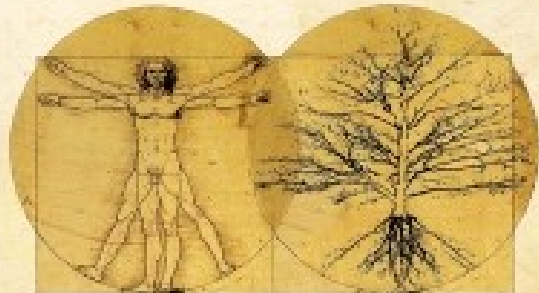


# Foundations *for* Sustainability

## Foundations *for* Sustainability

*A Coherent Framework of Life–Environment Relations*



Daniel A. Fiscus, Brian D. Fath



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# Chapter 1: To solve a difficult problem, enlarge it

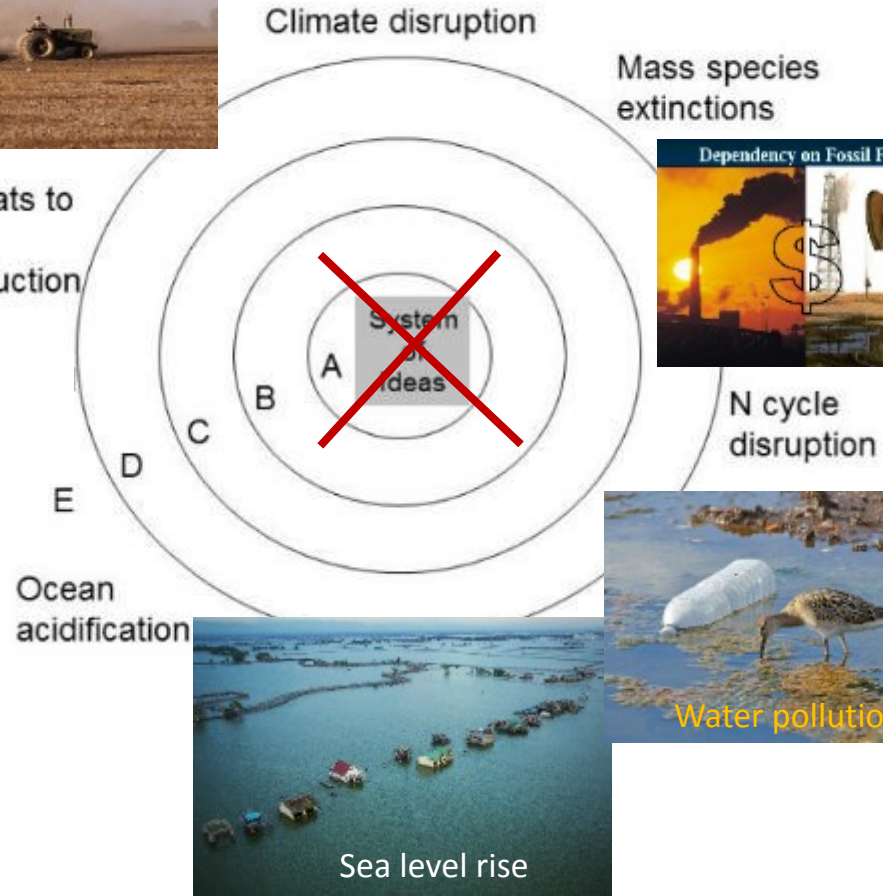
Your reaction:

- 1) What is, in your opinion, the main message of Chapter 1?
- 2) What part was most confusing or most difficult to understand?

# Environmental Challenges

emerge from  
our core way  
of knowing

a new paradigm



# Reality of win-win

- Switch from a paradigm that see a fragmented and antagonistic relation between life and environment, and humans and environment
- To one that recognizes that ecosystem interdependencies promote mutualism and synergism
- The fundamental, net human-environment relationship is mutualism or win-win

# All education is environmental education

- By what is included or excluded students are taught that they are part of or apart from ecological systems – disciplines separate people from nature



# Getting the metaphor right

- Switching from a machine view
- To ecosystem/web/network view
- More on this later



# Reverence for life

- Schweitzer
- Leopold
- Chapter 2

If you need something to worship,  
then worship life — all life,  
every last crawling bit of it!  
We're all in this beauty together!



# What is life?



A single cell possesses all the necessary aspects to be alive



What is life?



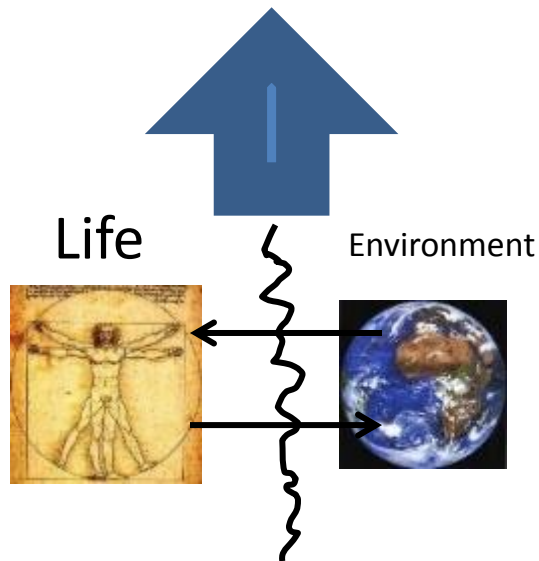
A single organism possesses all the necessary aspects to be alive

# Mental models and outcomes

Real impacts of choice of system boundaries

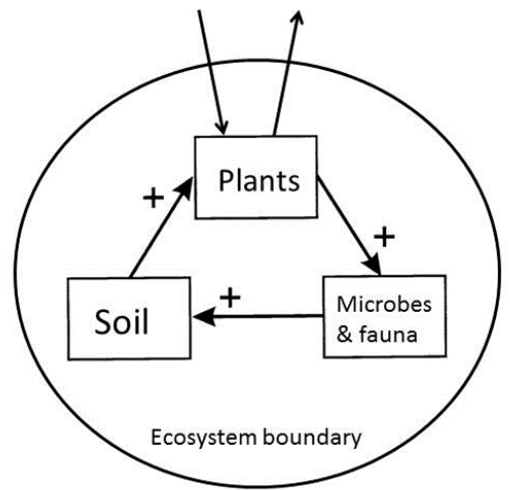
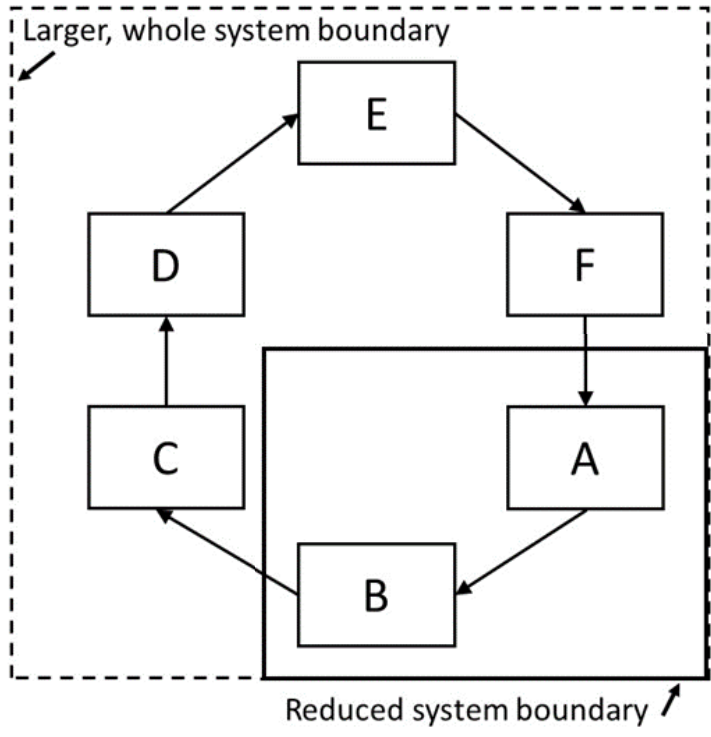
## Tragedy of the Commons

Humans win, environment degrades



Figures by Dan Fiscus

- Inherent in this paradigm, life is separate from environment in mind and action
- Once fragmented, it is possible and likely that the value of environment is seen and treated as less than the value of life
- Environment is consumed and degraded as manifest in many symptoms of ecological crisis



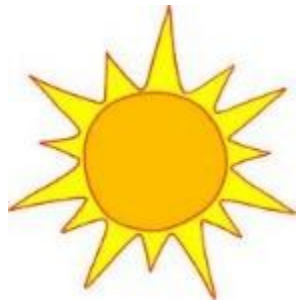


Ecosystem is full of  
Interconnections  
and  
Interdependencies

Art work of Jan Heath, entitled "food chain"

# A bottom up re-visioning is vital: A new holistic paradigm for life

- Contrary to the dominant mainstream view, the basis of all current biology and life science education, it now is becoming clear that ***life is not only (or even primarily) an organismal property.***
- In the view actively emerging, life is not centered on or emanating from organisms, nor is it primarily a localized, objectified or material phenomenon.
- ***Life is inherently relational, distributed, and non-localized***



Abiotic and ecological interactions



A single organism possesses all the necessary aspects to be alive

Interacting ecological community and its environment is an ecosystem



An ecosystem possesses all the necessary aspects to sustain life

# Recursive nature of nature

Bounty of the Commons  
Humans win, environment  
improves

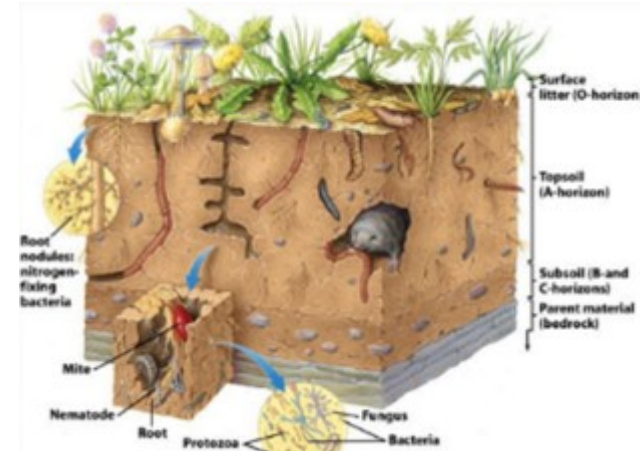


- 1) Life and environment are best understood and modeled as unified as a single “Life–Environment” system.



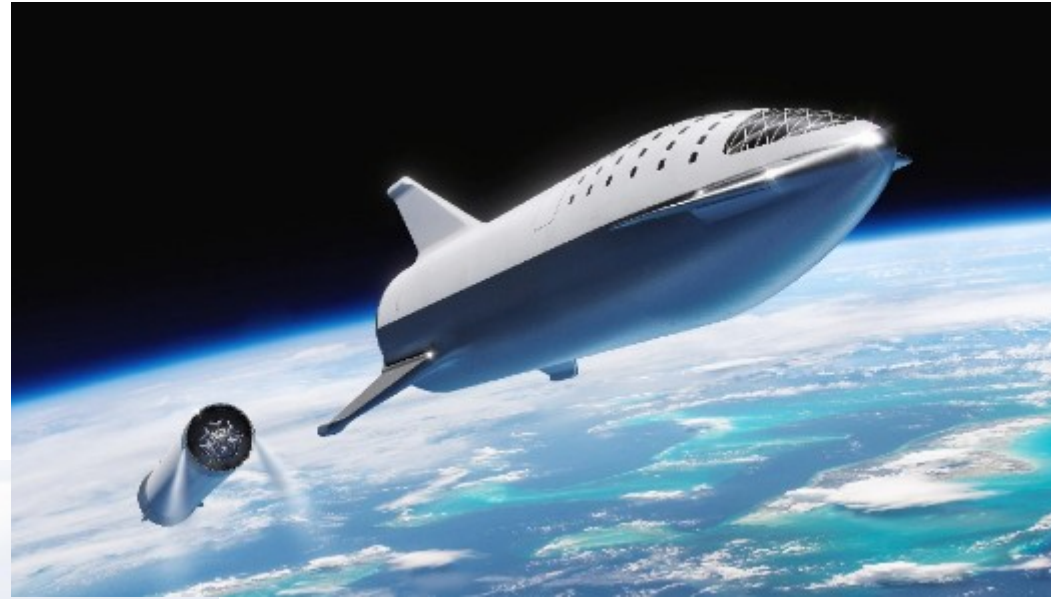
# Sustained life depends on death

- In an energy economy appropriate to the use of biological energy, all bodies, plant and animal and human, are joined in a kind of energy community. . . .
- They are indissolubly linked in complex patterns of energy exchange. They die into each other's life, live into each other's death. (Berry 1977, p. 90)



# Sustainers and Transcenders

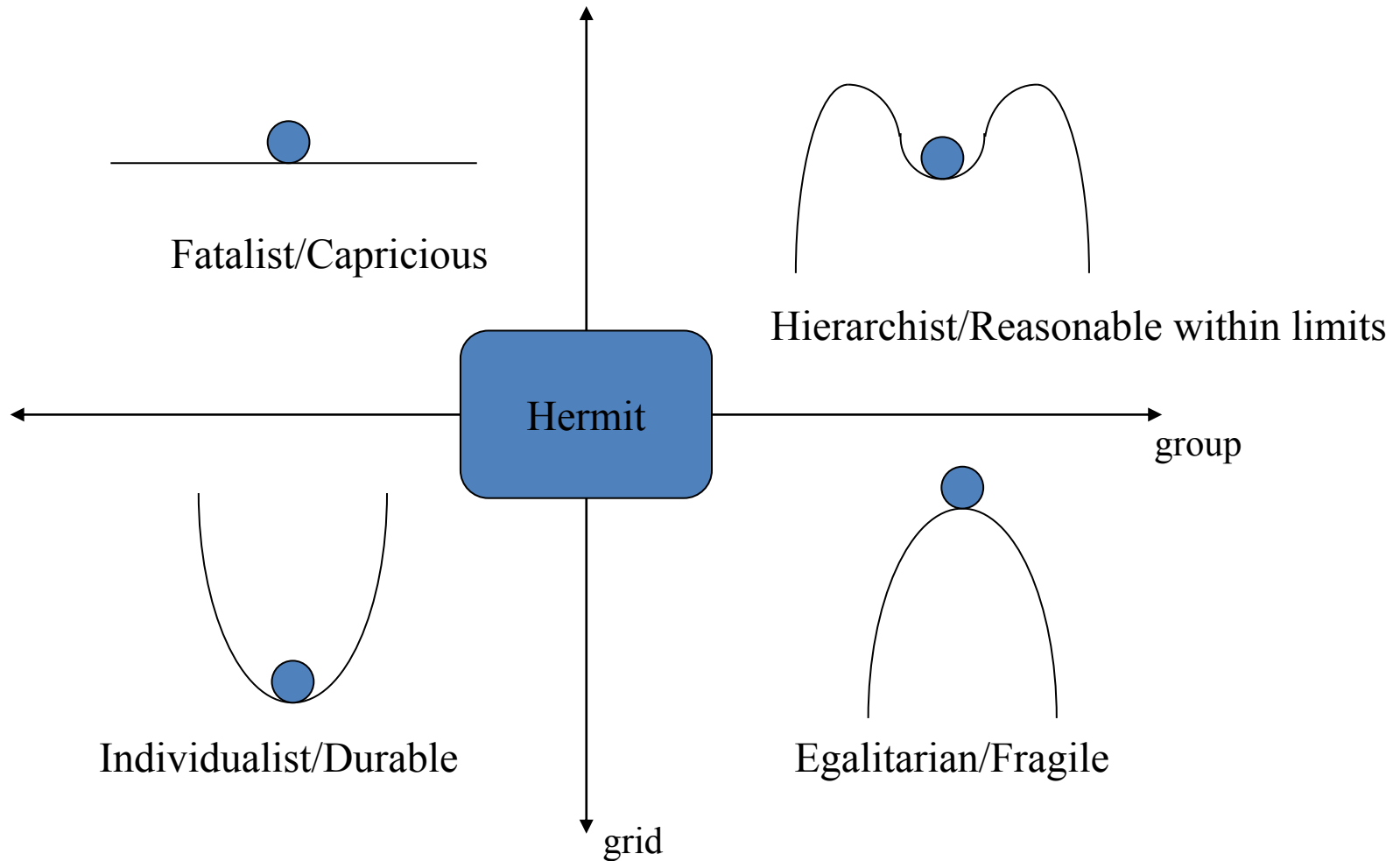
Change themselves/lifestyle  
Work with nature



Break barriers  
Innovate

Are there environmental limits?  
Are both sides aware of them?

# Cultural Theory Solidarities (Thompson 1997)



**transcenders**

**sustainers**

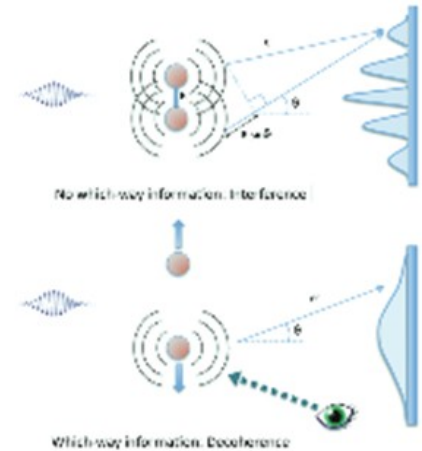
# Why sustainers and transcenders need to work together

- We need to know how to take the life support with us
- NASA has programs to recycle biological and other wastes of astronauts
- But not yet to recycle astronauts themselves...

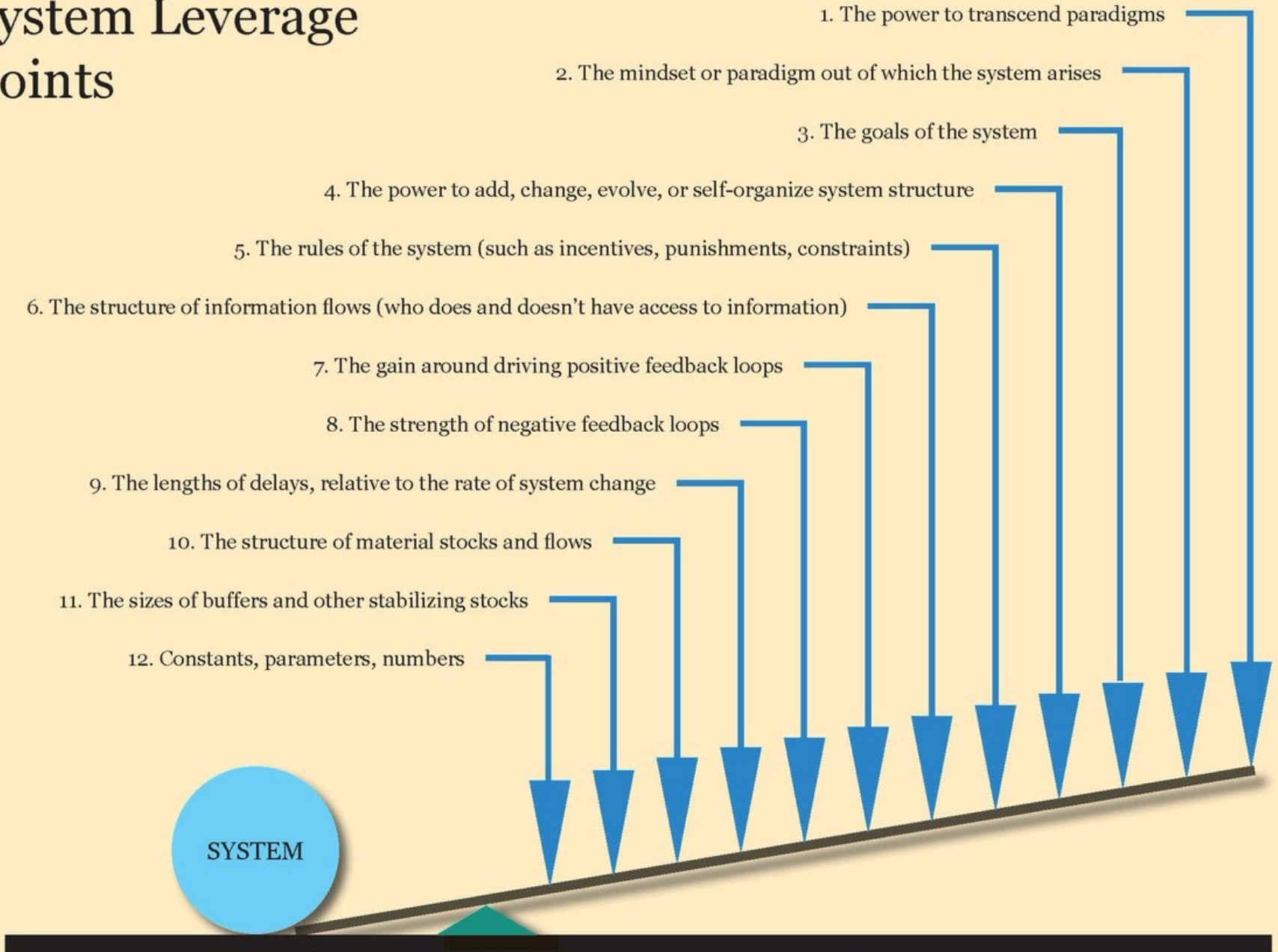


# Deep truths

- Are statements in which the opposite also contains a deep truth
- Complementarity of *discrete life* and *sustained life*
- Meadow's leverage points
  - Power to transcend paradigms

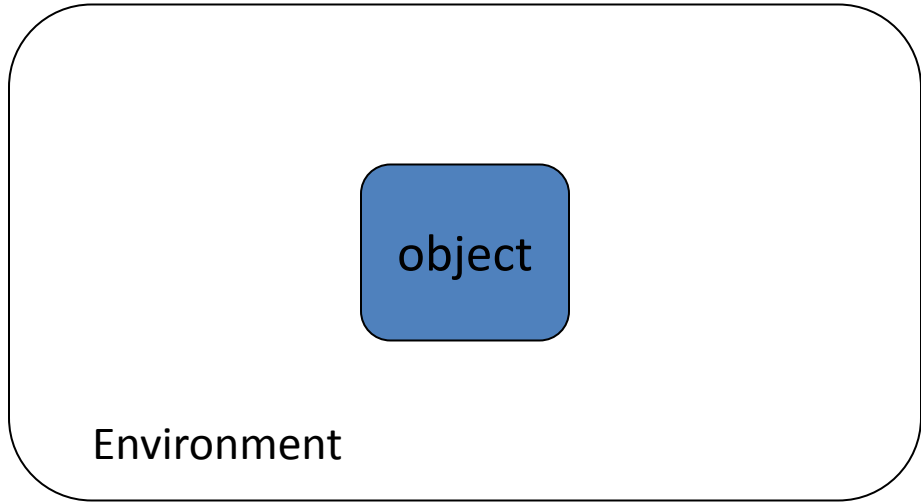


# System Leverage Points

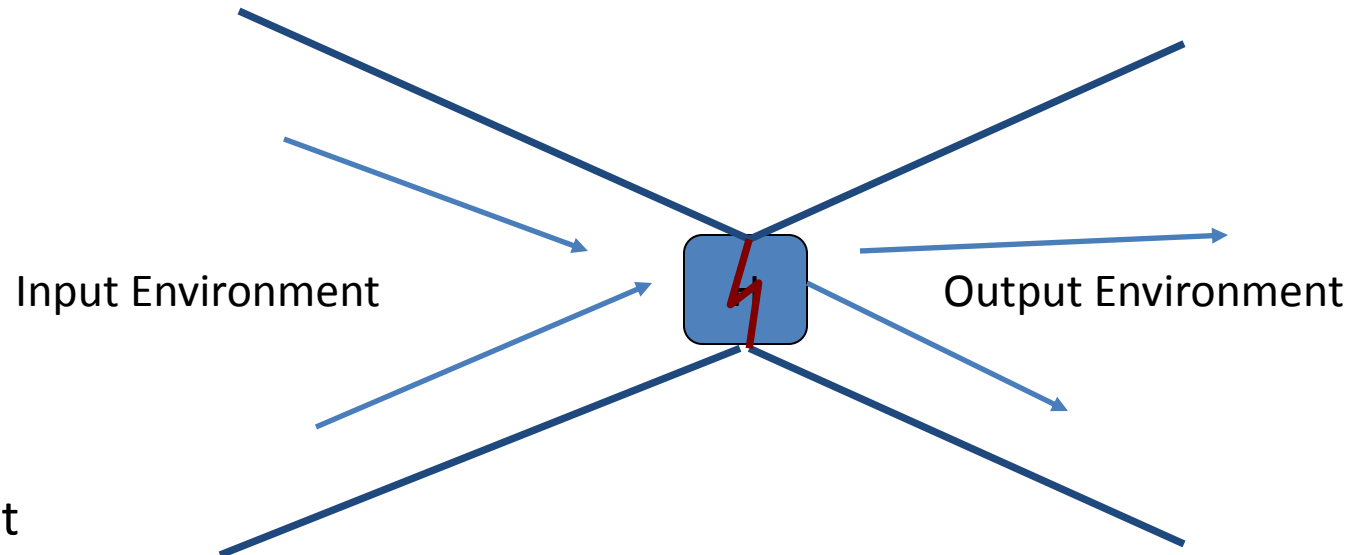


What if we are wrong? What if this is all wrong?

# Key message: Avoid fragmentation

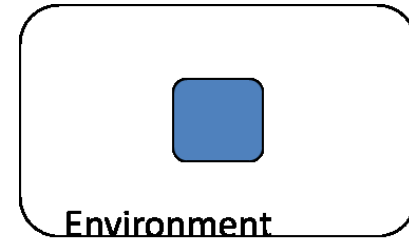


This is wrong!



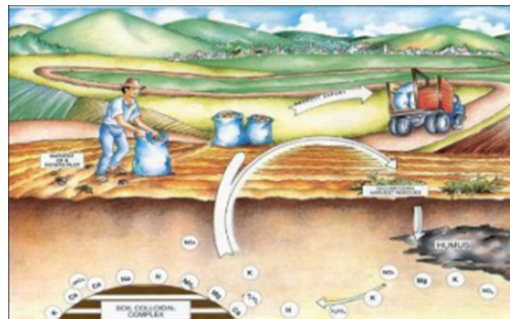
Object is inseparably part of its environment

# Avoid fragmentation



- The concept of country, homeland, dwelling place becomes simplified as ‘the environment’—that is, what surrounds us. Once we see our place, our part of the world, as surrounding us, we have already made a profound division between it and ourselves. We have given up the understanding—dropped it out of our language and so out of our thought—that we and our country *create one another, depend on one another, are literally part of one another*; that our land passes in and out of our bodies just as our bodies pass in and out of our land; that as we and our land are part of one another, so all who are living as neighbors here, human and plant and animal, are part of one another, and so cannot possibly flourish alone; that, therefore, our culture must be our response to our place, our culture and our place are images of each other and inseparably from each other, and so neither can be better than the other.

Berry (1977, p. 24).





# Discussion questions

- <https://vimeo.com/212281432>
- What does the title of the chapter have to do with the content?
- Why don't biology textbooks teach about two kinds of life (discrete and sustained)?
  - Can this be changed? How?
- How to tap into the existing forces of the system to create change? i.e., work alongside transmitters not against them.

# Discussion questions

- A lot of the discussion comes back to scale – short term versus long term or global versus local. How to instill more long term, holistic approaches in a “present-oriented” society?
- We propose that when you avoid fragmentation that: **The fundamental, net human-environment relationship is mutualism or win-win**
  - Is there evidence for this?
- Other questions?