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**Seminar:**

**Institutional and Evolutionary**  
**Economics**  
**(Evolutionary-Institutional Economics)**

### 3) Evolutionary-Institutional Understandings, Cont'd.

- (6) furthermore: in the socio-economy, with *expecting*, (imagining, anticipating, aspiring, planning, etc.) agents → *reinforcing, positive feedback* may come into existence (“*circular cumulative causation*” (G. Myrdal, based on Veblen’s “cumulative causation”))
- **cumulation:** positive mutual externalities (“synergies”, e.g. R. Cooper/A. John 1988), net-effects, etc. may generate different “*attractors*” (→ *path dependence*)
- (7) example models: *coordination game* (S.P. Hargreaves Heap, the *Polya urn*, also: *technology choice* with net-externalities (W.B. Arthur), where the *outcome* even may be the *worse of two alternatives*
- **real-world examples:** QWERTY (W.B. Arthur, P.A. David) (→ “*lock-in*”), MS DOS/Windows, traffic rules, voltage and plugs regimes, rail gauges, etc.

### 3) Evolutionary-Institutional Understandings, Cont'd.

- (4) in addition, in a *socio-economic environment*: an important “environmental” factor changes continuously with evolution
  - the *composition of the whole population* (if diversity exists)
- → a “*moving fitness surface*”
- example: a quasi-evolutionary *simulations* à la R. Axelrod's computer tournaments
- (5) thus, if:
  - rate of change* of physico-socio-economic environment > *selection rate*,
  - ⇒ *no “improvement”* to some given end.

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- (8) theoretical elements: increasing/decreasing returns to scale, first-mover advantage, the learning curve, agglomeration and clustering externalities, net-externalities, etc.
- (9) applying also to the use of *institutions* (s. below): cumulative institutional emergence, “exploiting” existing vs. “exploring” new institutions; institutional lock-in and the best point in time to change/exit an “outmoded” institution ...
- (10) implication: “*fitness*” may become dependent on *size* or received population share (rather than the other way round).

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## Core Conceptions I: Economic Evolution

### 4) Evolution Requires *Diversification First*, Rather Than Selection

- (1) diversification increases adaptability and *resilience* of the whole systems against external impacts
- diversification generates the “raw material” for selection to apply
- (2) *diversification rate  $\geq$  ! selection rate*,  
for the system not to end in a “uniform” state
- but *if* diversification rate  $\geq$  selection rate, then *no “improvement” towards a given end*
- the system may fluctuate between multiple “attractors”
- (3) *socio-economic diversification mechanisms* (and analogies): search, experimentation (“mutation”), “learning”, exchange and recombination of knowledge (“crossing”), incl *Lamarckian* inheritance of acquired char.
- (4) “source” or “reason” of diversification: *incomplete/imperfect knowledge*.



# **Core Conceptions I: Economic Evolution**

## **5) The *Unit* of Diversification and Selection**

- rarely (hopefully): the *physical agent* (Malthus), but in general: the *institution* (to be defined)
- *many* social institutions and/or many realizations of an institution at the (inter-) individual level → *phylogenetic* (or *population*) approach, compared to “*ontogenetic*” (“organic”)
- also: “*group selection*” through institutions shared by groups (s. Hodgson, Art. “Selection, Units of Evolutionary”).

# **Core Conceptions I: Economic Evolution**

## **6) Properties of Evolutionary Socio-Economic Systems**

### **(1) conditional:**

- *direct interdependence*, gives room for direct interactions
- *social dilemma* decision structure: different options to act
- *recurrent*, i.e. no defined end (“supergame”), gives room for “learning”; and *sequential*, gives way for “responsiveness”

### **(2) resulting:**

- *complexity*, “many” and “multiple” relations
- *strong uncertainty*, e.g. “initial strategic strong uncertainty”
- *path dependence*, cumulativeness, irreversibility
- *non-ergodicity*: non-“representative” agents, actions, or relations
- *idiosyncrasy*: butterfly effects
- *non-teleology*: open-ended