Janus

The nature of systems

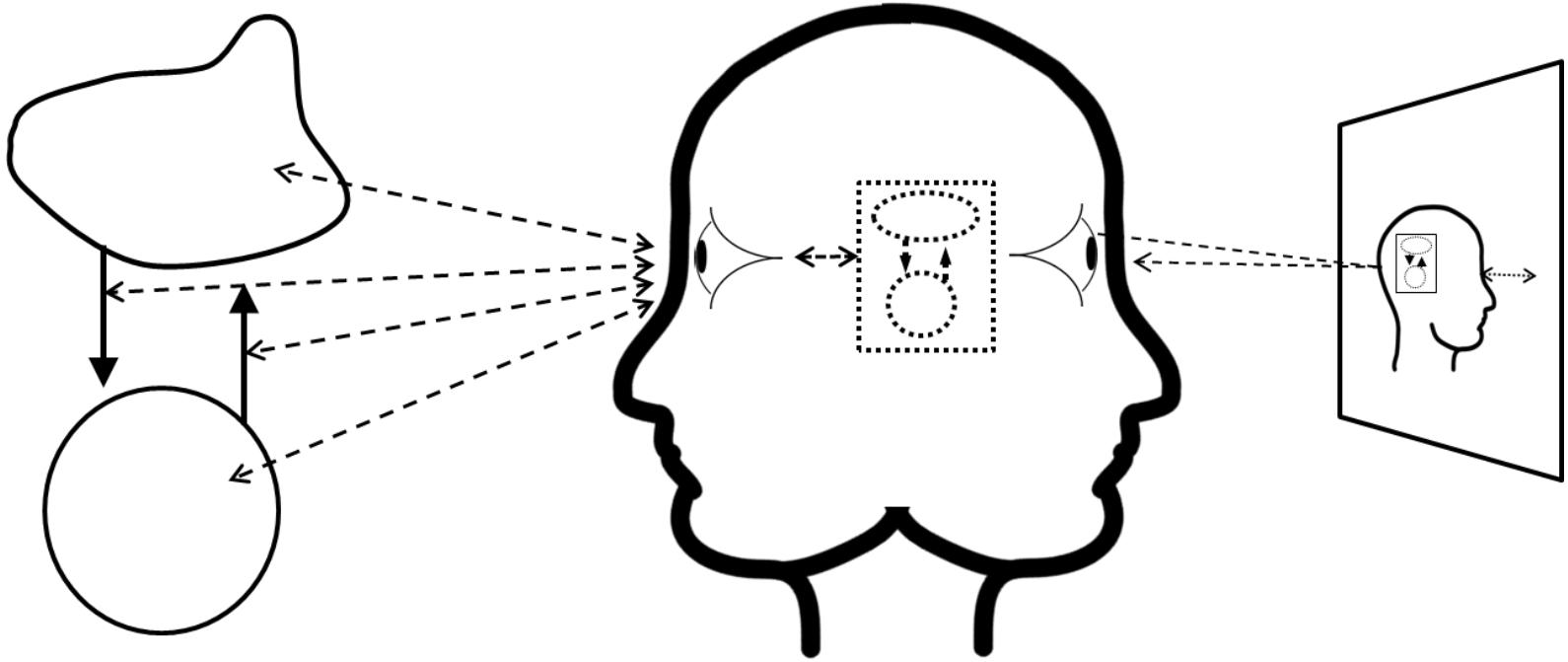
The Grammar

33 Laws & Principles

& The nature of systems thinking

The Grimoire

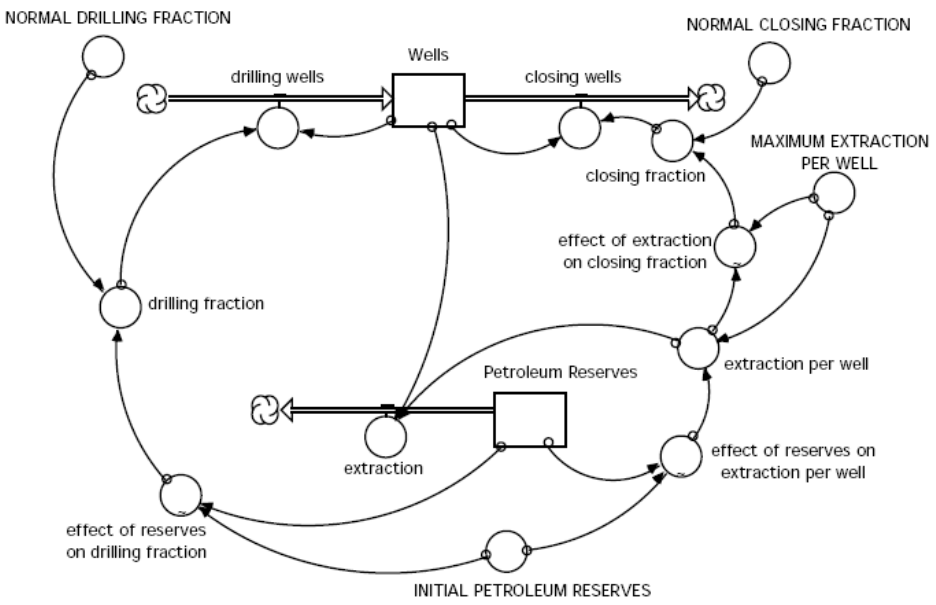
9 patterns of thinking



33 laws & principles

- Most long discarded / forgotten
- All come out of ST
- All are embedded in Systems Practice – within methodologies
- Fall into 3 families
- Formalisation of the thinking patterns
- Controversial
- ***Really*** practical, usable and useful
- Valuable for developing new areas of practice
- Together they form a coherent and clear structure to see the world

The substrate of ….. System Dynamics



1st Circular Causality Principle

2nd Circular Causality Principle

Homeostasis Principle

Law of reciprocity of Connections

Relaxation Time Principle

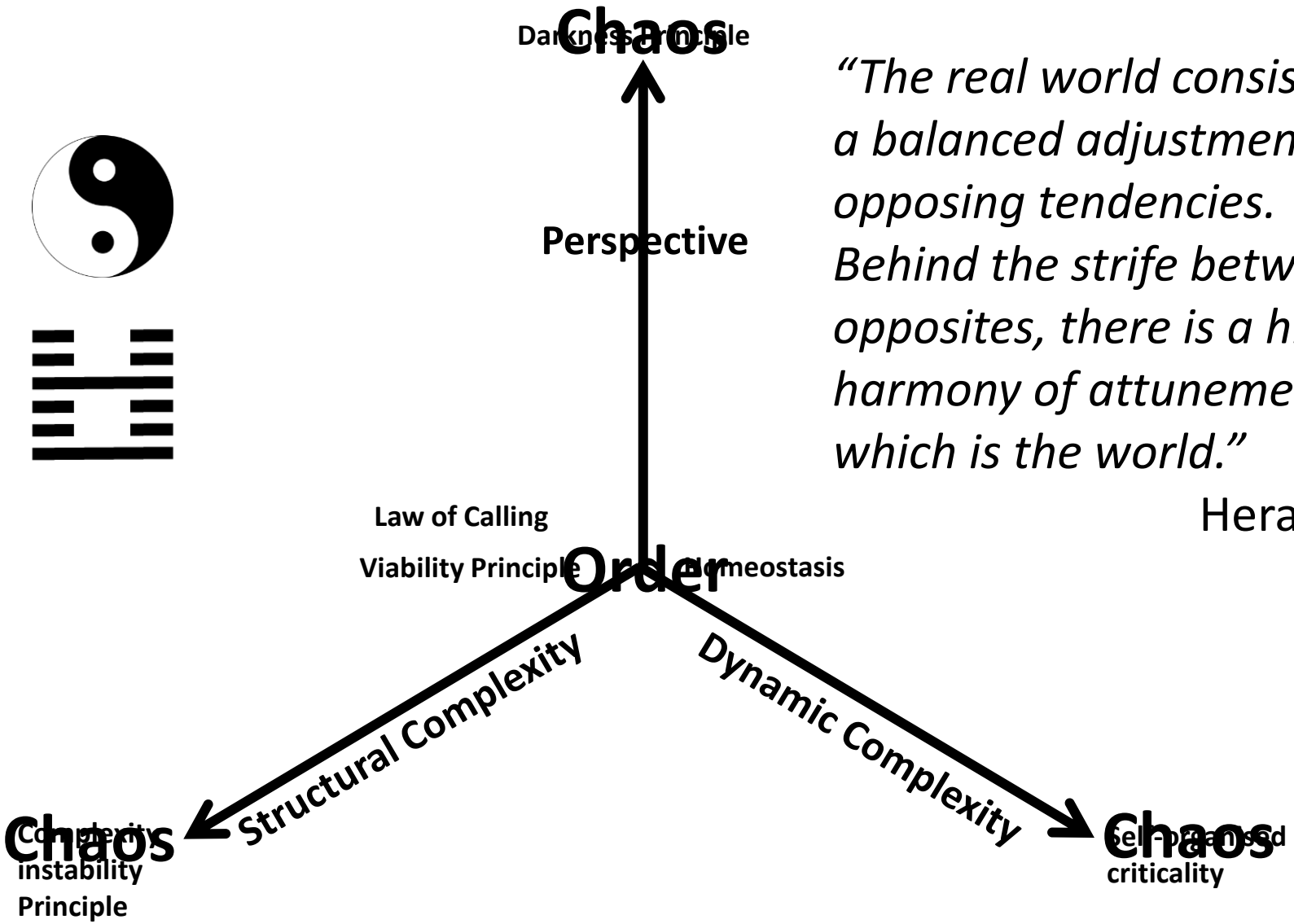
Feedback Dominance Theorem

Self-organised criticality

Conant Ashby Theorem

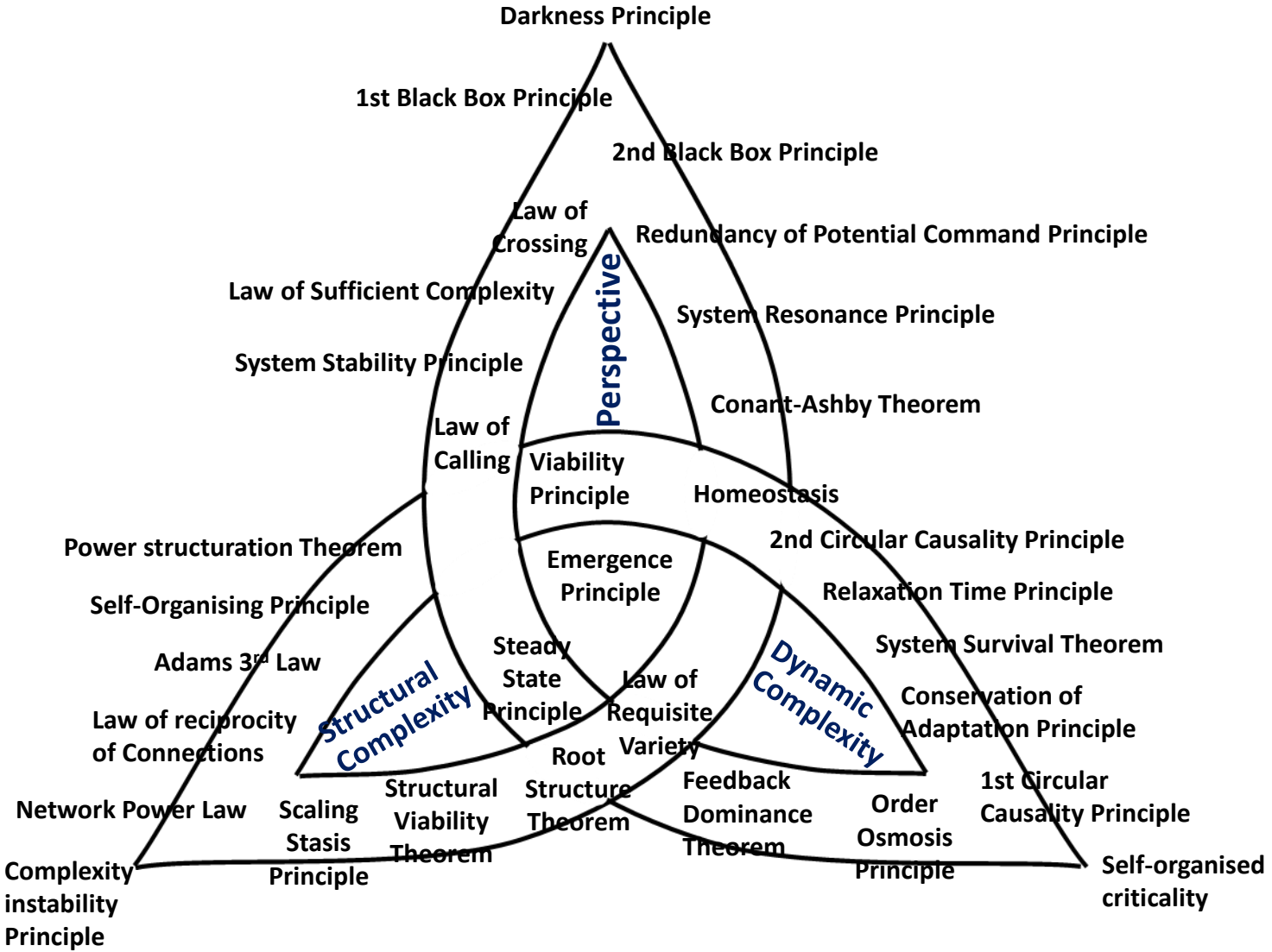
Emergence Principle

FRACTAL



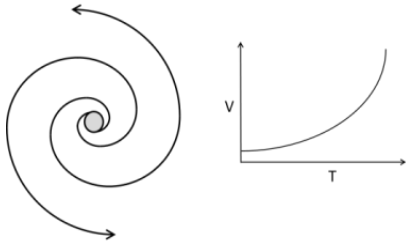
"The real world consists of a balanced adjustments of opposing tendencies. Behind the strife between opposites, there is a hidden harmony of attunement which is the world."

Heraclitus



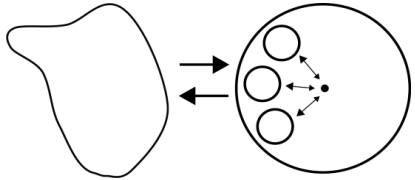
Laws & Principles – utility

Pharmaceutical sector - the cost doubles every 9 years (since 1950s)



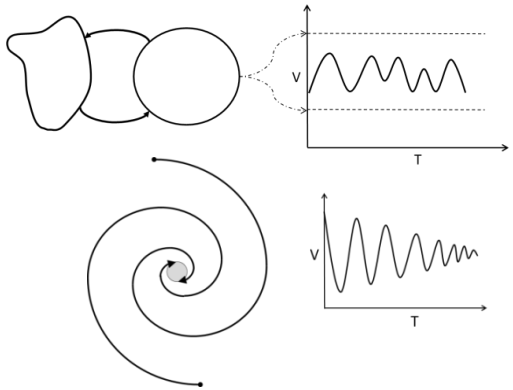
1st Circular Causality Principle
Positive feedback drives exponential change

‘Scaling Agile’



Viability Principle
A system’s viability depends on balancing autonomy with cohesion and stability with change over time

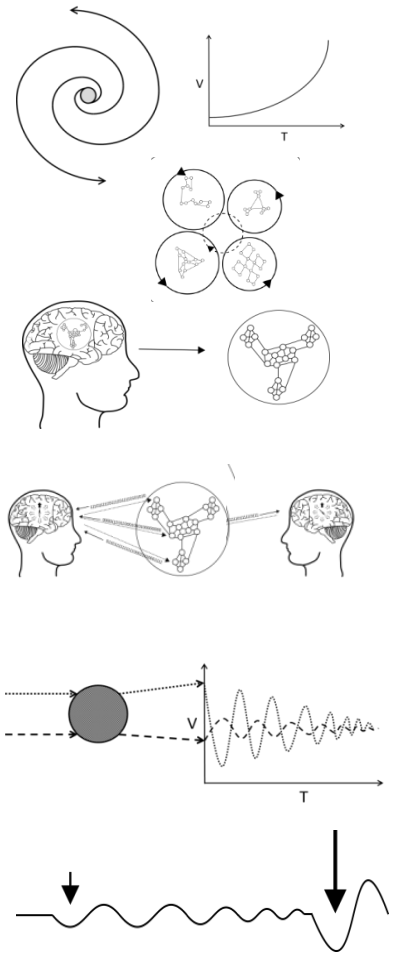
70+ % of change projects fail



Homeostasis Principle
A system will be stable if its key variables remain within their physiological limits

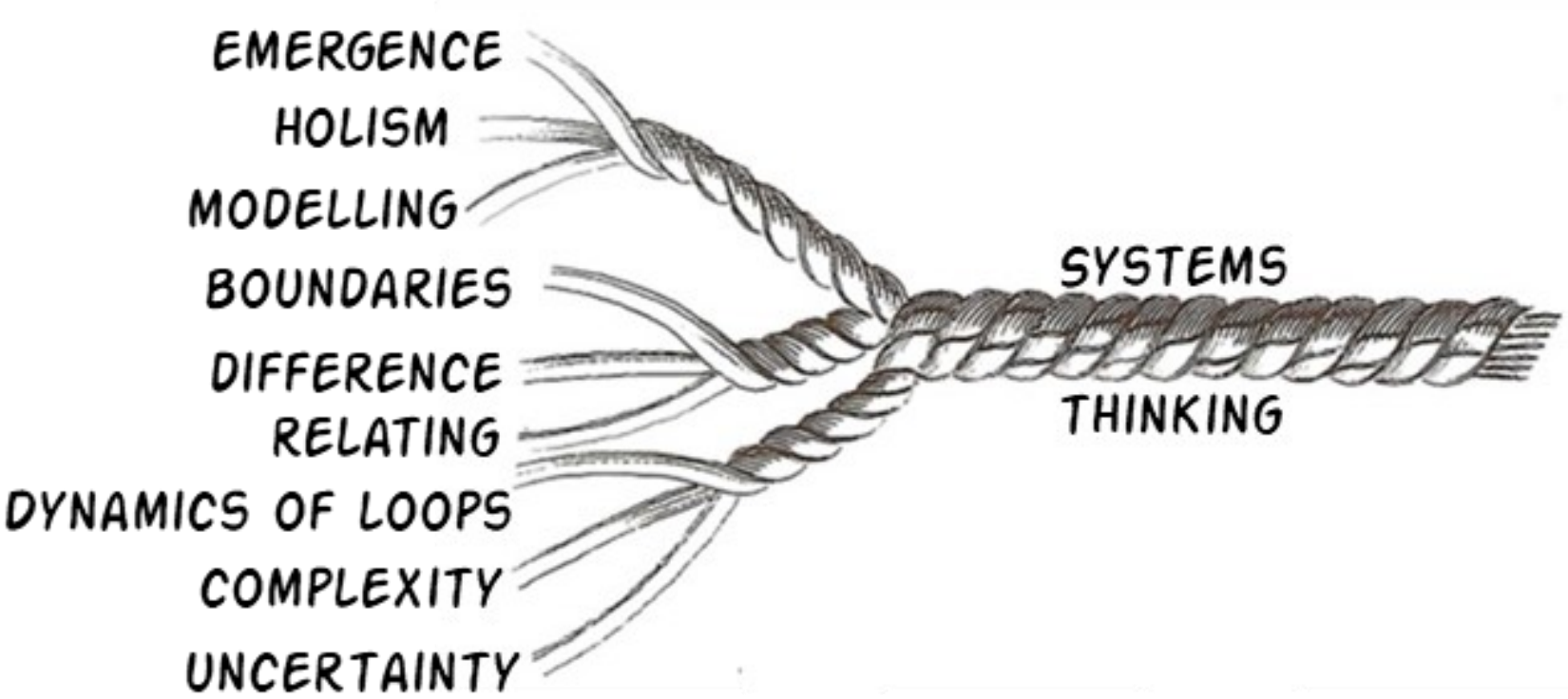
2nd Circular Causality Principle
Negative feedback drives stability

Laws & Principles – the 2008 financial crash



- 1st Circular Causality Principle: Bank gearing designed as growth engine for the economy
- Adams' 3rd Law: Risk of each financial product is known – risks of interdependence not known
- Conant- Ashby Theorem: Regulators' models didn't include dynamics or interdependencies
- Redundancy of Potential Command Principle: Information asymmetries privilege some players disadvantage others
- Feedback Dominance Theorem: Government re-floated the same set of feedback loops
- Relaxation time Principle: Socio-economic system hit by shocks before recovering

9 Patterns of Thinking

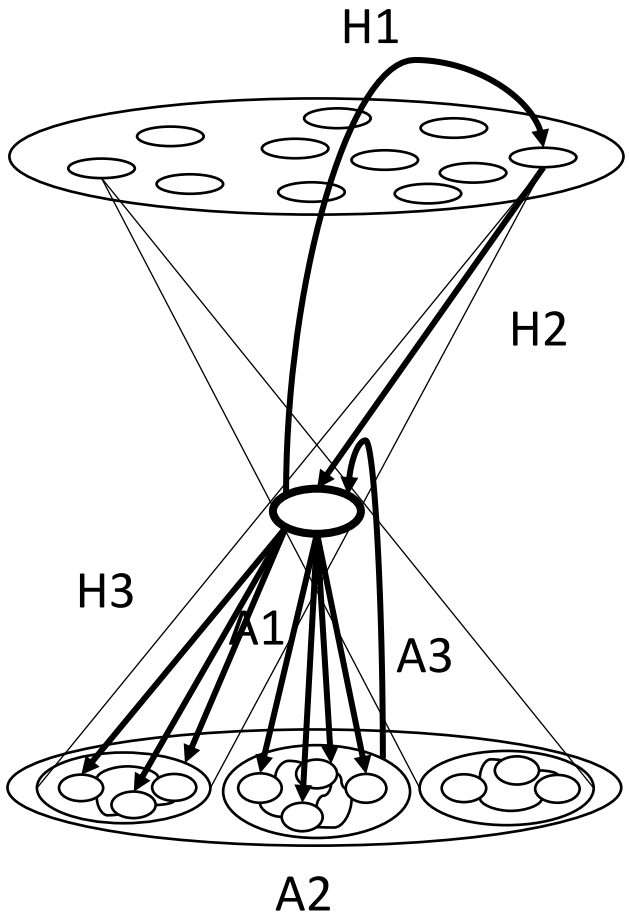


It is different…..

- You can be a ‘Systems Practitioner’ by following a methodology, being a Systems Thinker demands you actually think differently.
- Each is a ‘pattern of thinking’
- Each of the 9 has a bundle of thinking techniques that can be learned and practiced

Patterns of thinking …. Holism

- 3 steps of analysis / reductionism
- 3 steps of holistic thinking
- Totally different outcomes
- Refusal & denial is common
- Rates of ascent vs descent vary massively (e.g. 50-1)
- Precision needed – so practice required
- Observable, learnable
- PQR & 3 VSM levels



Each has facets …. Dynamics and Loops

Look for:

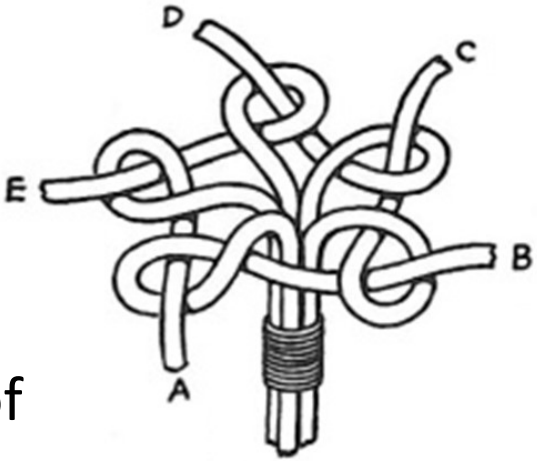
A. Reciprocity – what comes back?

B. Closure – what system gets called into existence?

C. Arc of being – what is the: stability, memory, persistence?

D. Arc of becoming - where is the engine of self-organisation at work?

E. Change – which change dynamics where?



Each affects the others

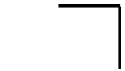
Slippery patterns- relating

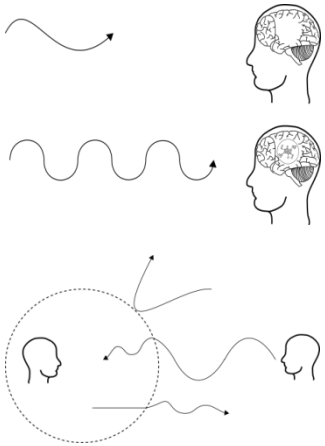
- Primary focus on relating rather than the things the relationship is between
- Not even a language for this….
- Casual / unconscious slippage is normal – eg in VSM

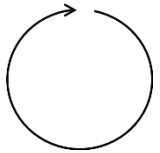
0. From sets of complexity balances…
1. … to relating…
2. … to relationship …
3. … to the activities at each end of the relationship …
4. … to the VSM subsystem that ‘holds’ that activity…
5. … to the organisational entity that instantiates that

Interconnections

- *Difference* creates *boundaries* which create *difference*
- Closing a *loop* creates a *boundary* which creates a *difference* & the *loop* maintains the *boundary* and the *difference* through time…
- Systems have *emergent* properties and (**system stability principle**) a system is a changing pattern of *relationships* that is stable enough for long enough for us to recognize (*model*) the pattern
- *Emergence* creates *difference* in subjective & objective which is relative to *boundary*
- The *loop* is the stability of the system, the *boundary* is recognition of a stable pattern of *relationships*.







It’s the correspondence between how the thinker thinks and the world that matters

Korzybski

“A map is not the territory it represents….

…but, if correct, it has a similar structure to the territory, which accounts for its usefulness.”