Rationality
– an institutional analysis

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Overview

The argument:

(1) The explanatory account

(2) Dissecting rationality

(3) Dissecting agency

(4) Cultural evolution of rationality

(5) Limits of reason

(6) Conclusion: circulus vitiosus (?)

The explanatory account

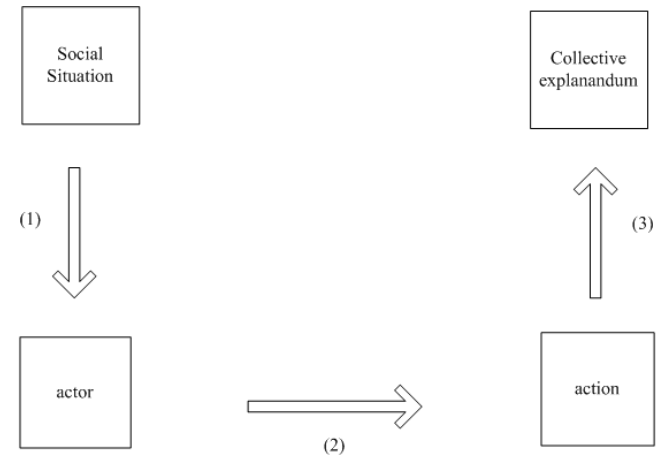**Explanatory strategy of rational choice as sociological explanation**

- Explaining social structure by individual action
  - Hedström's thought experiment:
    - "Would action be frozen there would be no social structure."

→Methodological Individualism

The explanatory account

- **Explanatory strategy of methodological individualism**
  - Individuals are faced with situations
  - Individuals make choice of action
  - Generates new situation

The Coleman 'bath tub'

Dissecting rationality

Rational choice theory of action

- Precondition:
  - Utility function
  - preference ordering
  - Calculation of probabilities of action results

- Decision:
  - select action which maximises E(U)

Dissecting rationality

Rational choice theory of action

- *Not asked:*
- explanation of rationality
  - Individual action: out of scope of sociological explanation
  - RC: explanatory model (instrumentalism)

Dissecting rationality

Explanation of rationality

– This is starting point of Bounded rationality approach

– empirical analysis of rationality

– *Biological* bounds of rationality

- uncertainty

- cost of search for information

- Limited capacity for reasoning

- time constraints

→Satisficing rather than optimising/maximising

Dissecting agency

Common element of rational choice and bounded rationality: decision theory

- Explanation of social structure: *choice*

- explanation of choice: *cognition*

→Rationality: cognitive capacity

→Thus explanation of action by cognition

- – Rational Choice: abstract model of man

- – Bounded Rationality: Cognitive capacity of biological humans

Dissecting agency

Common element of rational choice and bounded rationality

- as sociological explanation:

→Methodological individualism

- Not asked:

→How do we learn to make choices?

Dissecting agency

- recent paper on resources of reason
  - focus on development of biological individuals in interaction with environment
  - micro level
- focus here on environment
  - How does cultural evolution of environment shape cultural evolution of rationality
  - macro level: *cultural* bounds of rationality

Cultural evolution of rationality

- Precondition of preference ordering requires
  - Symbolic representations
  - evolution of symbol grounding
    - Making of artifacts
    - Up to 1 000 000 BC
  - Evolution of language
    - About (at least) 40 000 BC
- Precondition of cognition
  - Socio-cultural evolution

Cultural evolution of rationality

- Ordering of symbols requires
  - structuring symbolic representation of the world in countable units
  - counting
  - Numbers
- Cultural heritage of mathematics
  - Socio-cultural evolution
  - Collective effort

Cultural evolution of rationality

- Cultural evolution of numbers
  - archaeology of maths
    - biological humans count up to three
    - co-evolution with trade to reach beyond three (Babylonian legacy)
  - Cultural origin of probability theory: gambling
    - medieval times considered as blasphemy to reason about chance
    - Empirical observation that a game of chance had uneven chances: First treaty on probability theory exchange of letters between Pascal and Fermat (1654)
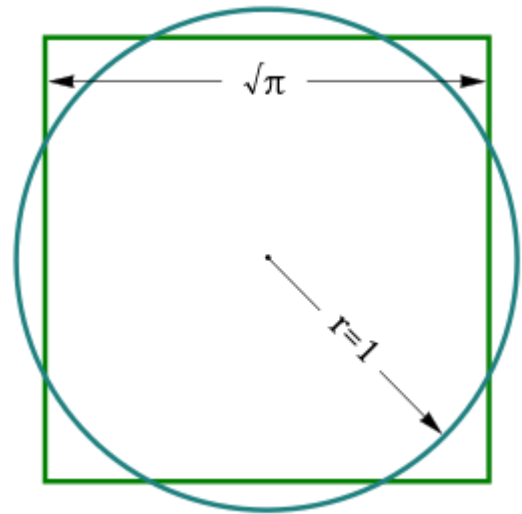
Limits of reason

- Cultural evolution of rationality
  - Rationality is a *tool*
  - As other tools product of cultural evolution
  - → Rationality *extends the mind*
- As other tools it works sometimes rather well
  - But has limits
→Cultural bounds of rationality

Limits of reason

- Example mathematics
  - Limits of geometrical reason:
    - drawing a square from a circle
      - Papyrus Rhind (ca. 1600 BC)
      - Thales (ca. 6 BC)
      - Proof of impossibility: 19th century

  - Limits of logical deduction
    - Gödel's proof of incompleteness:
      - Proof of impossibility to proof consistency of formal axiomatic systems

  →Proof of boundaries of rationality

Conclusion

Cognitive capacities presupposed by rationality

- product of cultural evolution
  - niche construction
- Cognitive capacity is a social institution
  - Theory of agency:
  - Social evolution transformed biological humans

Conclusion

Cognitive capacities presupposed by rationality

- Explanatory account conflates theory of *agency* and theory of *cognition*
  - Explanation of social structure by action
  - Requires theory of agency
  - Theory of agency requires theory of cognition
  - Theory of cognition requires social institutions

Conclusion

Circulus vitiosus (?)

- Explanans of social structure:
  - Agency
- Explanans of agency:
  - Cognition
- Explanans of cognition:
  - Social structure
→Explanans of social structure:
  - Social structure

Thank you for your attention