

**Resource Management:
INSTITUTIONS AND
INSTITUTIONAL DESIGN**

Erling Berge

Institutional analysis and development: basics

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Literature

Ostrom, Elinor 2005, *Understanding
Institutional Diversity*, Princeton
University Press, Princeton, Ch 1-2

- Understanding the Diversity of Structured Human Interactions
- Zooming in and Linking Action Situations

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What are institutions?

- Institutions are the prescriptions that humans use to organise all forms of repetitive and structured interactions, including those within families, neighbourhoods, markets, firms, sports leagues, churches, private associations, and governments at all scales
 - Great diversity of institutions
 - Great diversity of scientific approaches
 - IAD framework

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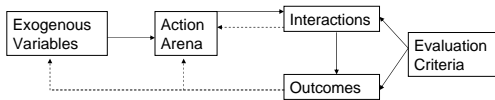
Holons

- The term holon may be applied to any stable sub-whole in an organism or social hierarchy, which displays rule-governed behaviour and/ or structural Gestalt constancy
 - Environment
 - System
 - Sub-system

In repeated layers: multilevel complex systems

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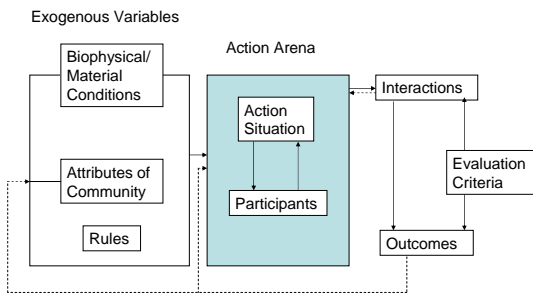
Holon: The action arena



The action arena will be the focal unit for our discussion

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The environment of action situations



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The action arena

The action situation:

- Positions
- Potential outcomes
- Available actions and action-outcomes linkages
- Control over outcomes
- Information generated in the situation
- Cost-benefit attached to actions and outcomes

The participant (individual or corporate unit)

- Preferences
- Status/ command of resources
- Individual attributes
 - Age, sex, education, culture, etc
- # participants in the situation

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Rules I

- Rules, written or unwritten, may be used about
 1. Regulations (prescriptions, prohibitions, permissions)
 2. Instructions/ recipes/ strategies
 3. Precepts/ advice for moral behaviour
 4. Principles/ laws of nature
- Regulations provide the participants with a shared understanding of what actions/ outcomes are prescribed/ prohibited or permitted

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Rules II

- Rules are the result of explicit or implicit efforts to create order and predictability among humans by
- Creating positions who are required, permitted or forbidden to take classes of
- Actions in relation to outcomes that are required, permitted or forbidden, or face the likelihood of being
- Monitored and sanctioned in a predictable fashion

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Rules III

- Origin of rules
 - Self-organised groups
 - Externally imposed rules
 - Evolution (from problem solving to designed)
- Working rules
 - Rules justifies actions
- Predictability of rules
 - Depends on shared meanings since rules are not self-formulating, self-determining, or self-enforcing
 - System of enforcement
 - System of creation

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Biophysical and material conditions

Attributes of goods produced, distributed or consumed

- Excludability of outcomes
 - Free riders
- Divisibility of outcomes (subtractability)
- Transferability of utility

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Classification of goods (bads), entities that people want to obtain (or avoid)

- **Subtractability**
 - Intrinsic
 - Technology dependent
- **Excludability**
 - Depletable or reproducible
 - Intrinsic
 - Technology
 - Political choice

	Subtractability		
Excludability		Low	High
	Low	Public	?
	High	?	Private

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Community and culture

COMMUNITY

- Size and composition of population
- Values in the local culture
- Common knowledge and understanding of various action situations
- Degree of homogeneity of preferences

CULTURE

- Affects costs of interaction
- Reputation, trust, etc

LANGUAGE

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Action situations

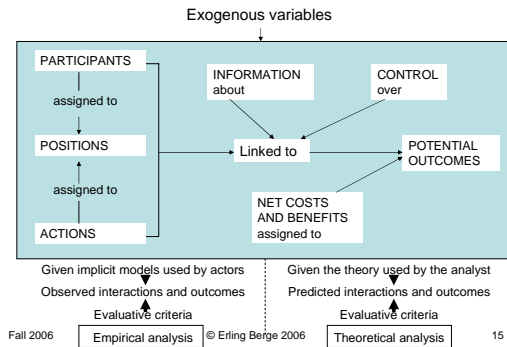
- Two or more individuals facing a set of actions that jointly produce outcomes can be analysed by studying
 - Participants
 - Positions
 - Potential outcomes
 - Available actions and action-outcomes linkages
 - Control over outcomes
 - Information generated in the situation
 - Cost-benefit attached to actions and outcomes
- They can be evaluated empirically by observation of interactions and outcomes (use of implicit models)
- They can be evaluated theoretically by predicting interactions and outcomes (use of theory)

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The internal structure of action situations



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The "snatch" game

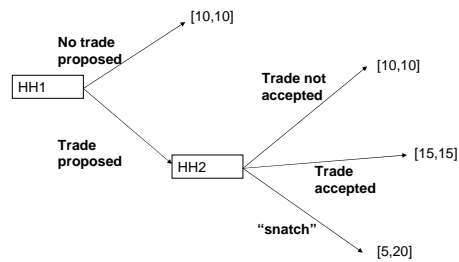
- "state-of-nature" = no rules apply, no common understanding or norms
- Household 1 (HH1) produce 10 bags of potatoes
- Household 2 (HH2) produce 10 chickens
- Both HH1 and HH2 prefer to eat chicken and potatoes
- In the "state-of-nature" they have a social dilemma:
 - That is a situation where the private return to an optimal strategy based on the assumption that all follow their optimal strategy without regard to what others do is greater than a share from the joint product of a cooperative strategy

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The "snatch" game: illustration of action situation



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The working parts I

- **Participants**
 - Numbers, individuals or teams
 - A team require collective action, members intend a joint product or have a common purpose
 - Groups, aggregates of individuals or teams
 - If there is variable strength we get frequency dependent behaviour
 - Attributes: sex, age, education, ...
- **Positions authorise actions**
 - Roles, participants may have more than one
 - Roles allows, prescribes or prohibit actions
 - Participants may or may not choose entry or exit from positions

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The working parts II

- Potential outcomes
 - Status quo outcome
 - Biophysical outcomes, external payoffs, internal valuations may have to be assessed separately
 - The opportunity of a situation: range of value in outcomes
- Available actions and action-outcomes linkages
 - Actions: actors choose one from the set of possible actions. The choice of no action is an option
 - Action-outcome linkages: action(s) will "produce" the outcome to some degree (transformation function), control variables
 - Certainty, link is known
 - Risk, probability distribution of outcomes are known
 - Uncertainty, the relation between action and outcome is indeterminate (interdependent actions, number of possible outcomes too large)
 - Uncertainty, risk and certainty are structural characteristics of the situation (not dependent on information)

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The working parts III

- Control over outcomes
 - Power = control * opportunity
- Information generated in the situation
 - Complete
 - Perfect: all actions known to all participants
 - Imperfect: the complete situation but not the decisions of other participants
- Incomplete "Who knows what at what juncture"
 - Opportunistic behaviour, deceitful behaviour to improve ones own outcome to the detriment of others
 - Asymmetric information problems
 - Principal — agent problems
 - Moral hazard — whenever risk is to be shared

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The working parts IV

- Cost-benefit attached to actions and outcomes
 - Material costs from choosing particular actions
 - Internal valuations of particular actions
 - Material rewards from particular outcomes
 - Internal valuations of particular outcomes
 - Material or internal valuations of the action path chosen
 - Internal valuations: shame, regret, joy, guilt
 - Decisions based on net value
- Number of repetitions of action situation
 - One, finite number of times, indefinite repetition
 - Tit-for-tat
 - Heuristics for asymmetric social dilemmas

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Linking Action Arenas

- Sequential linkages of arenas
 - Facilitates building of reputation for reciprocity
- Simultaneous arenas
- Organisational links, (appears as trees, lattices) long complex chains where output from one arena is input to another
- Competitive links
 - Adaptations to other participants
 - Market interactions (rule governed competition)
- Levels of action arenas: rules at deeper levels are part of the structure of action arenas at a given level
 - Operational
 - Collective-choice
 - Constitutional choice
 - Meta constitutional choice

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Levels of analysis

Environmental characteristics that directly affects the situation

- For level 1-3:
- RULES IN USE
 - BIOPHYSICAL WORLD
 - COMMUNITY

- For level 4:
- BIOPHYSICAL WORLD
 - COMMUNITY

Individual actions taken that directly affects state variables in the world or the situation:

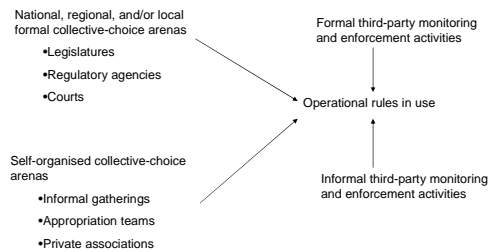
1. OPERATIONAL SITUATION
 - Provision, production, distribution, appropriation, assignment, consumption
2. COLLECTIVE CHOICE SITUATION
 - Prescribing, invoking, monitoring, applying, enforcing
3. CONSTITUTIONAL CHOICE SITUATION
 - Prescribing, invoking, monitoring, applying, enforcing
4. METACONSTITUTIONAL CHOICE SITUATION (no rules in use)
 - Prescribing, invoking, monitoring, applying, enforcing

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Formal and informal collective-choice arenas



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Level shifting strategies

- Contemplating changes in the rules defining permitted, prohibited and proscribed actions in operational situations
- The cost (including transaction costs) of actually changing the rules varies dramatically from arena to arena
 - Costly formal requirements may lead to informal de facto changes at the operational level

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Predicting and evaluating outcomes

- Predicting
 - Only very simple situations allow strong predictions
 - Interdependent decisions, linked arenas, communication, learning, changes in strategy: all make it difficult to predict
- Evaluating
 - Economic efficiency, benefits from reallocation of resources
 - Equity, matching ability and equality
 - Adaptability, resilience, and robustness
 - Accountability
 - Conformance to general orality
 - Needs for trade-offs

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