Prof. Wolfram Elsner
University of Bremen
www.iiso.uni-bremen.de/elsnerwww.iino.de → Elsner.

Seminar:

Institutional and Evolutionary Economics

(Evolutionary-Institutional Economics)

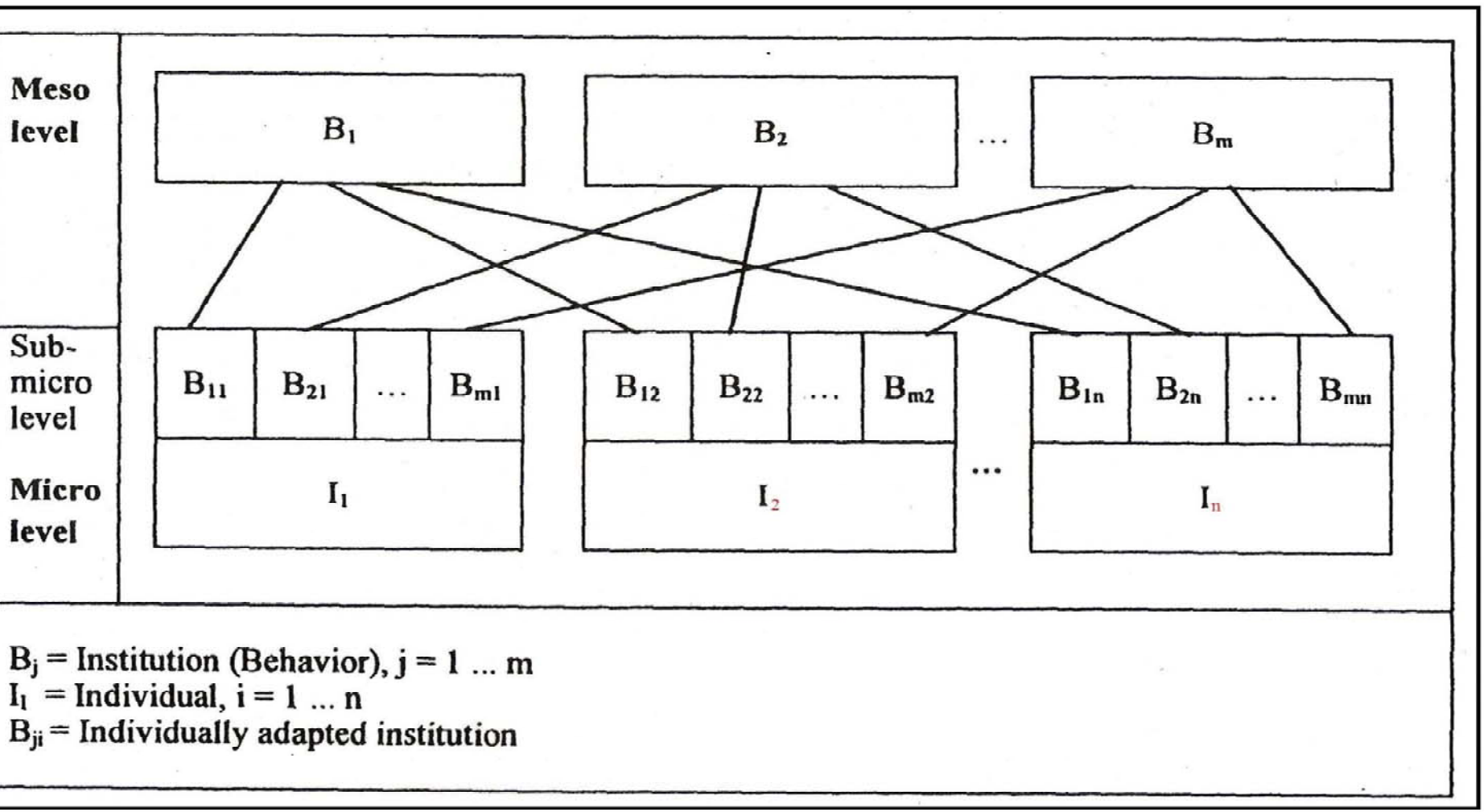
Core Conceptions II: „Institutions“

7) Institutionalism: Individuals and the „Whole“

G. M. Hodgson, Art. „Institutionalism, ‚Old‘ and ‚New‘“, The Elgar Companion to Institutional and Evolutionary Economics, 1994, Vol. 1, 397-402:

- **neoclassicism: methodological individualism - *autistic*, taken for granted, *representative* individuals; “atomism”**
- **„*reductionist*“: „*macro*“ as the *sum* of „*micro*“; macro explained from the properties of the micro units**
- **institutionalism: real-world, diverse directly-interdependent and interacting agents → „agent-based“ modeling**
- **„*emergence*“ rather than „aggregation“: complexity of situations and processes (strong and „strategic“ uncertainty)**
- **the individual changes: its behavior, and “preferences”**
- **shared *institutions emerge* in a complex process**

The sub- micro and meso- levels of institutions- an illustration



Quelle: W. Eslner, An Industrial Policy Agenda 2000 and Beyond- Experience, Theory and Policy, in: W. Elsner, J. Groenewegen, Industrial Policies After 2000 and, Kluwer Acad. Publ. 2000, 411- 486, S. 444

Core Conceptions II: „Institutions“

8) Institutionalism and Game-Theory (1)

- institutionalist game-theorists: Alexander J. Field, Shaun P. Hargeaves Heap
- S. P. Hargreaves Heap, Art. “Rationality and Maximization”, The Elgar Companion to Institutional and Evolutionary Economics, 1994, Vol. 2, 215-19:

- Hodgson: “game theory is neoclassical”
- Hargreaves Heap: “*instrumental rationality*” is not just that people do something because they “maximize” something
- “instrumental rationality” may generate surprisingly *complex types of behavior*
- *repeated interaction* in games: emergent behavior may *contrast with immediate self-interest*, causing a *change in the beliefs of others* → e.g., *trust*, or *reputation*, building

8) Institutionalism and Game-Theory (2)

- allows maximizing "something" in the future
- *past* experience → *future* belief (expectation) → *present* behavior; *present* interaction *becomes past* experience in the next interaction etc.
- example: *entry (deterrence) game* (with credible threat, self-commitment to sunk costs, reputation for fighting)
- we do not have to (and should not, for many reasons) assume well-behaving utility functions behind the pay-offs
- example: consumption as communication, status definition
- where do "beliefs" come from, when there are different behavioral options and "multiple equilibrium" outcomes ("attractor points") (s. e.g. W.B. Arthur's technology choice, or a coordination or social dilemma game)?

9) Institutionalism and Game-Theory (3)

Institution – A Definition

An Institution is a *rule* (or custom, or norm)
for the decision and/or *behavior* of *individual agents*
for (infinitely, or indefinitely) *recurrent* and
***multi-personal* (i.e. *directly interdependent*, i.e. genuinely *social*) situations (repeated direct *interactions*),**
with *social coordination problems* involved (behavioral alternatives existing, collective goods problems, social dilemmas),
that has gained, through a process of *social learning*,
a *general approval*
so that it can *inform* the agents
about *mutual* (mutually consistent) *expectations* of behavior
and about the fact that with *unilateral deviation* from the rule (i.e. defection) other agents also will *deviate in the future*
so that *all will be worse off* than with rule-conforming behavior
(endogenous *sanction mechanism*).

Evolutionary-Institutional Economics

Part III:
"Institutional Emergence"

Core Conceptions III: "Institutional Emergence"

1) Institutional Emergence (1) - Again: Institutions and Game Theory

Alexander J. Field, Art. "Game Theory and Institutions", The Elgar Companion to Institutional and Evolutionary Economics, 1994, Vol. 1, 271-76:

- **individuals (directly) interact (→imperfect information)**
- **"deterministic" world (at first)**
- **helps analyzing the consequences of rule variation**
- **not a causal-genetic analysis (at first)**
- **basic rules of the game are given: thus some institutions must exist prior to the process (→complete information)**
- ***limited* power to *explain the origins* (emergence) of rules**

1) Institutional Emergence (1) - Instit. And Game Theory

A.J. Field, Art. "Game Theory and Institutions":

- **the repeated PD: *incentive structure* and *future expectations* are crucial, verbal communication and commitment are "cheap talk", i.e. no external enforcement: "non-cooperative" GT**
- **finite repetition: backward induction**
- ***supergame*: agents stay in the game for an infinite or unspecified number of periods**
- **the *success of "tit-for-tat"* in *Axelrod's quasi-evolutionary* tournaments (computer programs are fixed, but replicator)**
- **"Students of institutions should neither reject game theory as without interest nor embrace it with such enthusiasm that its limitations are overlooked."**
- **useful metaphors for *ubiquitous everyday* socio-economic problems and decisions: *PD*s and *coordination games*: *emergence of standards* (behavioral and technical)**
- **must be *complemented* by *descriptive/historical* "story-telling"**

Core Conceptions III: "Institutional Emergence"

2) Institutional Emergence (2): A Simple Benchmark – The Static ("Single-Shot") PD Supergame Solution

a,a	**d,b**
b,d	**c,c**

with $b > a > c > d$ **and** $a > (d + b)/2$.

$$\text{ALL C/ALL C} = \text{TFT/TFT} = a + \delta a + \delta^2 a + \ldots$$

$$= \frac{a}{1 - \delta}.$$

2) Institutional Emergence (2): A Simple Benchmark – The Static ("Single-Shot") PD Supergame Solution

$$\text{ALL D/TFT} = b + \delta c + \delta^2 c + \ldots$$

$$= \frac{c}{1 - \delta} + b - c \,.$$

Cooperation pays, if TFT/TFT => ALL D/TFT.

This can be calculated as

$$\delta \geq (b - a) / (b - c).$$

2) Institutional Emergence (2): A Simple Benchmark – The Static (Single-Shot) PD Supergame Solution

- ***analytical* implications**: a ***logical* condition, dependent on an *endogenous sanction* mechanism,**
  - o ***incentive structure* variations: a_{min}?, b_{max}?**
  - o **importance of the *common future*: δ_{min}?**
- **procedural and evolutionary interpretation:**
  - o ***motivation* for "rational" agents to deviate from always defecting: repeated *frustration*, "idle *curiosity*", long-run "*improvement*", not even necessarily knowing the upper left situation…("incomplete" info)**
  - o **no narrowly "rational" explanation: *habituation***
  - o ***risk-taking*, being *non-envious***
  - o ***cumulation*: recurrent *reinforcing* contributions, reinforcing expectations**
  - o **but opportunities, and even increasing *incentives*, to exploit and *destabilize* an existing institution again …**

2) Institutional Emergence (2): A Simple Benchmark – The Static (Single-Shot) PD Supergame Solution

- **example and a variant**: *non-enviousness* (not being too "*rational*") (K. Basu, The *Traveler's Dilemma* (TD), AER 1994, The Scientific American, 5/20/2007). The two- choice version (numerical example):

100, 100 97, 101

101, 97 2, 2. (*downward induction*!)

- **example and a variant**: The *Public Good Contribution Game* (PGC-G)/*Common Pool Resource Game* (CPR-G) (e.g. E. Ostrom et al. 1992). The simple two-choice two-agents version (and an 'additive' public good), numerical example:

5-3+2+2=6; 5-3+2+2=6 5-3+2=4; 5+2=7

5+2=7; 5-3+2=4 5; 5

- **example and a variant**: from the PD-SG to the *Stag Hunt/ Assurance Game* (J.J. Rousseau (1762), A.K. Sen (1967), B. Skyrms (2004)) (*see below*, Part V).