Timeline

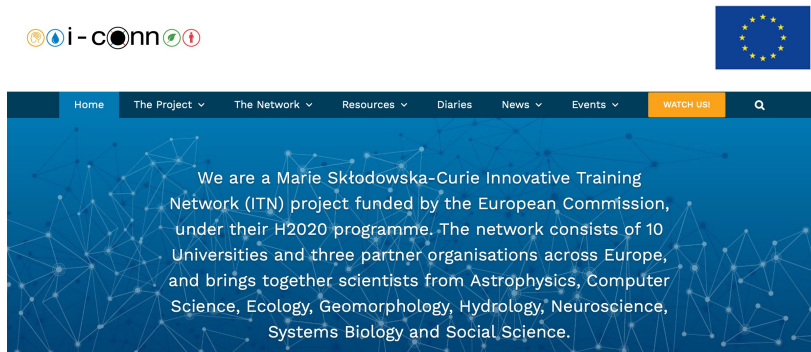|	Date		
	17.2.	Course introduction / Institutions	
	24.2.	Institutions II	
	3.3.	Classical Institutionalism and New Institutional Economics, Property rights and resource regimes, Commons	
	10.3.	Doughnot Economics: From Planetary Boundaries to thinking how an economy can be regenerative by design (Claudio Cattaneo)	
	17.3.	Application of the doughnut at the city scale (Claudio Cattaneo)	
	24.3.	Barcelona as an example (Claudio Cattaneo)	
	31.3.	Ecological Resource Economics	
	7.4.	<Easter Friday>	
	14.4.	Applications: water, forests, fisheries	
	21.4.	Q&A, discussion of your assignments	
	28.4.	Case study: The Water–Energy–Food Nexus in India	
	5.5.	Presentations I	
	12.5.	Presentations II and Debate, Open Space, Experiment (4 hrs)	
	19.5.	<Off>	

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Schedule presentations

	Name ▾▴	12.5. Presentations II ▾▴	5.5. Presentations I ▾▴	Letzte Änderung ▴
| ✖	Joseph Wadlegger	✗	✔	Tue Mar 21 16:10:21 2023
| ✖	Adéla Pokorná	?	✔	Tue Mar 21 16:12:04 2023
| ✖	Tereza Tlapáková	?	✔	Tue Mar 21 16:14:22 2023
| ✖	Diego Castrillon Levoyer	✔	✗	Tue Mar 21 16:22:23 2023
| ✖	Martin Kuník	✔	✗	Tue Mar 21 21:54:31 2023
| ✖	Margarita Suvorova	✗	✔	Wed Mar 22 13:06:56 2023
| ✖	Miroslav Fiala	✔	✗	Wed Mar 22 17:24:24 2023
| ✖	Samuel Kubaský	✔	✗	Fri Mar 24 11:10:19 2023
| ✖	Miyuki Sato	✗	✔	Fri Mar 24 12:26:38 2023
| ✖	Katarína Ková čová	✔	?	Wed Mar 29 14:38:23 2023
		○ ✔	○ ✔	
		● ✗	● ✗	Speichern
		○ ?	○ ?	
	Summe	5	5	

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Searching for potential topics, ideas

i - conn

We are a Marie Skłodowska-Curie Innovative Training Network (ITN) project funded by the European Commission, under their H2020 programme. The network consists of 10 Universities and three partner organisations across Europe, and brings together scientists from Astrophysics, Computer Science, Ecology, Geomorphology, Hydrology, Neuroscience, Systems Biology and Social Science.

https://iconn.network

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Paper instructions: How to write a term paper

- How to write:
  https://advice.writing.utoronto.ca/student-pdfs/

- How to cite:
  https://advice.writing.utoronto.ca/using-sources/documentation/

- Instructions at MUNI FSS:
  https://irep.fss.muni.cz/bachelor/current-students/bachelor-thesis

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Slide 5

Institutions and the Environment

Arild Vatn

Contents

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Slide 6

Classical Institutional Economics

- **Thorstein Veblen** (economist and sociologist): leisure class, conspicuous consumption (lifestyle?)
 (prestige / status consumption of the new rich, not the wealthy)

- **John Dewey** (philosopher, psychologist, educational reformer): trans-action versus inter-action – relational approach
 (founder of pragmatist philosophy, ..)

- **John R. Commons** (institutional economist): managerial, rationing & bargaining transactions
 (fair regulation, political economics, collective action, ..)

➢ Institutional Economics aims to highlight that economics is always also political (e.g., also markets need rules)

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Institutional Economics and other sub-schools

- **Law & Economics:** Application of economic/neoclassical theory to law, mostly formal, mathematical analysis and experimental research

- **Public Choice:** Application of economic theory to political institutions, mostly formal, mathematical analysis and experimental research

- **New Political Economy:** Interdisciplinary, rejects neoclassical theory, reflects economics assumptions

- **Convention Theory**: French school of organizational institutionalism

➢ The education of lawyers and other social scientists is usually separated. More integration needed?

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Types of institutions

- Conventions
- Norms
- Legal rules

Table 3.1   The four basic legal relations

	Alpha	Beta	
Static correlates	Right	Duty	
	Privilege	No right	e.g., property rights & forest fruits
Dynamic correlates	Power	Liability	e.g., institutional change
	Immunity	No power	

Source: Hohfeld (1913, 1917).   Vatn 2005, p. 65

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Property Rights

- Property rights are formal and informal institutions that define *„who has access to which resources [object] or benefit streams and under what conditions"* (Vatn 2005)

- Property rights are **socially defined** and **may differ from the actual physical possession**
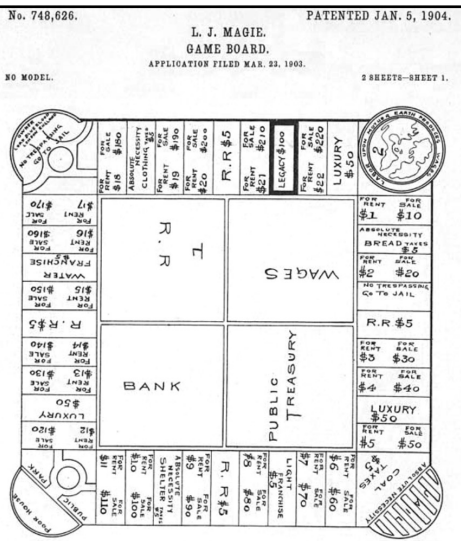
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Bundle of Rights

- **Property rights** with respect to a particular resource **are usually highly differentiated (= ‚bundle of rights')** (Bromley 1991):
  - Right to use (usus)
  - Right to appropriate the returns (usus fructus)
  - Right to change form, substance or location (abusus)
  - Right to exclude other actors from access and use
  - Right to transfer part or all of the above rights

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> The Landlord's Game - Henry George
> Which property rights exist in this game?

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Bundles of Rights and Positions of Actors

- Different parts of the **bundle of rights** of a particular resource can be **assigned to different actors** or actor groups (Ostrom & Schlager 1996: 133):

	Owner	Proprietor	Claimant	Authorized User	Authorized Entrant
Access	X	X	X	X	X
Withdrawal	X	X	X	X	
Management	X	X	X		
Exclusion	X	X			
Alienation	X				

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Grammar of institutions: ADICO

Alpha's animals must not feed on Beta's cultivated land during the growing season or else Alpha will be fined.

This formulation consists of five elements (Crawford and Ostrom 1995):

A: An *Attribute* is the characteristics of those to whom the institution applies. In this case the attributes concern owners of animals.

D: A *Deontic*[4] defines what one *may* (permitted), *must* (obliged) or *must not* (forbidden) do. In our case the deontic is 'must not'.
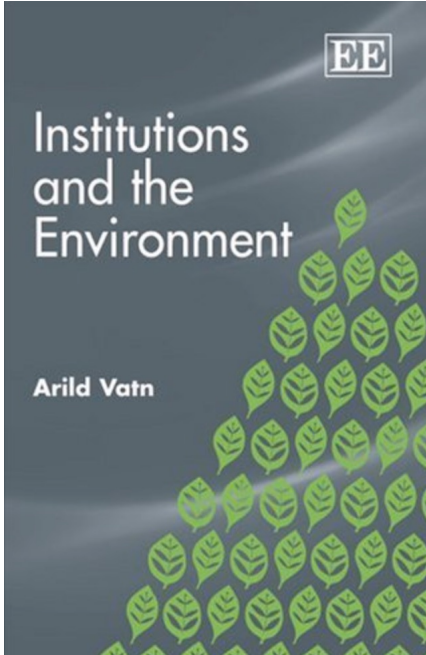
I: An *Aim* describes actions or outcomes to which the deontic is designated. The formulation above implies that the forbidden action is feeding on others' cultivated land.

C: A *Condition* defines when, where, how or to what extent an *Aim* is permitted, obligatory or forbidden. In our case the condition is 'during the growing season'.

O: An *Or Else* defines the sanction for not following the rule – that is, a fine will be issued.

Vatn 2005, p. 67

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EE

Institutions and the Environment

Arild Vatn

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Understanding Institutional Diversity

Elinor Ostrom

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Governing the commons

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The "discovery" of common-pool resource governance

- **Theory**: Market vs. State, Public vs. Private (dichotomies)
- **Challenge**: Global resource over-exploitation
- **Solution**: Privatization or state ownership (framed as "tragedy of the commons") (Hardin, 1968)

- **Alternative**: Community-based resource management (common property regime) with rules (of access, use, maintenance) (E.Ostrom, 1990)
- **Parallel**: Centralization of public goods versus polycentric governance (V.Ostrom, Tiebout, Warren, 1961)

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Characteristics of Goods and Services

		Excludability	
		High	Low
Subtract-ability of use	High	**Private Goods**	**Common-Pool Resources (also Open Access R.)**
	Low	**Club Goods (Toll Goods)**	**Public Goods (Collective Goods)**

- Binary distinction between Private and Public Goods (Samuelson)
- Club Goods (Buchanan, 1965)
- Common-Pool Resources (subtractability rather than rivalry, low-high continuum) (V.Ostrom and E.Ostrom, 1977)

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Property Regimes

- Property Rights include **Rights <u>and</u> Duties/Obligations** (streams of benefits and costs)

Property Regime	Owner	Owner rights	Owner duties
Private Property	Individual	Socially acceptable uses, control of assets	Avoidance of socially unacceptable uses
Common Property	Collective	Exclusion of non-owners	Maintenance, constrain rate of use
State Property	Citizens	Determine rules	Maintain social objectives
Open Access	None	Capture	None

Source: Hanna et al. 1996

- "Tragedy of the Commons" → "Open Access"
  → **not** Common Property Regime

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Elinor Ostrom received the 2009 Nobel Memorial Prize in Economic Sciences
"**for her analysis of economic governance, especially the commons**"

She entitled her Nobel Address
"The Polycentric Governance of Complex Economic Systems"

Available here:
https://www.youtube.com/watch?v=T6OgRki5SgM

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Characteristics of Goods and Services

		Excludability	
		High	Low
Subtract-ability of use	High	**Private Goods**	**Common-Pool Resources (also Open Access R.)**
	Low	**Club Goods (Toll Goods)**	**Public Goods (Collective Goods)**

- CPRs ≠ Commons (incl. Public Goods) ≠ Common property regime
- How would you describe the following goods and services?
  Food item; swimming pool; television; cinema; movie screening in a cinema; book (copyright license, commons license); Wikipedia; national social security system; land; water; global atmosphere; biodiversity?

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Characteristics of Goods and Services

		Excludability	
		High	Low
Subtract-ability of use	High	**Private Goods**	**Common-Pool Resources (also Open Access R.)**
	Low	**Club Goods (Toll Goods)**	**Public Goods (Collective Goods)**

- Many goods and services provided by ecosystems show characteristics of public goods (PG) or common-pool resources (CPR)
- Low excludability provides incentive to free-ride → May result in over-use (CPR & OAR) or insufficient provision (PG)
- Low excludability may be technically or normatively determined, and may, thus, change over time

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Figure 2.1 Classification of goods by exclusivity and rivalry in use
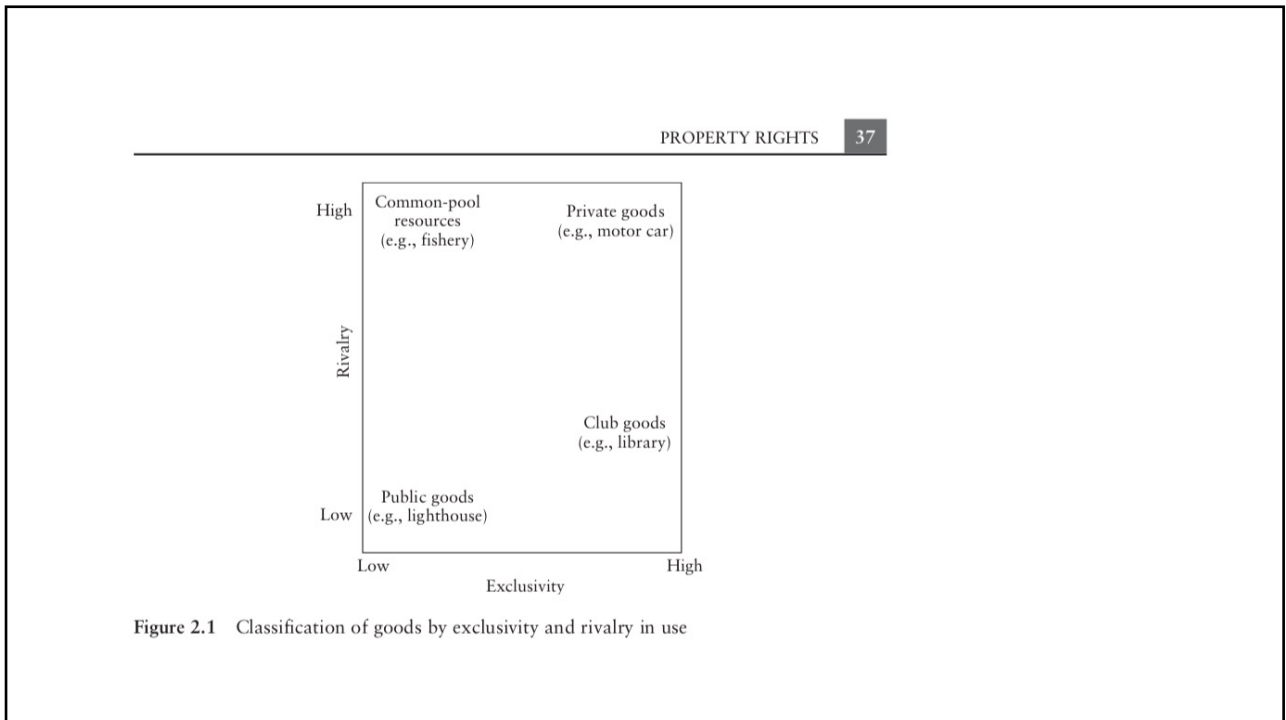
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Commons, Climate and International Relations
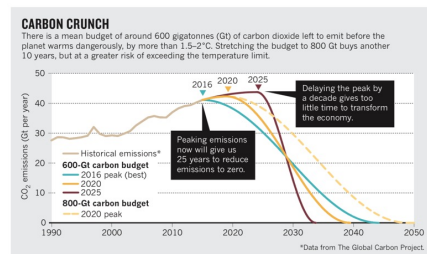
What are common-pool resources in Czechia, and how are they governed?

Is the climate a common-pool resource?

Is there a "tragedy of the commons"?

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Commons, Climate and International Relations

The Tragedy of the Commons

The population problem has no technical solution;
it requires a fundamental extension in morality.

Garrett Hardin

At the end of a thoughtful article on the future of nuclear war, Wiesner and York (1) concluded that: "Both sides in the arms race are . . . confronted by the dilemma of steadily increasing military power and steadily decreasing national security. *It is our considered professional judgment that this dilemma has* sional judgment. . . ." Whether they were right or not is not the concern of the present article. Rather, the concern here is with the important concept of a class of human problems which can be called "no technical solution problems," and, more specifically, with the identification and discussion of one of these.

What Shall We Maximize?

Population, as Malthus said, naturally tends to grow "geometrically," or, as we would now say, exponentially. In a finite world this means that the per capita share of the world's goods must steadily decrease. Is ours a finite world?

A fair defense can be put forward for the view that the world is infinite; or that we do not know that it is not. But, in terms of the practical problems that we must face in the next few generations with the foreseeable technology, it is clear that we will greatly increase human misery if we do not, during the immediate future, assume that the world available to the terrestrial human population is finite. "Space" is no escape (2).

A finite world can support only a finite population; therefore, population growth must eventually equal zero. (The case of perpetual wide fluctuations above and below zero is a trivial variant that need not be discussed.) When this

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The problem of social order and the Prisoner's Dilemma story

	Individual A	
	Cooperate	Defect
All others Cooperate	(I) 10 / 10	(II) 15 / −10
All others Defect	(III) −10 / 15	(IV) −5 / −5

Panel I

	Individual A	
	Cooperate	Defect
All others Cooperate	(I) 10 / 10	(II) 5 / −10
All others Defect	(III) −10 / 5	(IV) −15 / −15

Panel II

Vatn 2005, p. 27

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Prisoners' Dilemma (PD)

Self-interest produces worse outcome?
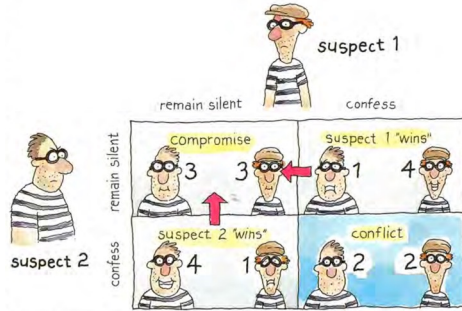
(Brams, 1993, *American Scientist*)   **=**

> Widely used to study cooperation in biology, ecology, philosophy, law, social sciences

resource user 1

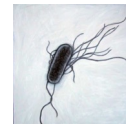|	use sustainably	exploit egoistically
use sustainably	3 / 3	4 / 1
exploit egoistically	1 / 4	2 / 2

resource user 2

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CPR management and the PD

"The two-person iterated PD is the E. coli of the social sciences"
(Axelrod 1997)

PD mentioned in >3000 law review articles, other models virtually ignored
(McAdams 2008)

§

Common-pool resources are not PDs
(Runge 1981, Cole and Grossman 2014)

> **Research question:**
> Is CPR management best represented by PD models?
> (e.g. model simplifications in macroeconomics & financial crisis)

> Implications for teaching

?

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PD models – a success story

1950 | First mentioning of the PD model
(Dresher and Flood 1950, Tucker 1950)

"Tragedy of the Commons"
(Hardin 1968)

Common-pool resource = PD
(Dawes 1973)

➢ Privatization or State

"Cooperation among egoists":
Repeated PDs, TIT-for-TAT
(Axelrod 1981)

Governing the Commons
(Ostrom 1990)

➢ Beyond market vs. state

➢ Reciprocity, Fairness, and
Folk Theorems of repeated PDs
➢ Widely used in biology,
ecology, philosophy, law,
social sciences

2010

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PD models – a success story?

1950 | First mentioning of the PD model
(Dresher and Flood 1950, Tucker 1950)

"Tragedy of the Commons"
(Hardin 1968)

Assurance Problem
(Sen 1967)

Common-pool resource = PD
(Dawes 1973)

"Cooperation among egoists":
Repeated PDs, TIT-for-TAT
(Axelrod 1981)

Isolation Paradox, Assurance
in CPRs
(Runge 1981)

Governing the Commons
(Ostrom 1990)

➢ Reciprocity, Fairness, and
Folk Theorems of repeated PDs
➢ Widely used in biology,
ecology, philosophy, law,
social sciences

Herder Problem =
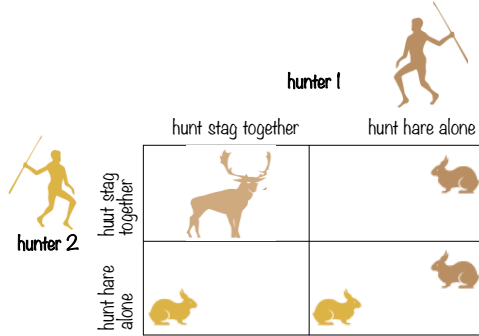Assurance Problem
(Cole and Grossman 2010)

2010

➢ Axelrod (1981) cited 30.000 times!   ➢ Runge (1981) cited 420 times

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Assurance Problem (AP)

"Stag Hunt"
(Rousseau 1755, game-theoretic interpretation by Lewis 1969)

- Strategies depend on **beliefs** about the likely choices of others
- **Expectations** can create self-fulfilling outcomes
- Strategic and resource **uncertainties**

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Differences between PD and AP

Prisoners' Dilemma (PD)

(Dresher, Flood, Tucker 1950)

- Independent decisions (in one-stage models)
- Cooperation difficult

Assurance Problem (AP)

(Sen 1967)

- Interdepent decisions, jointness of production
- Cooperation possible

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