

# Representations for explaining & acting

Frameworks of theory & practice  
to understand behaviour and govern choice

# Contents

- **Explaining can be a way to 'view'**: Here, we focus on **thinking 'in imaging'** as a way to counteract the misuse (out of context) of complex-adaptive-dynamic frameworks of explanation. We ask practical, daily life questions.
- **What our usual explanations do not show**: How we think (general frameworks) can give new options in one context but also take away choices in another.
- **Domain of validity**: Frameworks are developed for a context. Applied outside of it, or transferred between natural and human sciences without it, they cause problems.
- **Hidden domain**: Similarity or analogy can mislead and create a 'hidden' domain. Ignoring anomalies, statistical outliers or marginal cases means they are not understood or represented in theory, are 'invisible' to us, and grow in the dark.
- **Geometry of mind**: Our representations frame what we see with 2 fundamental dual-polar geometric parameters: direction & motion (or pattern & activity). These affect our understanding, actions, and 'real world'.
- **Geometry of perspective**: Our collective system of representation adds perspective to what we observe through geometric projection [view animation] It is effective, self-consistent, describes 'advancement' but has a hidden underpinning.
- **Representation-driven, not just theory driven effects**: the self-consistency between experience and explanation drives effects & unnecessary consequences.
- **Two orders of 'shaping' create 'advancement'**: A third domain provides auto-limiting strategies for *near*-critical situations, complementary to advancement.
- **Basic geometric topology** (17 slides): Another geometry to gauge globally drifts, the approach of critical boundary or limits, and how to not reach them, but also understand 'unable to emerge', stabilise or establish.

# Explaining can be a 'view'

Images provide a clearer, more coherent view.

- 'To explain' means merely to **render less obscure.**'

A. Cornelius Benjamin, *Modes of scientific explanation* - [Link](#)

- 'Explaining': making understandable **in a coherent way.**

Modes of Explanation: *Conceptual background*, 2012 – [Link](#)

- 'Typically, the explanation involves describing or depicting the component parts, operations, and their organization (**diagrams are often far more useful** than linguistic descriptions for this purpose).

Bechtel & Abrahamsen, 2005, *Explanation: A mechanistic alternative* [Link](#)

- 'I am particularly intrigued by the subject of "**canonical icons**", i.e., the **standard imagery attached to key concepts** of our social and intellectual lives. Nothing is more unconscious, and therefore more influential through its subliminal effect, than a standard and widely used picture for a subject that could, in theory, be rendered visually in a hundred different ways, some with strikingly different philosophical implications.'

Gould, 1995 ( p.41)

# ‘Imaging’ provides a more global view

An icon of variation & change: The branching tree

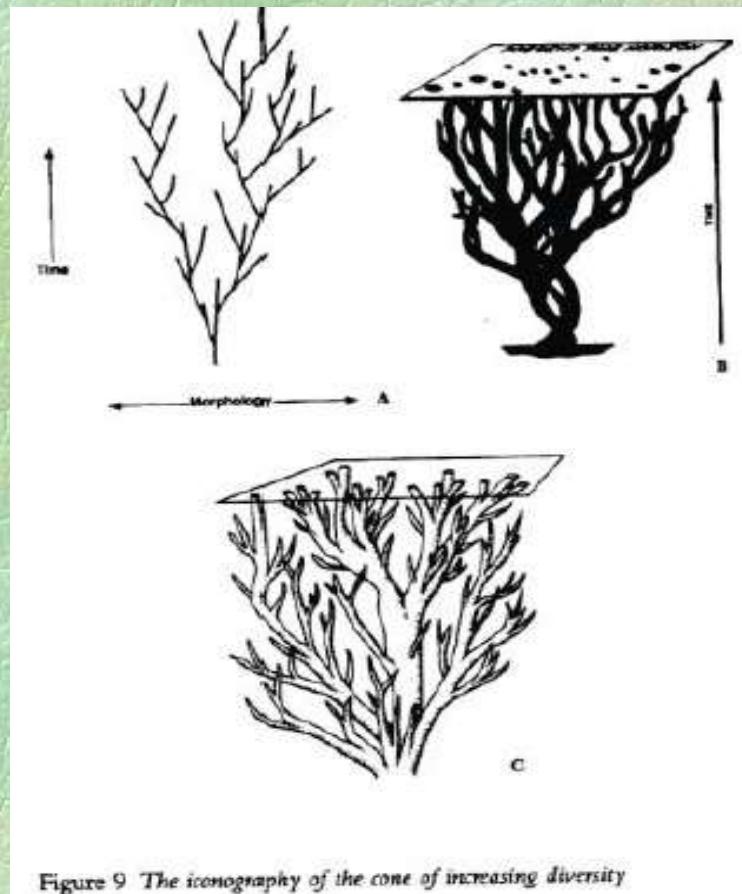


Figure 9 The iconography of the cone of increasing diversity

Gould 1995

## Iconic geometric images & symbols:

Geometric shapes such as the branching tree (Gould, 1995) are used in biological and physical models and as abstract symbols in generalist ‘meta-models of growth, philosophies of man’s life, mind and developments.

- The branching tree is a topographic shape, a ‘still’ image at a point in time. It describes generically a phenomenon ‘in shaping’.

**Topology describes the ‘in-shaping’ geometrically.**

# Imaging provides a different *view* and understanding

- To think and talk about things and understand our situations and experience, we formulate explanations –  
**we represent them.**
- These representations can be abstract or concrete views, realistic or naturalistic, or symbolic images.
- They often don't explain everything, and this must be anticipated, in particular the far-flung consequences and hidden effects found in experience & experiments.
- The workings of counter-productive effects are 'hidden' to view in perspectives formulated conventionally with words, numbers or a fixed iconic symbol. They are best understood  
with an animated imaging: topology.

# What our usual explanations do not show

Complex-Adaptive-Dynamic  
representations, have  
some ‘butterfly’ effects in daily life

# An unseen 'butterfly' effect

- Homelessness in cities is well known, studied, and social support programs exist.
- **Marginality on the roads**, on the edge of the societal world, is another form of homelessness, which is little discussed because it is often evaluated as a preferred nomadic lifestyle, a 'choice' made against stability or society, or a result of 'bad financial decisions'.
- It can simply result from a physical inability to participate in society in the expected ways and so earn money to pay rent or buy land. It is economically and societally invisible. Our usual explanations, concrete and abstract, in words, numbers & iconic symbols do not represent this adequately

## **Why is it invisible to societal institutions?**

Missing is an adequate representation of this 'timeless' situation – a topologic imaging of how it arises.

# Fallen through the cracks of the net

[This] "Camping ground has become a life raft for desperate families and social refugees searching for a roof over their heads - even if it is canvas. ...as a safe and affordable refuge for people **locked out** of rental and housing markets... [without it] they would be forced to live out of their cars."

... "for single people, all that's left is the camping ground."

... "for those who have fallen through society's social safety net."

Posting: "I wouldn't house my worst enemy there."

Posting: "We all have choices in life and these people CONTINUALLY make the wrong choices. Who is to blame for that? ... they are themselves."

Posting: "The poor and homeless are blamed for their own predicament."

*Sunshine Coast Daily, 2011, Homeless camping out, Australia)* [link](#)

**'Homeless'**  
in insalubrious  
conditions:

**'Itinerant'**: at 80 years old, 8 years in healthy nature



**No place to be:  
Why?**





# ‘Wrong decisions’?



80 years old: 8 years being pushed on, looking on the roads for a place to not be forced to ‘move on’

## Or just too much having to adapt and little choice

At the edges of ‘The Real World’ of the fabric of society, ‘what choice’? ‘What purpose’ is there in the daily chaos of just trying to survive the organised pressures and denied access to resources and land, trying to keep up with the ‘speed of change’, cope with the multi-factor societal rules and complications? Such situations work differently than dominant or mainstream society.

**In these conditions, choice is taken away.**

# Choice lost, not wrong: just unable to keep up

This occurs in an imposed 'larger context' often ignored:

·**Within the organised societal context** of physical/lifestyle constraints and binding social rules that create marginalisation

·**Under difficult living conditions** that impose the survival mode, and deny stability or establishment of a place in society & on land

·**Near Boundary : pushed to the edge** into disturbance, **pushed to limits** of physiological resistance, systematically & repeatedly **pushed to extremes** of human resilience – '*That's how Life works*' is the story. Those **pushed too far** are blamed for their perturbed social adaptation capacity *and* their entire lives devalued for the consequences in the reactions of others (e.g. denied 'earning a living', settlement, made 'invisible' to society, denied treatment to women with diffuse syndromes told '*It's all in your head*', etc.)

**Missing from most humanities thinking about physical situations:**

**The domain of validity**

# Domain of validity

The adaptive / complex frameworks relate to critical survival and organised large groups

Applying these ‘higher’ frameworks to individuals with sensitive response and simple physical needs that are not being met, leads them into daily life difficult conditions, not improvement. They do not belong in the domain of validity.

The societal system does not take into account that some ‘higher’ functioning is *already* at work in these people’s lives.

*Pushing them higher pushes them too far.*

They do not fit the ‘best models’ of human behaviour that fit most people and groups.

# Complex adaptive systems

“I think the next century will be the century of complexity.”

*Stephen Hawking – January 2000, cited by Sanders [Link](#)*

“Complexity science [...] represents a dramatic new way of looking at things; not just looking at more things at once. Insights from complex systems research provide a new **theory-driven framework for thinking** about, understanding **and influencing** the dynamics of complex systems, issues and emerging situations.

Complexity science represents a growing body of interdisciplinary knowledge about the structure, behavior and dynamics of change **in a specific category of complex systems** known as complex adaptive systems — open evolutionary systems in which the components are strongly interrelated, **self-organizing** and dynamic. [...] **To survive, the system as a whole must adapt to change.**”

*T. Irene Sanders, Executive Director - 2003 [Link](#)*

**Can all situations can be modelled in terms of survival?**

The chaos-complexity framework relates to organised large sets in critical conditions, *not* to individuals or small groups in daily life.

Chaos was derived from physical observations of extreme weather. The chaos-complexity framework was derived from **large number statistics and exponential mathematics**. This framework applies validly to large entities with formal organisation (e.g. large human organisations or neural learning networks).

However widespread and accepted, the transfer of this framework to non-critical and small contexts is out of its domain of validity and this has counter-productive consequences.

If a general perspective can be detoured from its context and used outside its domain of validity, it will be.

This must be taken into account by thinkers to reduce the far-flung ‘butterfly’ consequences.

The **chaos-complexity** framework applied out of its domain of validity causes the same problems as Darwin’s **adaptation** (*small* physical variations, not transformations, and adaptations to *local physical* conditions, not global, large or sudden transformations of *human* mind, society, or economies, nor chronic psycho-socio-economic stress).

**Are we back to the old dominant cultural message ?**

**“What doesn’t kill you makes you stronger”**

**“Keep up or be left behind”**

**“Survival of the fittest”**



# Consequences of using representations without their domain of validity

- **Over-generalisations**

- **Abstract assumptions; Concrete presuppositions; Biases imposed** without taking into account conditions under which the situation exists
- **Choices may be increase *or* reduced:** in daily life, free decision capacity and degrees of freedom may be impaired in physically non-critical conditions.
- **Increased survival reactions** not always adequate to the situation in actual deployment.

# Scientific & Human explanations: The problem of Sc- ② H- knowledge transfer

The transfer of knowledge between science and humanities occurs all the time and is a major source of difficulties that tend to become auto-reinforcing (Bouchon [2009 Discussion](#) & [2008 PhD thesis](#)) if the context in which the frameworks have been developed (domain of validity) is not taken into account.

The transfer (of knowledge or practice) then often causes

- **inversions in valuing** because Sc- (science) is classically associated with the physical realm where high-energy can be powerful but also damaging, and H- philosophies or sciences or practices are associated with the human, mental, psycho-social and politico-economic realms, where high-energy states produce wanted intelligence but also hyperactivity
- **inverted logics** (e.g. past and future projections; the devalued 'Lack of brain-mind-social power')
- **justifications**, not uncommon, using risk/potential, or statistics/probabilities, that negative effects in daily life are 'necessary' or 'inevitable', and certain basic spontaneous behaviours or needs unacceptable



# Similarity can hide symmetry (2)

- The similarities, physical and human, can be misleading
- Word explanations of inversions are too restrictive
- Mathematics and logics are what deploys these inversions in theories
- Inversion in its several forms is easier to see with a global geometric imaging - topology
- Inversion comes from an underlying imaging of similarity or analogy, as symmetry and produces a 'hidden' domain

# The 'hidden' domain

Formal explanations and representations, in both scientific and human domains, leave a 'hidden' domain not adequately represented: (Bouchon [2008 PhD thesis](#) )

- **anomalies**

- **'outliers' on the edges** tend to be eliminated from statistics in order to find patterns, and often remain left out rather than investigated (e.g. in medical trials). The patterns allow to develop **'best' models are effective... but the theories only fit and benefit 'most' cases.**

## What about the outliers?

These few cases

- **remain unexplained, invisible in research**
- **are not adequately represented technically in theorising**
- **and, in practice, fall through the cracks of the survival safety net of society**

# A medical example of 'hidden' cases

In medicine, for example, many chronic-flaring diffuse syndromes of fatigue & pain that 'affect women more than men' (90%) and a few men – people with sensitive systems who cannot adapt and keep up with complexity – are 'not well understood'. A gap in theories fails to model them adequately and to provide effective treatment.

In the biosocial realm, these statistical outliers with physiologic anomalies are name-called 'abnormal'. They tend to be eliminated from social connection by dominant normalising or 'raising' rules defined for the majority (e.g. normal stressed lifestyles, high-energy diet, exertion exercise).

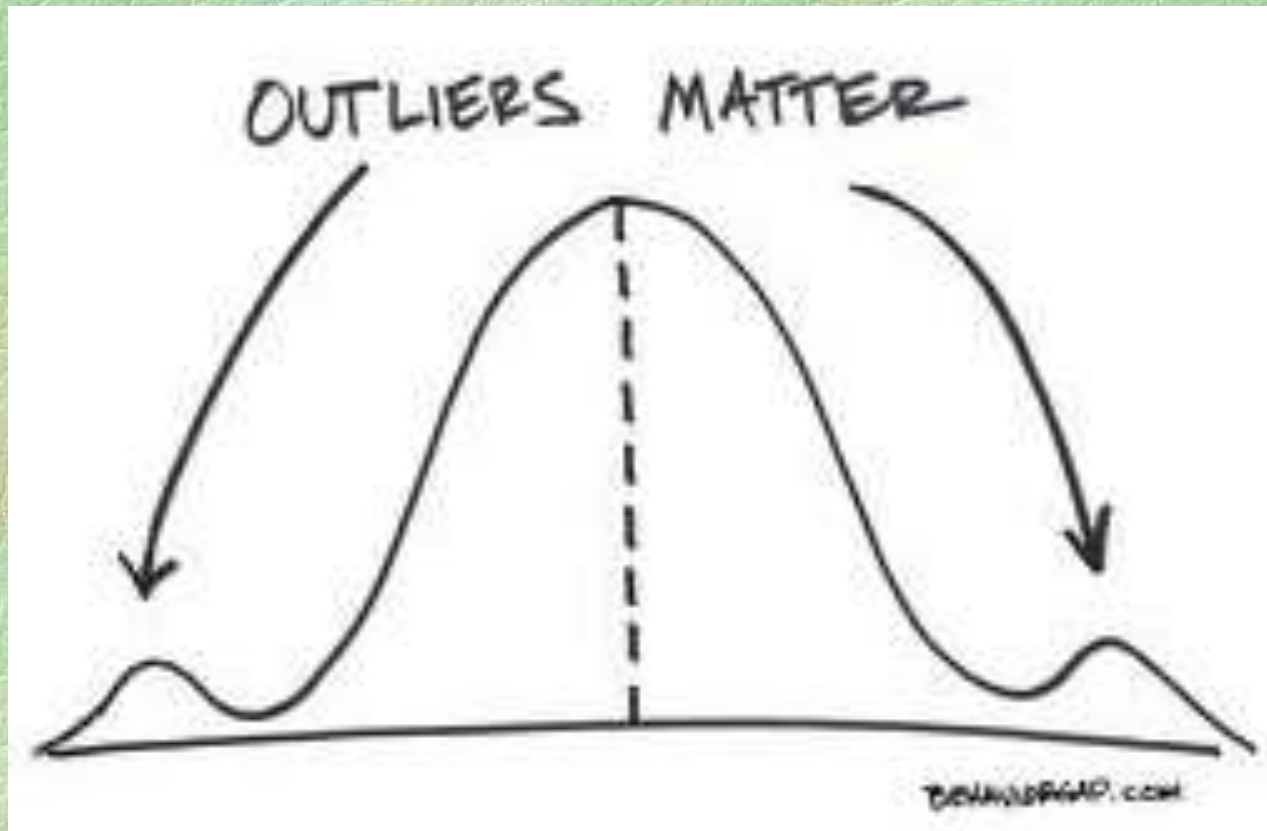
Research focuses on more visible emergency cases (e.g. rare diseases).

At the confluence of the physical and human, in politico-economic culturally dominant views: the most marginalised individuals who 'fall through the net' of the societal fabric and survival safety net (e.g. for housing, income), tend to be judged 'inevitable' collateral damage to the good of most.

They become a helpless and voiceless minority and their entire lives are invalidated and devalued altogether.

# The unstudied 'hidden' domain

For example the un-investigated 3-5% of negative cases in clinical trials of pre-statistics medicine. (Recent drug studies: more like 30-50%)



**Why are the outliers & anomalies ignored?**

# Geometry of Mind

To think, explain, describe, or represent, we use words, numbers, and symbolic images. These conventions work for both abstract and concrete representations. They are based on sensory information (or instrumental) interpreted in the brain terms of space and time, and interpreted in the mind in terms of physical and mental, or scientific and human phenomena. This interpretive process can reduce what we can see of the situations we observe but helps us 'frame' it. Framing is a geometric projection, so our conventions are derived from a 'geometry of mind. It builds dual-polar conventions from

**2 fundamental parameters of representation:  
direction & motion (or pattern & activity).**

Several thinkers (**Gould, Husserl, Spinoza**), have described aspects of this 'geometry of mind' and some of its geometric rules (*Bouchon 2008* [Link .F5](#), [Link F18](#), [Link PPT3](#)); **Eliade** and **Piaget** found its manifestations in cultural and cognitive contexts (*Bouchon 2008* [Link ch.8](#)).

It is unconscious in most people, leaving only learned symbols in received knowledge.

The conventionalising parameters can be expressed in gesture.

# Parameters of representation in gesture: direction, circulation & combined spiral



**Path, circle, wiggle**, to represent change and transformation.

Examples of motion 'event' expressions from Nicaraguan participants' narratives.

(Senghas, Kita & Özyüre 2004)

(A) Combined expression

(B) Separating direction & circulation

An equivalent in word language:

name, verb, conjunctions.

# ‘Mismatched’ gestures of representation or a different representation style?

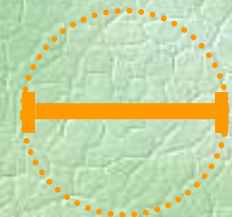
Some children produce mis-matched gestures... say that “a tall thin container has a large volume” because it’s taller, but simultaneously make a gesture indicating width. These children, it turns out, are the ones who are most ready to learn about conservation, either by instruction or experimentation. [...] The contrast between matches and mis-matches turns out to be a remarkable tool. [...]

**Mis-matched gestures... bring in another cognitive model besides that represented in speech.**

*(Sweetser 2004 pp.606-607)*



Child gesture showing Undifferentiated ‘big’



Interpretation through N2dual parameter: 1Dim. space:  
In analogy to word-formulated ‘thin’, ‘large width’  
(measured, more differentiated)

3D ball reduced by geometric projection to 1D geometry  
with limits (segment), interpreted as ‘width’: Different  
topologic compaction of the space represented.

# Thinking 'in imaging': an unrecognised explanatory mode



Child gesture showing  
*Undifferentiated* 'big'.

– **Is it really a measured object?**

Compare:



A woman's lifeworld in which pressure agitates brain, emotions, suppresses health, causes hellish chaos inside, outside, and with people & events: "*I have to bring It back down, not let it all disperse.*"

– **Is 'It' really a 'system'?**

The explanation given of the observed is biased by representation according to conventional parameters. Consequently the explanation is limited and hides the different cognitive mode used by some children and women. This occurs in the doctor's surgery when a woman presents with symptoms and her gestured explanations are reduced to conventionalised medical jargon, often in invalidating ways. This mode of 'thinking in imaging' is particularly useful to describe high-energy states (e.g stress).



# The 'N2dual-' parameter of conventionalised representation:

direction & patterns



# Viewing social 'relations' as N2dual affects our choices and actions

- Pet or Pest
- Friend or Foe
- Exploit for Fun or Food
- Defensive-Aggression & manipulation: Allies for collaboration in survival competition with Enemies
- Give & Take ('give back' never quite makes up for what is taken)
- Win-Win still leaves left-out 'losers' or 'failures' who have much to share, but not what others want

**Why do sibling fight in most normal families?  
What of just living together without having to fight  
or make alliances or exploit?**

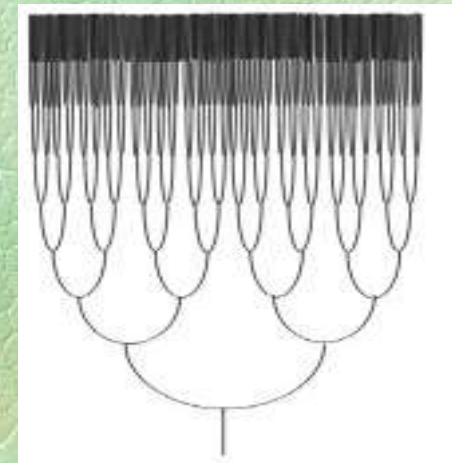
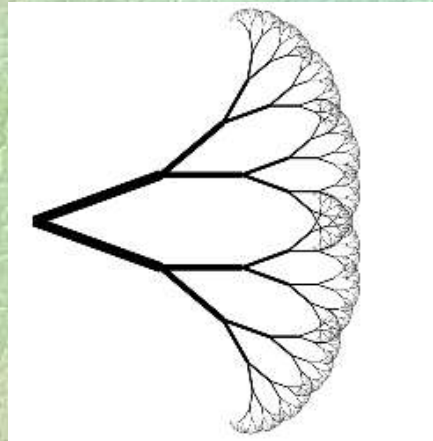
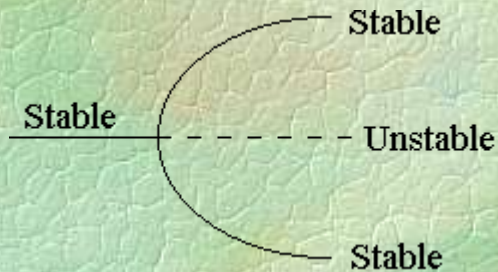
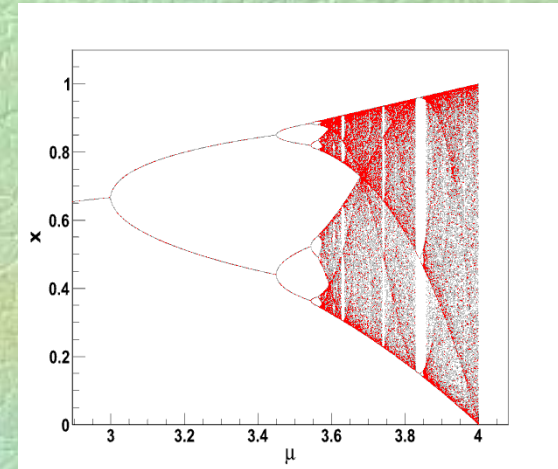
**Helping or sharing with a stranger without  
expectation do not fit this framework.**



Savage warning display of skinned 'pest' dingo kills in Australian outback

# Bifurcation

- orientation become di-rection
- a binary simplification of branching
- leads to **dualistic** views of dynamic systems

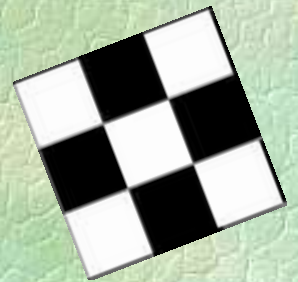


- leads to a flattened. **multi-factorial view of complexity**, all ends at the same horizontal level (2Dplane limited)

# Vice versa: Being submitted to N2dual- thinking affects the human world in which we have to live

We are educated, encultured, mentally programmed, and physiologically conditioned, to behave habitually in the dualistic way (e.g. me-them) and to develop a ‘normal’ mode of behaviour ruled by this N2d- parameter :

**dualism** and **pattern recognition** serve learning and survival but not living at ease



**Is the mind just an on-off pattern computing mechanism?  
Is life necessarily ruled by fixed habits and pattern recognition?  
How do we see what is not patterned?**

# A known opposition (a symmetry): PhysikeMorphism ② AnthroMorphism

Typical ideas:

## AnthroMorphism:

dualistic social relations & binary brain-mind computing result in complex-evolutive 'system' behaviour: human evolution

## PhysikeMorphism or physicalism:

activation of adaptive survival mechanisms & ternary framing as body-brain-mind (or brain-mind-spirit/soul) result in 'spirited' behaviour and 'dynamic system' frameworks of 'adaptive to': adaptation to stress & survival of the fittest

Combined: survival of the socially fittest and human dominance

# The 'N3polar-' parameter of conventionalised representation: *motions*

motion, speed, acceleration  
or timing  
& change



The 'N3polar-N2dual' geometry  
of  
conventionalised representation  
systematically leads to  
polarised  
1-way spin:  
'advancing', growing or developing  
phenomena

The geometry of mind representing ‘advancing’ phenomena that are found in nature as well as humans, models them with ‘spiroMorphic’ explanations. These exist in archaic imaging, remain in medicine, and yield hyperbolic calculations for scientific/mathematical topology models.



see animation  
<grav-wave>



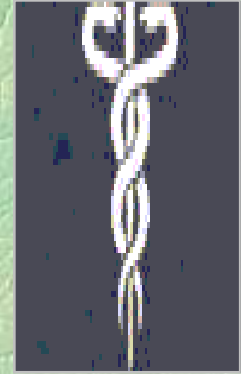
airflow at the  
end of a  
plane's wing



tornado



water  
swirling



medical  
caduceus



(Bouchon 2008 [Link PPT3](#))



# SpiroMorphism: pervasive in culture

[Reduced form as pattern without motion: the cone symbol]

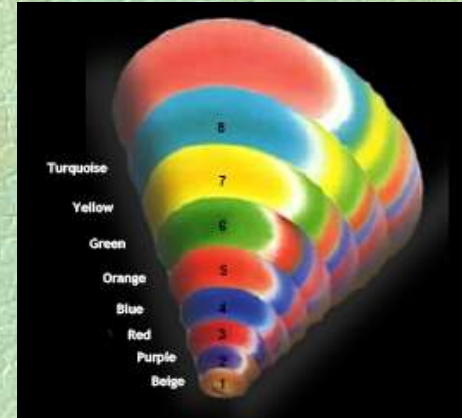


*Rugosa* coral  
**The spiral or cone**  
in biology and  
physical nature



Maxwell's early model  
by physical analogy

*Nercessian 2002*



Spiral Dynamics of human  
evolution *Beck & Cowan 1996*



- Observing whirl wind translated into
- Medieval medicine: 'female diseases of wind'
  - weather modeling** (physical)
  - Generalised **chaos-complexity framework**



'**Wound up**', imaged by using a basic geometric form of topology, as  
**endless increase in oriented activity**  
translated into a prehistoric oral culture female: '*East Wind*'

SpiroMorphism: origin and ends

# SpiroMorphism

Example:  
hyperbolic topologies



PhysikeMorphism ② AnthroMorphism



# SpiroMorphism

Example: spiritism

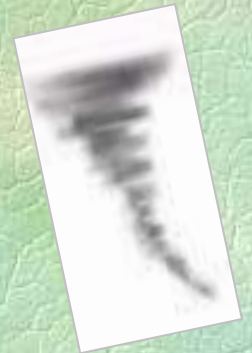
- the modern integration of anthropomorphism and physicalism always leads to '**spiroMorphic**' **descriptions** using topology (**spirals & cones**)
- anthropomorphism and physicalism is **a symmetry** arising or undone [ (↻) ] simultaneously
- They also arise from and reformulate archaic spiroMorphic descriptions particularly in medicine (e.g. survival spirit, sex drive) and other 'spirit' frameworks (mental, animist...) – origin & end



Vice versa : being submitted to N2d-N3p driven rules affects the human body and behaviour...  
and our thoughts and ideas.

We are now educated, encultured, mentally programmed, and physiologically conditioned, to accept the **‘ups and downs of life’** as ‘natural’ (*in society*), the self-reinventions as necessary, the crises as inevitable, *and* to perpetuate the training into coping, survival, and constantly forcing adaptation, ruled by this combined parameter :

**polarised motion** serves emergency situations and endless increase but not living in non-critical conditions



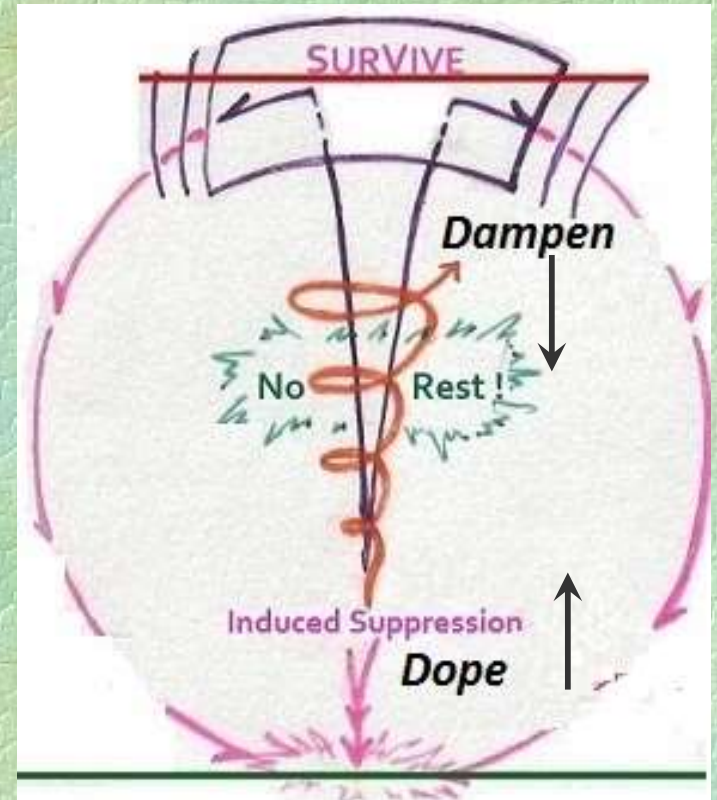
**Is human life necessarily ruled by constant change and crises?**

# Application: models of health, commonly seen as adaptive



The Ups & Downs of life...  
in society

**Up & Down** are the most common characteristics mentioned in the ‘not well understood’ chronic flaring syndromes that ‘affect women more than men’. This expression appears in both patient talk, and the habitual medical treatments based on: ‘**dope ② dampen**’ (Eisinger & Dupond 1996 [Link](#)).



Findings from Ph.D. on models of body, health, and the ‘physical world’ at human scale  
([Bouchon [2008 PhD thesis](#) , [Bouchon 2011](#) )

Compare and contrast:

# Ease of Health

‘Ease is one of the outstanding action-patterns of health. It appears, for instance in the infant as *serenity*.’ (Williamson et al. p.188)

‘Between the “immune” and the “insusceptible” there is a difference in the body’s action-pattern. We do not, however, yet know on what this attribute of insusceptibility rests.’ (p.238)

Williamson, George, S., Pearse, Innes H. (ed.) 1980 (©1965), *Science, synthesis and sanity*, Scottish Academic Press, Edinburgh, Scotland.

**What our representations eliminate from view,  
both in explanation and experience, makes this difference.**

The 'N2dual-N3polar' combined parameters of representation produce stereo views of patterns of activity, timing or change, and a common reality. **Our collective system of representation is**

# A geometry of 'perspective' with unnecessary consequences

Conventionalised explanations make physical presuppositions  
and human assumptions based on

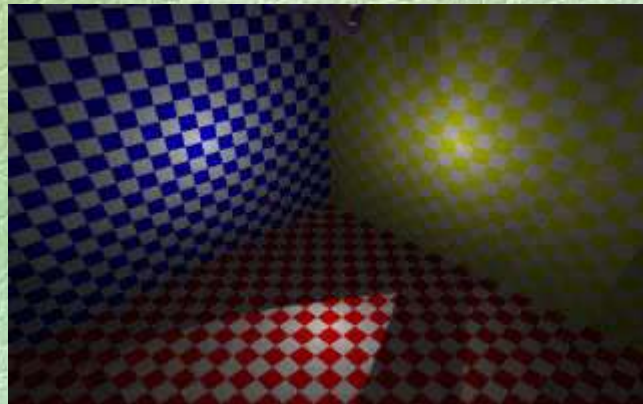
**an easily forgotten axiomatic or logical bias:  
re-presenting situations in perspective.**

It works well to put problems on the table and implement targeted solutions, but it is not effective to describe or maintain situations without problem or need of solution. Representations in perspective create solutions but also problems, unnecessarily.

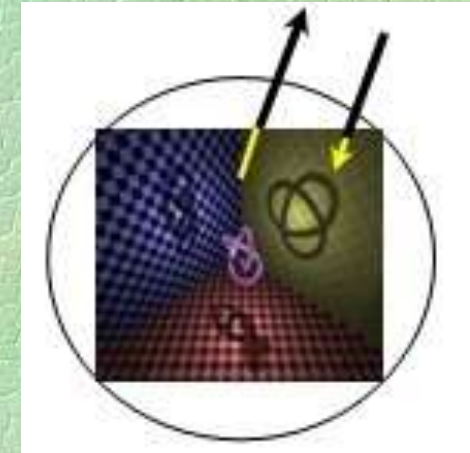
# Projection in Perspective

The cognitive process of seeing ‘things’ in perspective (or systems in environment) or a stereo-polarised representation can be described as a **process of geometric projection**, more easily apprehended in an **animation**:

*(Click image to start and stop animation)*



In this case the observed is not put ‘on the table’ but ‘in the box’, the observer remaining outside of it to zoom-in on its various aspects.



This still image illustrates how the system-environment / self-world) framing relies on separating observer from observed, defining a boundary, and leads to developmental views.

Link to view the [animation online](#)

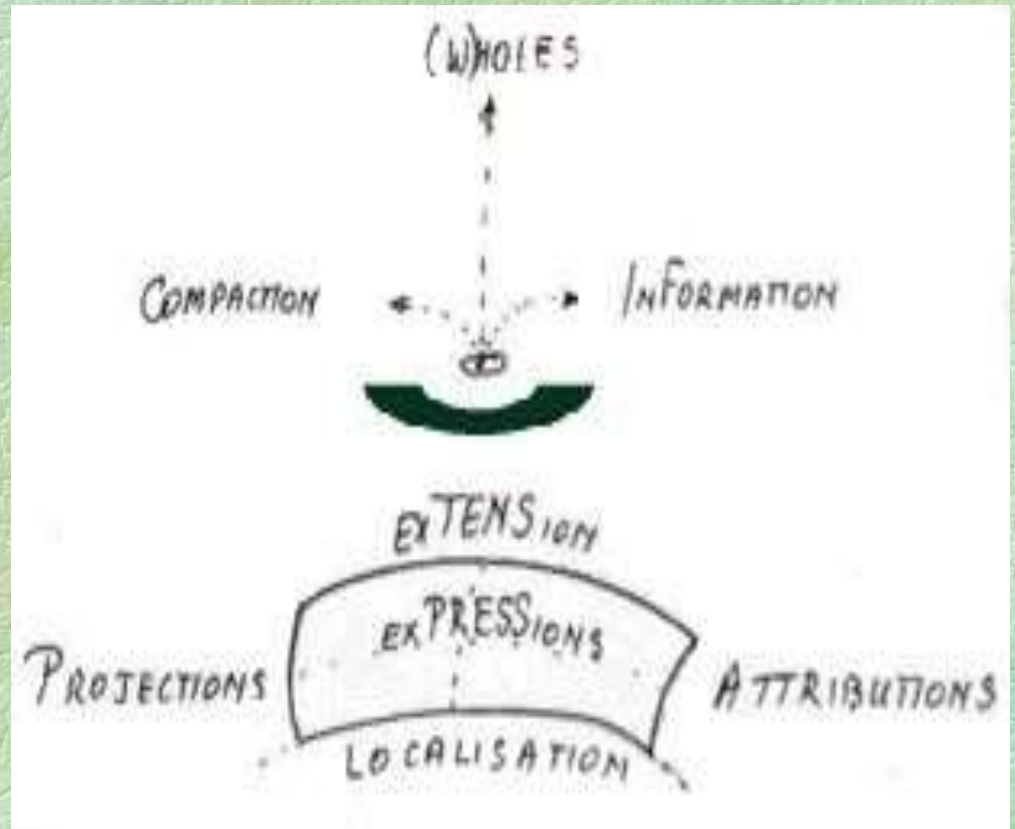
# Philosophical vocabularies of development or topologic 'deployment'

Philosophers have described some rules of the 'geometry of mind' in terms of abstract words concerning the deployment of representations, such as:

**localisation, extension, projection, attributions.**

These translate, in more common frameworks, into conventionalised expressions: specification & discernment, higher-order advancement & progress in various forms, existence & production, occurrence & appearance or emergence.

How things work under these surface phenomena is not described formally.

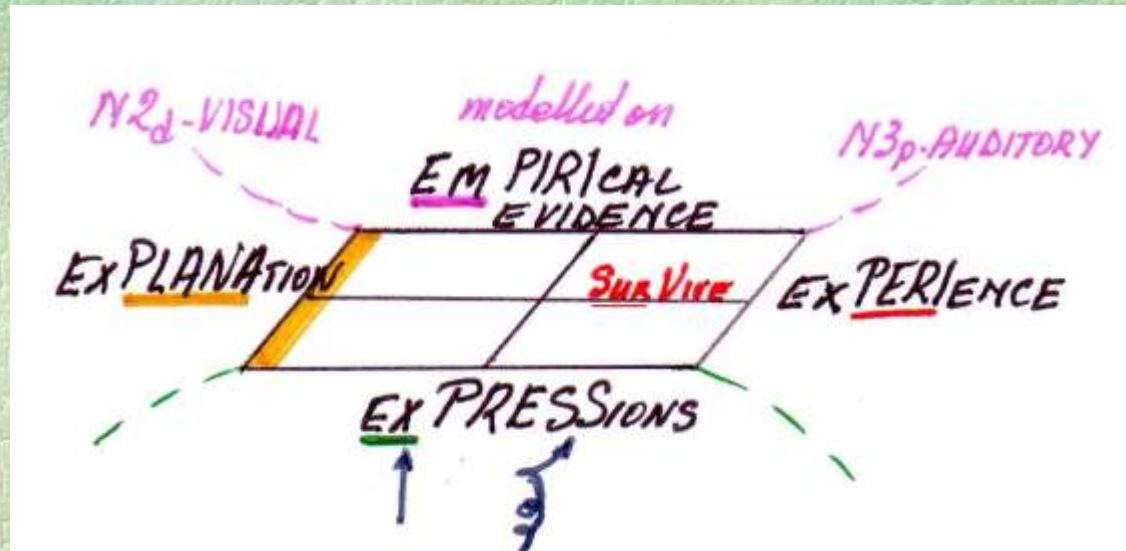




# The etymology betrays the topology: *under pressure and unfolding at boundary*

**Baseline  
sense of peril  
or pressure**

*Etymology:*



**Both  
origin  
& ends**

- ExPERIENCE: sense of peril, urgency or emergency, need, problem
- ExPLANation: modelling our understanding as a 'flatland' geography (or 'plane of existence' or brane)
- 'ExPRESSions': under pressure, unfolding extension of our actions & thoughts
- EmPIRICAL evidence: enfolding topography of physicalised reality, with exclusive sensory or instrumental observation (and now, statistical evidence)

# Representation driven, not just theory-driven

- The fundamental parameters we use in representations drive our modes of explanation 'in perspective' (and from many different viewpoints).
- They underpin the current rise of representations of critical phenomena and boundary conditions, urgency & survival. These in turn affect how fast our brain has to work to adapt.
- **Both origin and ends:** Mathematics and logics drive our sciences, and their models... but models arise in the mind and drive the invention of mathematical tools – perspectival self consistency ! Neglected, is that the complex mental imaging is induced by diffuse sensations, conscious or not, induced by the 'Real World' we create from these, in which we have to live on a daily basis.

**This system of representation is auto-reinforcing.**

# Unreasonable effectiveness of physical & human representations

- **End:** «The mystery is how a conception that is vulnerable to such obvious counter examples survived for so long. I can explain it only by a weakness of the scholarly mind that I have often observed in myself. I call it theory-induced blindness: Once you have accepted a theory, it is extraordinarily difficult to notice its flaws. As the psychologist Daniel Gilbert has observed, disbelieving is hard work. » Daniel Kahneman ['Theory Induced Blindness'](#)
- **Origin:** 'The Unreasonable Effectiveness of Mathematics in the Natural Sciences', Eugene Wigner, in *Communications in Pure and Mathematics*, vol. 13, no. 1 (February 1960). New York: John Wiley & Sons.
- **Logic** plays a similar role: Interpretations of Gödel's Incompleteness Theorem (1931) refer to the binding self-consistency of systems of representation in mathematics or logic. This is also valid for mental representation in general.

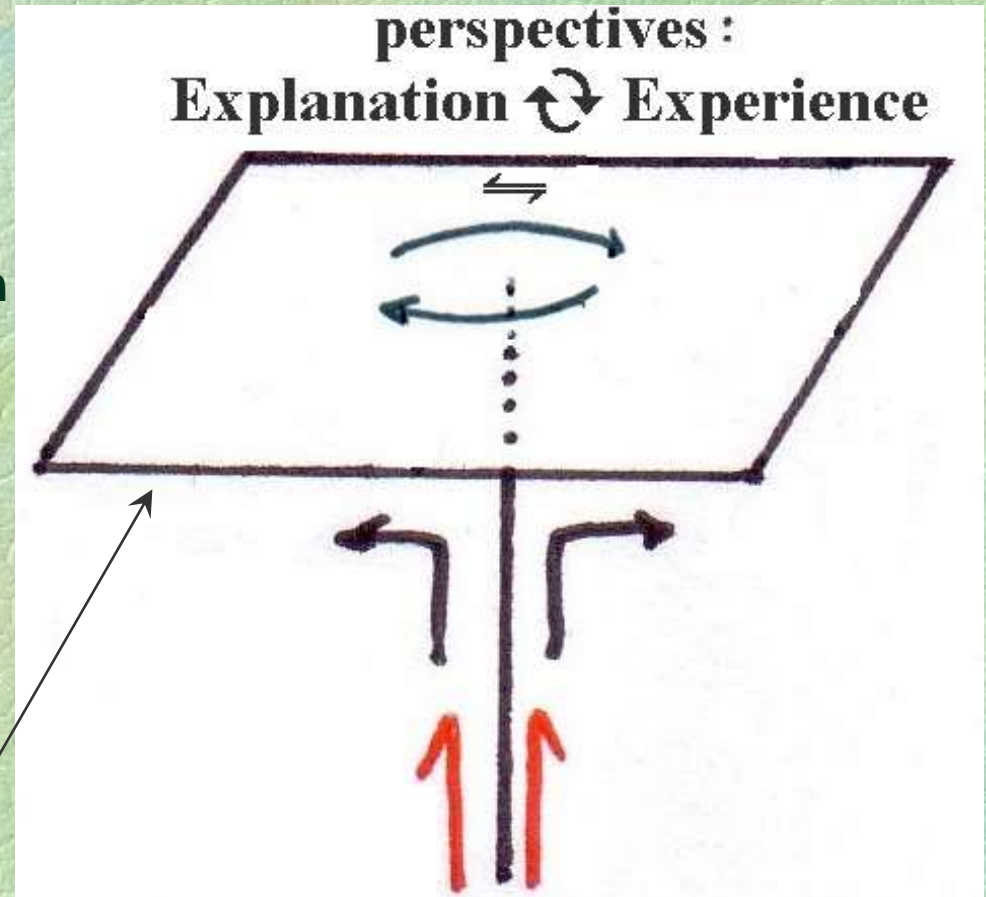
**end or origin?**

# The self-consistent symmetry & circularity of 'perspectives'

Putting things in perspective is a very effective way to deal with problems.

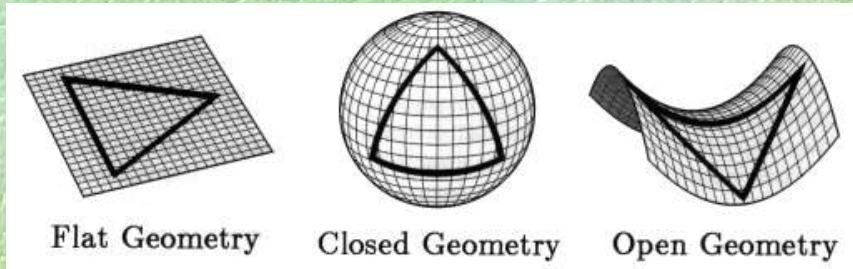
Are our survival problems causing our theoretical focus on rising critical-boundary or our thinking causing our problems?

Perspective arises from covariant deployment of explanation & experience *simultaneously*. Our problems and critical focus go hand in hand. The surface topology gives rise to the 2 fundamental parameters and the geometries they create.



# Geometries: spiroMorphism is built-in

of 3 geometries and 2 geographies:  
 explanation and experience



Flat Geometry

Closed Geometry

Open Geometry

Flat  
2D, 3D, 4D  
zero

Spherical  
Universes with curvatures:  
positive

Hyperbolic  
negative



S1 Time

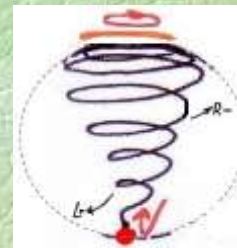
S3 Space

- S1:  $\infty$  Time, circular, or a linear projection of it
- S3: Spaces at surface and hidden inside.

•**Timed spaces under pressure:**  
 Our integrations into 'wholes'.

The ways our perspectives are constructed is ruled by only three fundamental geometries. The 'negative' effects are built-in consequences of curvature.

Our history has reached (again), the **generalisation of the hyperbolic** properties, spinning into emergence... or, at least as much, **spinning out of hand** and into collapse and scatter



leads to apprehending only timed-spaces under pressure, with escaping quantic jumps... or **captive critical resonant states**.

# General consequences of 'N2dual-N3polar' perspectives

Logics and mathematics, with their fixed iconic symbols of theory, words and numbers, are ultimately used to justify:

- both origins and ends
- **ignoring the 'hidden' domain methodically** (and lives forced into hiding)
- **ignoring the cognitive mode of 'thinking in imaging'** systematically and act out iconic symbols without awareness
- **not acknowledging the critical baseline**, kept in the dark, and that not all can be represented with these dual-polar representations in perspective

***This is how people, organisations, and societies stay blind to the 'butterfly effect' damage they induce elsewhere, later.***

- **not gauging directly** a situation as it 'presents' (i.e. without perspective or localising representation, globally)

The 'basic' topologic mode uses an undifferentiated parameter for modelling: 'orienting to boundary'. More related to general relativity than specific, to non-critical basic daily life than critical 'higher', complex/adaptive processes, it is more adequate to ensure viability, but rarely used.

***Hence: global, long-term options to ensure 'no problem' remain elusive, hidden.***

# Geometries out of hand: 'Ease' as materially 'easy' (reification)

Re-Construct an 'Environment' for 'Humans'

∞ 'Growth' ↔ Wasteland  
construct ② destruct  
'cut-off Tree' ② digging Claw



Flatten Land



Machines'  
"degrees of  
freedom"

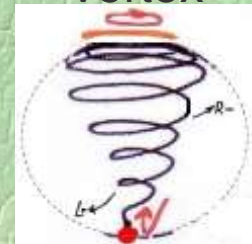
**Icon acted out:**  
sickle, hook or  
claw  
(of metal dinosaur)

# Perspectival frameworks out of domain of validity out of context, ...out of hand

Wind up



Vortex



Vertex

Allowing the adaptive-complex-dynamic and high-order spiroMorphic frameworks to be applied out of context (e.g. non-critical), out of the domain of validity (e.g. simple situations), out of control, has pervasive effect. It forces an increasing majority of humans to ‘waste their life trying to make a living’ and waste their bodily resources ‘trying to survive’ (a health-destroying mode)

- **under adaptive-dynamic** rules of critical survival *on a daily basis*
- **within a complex society** that *imposes* damagingly high energetic demands
- **in difficult living conditions**, losing access to the *most basic* resources

Ultimately this counter-productive effect

- reduces choices in many situations (even ‘no choice but to evolve’, adapt, emerge)
- reduces adaptive capacity back to basic survival (common in business, and in aging: seeking food and being away from complications and human company)
- **reduces collective and individual capacity to adapt to climate change**
- imposes self-organised criticality on physical bodies, human and animal



# 'Butterfly' effect of the focus on critical frameworks:

<b>Urgent:</b>	<b>done!</b>
<b>The Impossible:</b>	<b>in progress!</b>
<b>For miracles:</b>	<b>expect some delay...</b>
<b>Non-Urgent:</b>	<b>sorry, practical impossibility!!</b>

The counter-productive consequences for the *physical* world (body, planet), are disastrous: **What could be done simply**

**to prevent reaching boundary or critical conditions  
is not done, and worse, is made a practical impossibility.**

For example, restoring soils, wild foods and wildlife is considered too expensive, even though many individuals wish to be doing just that.

A fully adequate change in lifestyle, diet and exercise to prevent the progression or establishment of chronic-flaring or degenerative syndromes simply is not feasible in practice, for most.

**Why are our best models driven actions 'never quite' enough.  
Why can't we ever catch up with the damage?**

# Unnecessary consequences in practice

- **representing in perspective as the *only* way to apprehend situations**
- **devaluation of what is not highly energetic** – binary ‘dynamic’-in-environment, **not ‘higher’, not complex** in organisation (e.g. simple daily life, simple mind, basic practical physical skills)
- **invalidation of experience** for lives that do not thrive in that ‘higher’ way (e.g. counter-productive effects of high-energy physiology)
- **elimination of what is not 1-way polarised ‘up’, advancing, developing, evolving, complexifying, growing, progressing, adapting-to, tera-② nano-...** [covert but methodical, yet without seeing this is happening]

This system of representation ultimately facilitates endless increase (e.g. addiction, corporate greed, medical brain ‘augmentation’ treatments... & critical increases such as epilepsy or cancer).

The auto-reinforcement is built-in *but only re-developments and repetition* induce counter-productive effects.

**Counter-productive effect are not inevitable nor necessary.**

# 2 orders shaping 'Advancement'

Topology is a mathematical tool used to model:

- **small distortion** or progressive variation geometrically; this suits well biological descriptions, and 'early signs' of illness or signals of distress; classic topology was based on *analytical geometry*

- **large or sudden transformation under intense or limit conditions**, is modelled with advanced topology – the *mathematical or computerised* contemporary form of topology, derived (like systems) from point-set theory and exponentials, now involving probabilities (or 'risk') and large-number statistics (mathematics of shape physical or biosocial)

These 2 types of topology have different premises, and correspond to different orders of 'criticality'. These have little understood inverted topologic properties, but also similarity. **The similarity is misleading:** treating a *small* distortion as a *large* deformation or disturbance, *pushes it into critical* danger zone in an auto-reinforcing way, rather than avoid it. This has a major impact in medicine. Only these topologies display 'self-organised criticality': re-deployments are useful but risky, dangerous.

There is also a more basic form of topology with auto-limiting property.  
(geometric but not mathematical)

# The generic story of ‘advancement’

The difference between small and large ‘advancement’ is the same as that between ‘development’ and ‘redevelopments’.

**The next slide is a visually integrated version of the story of deploying complexity, emergence, survival mechanisms, critical processes, or boundary behaviours – in short, ‘advancement’ under many names.**

- Figure 1 gives a conventional view, apparently hierarchic (ladder up)
- Figure 2 gives a more global view
- Figure 3 gives a simple view (the first seen in daily life grounded common sense)
- The **green parts** are not visible to conventional frameworks and thus are not represented in scientific or human science literature. The drift is described but has yet no conventional explanation.

Figure 1 is derived from the dual and polar parameters of representation, by projection in perspective, a way of framing the problem, and it develops into high ‘advancement’, an overarching trend that generalises in both culture and practices.

# Generic deployment of 'advancement'

(read the images from bottom to top)

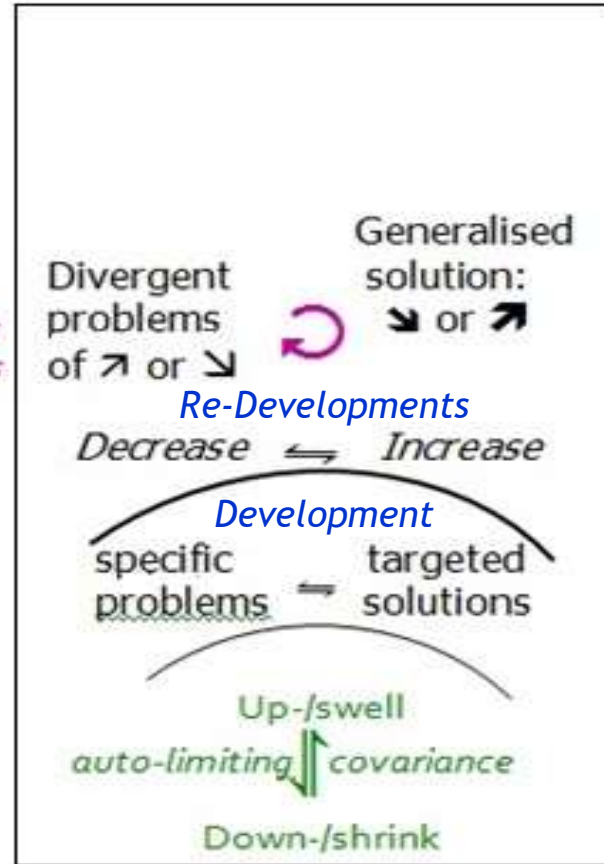
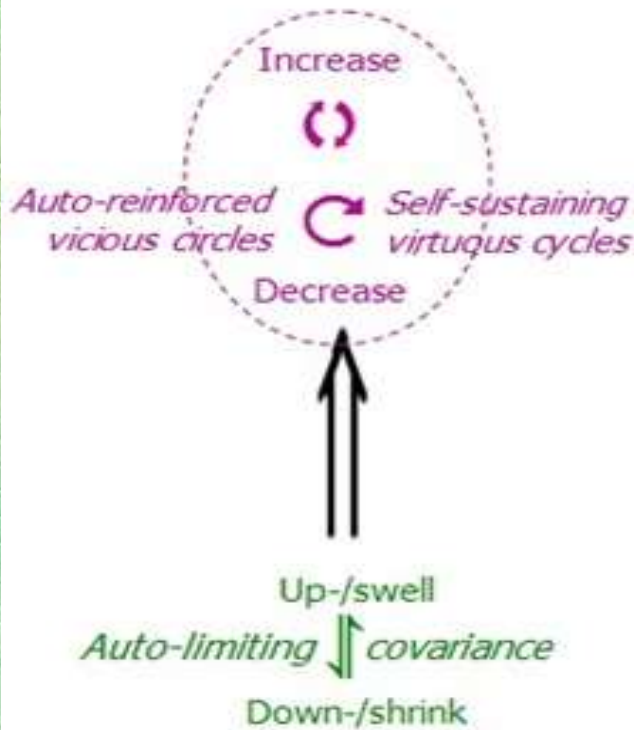


Fig 3: Rise Up & lose auto-limiting covariance

Fig. 1: The 'Advanced' framework, virtuous & vicious symmetrically

Fig. 2: Hidden Drift & neglected 'Basic options'

# 2 different orders of Boundary ② Critical

Built-in parameter                      Hidden baseline  
(as both origin and end, at 2 different orders)

The spiral/cone/tree models of ‘advancing’ derived from the combined ‘N3polar-N2-dual’ parameters represent many forms of survival, emergency, or critical states, just resonant and wasting, or critically scattering and falling apart – ‘tearing the fabric’.

There are 2 different orders of advancement:

- First order **Development** (no counter-productive effect unless repeated)
- Second order **Re-Developments**: (have inverted, counter-productive effects)

**The key to avoiding ‘counter’-productive effects is to avoid ‘re’-developments, repetition, high intensity.**

Neither of these (or small/large change) can model adequately auto-limiting situations that only *approach* boundary / *near-critical states*.

Explanations in words, numbers, or theoretical iconic images that do not recognise the hidden parameter and baseline cannot access the basic topologic modelling required to take advantage of the **auto-limiting property** that maintains viability, soundness, safety.

# Auto-limiting near-critical states versus repeated / high-intensity advanced re-deployment into Auto-reinforced criticality

A behaviour becoming *near-critical*, only *approaches* limits or boundary ('oriented'). The intensity of un-orienting required to prevent *reaching* boundary and a critical state *reduces* as the limit is approached, because it *reduces the orienting toward limits*. The gradient decreases, and so does what *initiated* the orienting, with *progressively less* resources required. This is an auto-limiting property. Basic physiologic functions often operate that way.

For example osmosis in physiology.

'Orienting' is *not* evaluated as a 'problem', with a 'response to' it of intensity of action, arrow-force, targeted focus – for example water re-distribution (or other resources). The process is not auto-reinforcing but auto-limiting.

For example, 'self-healing' activation after injury or disease is *not the same* as basic recovery from an insult, which only requires rest, non-'energetic' food and rehydration. 'Self-healing' hyper-activation can have growth side-effects.

**Without intensity/repeat, the 2 approaches are not mutually exclusive.**

**Common domain: we can be Adaptive *and* Safe & Sound**

*Please view the second power-point presentation:*

# ‘Basic’ geometric topology

Another ‘geometry of mind’, non-localising.

A modeling method using basic topologic properties  
**to gauge globally the *approach* of critical conditions,**  
and how *not to* reach boundary.

**An aptitude to find the less resource-costly ‘basic options’**  
that can complement problem solving and emergency strategies.



‘Basic’ topologic geometry gauges globally  
the *approach* of critical conditions,  
and how *not to* reach boundary.

It gives access to the less resource-costly ‘basic options’.

# Thank you

Work adapted from visual materials in Ph.D. thesis  
dr m. bouchon ([UWS, 2008](#)) and Topologic Ecology  
research program developed since.

(See references & image credits  
in References word file).

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## Pictorial Credits

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