Updated Timeline

Date		
18.2.	Institutions	
25.2.	Institutions II	
4.3.	Classical Institutionalism and New Institutional Economics	
11.3.	Property rights and resource regimes, Commons	
18.3.	Doughnot Economics: From Planetary Boundaries to thinking how an economy can be regenerative by design (Claudio Cattaneo)	
25.3.	Application of the doughnut at the city scale with Barcelona as an example (Claudio Cattaneo)	
1.4.	Ecological Resource Economics	
8.4.	Applications: water, forests, fisheries	
15.4.	<Great Friday>	
22.4.	Canceled	
29.4.	System Dynamics	
6.5.	The Water–Energy–Food Nexus in India	
13.5.	Presentations I	
20.5.	Presentations II, Debate, Open Space, Experiment	

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Routledge
Taylor & Francis Group

Check for updates

'*How do I know what I think till I see what I say*?' An aphorism and its implications for creative theorizing

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ABSTRACT
The following aphorism is used as the point of departure for the discussion in this article: '*How do I know what I think till I see what I say*?' Its literal meaning is that it is through the very act of speaking that you get to know what you think; but the aphorism also has a suggestive quality to it. As a consequence, many artists and thinkers have referred to the aphorism and sometimes also elaborated on it. That the message of the aphorism is relevant for social science as well can be exemplified by the important interest that Robert K. Merton has shown for it, primarily to probe the process of creativity in science. Following up on Merton's ideas, but also taking them in a somewhat different direction, I argue that the aphorism may be of help when you try to theorize in a creative way in social science. Examples of this are provided.

KEYWORDS
Theorizing; heuristics; creativity; speaking; writing; Robert K. Merton; E.M. Forster

- start writing early
- write to/for yourself

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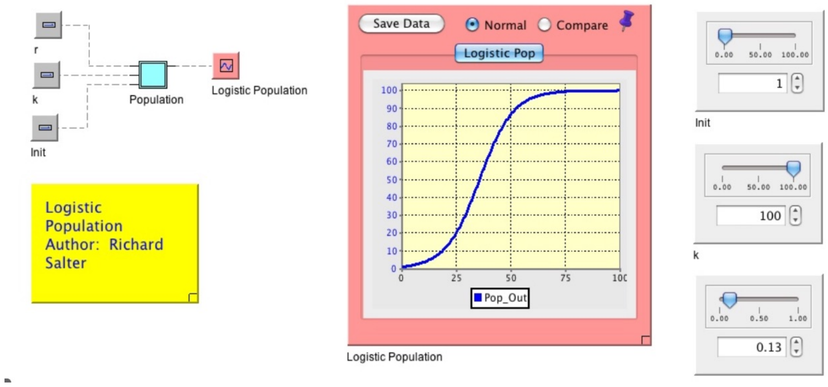
Dynamical systems: population growth



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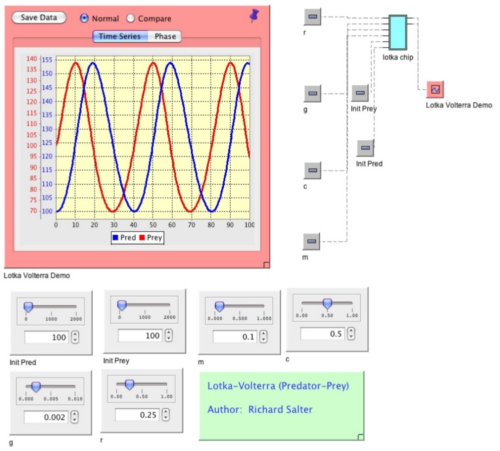
Dynamical systems: Lotka-Volterra (Pred-Prey)



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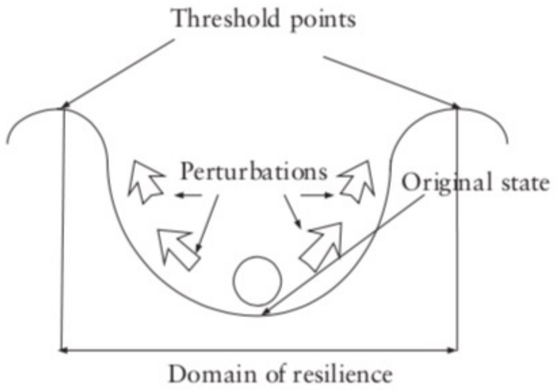

Figure 1.7 Resilience and threshold points

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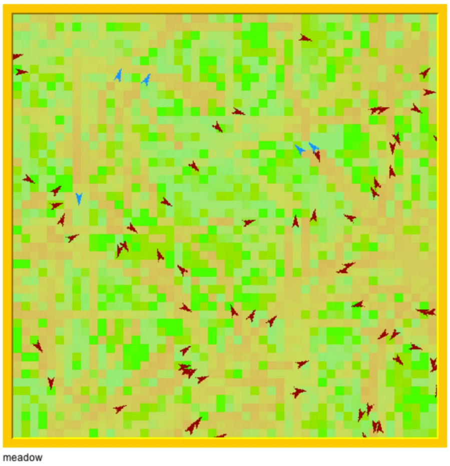
Dynamical systems: Agent-based Predator-Prey



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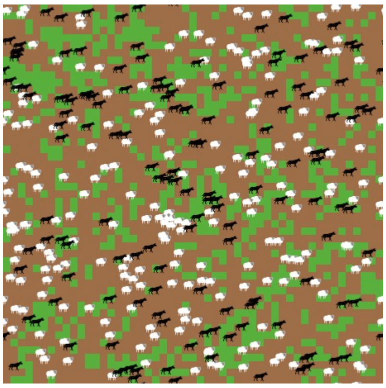
NetLogo: Agent-based models



http://ccl.northwestern.edu/netlogo/models/WolfSheepPredation

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Dynamical systems: Predator-Prey

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PERSPECTIVE

ECOLOGY LETTERS WILEY

Evolution of prudent predation in complex food webs

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Editor: Ferenc Jordan

Abstract
Prudent predators catch sufficient prey to sustain their populations but not as much as to undermine their populations' survival. The idea that predators evolve to be prudent has been dismissed in the 1970s, but the arguments invoked then are untenable in the light of modern evolution theory. The evolution of prudent predation has repeatedly been demonstrated in two-species predator–prey metacommunity models. However, the vigorous population fluctuations that these models predict are not widely observed. Here we show that in complex model food webs prudent predation evolves as a result of consumer-mediated ('apparent') competitive exclusion of resources, which disadvantages aggressive consumers and does not generate such fluctuations. We make testable predictions for empirical signatures of this mechanism and its outcomes. Then we discuss how these predictions are borne out across freshwater, marine and terrestrial ecosystems. Demonstrating explanatory power of evolved prudent predation well beyond the question of predator–prey coexistence, the predicted signatures explain unexpected declines of invasive alien species, the shape of stock–recruitment relations of fish, and the clearance rates of pelagic consumers across the latitudinal gradient and 15 orders of magnitude in body mass. Specific research to further test this theory is proposed.

Predators must avoid overexploiting their prey if they are to survive. Jonas Bengtsson/Flickr, CC BY

https://doi.org/10.1111/ele.13979

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Dynamical systems: Prudent predation?

Predators must avoid overexploiting their prey if they are to survive. Jonas Bengtsson/Flickr, CC BY

https://theconversation.com/animals-have-evolved-to-avoid-overexploiting-their-resources-can-humans-do-the-same-176092

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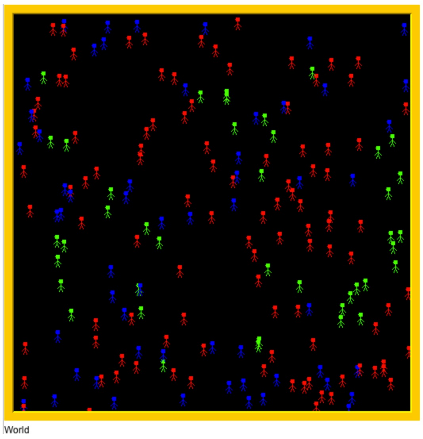
Dynamical systems: Agent-based SIR model



World

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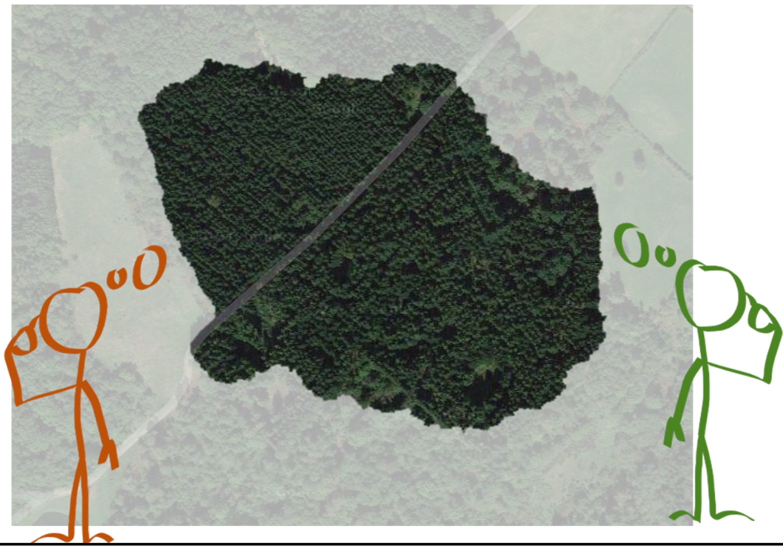
A common-pool resource



Theory

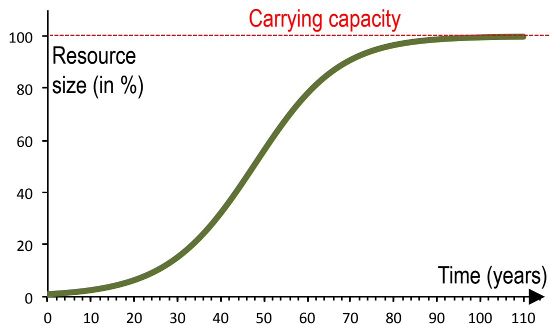
1. Renewable resource economics (bioeconomics)
   (e.g. Gordon 1954, Schaefer 1957)

2. Dynamic (differential) game theory
   (Clemhout and Wan 1979, Clark 1980, Levhari and Mirman 1980, Dutta and Sundaram 1993, Dockner and Sorger 1996)

3. Ecological economic theory

A renewable resource model

Logistic growth function, Schaefer (1957) model:



- fisheries, forests, grasslands, groundwater, climate
  (e.g. Brander and Taylor 1998, 2009, Clark 2010)

- Key parameters:
  Carrying capacity (K)
  resource growth rate (g)

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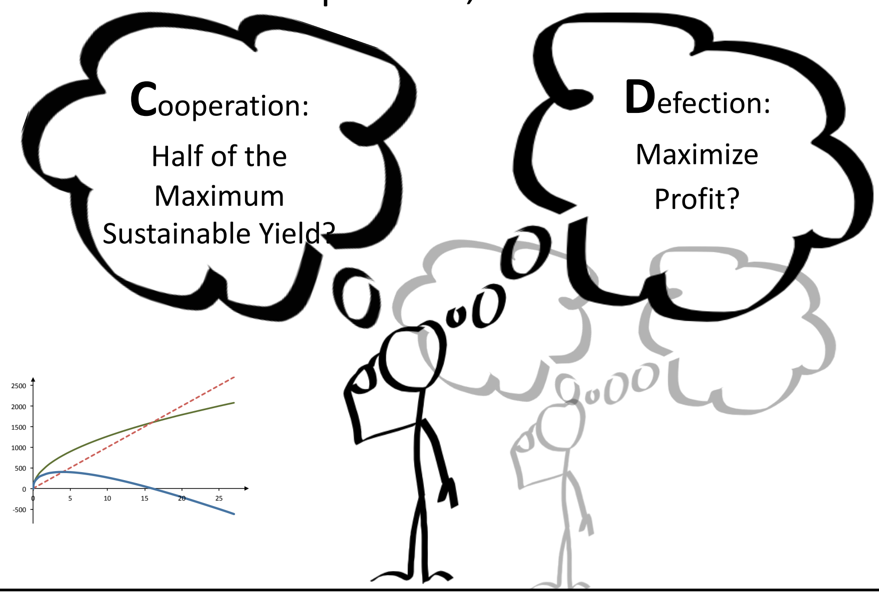
Simulation: Two options, two users



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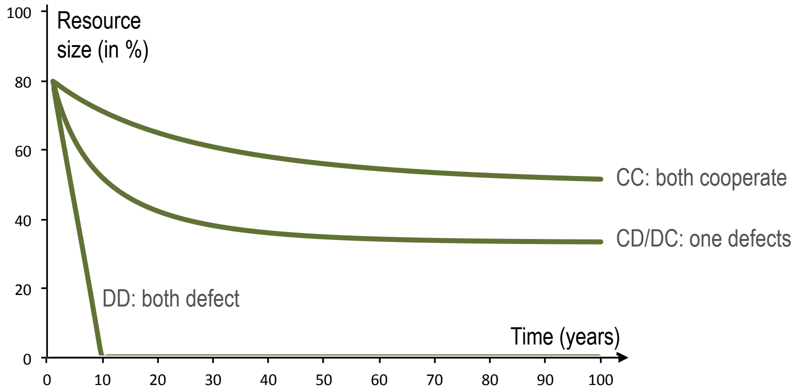
Simulation: Three scenarios

Development of the used resource over time:



(model parameter values: α = 0.5, β= 1/0, q = 0.03, p = 10, c = 1, S_0 = 80%)

15

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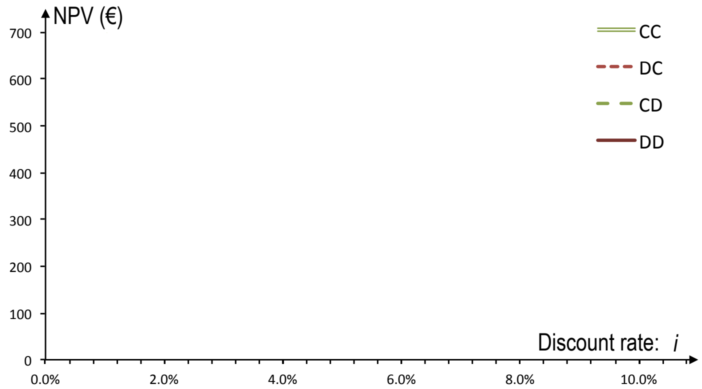
Results: Dynamic game payoffs

Net Present Value (NPV) for each strategy pair:



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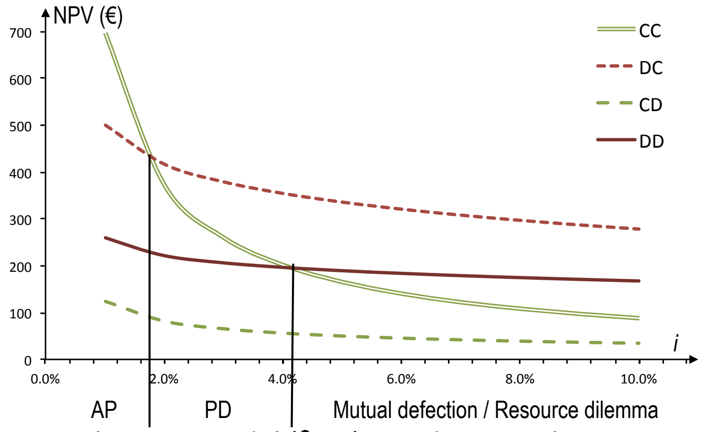
Results: Dynamic game payoffs

Net Present Value (NPV) for each strategy pair:



- Forest harvest model (β= 0): DD destroys the resource after few years but dominant strategy with *i* > 4%!

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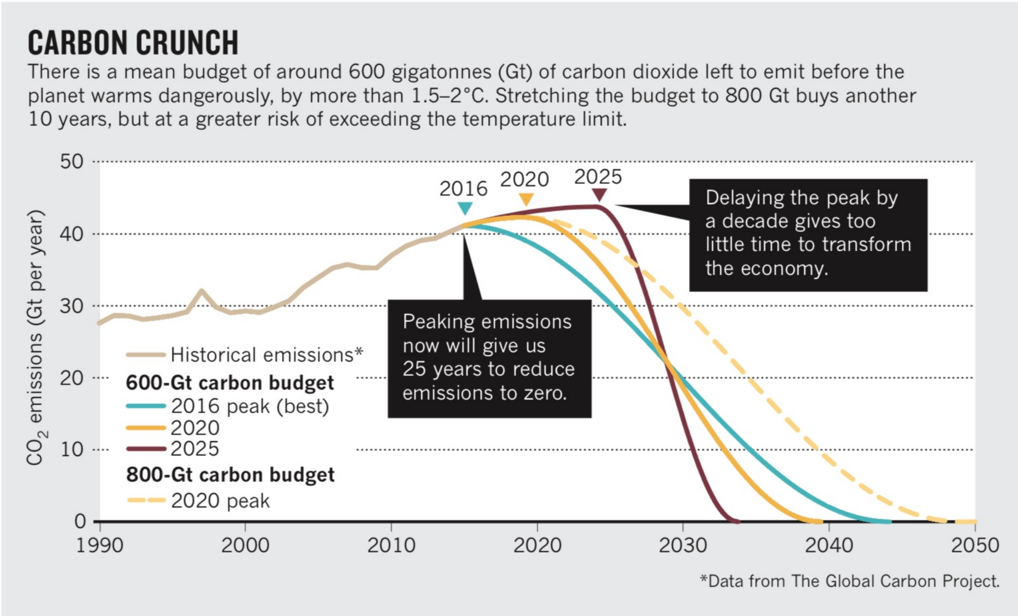

CARBON CRUNCH
There is a mean budget of around 600 gigatonnes (Gt) of carbon dioxide left to emit before the planet warms dangerously, by more than 1.5–2°C. Stretching the budget to 800 Gt buys another 10 years, but at a greater risk of exceeding the temperature limit.
CO2 emissions (Gt per year)
50
40
30
20
10
0
1990
2000
2010
2020
2030
2040
2050
2016
2020
2025
Delaying the peak by a decade gives too little time to transform the economy.
Peaking emissions now will give us 25 years to reduce emissions to zero.
Historical emissions*
600-Gt carbon budget
2016 peak (best)
2020
2025
800-Gt carbon budget
2020 peak
*Data from The Global Carbon Project.

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