps the most significant feature of space in an astronomical sense, as with space at the atomic level, is the infrequency of 'matter'. The emptiness of space is its prime feature. This way well be the case for socio-cognitive knowledge space -- within which there may be very little that 'matters'. Zones of alternative reality may be tiny exceptional anomalies in that vast space -- widely separated, however locally they may be clustered. This would notably clarify the years of experience required to transit from one distant reality framework to another.

Within the immensity of this space, an alternative reality may emerge as a 'distortion' of the more general framework. The principles which structure this reality and constitute its framework must necessarily be spun in relation to the surrounding emptiness and nearby alternatives -- in order to develop a distinct identity through a form of gyroscopic stability. Such spin responds to the challenge of ensuring that one alternative can be sustained independently in relation to another. This spin creates a form of gravity -- and gives seriousness and *gravitas* to that alternative for those associated with it. This combination of spin and gravity then overrides the tendency to be drawn inexorably towards larger attractors at greater distance. As a reference framework, it may also give them a real sense that the cosmos revolves around them -- that their framework is at the centre of the universe.

The astronomical metaphor facilitates understanding of the dynamics of the co-existence of different forms of truth within the vastness of communication space. At the simplest metaphoric level, it may be declared that 'the sun rises' -- from a particular location in what amounts to a 'planetary' reality framework. Such a declaration has a totally different significance at another point on that planet (at the same time), or from another planetary framework within the same 'solar system'. Its significance is different again from another stellar framework elsewhere in the local galaxy, or from another galaxy. The galactic truths may appear more universal than those of the planet

-- and yet still 'the sun rises' however irrelevant this may be claimed to be from elsewhere. The astronomical metaphor articulates the complex relationship between a multiplicity of frameworks as a counter to accusations of simplistic relativism. These tend to undermine efforts to comprehend how multiple truths can co-exist in practice. The sun may indeed not rise for you -- when it is rising for me, if you are elsewhere.

Such a metaphor indicates how different kinds and levels of truth can co-exist sustainably. The universal truths may indeed be all-encompassing, but the cycles with which they are associated may be far beyond the ken of those who identify with 'planetary' and 'local' truths with shorter cycles. Such local truths may be understood as conceptual cocoons through which local habits sustain local identities.

Cycles sustaining reality frameworks

It may indeed be the case that degrees of sustainability can be usefully associated with the length of the cycle of the reality framework. This highlights a fundamental assumption commonly associated with sustainability, namely its continuing linear development in a win-win mode. Sustainability in nature is however primarily associated with cyclic transformation exemplified by the changing seasons in which plants flower and die -- a win-lose modality -- in order to emerge again. An extended cycle may be associated with a life-cycle -- surely an important dimension to be integrated into any understanding of sustainability. A reduced cycle may be commensurate with the rate of a beating heart -- as is much popular music. The following table endeavours to illustrate the contrast between normal 'focus of attention' and a focus of 'significance for sustainability'. The collective investment tends to be in the shorter-term -- undermining any capacity to ensure sustainability over the longer-term, as illustrated by the following table. The challenge, highlighted there in the right-hand column, is to support patterns of thinking that enable the focus of attention to be sustained over longer periods of time in relation to longer cycles.

Cycles sustaining reality frameworks				
Cycle period	Examples of cycles (illustrative)	Relative focus of attention	Relative significance for sustainability	Time-binding towards sustainability (illustrative)
second(s)	music beat, respiration, walking, running, web surfing	*****	?	conditioning, yoga, meditation
minute(s)	popular song, soundbite, prayer, phone conversation, SMS, sexual intercourse	*****	*	flow experience, peak experience
hour(s)	movie, 'program', lecture, 'having a drink', micturation, shift work cycle	*****	**	dialogue, game, recreation, operatic epic, feasting
day(s)	circadian rhythm , holiday, sleep cycle, feeding cycle, tides, substance abuse	*****	***	prayer cycle (<i>salat</i> , 'liturgy of the hours'), conference, memorial day,
week(s)	work period, immunological response, domestic violence	*****	****	saving, holy day, retreat
month(s)	lunar cycle, crop growth, ovulation/menstrual cycle, healthy recovery	*****	*****	crop storage, preservation, composting
year(s)	seasonal cycle, reproductive cycle, migration (transhumance), annual reporting (tax, performance, etc)	****	*****	religious festivals, UN memorial year, permaculture, health check, annual holiday
multi-year	education course, electoral mandate, development plan, Kitchin price cycle (4 yr.)	***	*****	conference cycle, institution-building, capacity-building, refresher course, product recycling
decade	sunspot cycle, Juglar price cycle (9-11 yr.), product obsolescence	**	*****	investment, memorial decade, continuing education
multi-decade	generational cycles (family), human life cycle, Kuznets migration cycle (18 yr.), Kondratieff economic cycle (54 yr.)		*****	parenting, careering, mortgage, pension, life insurance, dynasty-building, family trust
century	long-lived humans, rainforest recovery	*	*****	empire-building, 'grand-children', tree planting
multi-century	'unto the seventh generation' , long-lived animals		*****	bicentennial celebrations, reincarnation system (Living Buddha)
millennium	long-lived plants/trees, millennialism	?	*****	millennial celebrations
multi-millennia	long-lived radioactive isotopes, recovery from radioactive pollution	?	*****	' Clock of the Long Now '

This cyclic attribute has not been integrated into sustainable development strategy -- despite intense interest in Kitchin, Juglar, Kuznets and Kondratieff economic cycles [[more](#); [more](#)] and the challenge of sustaining innovation [[more](#)]. The concerns of Francisco Sagasti regarding the knowledge divide are an interesting exception [[more](#)]. The 50-54 year (Kondratieff) cycle of catastrophe and renewal had been known and observed by the Mayans of Central America and independently by the ancient Israelites [[more](#)]. Much controversy exists on whether the Kondratieff wave is valid for the post WWII economy. Many have rejected it on the basis that the 54-year mark was reached a decade ago, and should have been the trough. Daniel Fisher argues [[more](#)], however, that the start of the "up" cycle began in 1940 or 1945, rather than 1930. Also, life expectancy has increased in the 20th century. If the 54-60 year cycle is based on generation aspects, then it would naturally be 'stretched' beyond 60 years. Since these cycles of wars and economic birth and renewal occur every

2nd-3rd generation, it could be said that when the generation to last see a depression dies off, it's time for another cycle to begin.

Long-term thinking is characterized traditionally by the sense that human consequences play themselves out over 'seven generations' -- as in the Biblical 'unto the seventh generation' and in the Native American tradition:

"Look behind you. See your sons and your daughters. They are your future. Look farther, and see your sons' and your daughters' children and their children's children even unto the seventh generation. That's the way we were taught. Think about it. You yourself are a seventh generation." Tadodaho Leon Shenandoah, Speaker of the House, Grand Council of the Six Nations of the Iroquois Confederacy [more]

There are however many interesting echoes of cyclic response in folk traditions world-wide related to annual and longer cycles. They have been extensively cultivated within certain religions, notably the Catholic liturgical annual cycle, which is one of the chief modes of teaching that faith. [more; more; more]. Hinduism is renowned for the length of the cycles which it envisages [more] -- as is the Mayan calendar [more; more]. The Balinese are known for the complexity of their annual cycle [more]. Current studies of alternative calendars [more] and comparative liturgy are therefore of great significance to understanding how different belief systems have made themselves sustainable in cyclic time [more; more]. Of particular significance in such comparative studies is the manner in which alternative lifestyles are sustained by a 'liturgy of the hours' (Catholicism) [more] or *salat* (Islam) [more] -- and the associated use of bead circlets for prayer [Judge, 2000]. The special concern for the breathing cycle in meditation is also worth exploration in this context. It might be useful to compare such daily spiritual activity with daily cycles in secular lifestyles that effectively sustain unsustainable lifestyles -- as in 'time budget' studies [more].

This focus on cycles is closely related to the cycles necessary for sustaining the environment and any relation to it. Indeed some traditions have long entered into a ritual to 'nurture' the environment (morning celebrations to 'ensure' the rising of the sun, or singing to a landscape in order to 'maintain' it). The arts have generated a variety of dramatic, musical and operatic 'cycles' that echo this cyclic insight -- as with Wagner's *Ring of the Nibelung* or the Chinese *Monkey King* -- that are suggestive of mnemonic templates for cycles of sustainability notably through the 'ring' theme also explored in Tolkien's *Lord of the Rings* [Judge, 2001; Judge, 2002]. Much more prosaically, 'recycling' has been a major socio-economic concern to ensure sustainability.

The question is **what cycles, necessary for sustainability, are not recognized**, honoured or cultivated in current strategies for sustainable development and sustainable lifestyles? What are the missing cycles vital to sustainability -- and to breaking dysfunctional cycles?

It is interesting that there are various initiatives to escape from the cycles to which one is subject. Hindus and Buddhists seek to conduct themselves in this life in order to 'escape the cycle of reincarnation' -- a radical approach to the issue of ensuring that life is lived 'sustainably'. Many aspire to leaving the 'rat race' of cycles in industrialized society in order to return to the cycles of nature -- whilst many more move in the opposite direction. More radically, some dream of leaving the planet and its cycles in order to colonize other planets or space habitats -- presumably in order to adopt other cycles.

Breaking dysfunctional cycles

There is now a very extensive focus on 'breaking' dysfunctional cycles [*use web search 'breaking the cycle of' (or 'breaking the cycles of')*] that might be understood as undermining healthy sustainability. Over 100 such cycles are listed in a separate document (<https://www.laetusinpraesens.org/docs/cycles.php>).

It is significant that most of the 'cycles', 'circles' or 'chains' recognized in documents on the web are only indirectly related to issues of sustainable development as normally described. Those in the [separate document](#) mentioned above emphasize the experiential nature of the cycles -- whether or not they have been elaborated or authenticated. There is a possibility that whilst the cycles characteristic of behavioural entrapment have become necessarily familiar to many, those associated with environmental degradation and its developmental implications have not.

In the continuing work on the [Encyclopedia of World Problems and Human Potential](#) [online] efforts have been made to document the thousands of loops or cycles linking world problems, or the global strategies in response to them [more]. Users can experiment with visualizing them in various ways [more] and even binding them to music [more]. In a web-enabled knowledge society, there is a case for exploring how such patterns of links contribute to the 'songlines of the noosphere' rather than thinking of them in relation to 'information highways' [more]. The phenomenon of 'webrings' that link related web sites is a move in this direction (with 62,000 Rings, 1.08 million active Sites, and 670,000+ unique registered users in July 2002) [more]. The possibility of 'songlines' even suggests the merit of envisaging the sacralization of hyperlink geometry [more].

Behavioural attractors and sustainable development

Some commentaries on chaos theory have focused on its detection of four basic attractors that ensure a degree of order and patterning in 1 to 4 dimensions [more]:

- **1-dimensional -- point attractor:** This could be understood in terms of the manner in which issues emerge for an individual or society and become the focus of 'points' on the agenda of conferences like that on sustainable development. Particular issues either attract or repel but in either respect they engender a form of order, notably within a conference environment where they are a basis for coalition formation, resolution and plan articulation.
- **2-dimensional -- cycle (or circuit) attractor:** This could be understood as the way in which a person or group is successively attracted to one issue and then to another -- being attracted to the next and repelled by the last. The cycle may involve two or

more points of attraction (see [checklist](#)). For policy-makers the cycle may involve a succession of switches between, for example, 'centralization' and 'decentralization' as panaceas for governance. Traditional farmers may use more complex cycles through crop rotation in order to ensure sustainable yields from their fields. Presumably the many cycles identified above could be understood in terms of a cycle attractor.

- **3-dimensional -- torus attractor:** A torus attractor (like a donut or smoke ring) can be understood as defined by a spiralling cycles on many planes which may, or may not, eventually reconnect after completing one or more revolutions of the torus. Each cyclic revolution there is a movement forward, effectively a spiral movement -- repetition with difference, as in predator-prey relationships. Whilst not recognized as a 'torus', such phenomena may well be recognized in terms of 'spirals' or 'spiralling' (see below). It is possible that the somewhat predictable and repetitive manner in which issues of sustainable development are approached (through a succession of conferences) could be explored in this light.
- **4-dimensional -- strange attractor:** This attractor cannot be described by any 3-dimensional geometric form because of its 4-dimensional nature. It has been recognized as basic to processes of self-organization. It is of no apparent order but the forms it takes have been explored in terms of some widely publicized fractal sets (eg Mandelbrot, Feigenbaum [\[more\]](#)). Elsewhere the question of whether human values can be usefully understood as strange attractors has been explored ([Judge, 1993](#)).

The above sequence illustrates the challenge for sustainable development, namely to encompass the transitions:

- from a focus on **point attractors** (the focus of conventional conference agenda items and their conclusions),
- through **cycle attractors** (as noted above and as basic to many responses to sustainable development, if only 'recycling'),
- through **torus attractors** enabling recognition of the subtly repetitive nature of conference series on sustainable development (cf 'those who fail to learn from history are forced to repeat it'),
- to **strange attractors** that are driving the process through the interplay of human values in relation to environment and development, in terms of both their individual and collective implications.

Arnold Keyserling [\[more\]](#) suggests that these may be understood as corresponding to the four Jungian psychological functions: sensing, thinking, feeling and willing (intuition). This correspondence works quite well in the case of sensing the issues and 'points' in relation to sustainable development, and to the intuitive understanding driving efforts to resolve them. It is however more ambiguous in the case of thinking and feeling. On the one hand policy **thinking** on any issue may oscillate **cyclically** between two or more approaches to an issue of sustainable development, but this may also reflect the **cyclic** nature of the waves and tides of public **feeling** in response to an issue.

Breaking dysfunctional spirals: sustainability and the torus

Following this logic, and moving beyond the cycle attractor of the earlier section, surprisingly there is now a significant focus on 'spiralling' dysfunctional cycles [*use web search* '**breaking the spiral of**'] that might be understood as undermining healthy sustainability, notably with respect to:

- the 'spiral of violence' [\[more\]](#), or conflict [\[more\]](#),
- the 'spiral of unsustainability' [\[more; more\]](#),
- the 'spiral of power' [\[more\]](#),
- the 'spiral of self-harm' [\[more\]](#),
- the 'spiral of cynicism' [\[more\]](#),
- the 'spiral of social exclusion' and disadvantage [\[more; more\]](#),
- the 'spiral of hyperinflation' [\[more\]](#),
- the 'spiral of rural poverty' [\[more; more\]](#),
- the 'spiral of urban decline' [\[more; more\]](#),
- the 'spiral of military escalation' [\[more\]](#),
- the 'spiral of benefit dependency' [\[more; more\]](#),
- the 'spiral of degradation' [\[more\]](#),
- the 'spiral of retail decline' [\[more\]](#),
- the 'spiral of disaffection' [\[more; more\]](#),
- the 'spiral of protectionism' [\[more\]](#),
- the 'spiral of reinforcing advocacy' [\[more\]](#),
- the 'spiral of wages and prices' [\[more\]](#),
- the 'spiral of silence' [\[more\]](#)

Whether such 'spiralling' can be understood as forming a 'torus', it is clear that intuitively people and groups are choosing to move beyond the more obvious 'point' issues of sustainable development, and beyond the simple 'cycles' noted earlier.

It is possible that those links indicated earlier under 'cycle' that derived from a search on '**breaking the cycles**' may in fact reflect an understanding of spiralling cycles -- or cycles feeding into one another -- rather than simple cycles or the phases of a single cycle. What proportion of this use of 'spiral' versus 'cycle' terminology merely reflects facile use of structural metaphors -- without any real sense of the phases of the cycle or spiral -- is another matter. It is equally unclear how often the use of 'breaking the cycle' is merely a fashionable way of recognizing the complexity of a single 'point' issue -- again without any real sense of cycling.

It would appear that the psychology of sustainable response of social issues is significantly outstripping the ability of international conferences on sustainable development to recognize and respond to the hyperstructure of the challenge they purport to face. The hyperstructure of communication space has been mostly richly explored in mathematical terms by Ron Atkin [\[review\]](#). The challenge for value-driven conferences on sustainable development may be how to 'bridge' between the strange attractors driving the dynamic the psychosocial dynamic and the concrete concerns which are highlighted on the agenda. Again, in Jungian terms, this would be expressed

as the challenge of individuation, namely integrating the functions of sensing, feeling, thinking and intuition -- here played out in the collective response of humanity to the challenges of sustainable development

There are many speculative studies on the web that explore the use of a **torus** to model individual and collective **consciousness**, even on 'toroidal consciousness' [[more](#); [more](#); [more](#)]. For George Williams (2001), for example:

We explore how collective consciousness (or unconsciousness) may be self-organizing. Experiences of intuition and creativity may be in part due to individuals drawing on a transcendent, common field of information that encompasses members of a culture or society. We develop the concept and survey some empirical evidence that would be consistent with this possibility. Next we explore the simplest model that is consistent with our concept of self-organization. We argue that such simple structures would likely be embodied in symbols, myths, and rituals that span a broad range of cultures over time. Finally we survey a class of symbols, such as the Holy Grail and Tree of Life, that have strong structural similarities to our model. [[more](#)]

For Duane Elgin (1996), in discussing a 'central project for humanity':

The characteristic physical structure of self-organizing systems is the "torus" or a donut shaped pattern that is continuously regenerated (as in a tornado). The torus is the simplest geometry of a dynamically self-organizing system -- and this easily recognizable form can be seen at every level of the cosmos.[[more](#)]

Conscientific research and development

The issues raised in this paper call for further reflection within a new methodology of 'conscientific' research, as explored in a separate paper [[Judge, 2002](#)].

The shift in focus from isolated issues, as point attractors, to higher dimensional cyclic attractors places increasing emphasis on time -- ironically given the urgency for the planet of some of the point issues. This raises the question of the psychology of sustainability in relation to the way in which time is understood and experienced as being ordered. At the most pragmatic, objective level the destabilizing effects of the confused Gregorian calendar system that dominates the world community have resulted in many calls for calendar reform within the United Nations -- and its predecessor the League of Nations [[more](#)]. Arguments have been advanced that a more harmonious calendar system, better reconciled to the cycles of nature, would engender more harmonious responses supportive of sustainability. A World Summit on Peace and Time was convened at the University for Peace ([Costa Rica, 1999](#)) which acknowledged that in 1962, the Vatican II Council issued a "Declaration of Calendar Reform," that did not oppose a new perpetual civil calendar.

The Vatican issued the "Declaration of the Vatican II Ecumenical Council Concerning Calendar Reform." This is now an appendix to the "Constitution of Sacred Liturgy," the Vatican's 1962 "Calendar Reform Declaration," Article 2, states that it is "not opposed to initiatives to introduce a perpetual calendar for civil society," as long as that calendar conserves the seven-day week with respect to maintaining Sunday, so critical to Christian liturgy.

The Gregorian Calendar's strict adherence to the solar cycle produces an expiring calendar every year. This requires continual schedule-revisions for many important activities, such as education. It also precludes regular divisions within the year necessary for accurate statistical comparisons. Half-years have an equal number of days only in leap-years; the year never divides evenly into quarters; the months are irregular; and neither the year nor the months can be divided regularly into weeks. It is the psychological impact of such civil 'disorder' that may well severely undermine harmonious responses to the challenges of sustainability. Neither the United Nations nor the Vatican followed up the topic of calendar reform which they initiated, 42 and 36 years ago respectively.

There is a supreme irony to the Vatican's original opposition to the reform of the Gregorian calendar before the League of Nations in 1933 when it was argued that taking a single day out of the annual cycle (a 'day-out-of-time') to permit a calendar system based on 364 days would lead to social chaos, barbarism and war. The remainder of the century -- the bloodiest in the history of humanity -- certainly demonstrated that 365 days was highly conducive to just that.

Perhaps the compromise is to develop parallel use of one, or more, calendars supportive of alternative lifestyles and mindsets -- neither religious nor secular -- whose attractiveness would derive from the manner in which it facilitated sustainable development and the engagement of people in it. An example is that of the World Thirteen Moon Calendar Change Peace Movement [[more](#); [more](#); [more](#)].

The *Whole Earth Catalog's* cover affirmation that : "We can't put it together; it is together"
could be modified to affirm that

'We can't make the Earth sustainable; it is sustainable -- but whether with us, or without us, is our choice'

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