

Pacing Changes: Elevating the when+where in living systems

David Ing

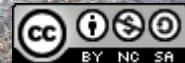
<http://coevolving.com>

**York University –
Designing for Future Systems**

Toronto, Ontario

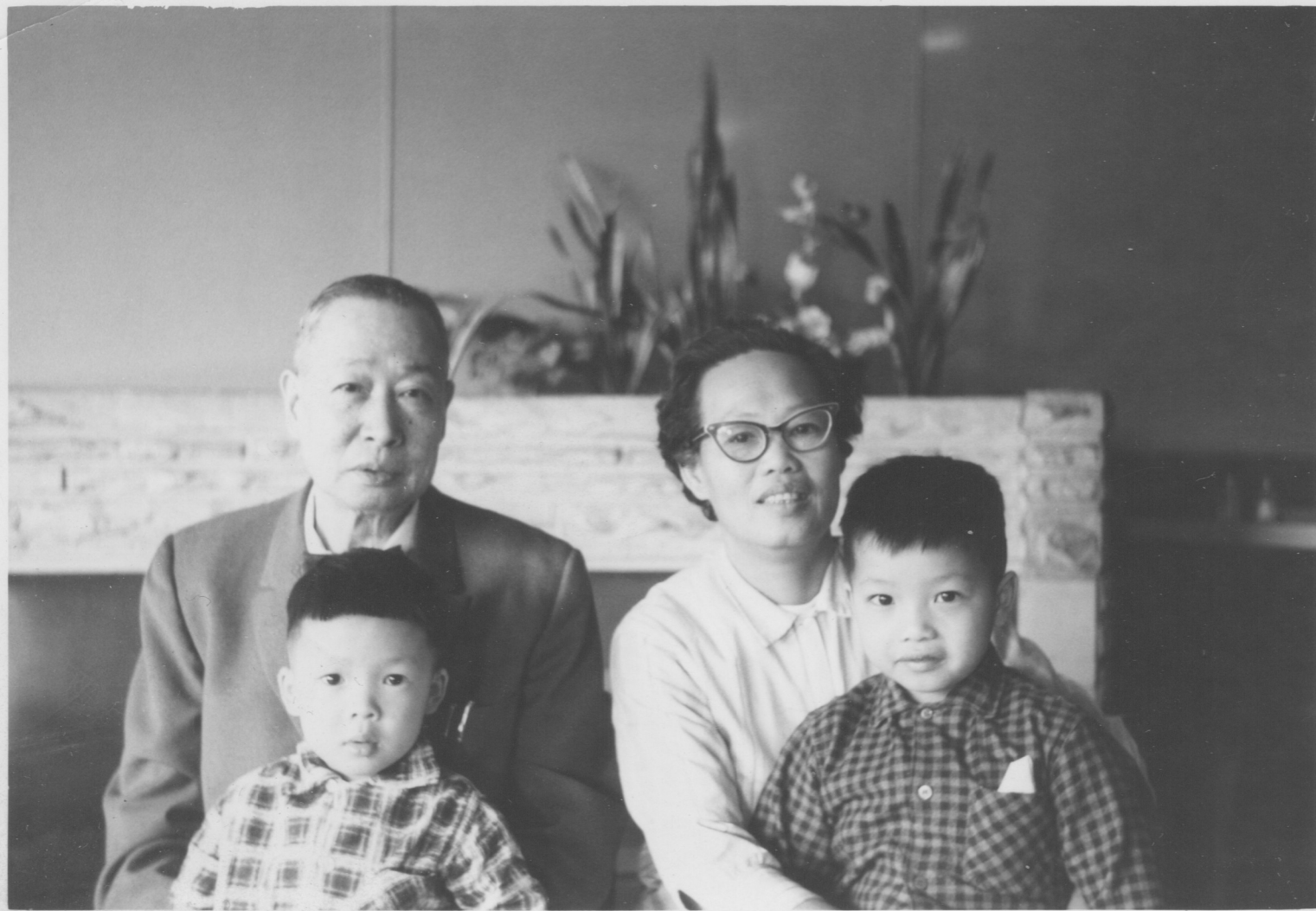
March 4, 2025

Image CC-BY Mike Cassano (2009) *Most Interesting Pothole*

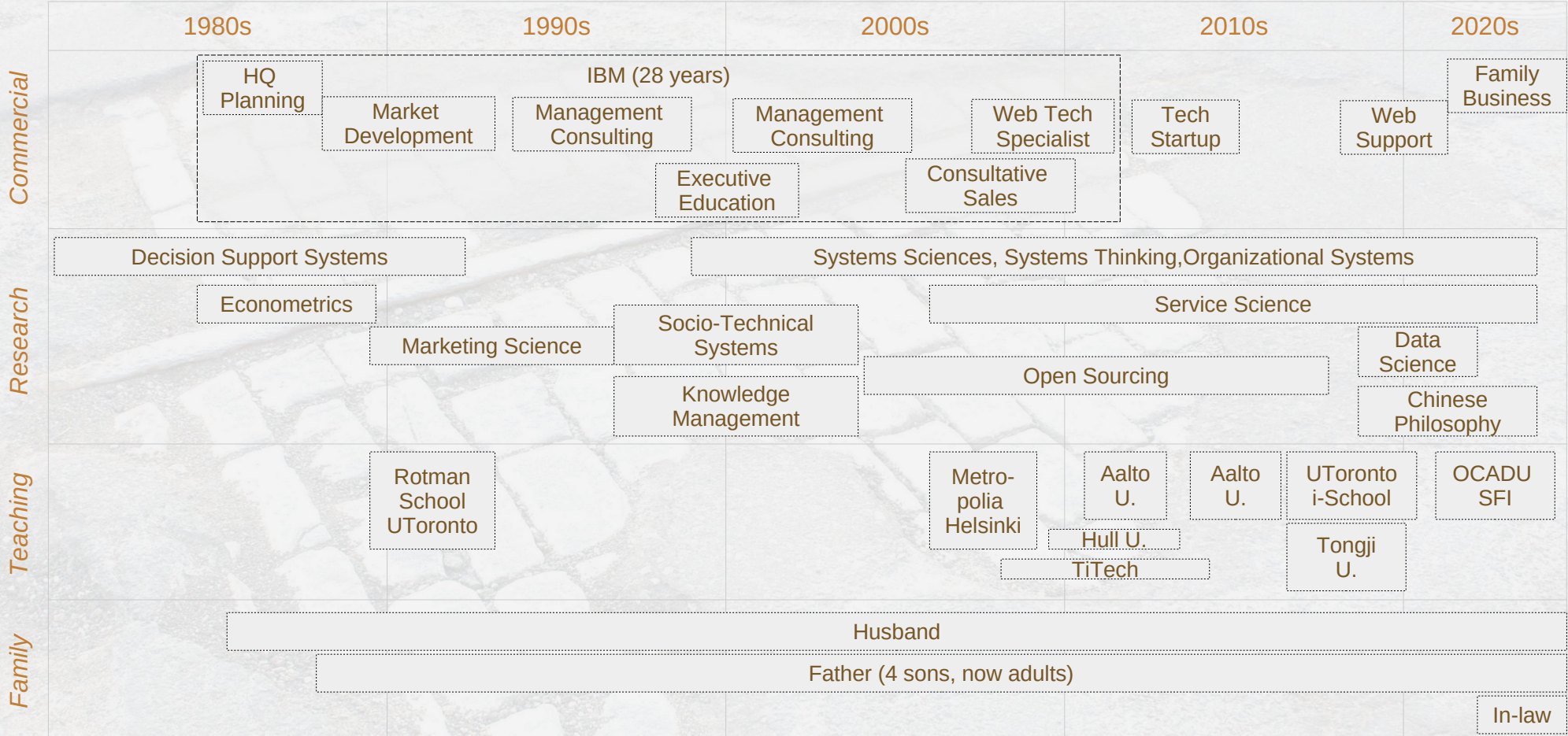


David Ing, 2025

Circa 1964,
Gravenhurst, Ontario, Canada



David Ing resides in Toronto, Canada (with 1M+ air miles)



Agenda

- | | |
|----|---|
| A. | Images of Systems as Living (?) |
| B. | Systems Thinking: Traditions → Advances |
| C. | What+Why < When+Where |
| D. | Resequencing Systems Thinking |
| E. | Continuing the Systems Learning Journey |

Anthecology (pollination biology)?

↑ Apple Orchards alongside Bee Colonies



Michigan Apples (2015) The Buzz on Bees

Systematic Musicology?

↑ Modulating Tempo (Hastening / Retarding)



2Cellos + Lang Lang (2015) Live and Let Die

Rhythmanalysis? Chronobiology? Process Materialism?

↑ Couples Dancing through Seasons Turning

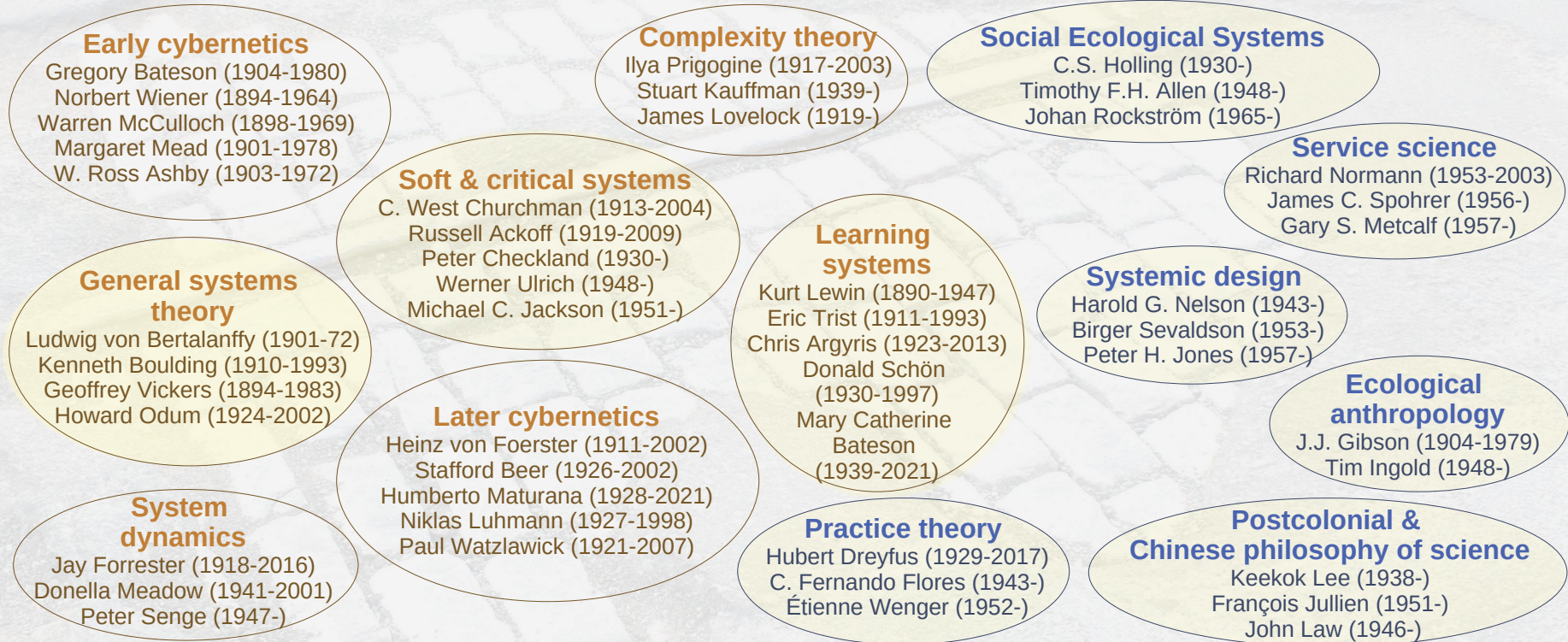


Virtual SF (2024) Swing Dancing at Golden Gate Park

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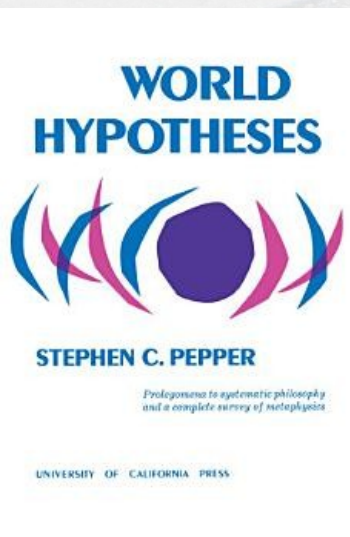
A rich legacy of 20th century systems thinkers enables selection for the domain at hand, and extensions with contemporary researchers



Source: Ramage, Magnus, and Karen Shipp. 2020. "Introduction to the First Edition." In *Systems Thinkers*, edited by Magnus Ramage and Karen Shipp, xiii–xx. Springer London. <https://doi.org/10.1007/978-1-4471-7475-2>, p. xvii

Four world theories (world hypotheses) by Stephen C. Pepper in 1942 now have an additional proposed based on $YinQi \rightleftharpoons YangQi$

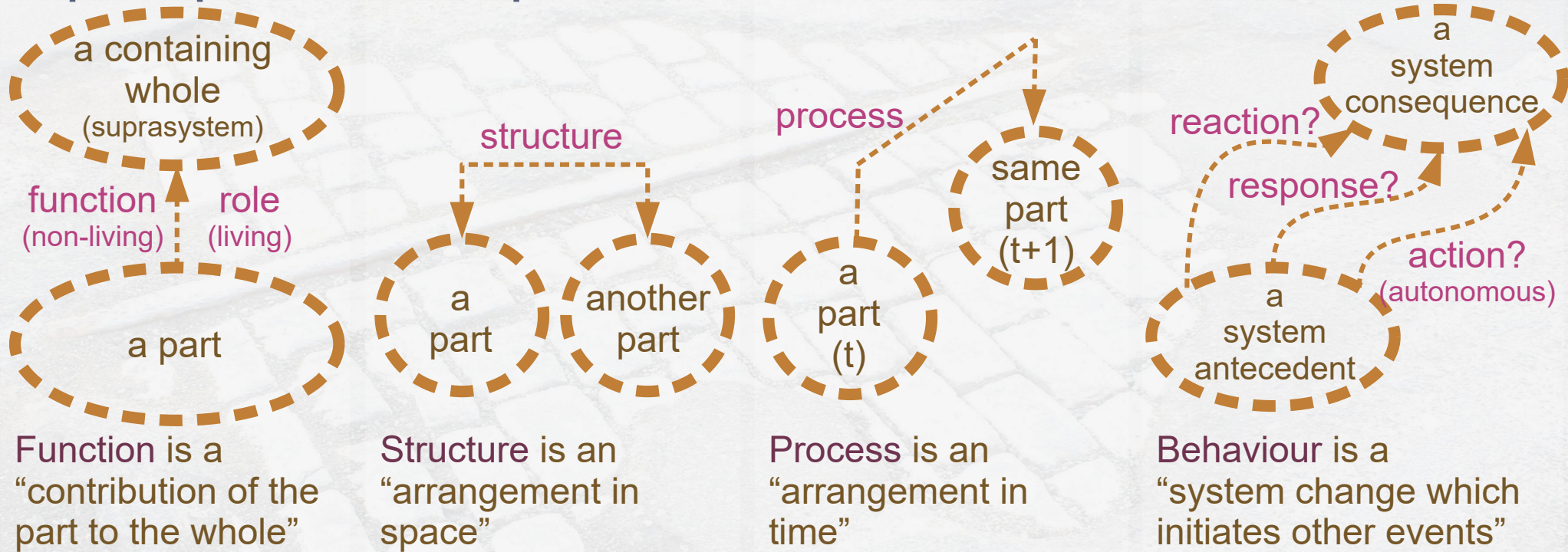
Interpret the double harpoon as reversibility in chemistry: $(YinQi \rightleftharpoons YangQi) == (YinQi \text{ is complementary with } YangQi)$.

	World Hypothesis	Dispersive manner for organizing evidence	Integrative manner for organizing evidence
	Analytic mode of reasoning	Formism Root metaphor: Similarity , as recurrence or recognizable features Nature of time: Universal or irrelevant	Mechanism Root metaphor: Machine , where exerting force or energy produces predictable outcomes Nature of time: Schematic time as location (linear and dimensional)
	Synthetic mode of reasoning	Contextualism: Root metaphor: Situation , as a historic event in its living actuality Nature of time: Qualitative duration, event relative to a specious present	Organicism Root metaphor: Constructive Development , with orderliness of changes from stage to stage Nature of time: Directional arrow, successive integrations
	Synthetic mode of reasoning	(Con)texturalism-Dyadicism: Root metaphor: $YinQi \rightleftharpoons YangQi$ dancing through [eight] seasons, as $((YinQi) \propto 1/(YangQi))$ wayfaring in unfolding wanwu [concentrating $\rightleftharpoons$ dissipating] textures Nature of time: Kairotic, with propitious periods and inopportune periods	

Interpret the math symbol $\propto$ not as alpha: $(YinQi \propto 1/(YangQi)) == (YinQi \text{ is inversely proportional with } YangQi)$.

Ing, David, and Susu Nousala. 2025. "Rethinking Work, with the Pandemic Disruption: Metatheorizing with World Hypotheses and Systems Changes." *International Journal of Organizational Theory and Behavior*, earlycite, 02-2023-0036, <https://doi.org/10.1108/ijotb-02-2023-0036>

Systems thinking is a perspective on parts, wholes, and their relations



Ing, David. 2013. “Rethinking Systems Thinking: Learning and Coevolving with the World.” *Systems Research and Behavioral Science* 30 (5): 527–47.

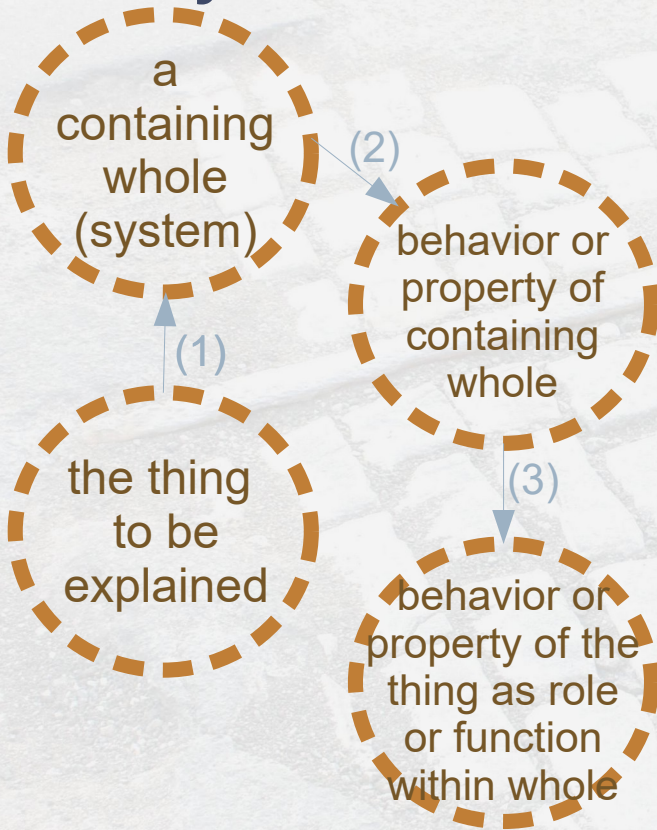
Gharajedaghi, Jamshid. 1999. *Systems Thinking: Managing Chaos and Complexity: A Platform for Designing Business Architecture*. Elsevier

Ackoff, Russell L. 1971. “Towards a System of Systems Concepts.” *Management Science* 17 (11): 661–671.

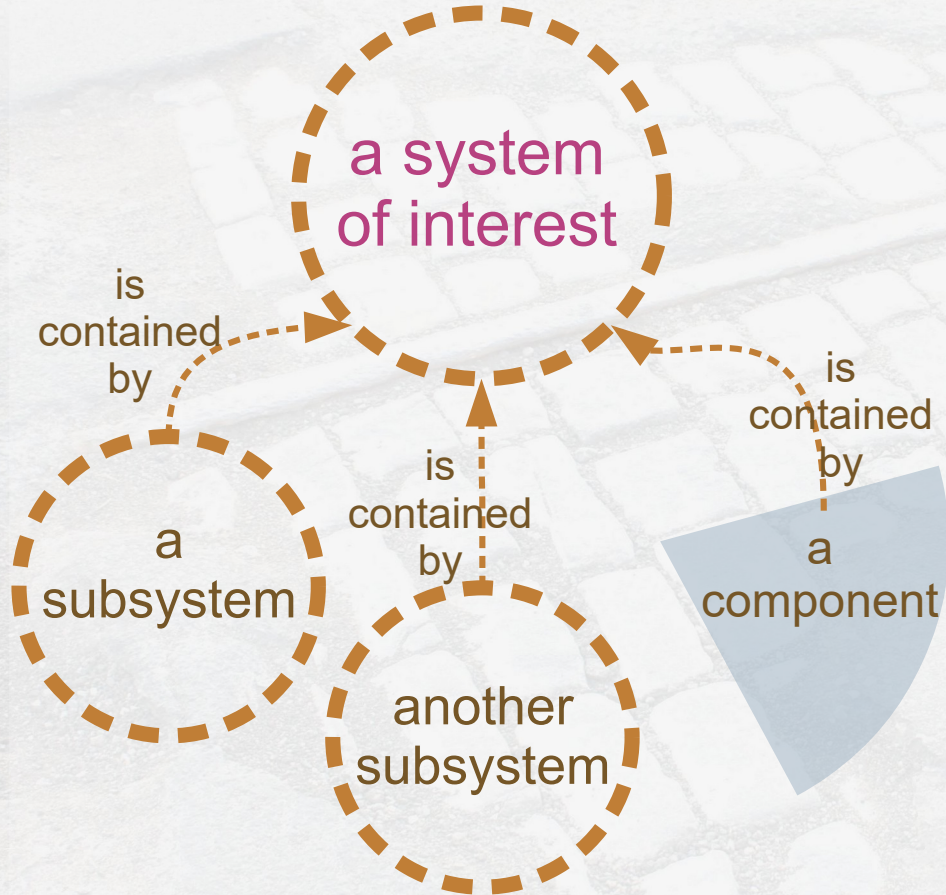
In authentic systems thinking, synthesis precedes analysis and the containing whole is appreciated

Synthesis precedes analysis

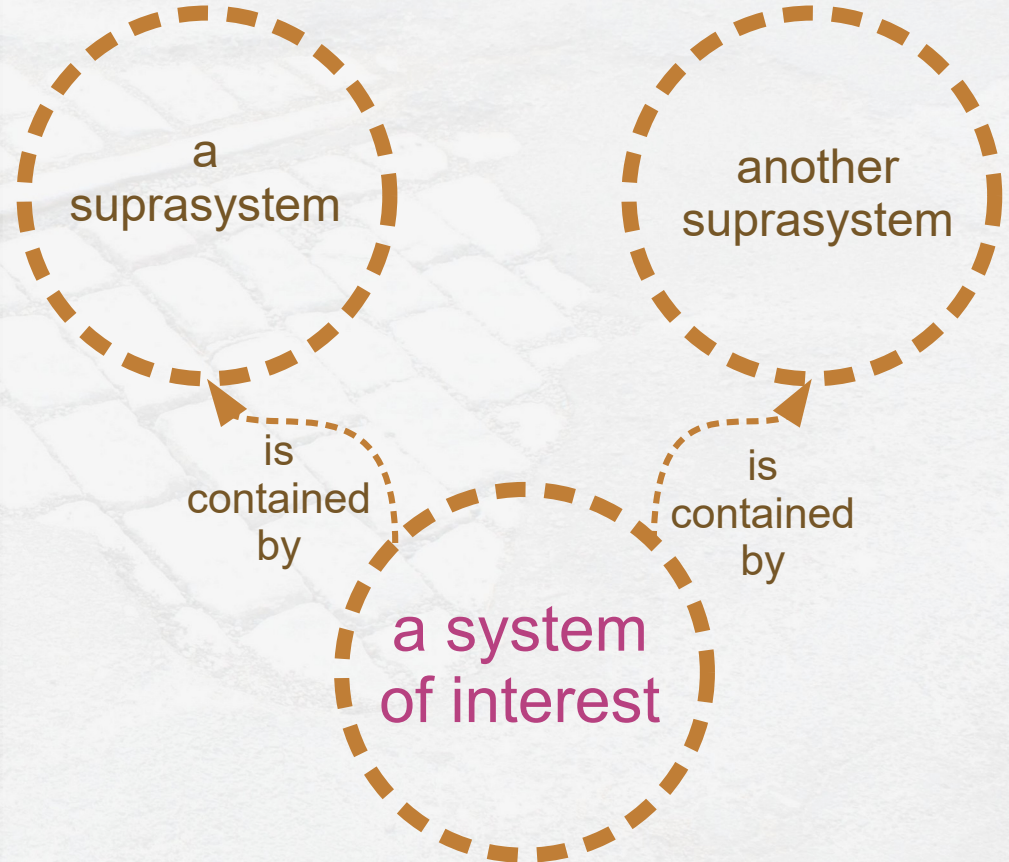
1. Identify a **containing whole** (system) of which the **thing to be explained** is a part.
2. Explain the **behavior or properties** of the **containing whole**
3. Then explain the **behavior or properties** of the **thing to the explained** in terms of its **role(s) or function(s)** within its containing whole.



A system can contain subsystems or components

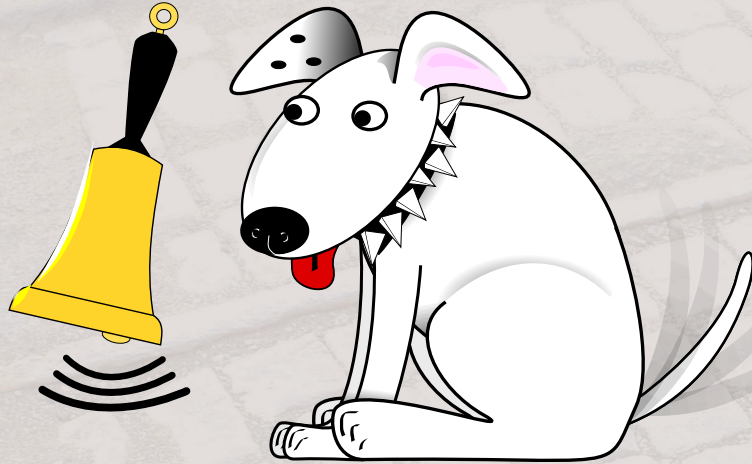


A system can be contained by multiple suprasystems



Ask Not What's Inside Your Head, but What Your Head's Inside of

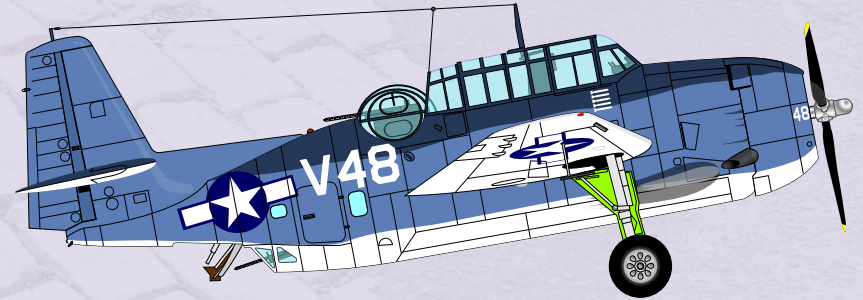
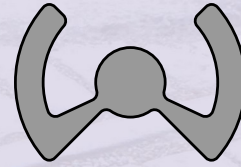
Stimulus – Response (Behavioral Psychology)



[In the 1950] psychophysics of perception ... "gives" in the light to the eye could not support perceptual phenomena, but only elementary experiences such as sensations. [...] Succinctly put, the psycho-physical program was ... traditional in considering perception to be a set of responses to presented stimuli (albeit "higher order" stimuli).

William M. Mace 1977. "James J. Gibson's Strategy for Perceiving: Ask Not What's inside Your Head, but What Your Head's inside of." In *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*, edited by Robert Shaw and John Bransford, 43–65.

Ecological Approach to Perception



Over the last 10-15 years [James J. Gibson] has tried to develop enough theory ... to demonstrate that direct perception is indeed plausible even if hordes of difficult details remain to be worked out. The ... analysis of the optic array, stimulus organization, and the functional organization of perceptual systems are what Gibson often points to as radical features

“Stable equilibrium is death”

A LETTER
TO
AMERICAN TEACHERS
OF
HISTORY

BY
HENRY ADAMS

WASHINGTON
1910

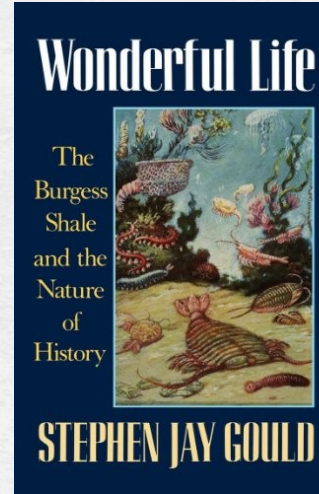
... if one physical law exists more absolute than another, it is the law that **stable equilibrium is death**.

A society in stable equilibrium is — by definition, — one that has history, and wants not historians. [Adams, p. 186]

... Gould has shown that evolution has been by **catastrophes**, like the one that caused the demise of the dinosaurs and more serious ones that extinguished up to percent of all species nearly six hundred million.

Gould has concluded that such catastrophes have been more instrumental in shaping the course of evolution than competition and natural selection.

If so, then no necessary direction can be imputed to evolution, and **the current state of nature may not be inevitable and predictable**. [Burich p. 645]



Adams, Henry. 1910. A Letter to American Teachers of History. Washington [Press of J.H. Furst]. <http://archive.org/details/alettertoamerica00adamuoft>.

Burich, Keith R. 1992. “Stable Equilibrium Is Death’: Henry Adams, Sir Charles Lyell, and the Paradox of Progress.” The New England Quarterly 65 (4): 631–47. doi:10.2307/365825.

“Stable equilibrium is death” at <https://stream.syscoi.com/2017/09/24/stable-equilibrium-is-death/>

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Systems traditions of “know why” and “know how” should be complemented better by “know when, know where, know whom”

<i>Primary intellectual virtue:</i>	Episteme	Techne	Phronesis
<i>Interpretation:</i>	Science (viz. epistemology)	Craft (viz. technique)	Prudence, common sense
<i>Type of virtue:</i>	Analytic scientific knowledge	Technical knowledge	Practical ethics
<i>Orientation:</i>	Research	Production	Action
<i>Nature:</i>	Universal	Pragmatic	Pragmatic
	Invariable (in time and space)	Variable (in time and space)	Variable (in time and space)
	Context-independent	Context-dependent	Context-dependent
<i>Pursuits:</i>	Uncovering universal truths	Instrumental rationality towards a conscious goal	Values in practice based on judgement and experience
<i>Colloquial description:</i>	Know why	Know how	Know when, know where, know whom

Ing, David. 2013. “Rethinking Systems Thinking: Learning and Coevolving with the World.” *Systems Research and Behavioral Science* 30 (5): 527–47. <https://doi.org/10.1002/sres.2229> .



Can we deprecate systems thinking as a pursuit of ends (ideals, objectives, goals), and elevate as rhythms, contextual and dyadic?



How to Play Darts, by wikiHow (2021)



Beach Volleyball – London 2012 by IgCompany (2021)

Ancient Greeks → decisions towards controlling outcomes with action;
Classical Chinese → situational timing as favourable / unfavourable

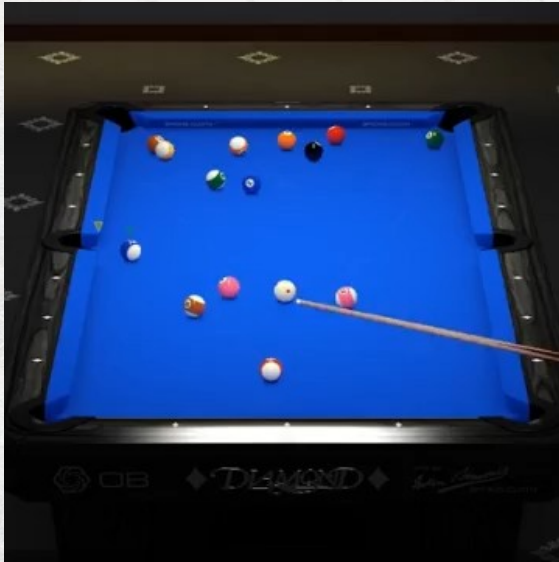


Rank Vlog Working Cattle CC-BU Brown Ranch (2020)



How to Catch Trout with a Drop Shot by E Park Fishing (2020)

Aristotle considered causes and effects, with plans and action;
Sunzi (Sun Tzu) looked for conditions when+where rhythms shift



Shooter's Pool, Gameplay (Part 2) by MegaMilez (2020)



Sudden Downpour in Glasgow Scotland by Wee Walks (2023)

Western causality directs yǒuwèi (willful action) with force;
Chinese efficacy prefers wúwèi (non-intrusive action) via propensity



Flooding Sandbagging Along Cedar River by
Waterloo Cedar Falls Courier (2016)



Beavers Behaving Badly by BBC Natural World (2014)

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Degrees of temporal thinking range from static to dynamic with periodicity

YinQi $\rightleftharpoons$ YangQi
dancing through
[eight] seasons

Rhythms as
Kairos

Cycles as
Chronos

Step
Change

Permanence

Predicating ↓ Assembling Machines, ↑ Apple Orchards alongside Bee Colonies



Predicating

↓ Interchangeable Parts into Wholes (Structures as arrangement in space),

↑ Polytemporal Interplay (Processes as threads in time woven into textures)

Predicating ↓ Point-in-time Equilibrium, ↑ Modulating Tempo (Hastening / Retarding)



Predicating
↓ Aligning in Chronos (Synchronic Conformance)

↑ Grooving through Kairos (Diachronic Propensities)

Predicating ↓ Reduction to Linear Causality, ↑ Couples Dancing through Seasons Turning



Predicating

↓ Aristotle: material cause (matter), formal cause (movement), efficient cause (how), final cause (purpose)

↑ Attention to (YinQi ⇌ YangQi) Embodied in YinYang

Can/will systems thinking shift from *unitary one* as *universal*, towards *dyadic twos* in *contexts* of *dyadic twos*?

“The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function”

Fitzgerald, F. Scott. 1936. “The Crack-Up.” *Esquire*, February 1, 1936.

<https://classic.esquire.com/article/share/97a6b0a8-ba1c-4b7b-aa64-0d08dd9fb952>.

Via ...

Martin, Roger. 2009. *The Opposable Mind: Winning Through Integrative Thinking*. Cambridge, MA: Harvard Business School Press.

<https://hbsp.harvard.edu/product/13050-PDF-ENG> .

“Nous sommes des adultes et peut compter jusqu'à deux”.

“Grown-ups should know how to count to two”.

André Glucksmann (1937-2015, France)

Via ...

Gopnik, Adam. 2024. “The Tragedy of Our Time Is That Antisemitism Rises Equally from the Left and Right.” *The Globe and Mail*, October 5, 2024.

<https://www.theglobeandmail.com/opinion/article-the-tragedy-of-our-time-is-that-antisemitism-rises-equally-from-the/> .

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Rethinking work, with the pandemic disruption | IJOTB (2025)

📅 February 26, 2025 👤 [daviding](#)

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Two years after submitting an academic manuscript and responding to double-blind reviews, "[Rethinking work, with the pandemic disruption](#)" has now been published in the *International Journal of Organization Theory and Behavior* (IJOTB) as earlycite. The article has a DOI (Document Object Identifier), and should be streamed with an official volume and issue number soon.

The article is available as open access. To complement the structured abstract required by the journal, here's an outline of the sections.

- 1. Introduction

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Image CC-BY Mike Cassano (2009) *Most Interesting Pothole*