

# **Cybernetics of Currencies**

Howard Silverman

Festival of Value

24/10/2025

“What you pay attention to grows.”

**adrienne maree brown (2017:42)**

a story of cybernetics  
told of and through its gestures



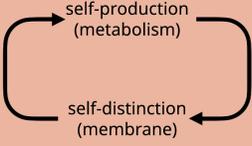
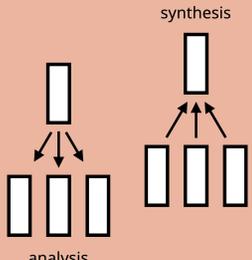
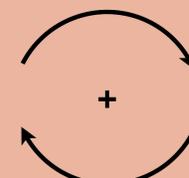
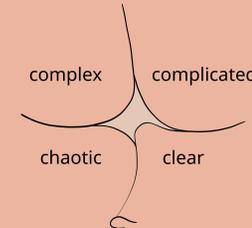
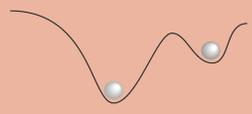
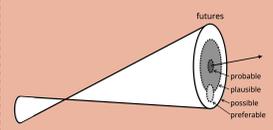
“We thought we would go on to real interdisciplinary research...  
Instead, the whole thing fragmented.”

**Margaret Mead (1968:2)**

dynamical systems  
tektology  
general systems  
cybernetics  
information theory  
system dynamics  
organization development  
operations research  
systems engineering  
management cybernetics  
AI / robotics  
catastrophe  
anticipatory systems / futures

Gaia / earth systems  
networks  
assemblages  
complexity  
chaos  
resilience  
soft / critical systems  
computational cryptography  
embodied (4E) cognition  
biosemiotics  
technoetics  
systemic design  
cosmotechnics

**cybersystemic traditions**

	cybernetics	general systems	system dynamics	complexity	resilience (dynamical systems)	anticipatory systems (futures studies)
distinctions	system / environment	part / whole	balancing / reinforcing	complex / (not complex)	resilience / adaptation / transformation	probable / plausible / possible / preferable
diagrams						

definitions of cybernetics

“the art and science of manipulating defensible metaphors”

**Gordon Pask**

“the study of form and pattern”

**Gregory Bateson**

“the ability to cure all temporary truth of eternal triteness”

**Herbert Brün**

“one of the distinguishing features of cybernetics  
might be that it could legitimately have multiple  
definitions without contradicting itself”

**Larry Richards (2007:11)**

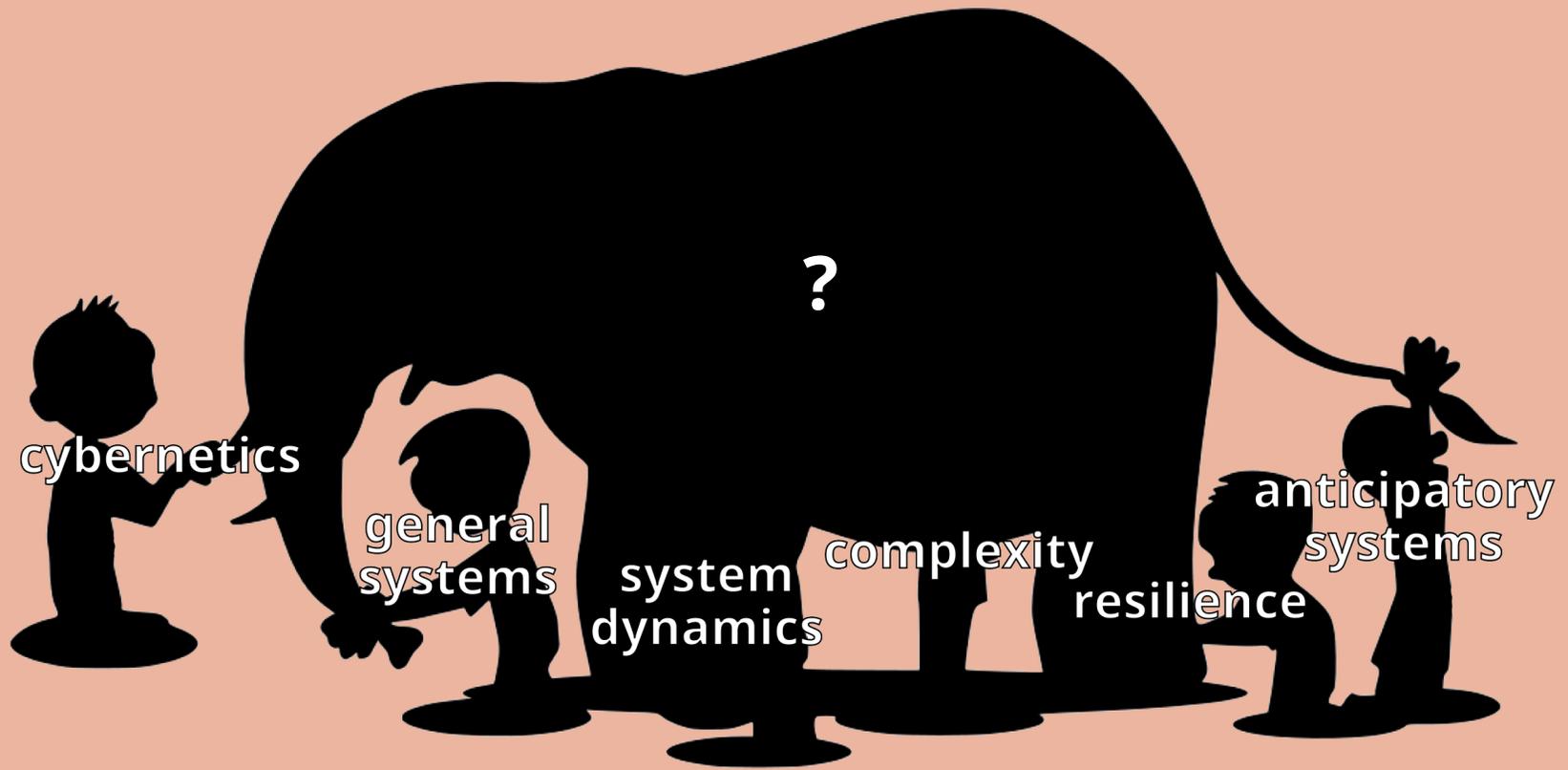


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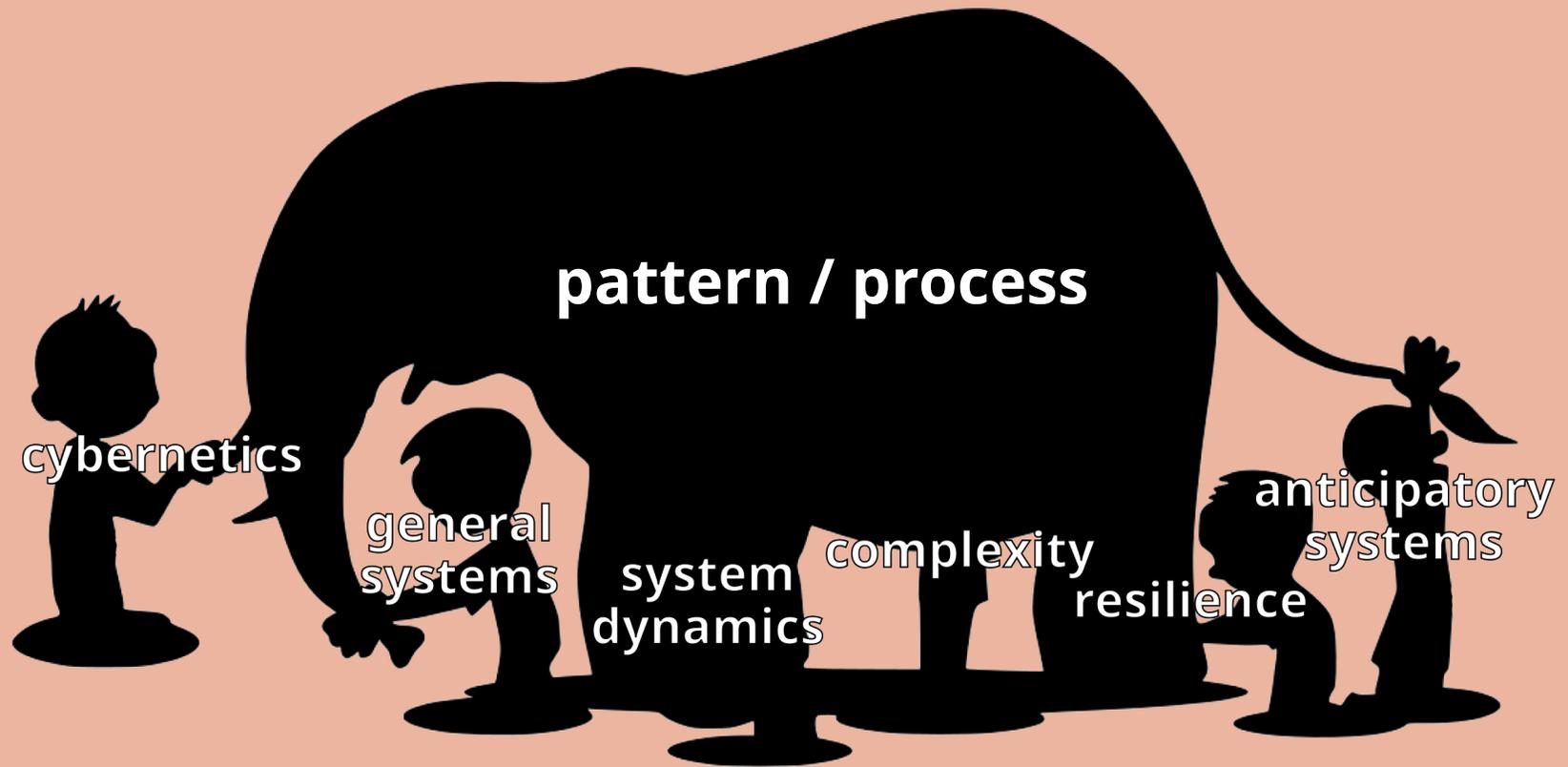


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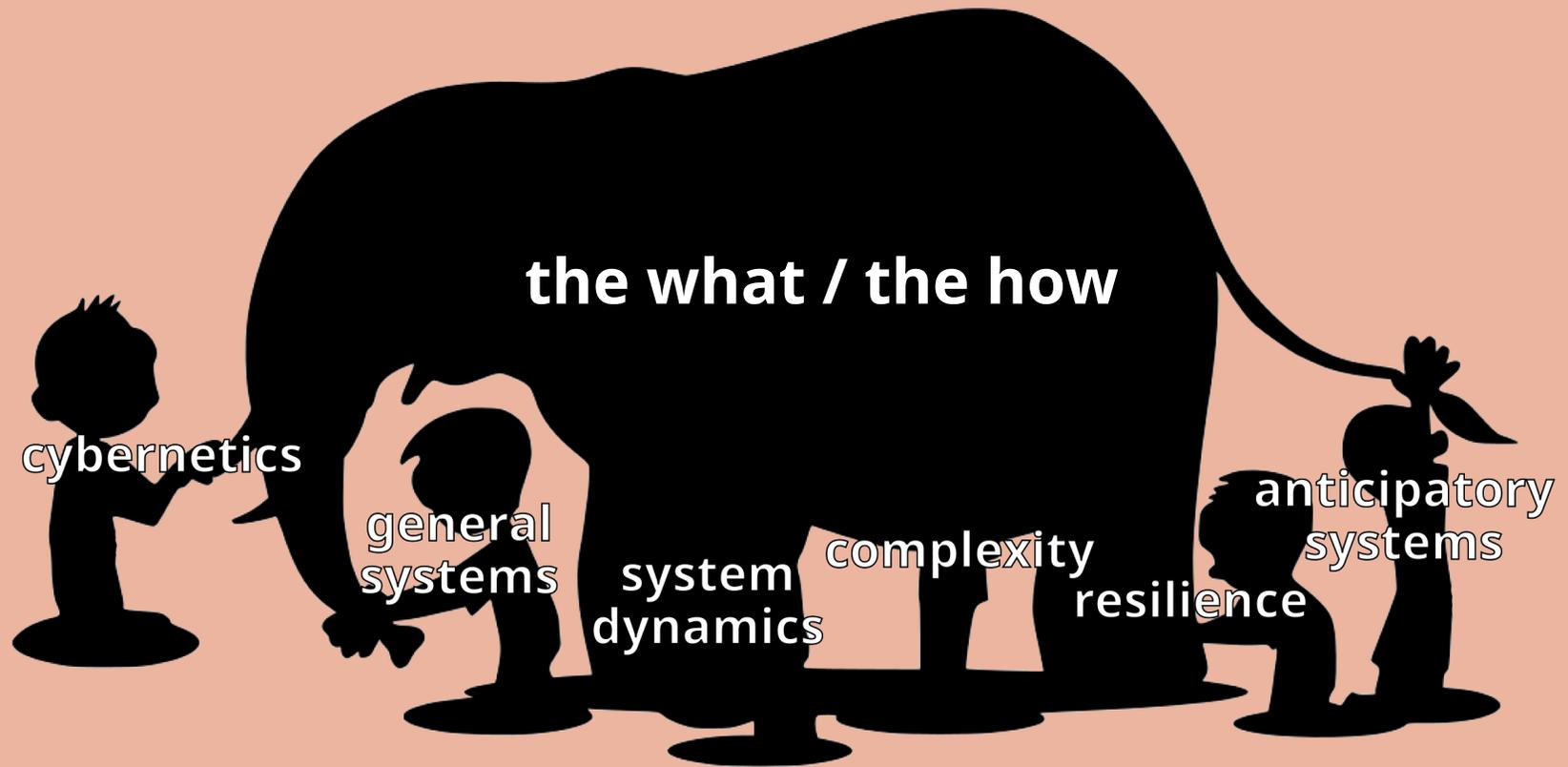


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“it / process leading to it”

**Francisco Varela (1976:64, 1979/2025:121)**

**gestures: complementing**

identity / belonging

joints / carving

(A, not-A) / distinction-making

“Be aware that ‘distinguishing’ or ‘bringing forth’  
a system in a situation is a particular way of  
knowing the situation.”

**Ray Ison (2010:47)**

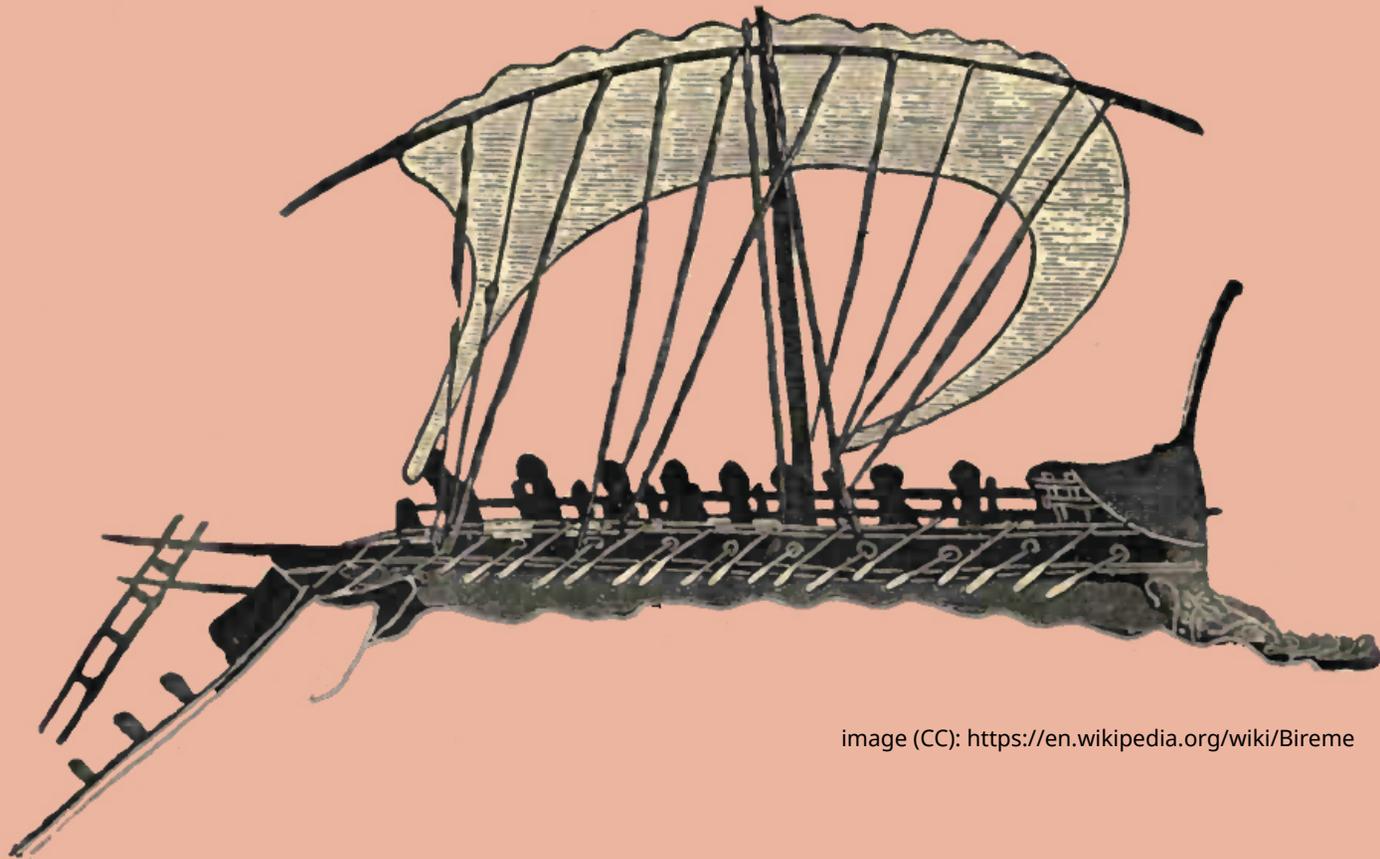


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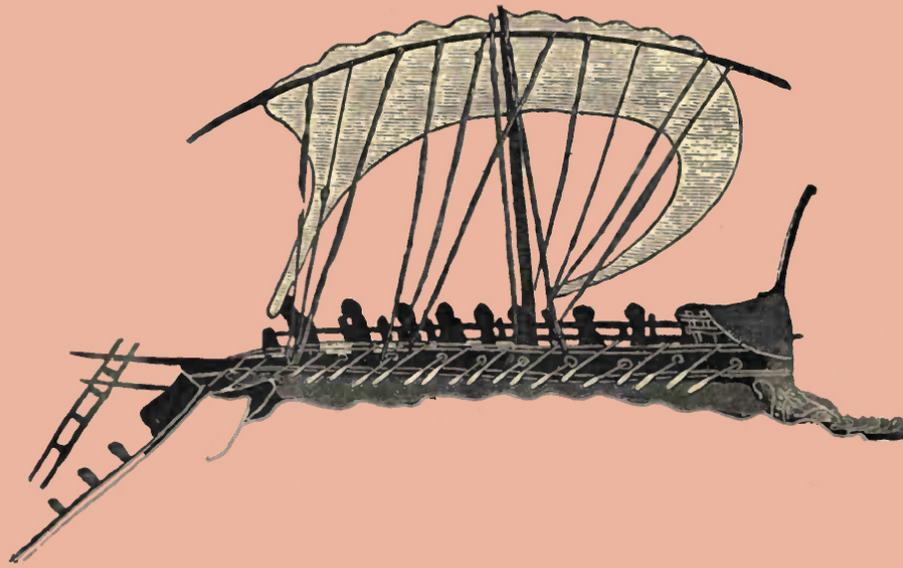
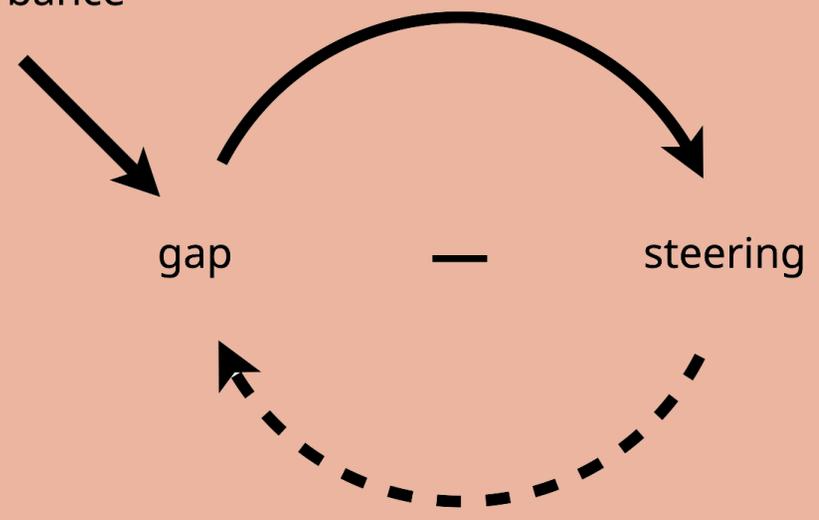


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disturbance



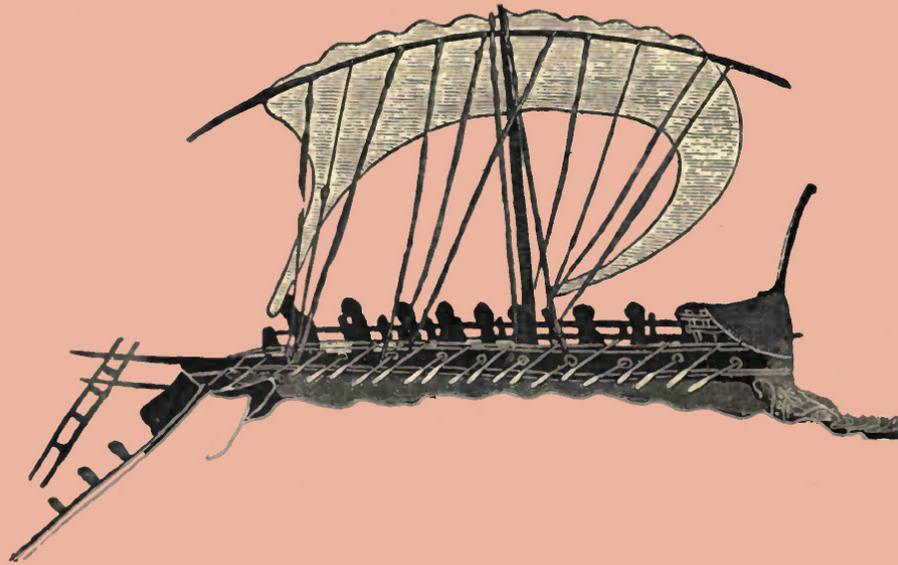


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## a misleading metaphor? cybernetics involves

steering  
(regulating, negative)



stimulating  
(reinforcing, positive)

reacting  
(feedback)



anticipating  
(feedforward)

ascribing  
(observed, first-order)



enacting  
(observing, second-order)

pursuing goals  
(single-loop, first-order)



questioning goals  
(double-loop, second-order)

“The essential characteristic of systems theory...  
[is that] physically disparate systems can  
nevertheless be models, or analogs, of each other.”

**Robert Rosen (1979:176-7)**

“In this book I... defend the thesis that contemporary cognitive science is fully rooted in cybernetics.”

“The cyberneticians’ first thesis—that to think is to compute as a certain class of machines do—amounted to analyzing and describing what it is to think, not, as it is commonly supposed, to deciding whether it is possible to conceive of machines that think.”

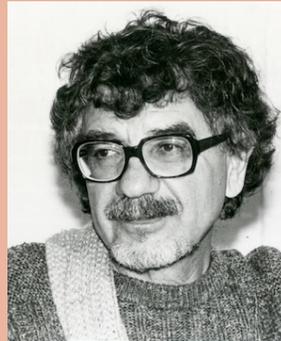
**Jean-Pierre Dupuy (1994/2000:4)**

meaning  
(meaning-making)



Uexküll

cognition, identity  
(cognizing, identity-constituting)



Maturana



Varela

anticipation  
(anticipating)



Rosen

abduction  
(abducting)



Bateson

von Uexküll (public domain)  
[https://en.wikipedia.org/wiki/Jakob\\_Johann\\_von\\_Uexk%C3%BCll](https://en.wikipedia.org/wiki/Jakob_Johann_von_Uexk%C3%BCll)

Maturana (CC)  
<https://www.latercera.com/earlyaccess/noticia/biologia-lenguaje-y-emociones-el-camino-intelectual-de-humberto-maturana/U3UZYT6FUFGRBCROJ3IVMJ4NJA/>

Varela (CC)  
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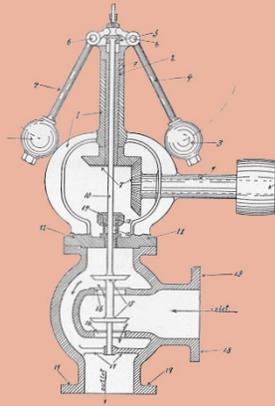
Rosen (with permission)  
<https://ahlouie.com>

Bateson (fair use)  
<https://barryschwartzphoto.com>

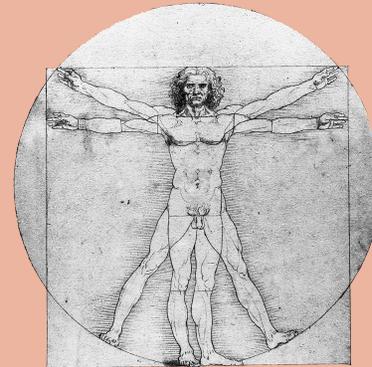
bio-human capacities



Circular Causal and Feedback Mechanisms in Biological and Social Systems

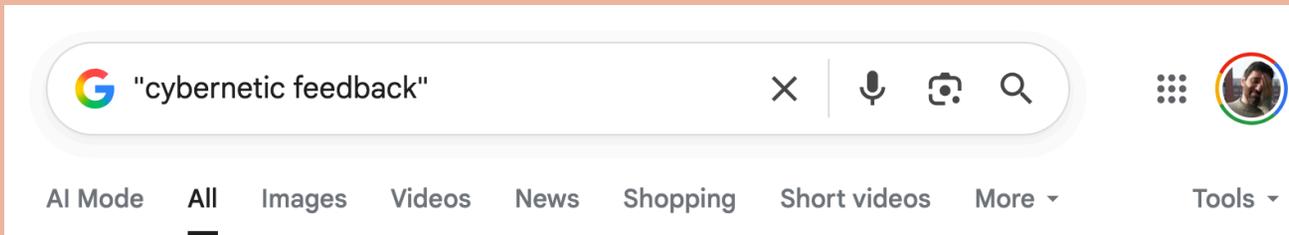


centrifugal governor



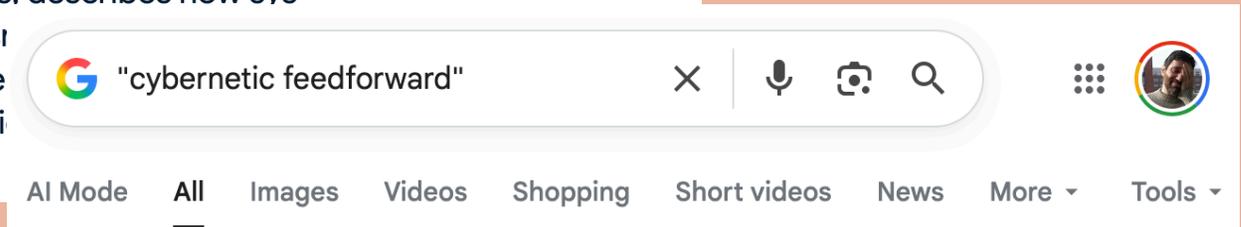
homeostasis

images (CC):  
[https://en.wikipedia.org/wiki/Centrifugal\\_governor](https://en.wikipedia.org/wiki/Centrifugal_governor)  
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◆ AI Overview

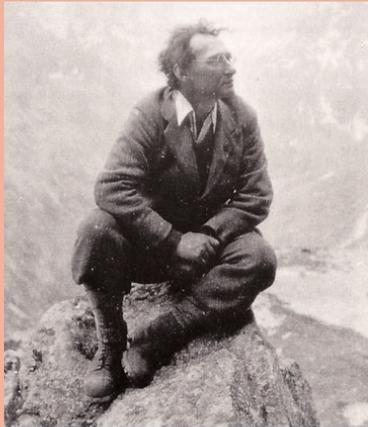
Cybernetic feedback is a process where a system's output is fed back as an input, creating a loop that allows the system to self-regulate, adapt, and maintain a specific goal or desired state despite external changes. This concept, central to the field of cybernetics, describes how systems like a thermostat, a living organism, platform continuously monitor their performance based on incoming information to achieve



◆ AI Overview

The term "cybernetic feedforward" refers to a control strategy where a system proactively adjusts its behavior based on anticipated disturbances, using a predictive model rather than reacting to errors after they have occurred. While classical cybernetics primarily emphasizes feedback—the loop of observing and correcting based on results—a cybernetic feedforward approach adds a layer of anticipation to make the system more efficient and responsive.





**“feedforward”**  
**I. A. Richards**



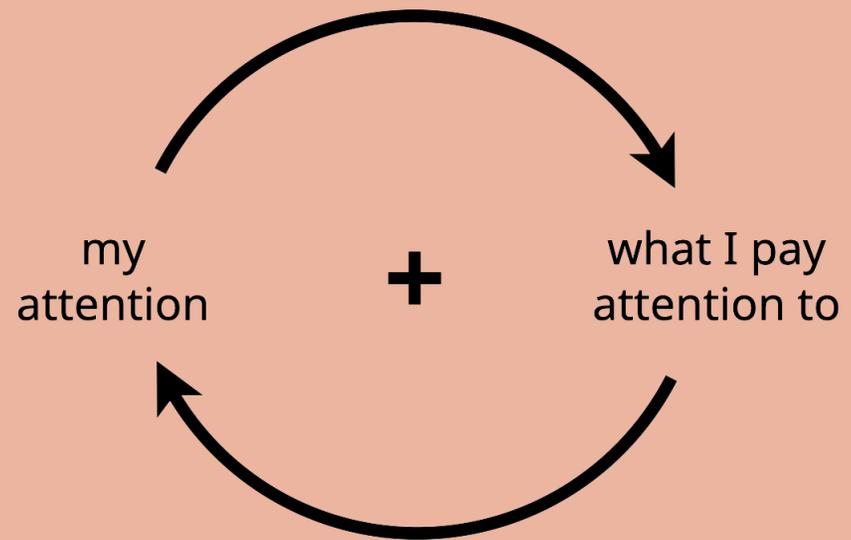
images (CC):  
[https://en.wikipedia.org/wiki/I.\\_A.\\_Richards](https://en.wikipedia.org/wiki/I._A._Richards)  
<https://www.pexels.com/photo/a-cat-walking-down-the-stairs-12625401/>

“Poets and artists live on frontiers.  
They have no feedback, only feedforward.  
They have no identities. They are probes.”

**Marshall McLuhan (1972:44)**

“What you pay attention to grows.”

**adrienne maree brown (2017:42)**



## **cybersystemic narrative**

pattern / process

## **repertoire of gestures**

recursing, recontextualizing, refiguring,  
metaphorizing, modeling, analogizing,  
distinction-making, complementing,  
resonating, envisioning, speculating, signaling,  
acknowledging (mystery, responsibility), etc.

cybersystemic coordinations

**two patterns**

mutual enacting <> identity belonging  
(dyadic) <> (collective)

"The listener, not the speaker, determines  
the meaning of an utterance."

**Heinz von Foerster (1997/2014:xii)**

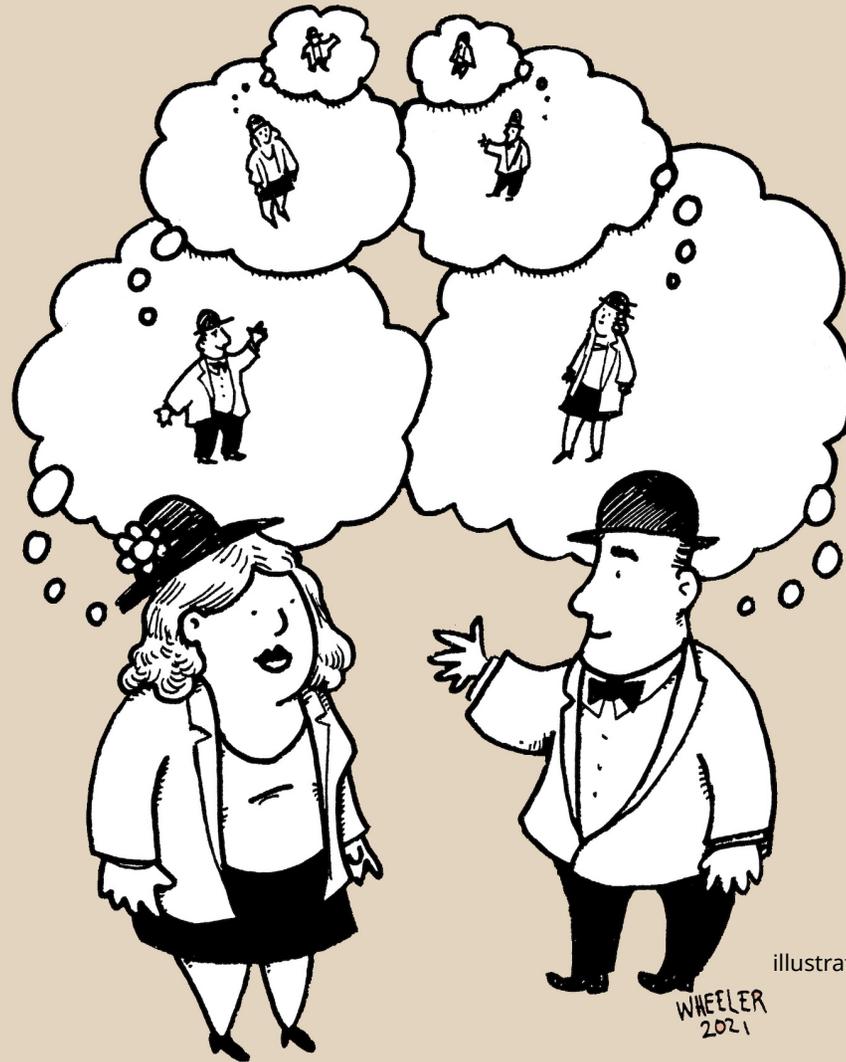


illustration by Shannon Wheeler for HS

after Gordon Pask, conversation theory

request or offer >  
promise or acceptance >  
declaration of completion >  
declaration of satisfaction

**Fernando Flores (1980s/2012:5)**

An A-B relationship can be described as caring iff:

A experiences receptivity for B,

A acts to care for B,

B acknowledges A's care.

**Nel Noddings (1984:30-2, 2002:18)**

"everyone can create money; the problem is to get it accepted."

**Hyman Minsky (1986:228)**

“Life organizes around identity. ...

Every being, every organization, is an identity in motion.”

**Margaret Wheatley and Myron Kellner-Rogers (1996/1999:14,100)**

“the system determines its own identity  
by contrast with everything else.”

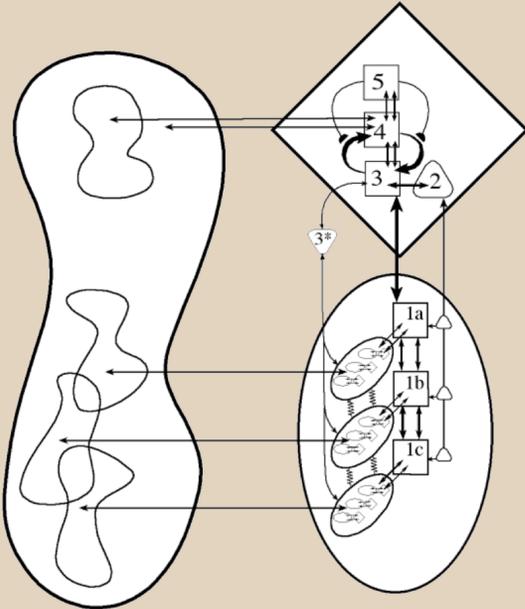
**Niklas Luhmann (1984/1995:184)**

## Identity and Continuity

“My home town remains for me its old self though it has vastly grown and changed, and I have long since ceased to live there. But if some other old inhabitant said that for him it was no longer the same place, I should not assume that he or I must be wrong. I should only assume that some relationships now lacking were for him essential to the system called by that city’s name, whilst for me they were not.”

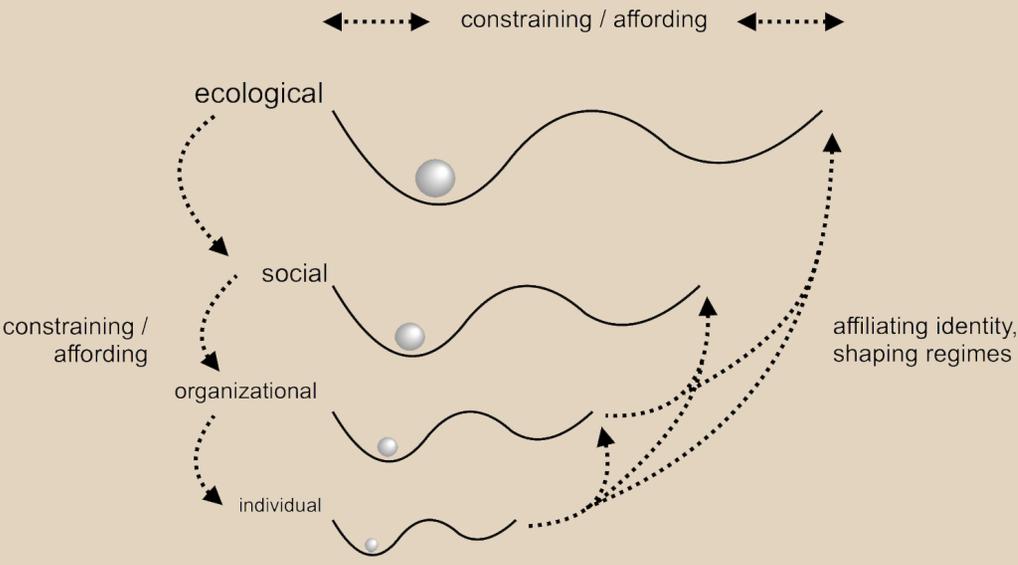
**Geoffrey Vickers (1980:82)**

**Viabale System Model (VSM)  
Stafford Beer**



<https://metaphorum.org/staffords-work/viable-system-model>

**Recursively Contextual Identity (RCI) Model  
Howard Silverman & Greg Hill (2018)  
Howard Silverman (2023)**



<https://www.ecologyandsociety.org/vol23/iss3/art4/>

**two coordinative cybersystemic patterns**  
mutual enacting <> identity belonging

**two coordinative cybersystemic patterns**  
mutual enacting <> identity belonging



<patterns formed through contemporary currency design>

"The listener, not the speaker, determines the meaning of an utterance."

**Heinz von Foerster (1997/2014:xii)**



"The assessment of whether a promise is kept or not kept may be made independently by any agent in its scope."

**Jan Bergstra and Mark Burgess (2014/2019:3)**

"The listener, not the speaker, determines the meaning of an utterance."

**Heinz von Foerster (1997/2014:xii)**



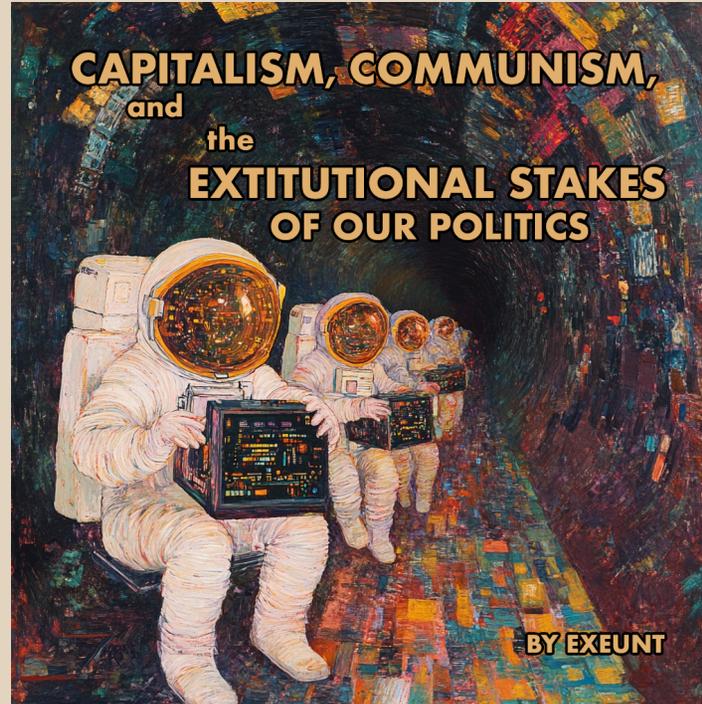
 "zero-knowledge proof" "cybernetics"    

 AI Overview

There is no direct, established link between "zero-knowledge proof" and "cybernetics," as they come from different fields.

“the system determines its own identity  
by contrast with everything else.”

**Niklas Luhmann (1984/1995:184)**



**Figure 1.**  
**Types of Goods**

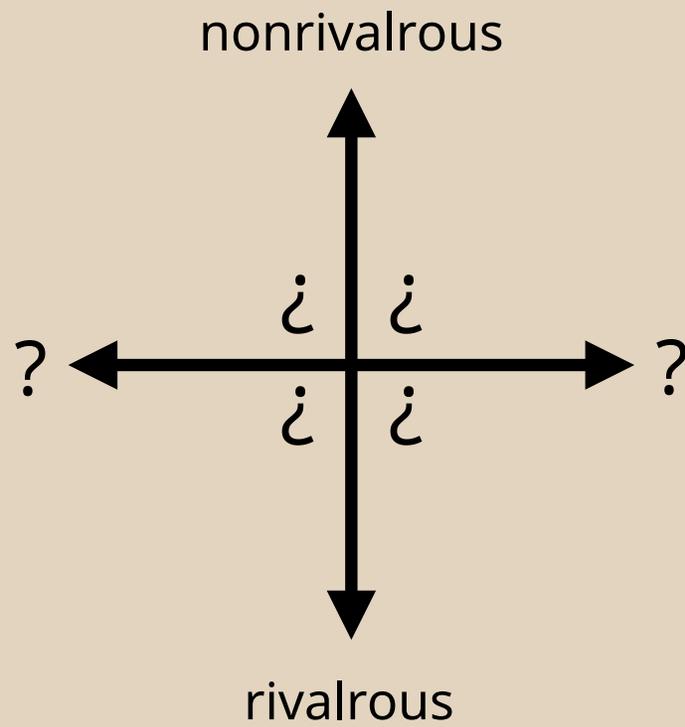
Jointness of Use or Consumption		
	Alternative Use	Joint Use
Feasible Exclusion	<u>Private good</u> : bread, shoes, automobiles, haircuts, books, etc.	<u>Toll good</u> : Theatre, night club, telephone service, toll road, cable TV, electric power
Infeasible Exclusion	<u>Common pool resource</u> : water pumped from a ground water basin, fish taken from an ocean, crude oil extracted from an oil field	<u>Public good</u> : peace and security, national defense, mosquito abatement, fire protection, weather forecasts, "public" TV

Vincent & Elinor Ostrom (1977)

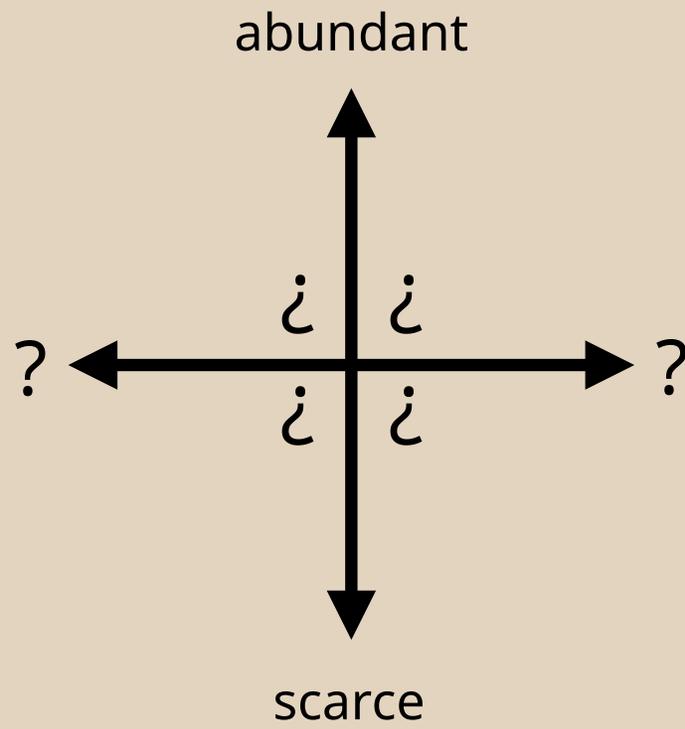
		SUBTRACTABILITY	
		<i>Low</i>	<i>High</i>
<b>E X C L U S I O N</b>	<i>Difficult</i>	<b>Public Goods</b> Sunset Common Knowledge	<b>Common-Pool Resources</b> Irrigation Systems Libraries
	<i>Easy</i>	<b>Roll or Club Goods</b> Day-Care Centers Country Clubs	<b>Private Goods</b> Doughnuts Personal Computers

Charlotte Hess & Elinor Ostrom (2003)

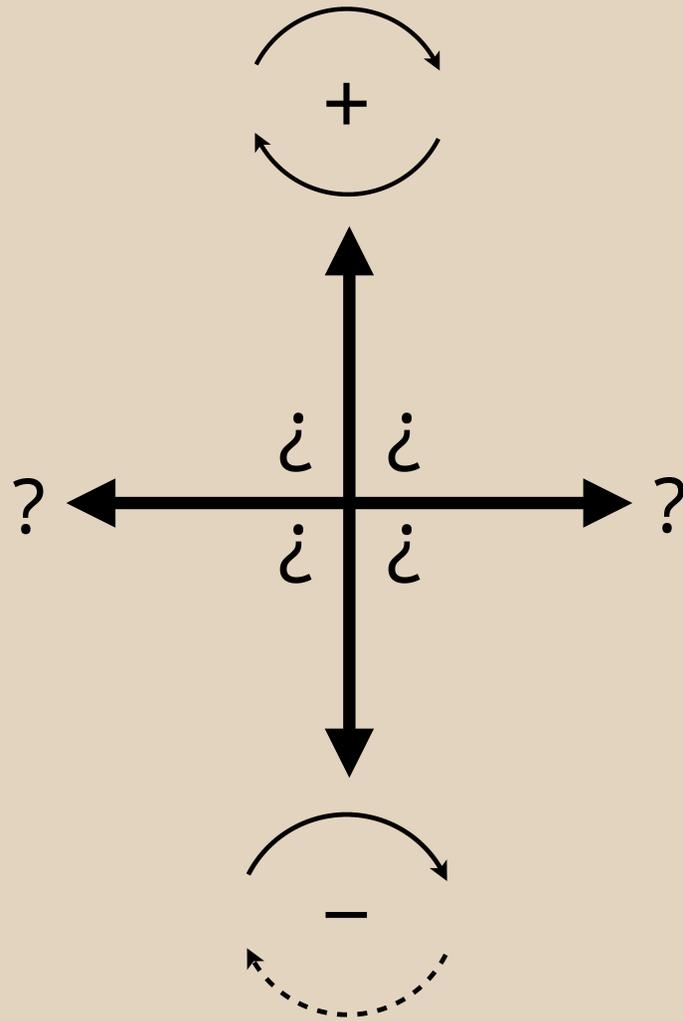
types of "what"



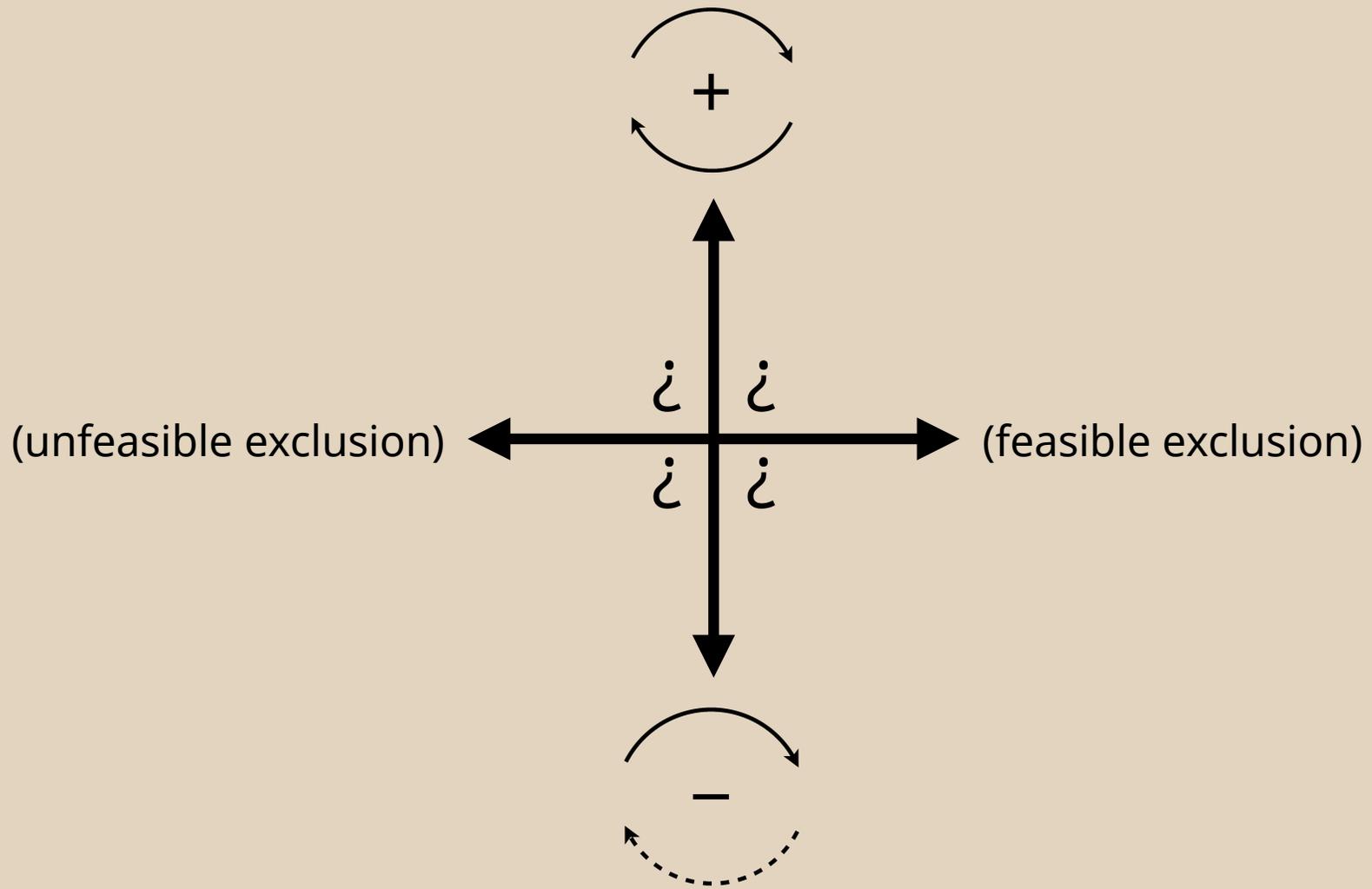
types of "what"



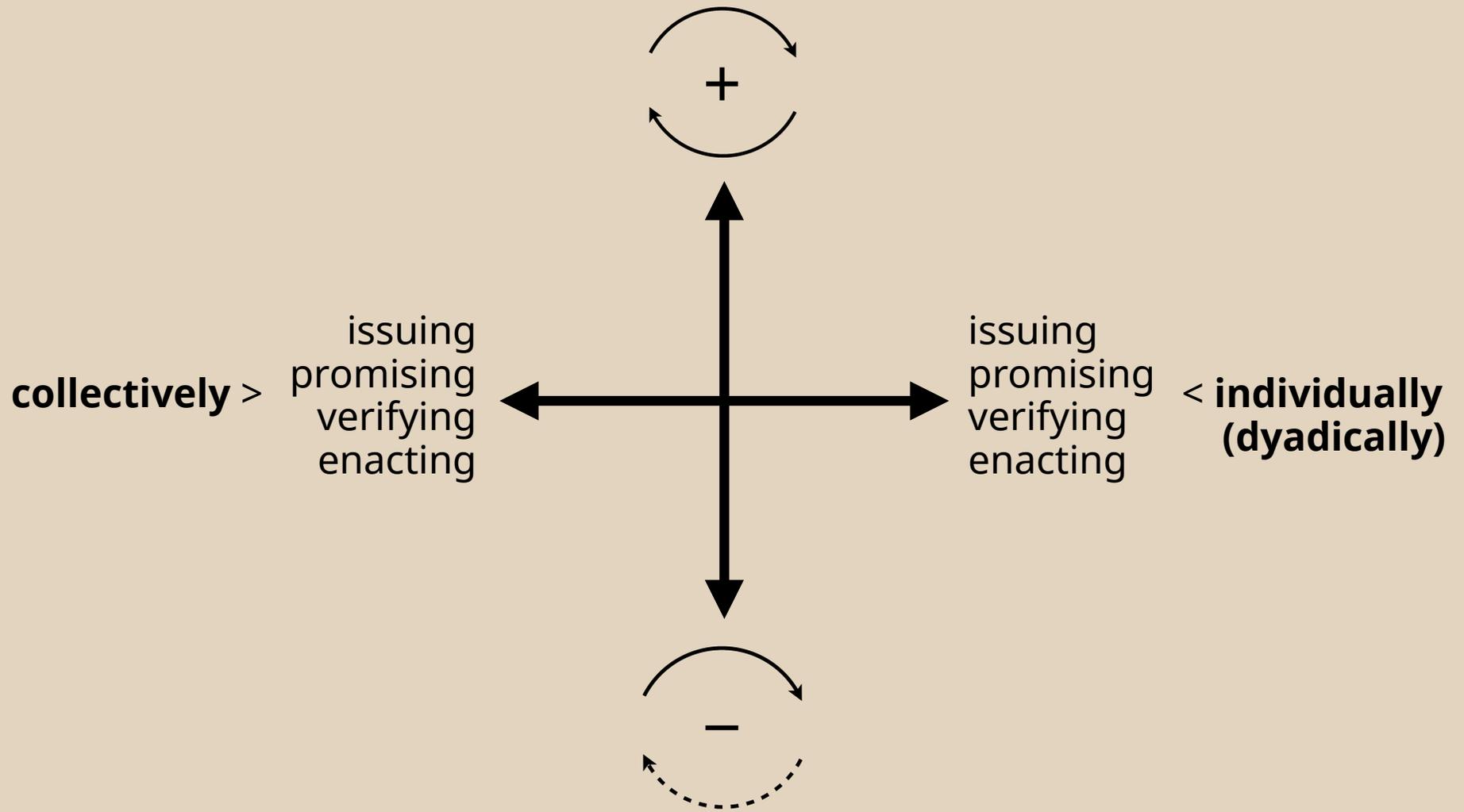
types of "what"



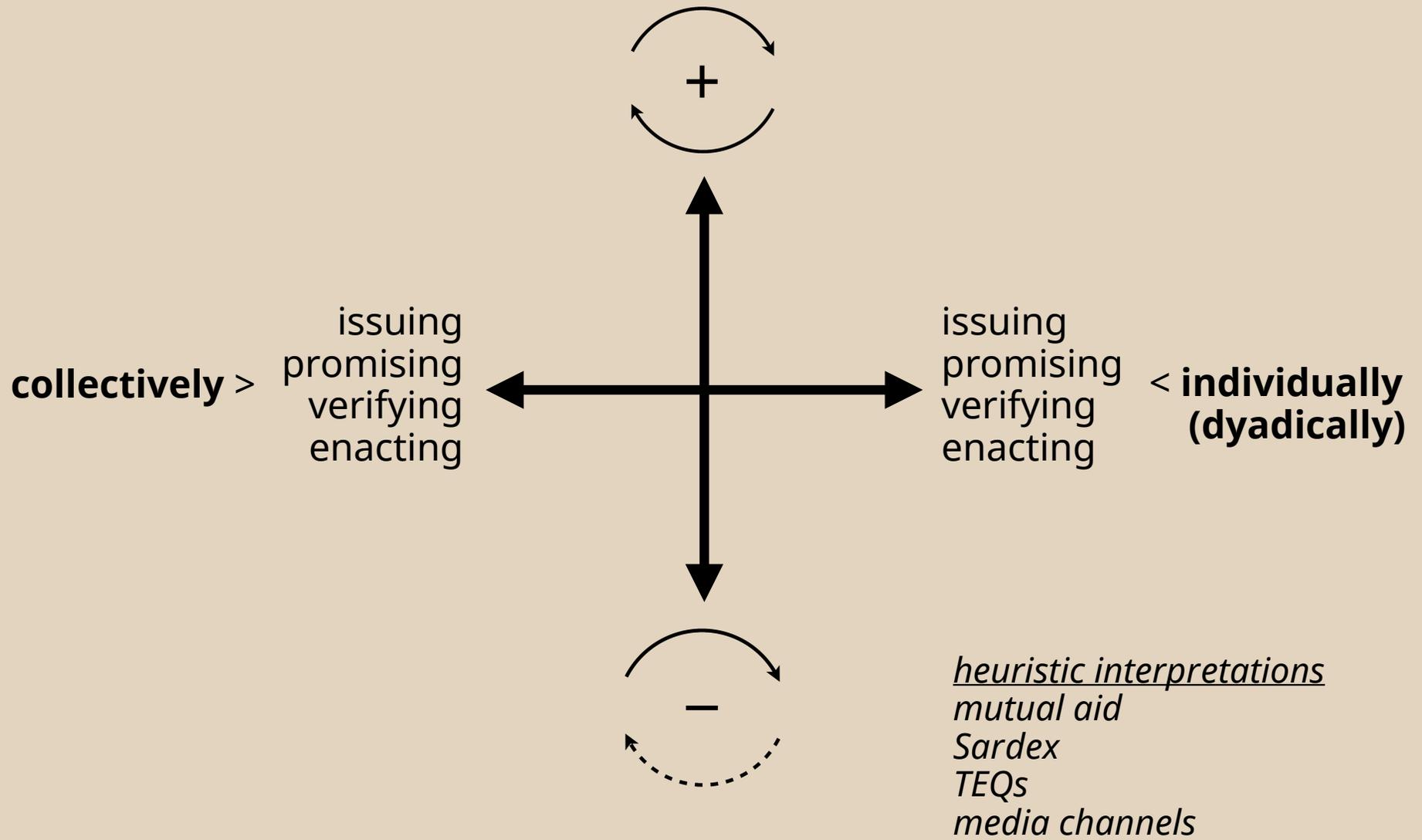
types of "how"



types of "how"



types of "how"



types of "how"



thanks



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