Selected topics in general psychology II.

Lubomír Kostron 2020

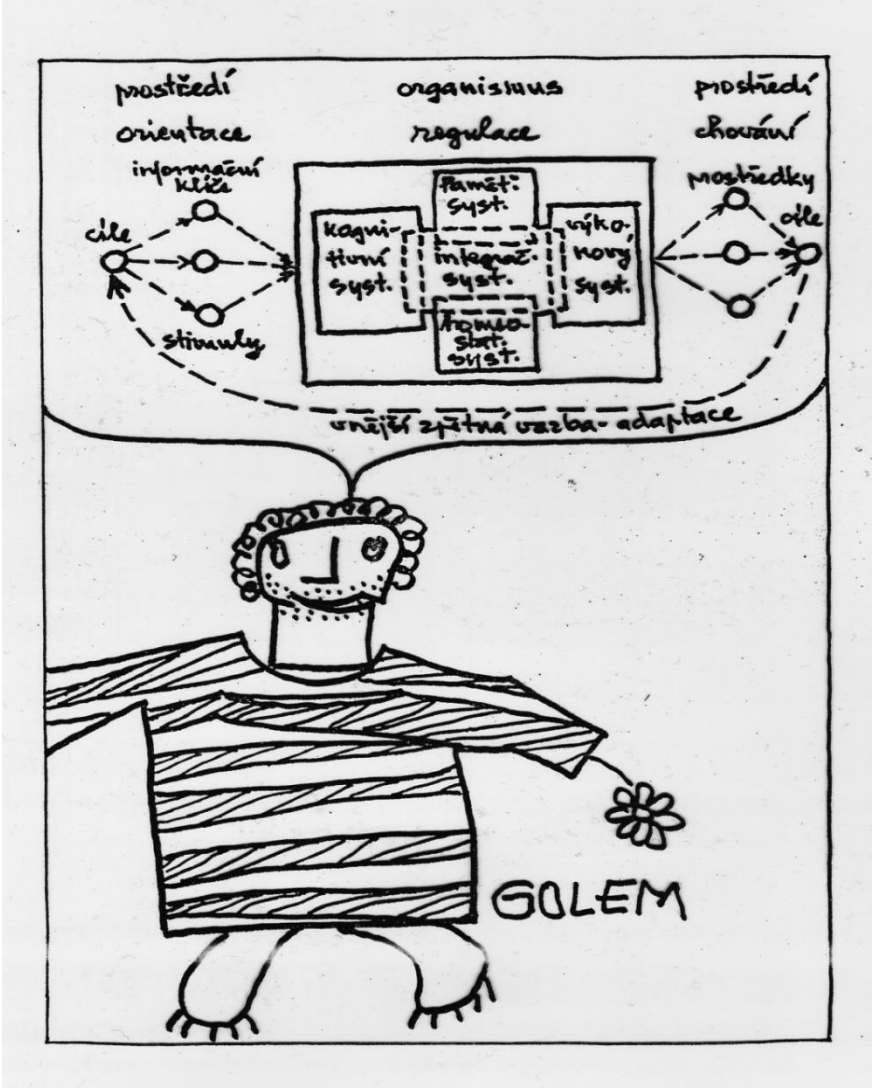
The course structure, 2nd part.

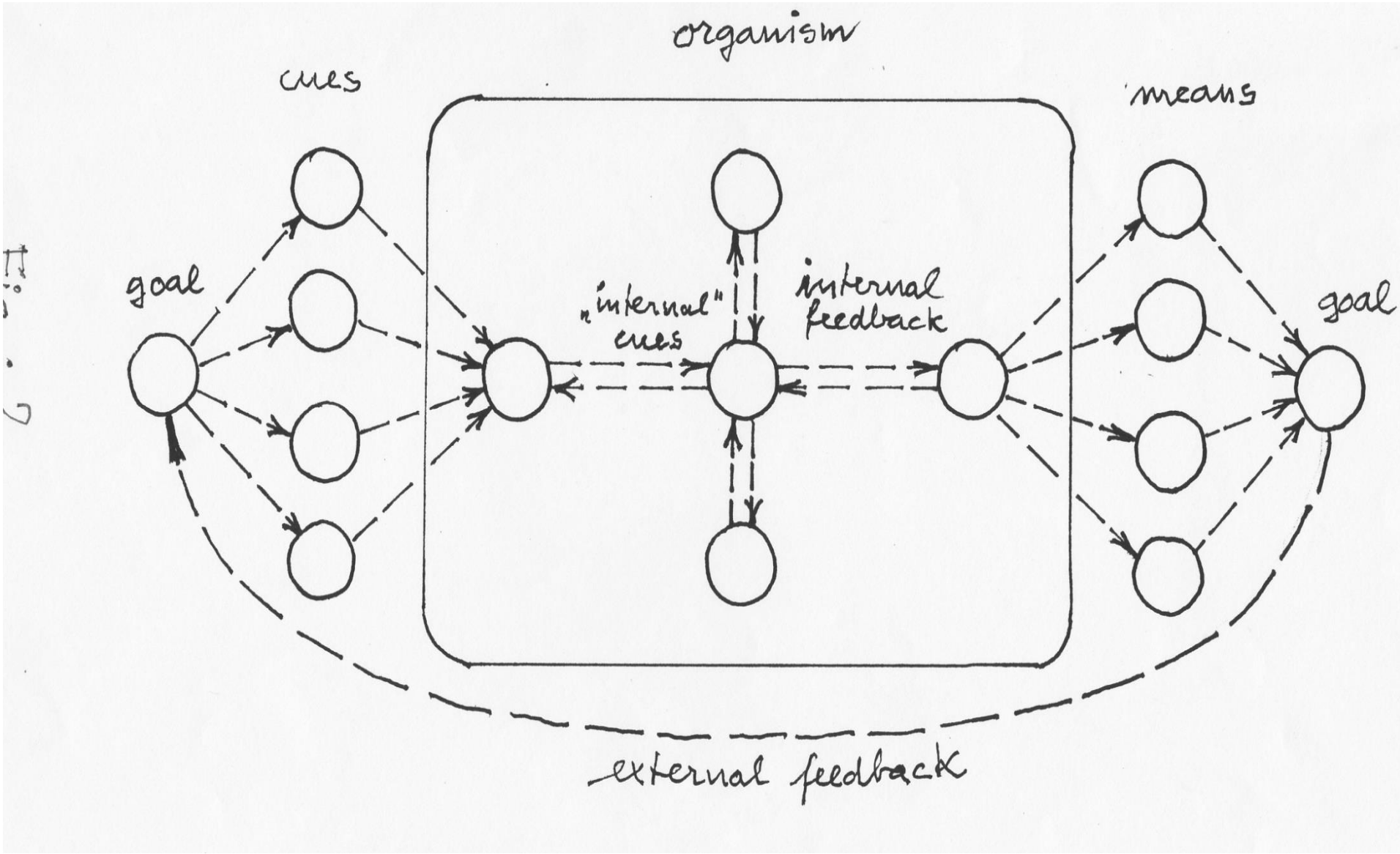
1. *Introduction*
2. *Perception, judgment (and behavioral activities)*
3. *social judgment theory and the nature of information*
4. **A model of personality – what is missing?**
5. **The theory o tasks, situations and the environment/ecology**
6. **The role of emotions and group support in the solution of ill defined problems**

7. System dynamics - learning to „see“ processes
8. The decision-making under uncertainity
9. Interpersonal cognitive conflict solution *(workshop with POLICY)*
10. The puzzle of Consciousness
11. The aultimate knowledge – the art of asking the smart questions *(workshop with „unknown objects“)*

Students are expected to turn in a paper on one of the issues, listed above. For more detailes see the sylabus.

4. What do we miss so far?
Toward a personality model: the „central region" of mind.




organism
cues
means
goal
„internal" cues
internal feedback
goal
external feedback

The central region structure

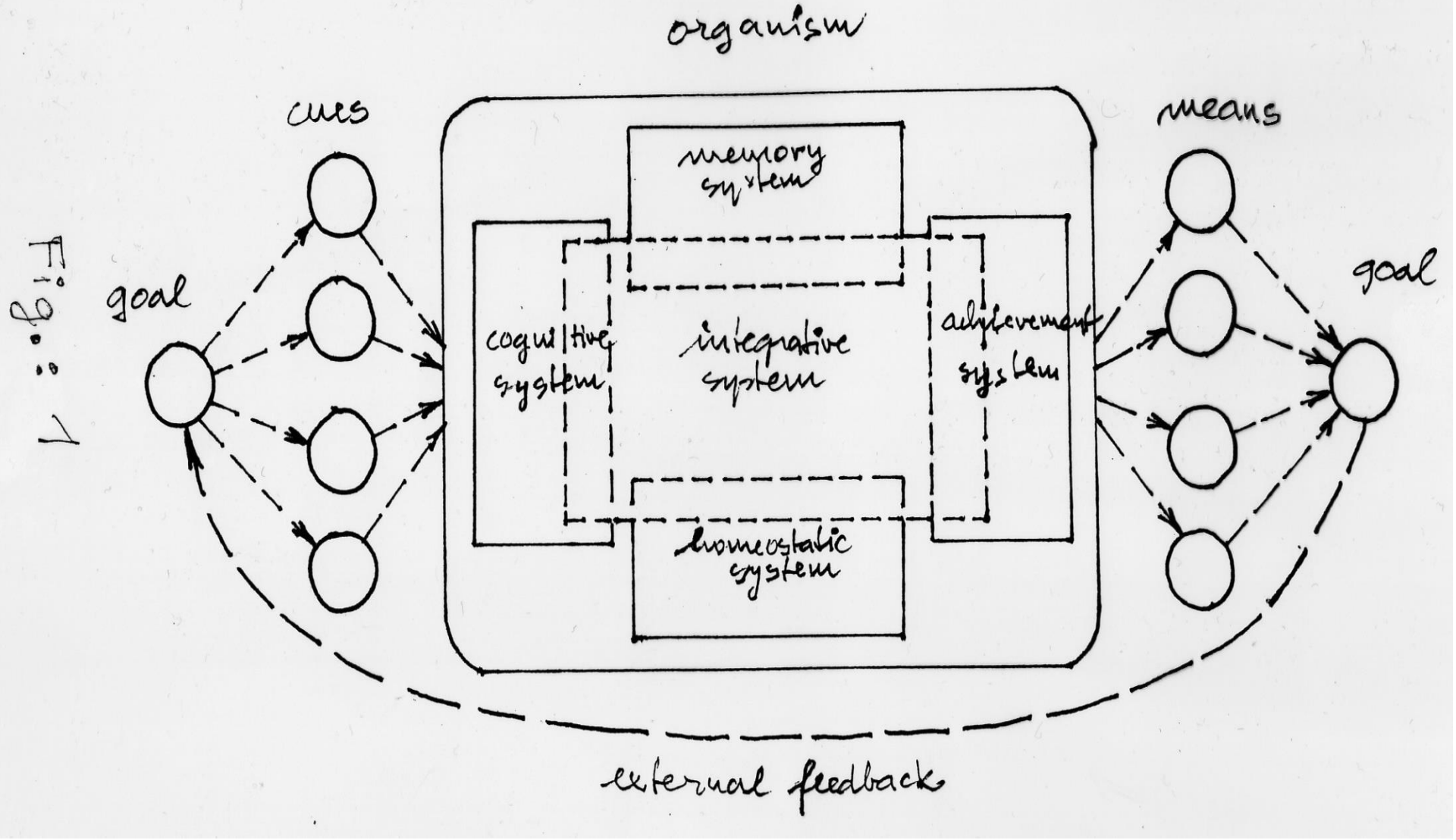
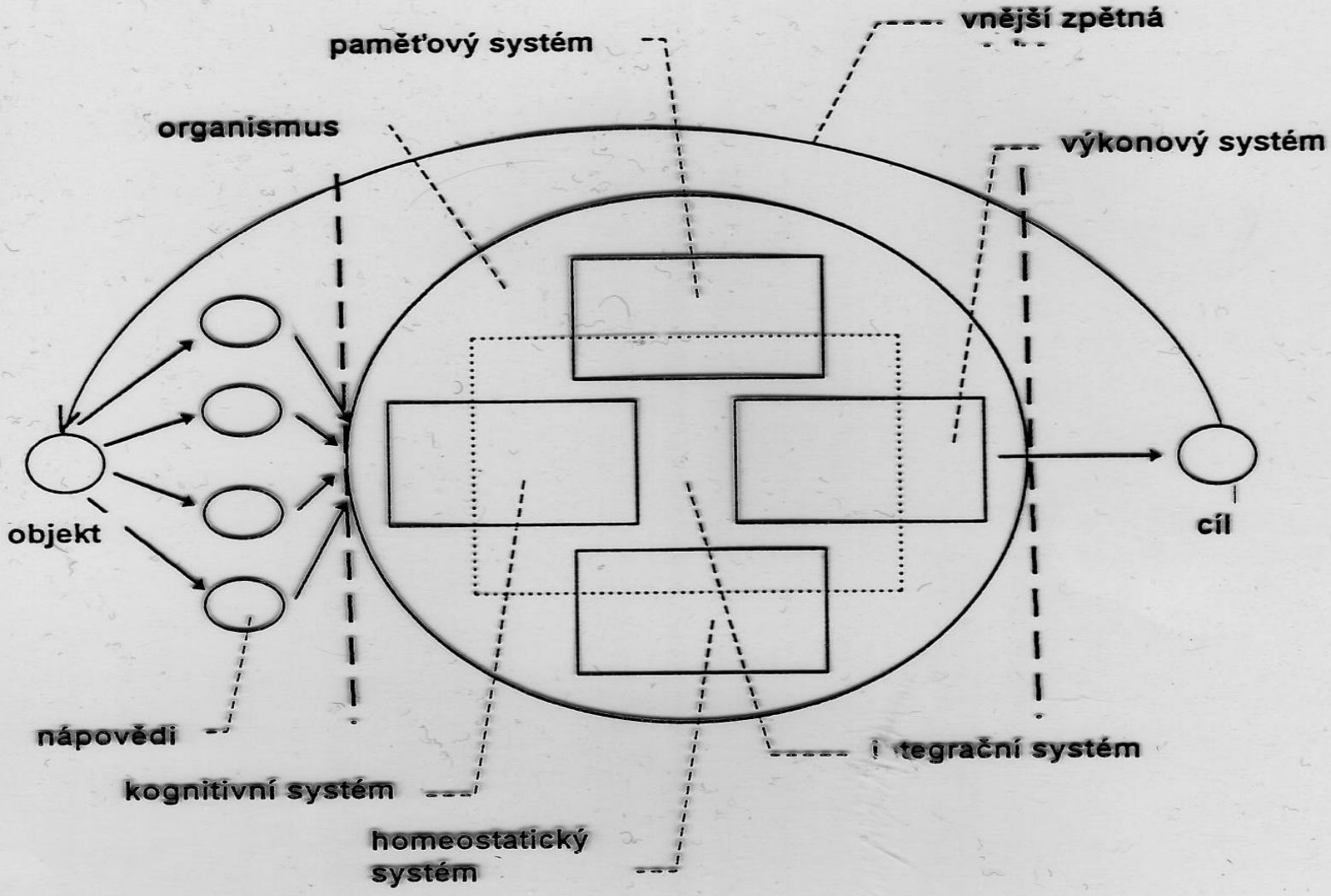
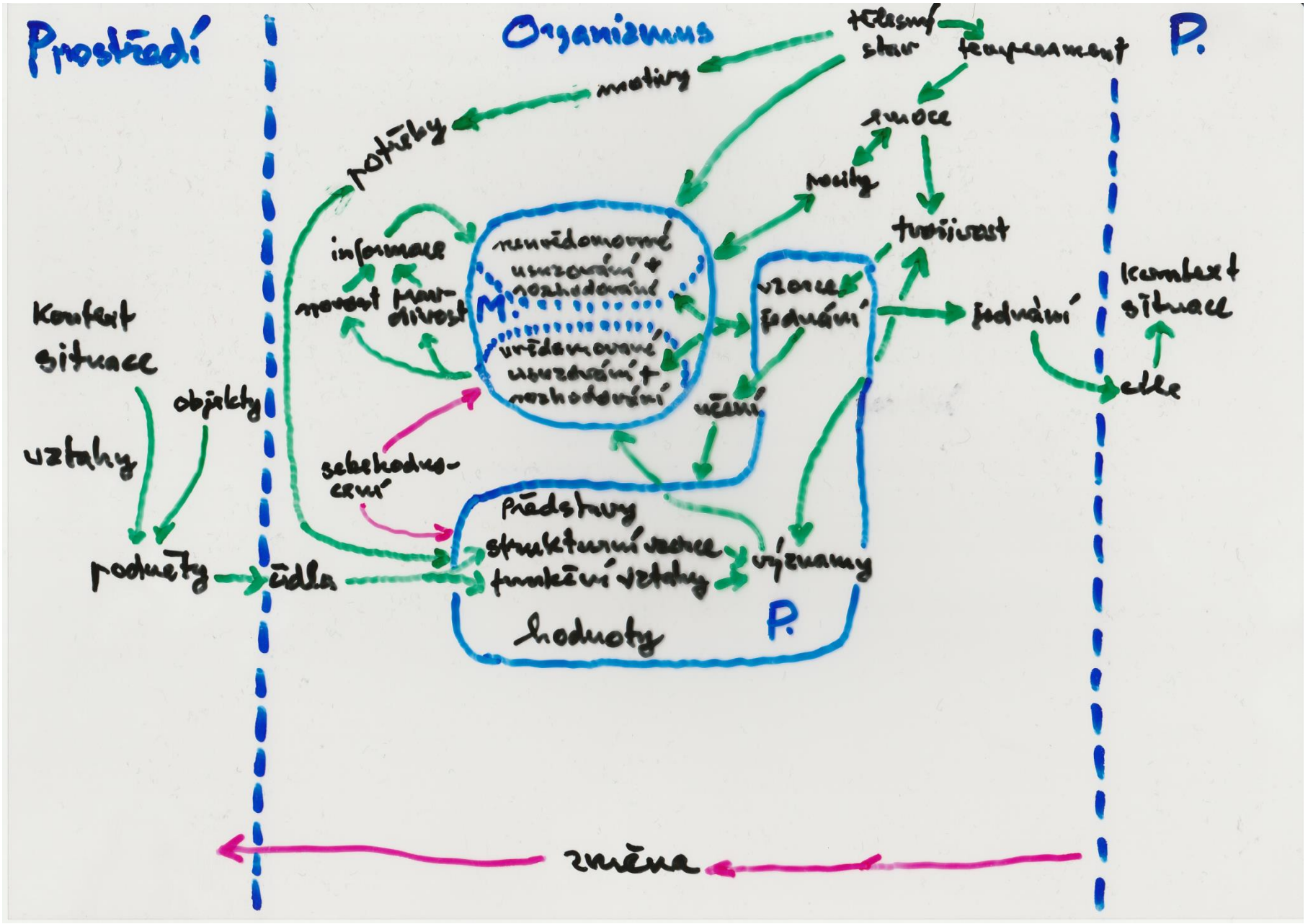


Fig. 1

Obrázek č. 3.15: Systém organismu




Prostředí
Organismus
tělesný stav
temperament
P.
motivy
potřeby
cíle
city
tvořivost
informace
nevědomé usuzování + rozhodování
M
vědomé usuzování + rozhodování
návyky
pravidelnost
vzorce jednání
jednání
kontext situace
kontext situace
objekty
vztahy
učení
sebehodnocení
představy
strukturní vzorce
funkční vztahy
výsledky
hodnoty
P.
podněty
čidla
změna

The origin of causal relationships :

Children, when was Napoleon Bonaparte born?

A 1000 years ago, say children.
A 100 years ago, say children.
No one knows.

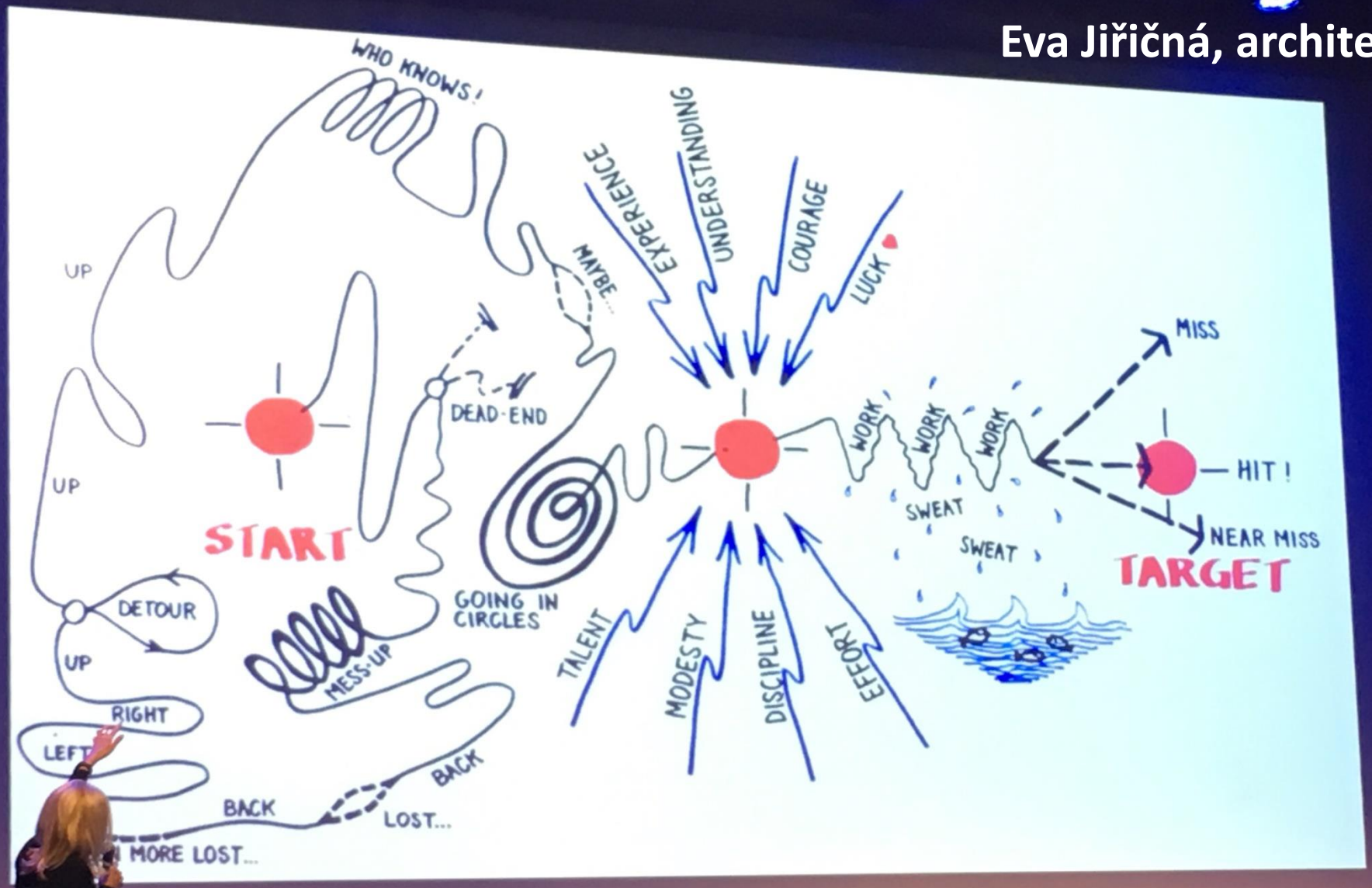
Children, what Napoleon
Bonaparte did?
He did win the war, say children.
He did loose the war, say children.
No one knows.

Our butcher had a dog called
Napoleon, said little Francis.
The dog was beaten and died
by starvation about a year ago.
And all the choldren feel sorry
for Napoleon.

Miroslav Holub, poet

The process of idea emergence :

Eva Jiřičná, architect



Experiencing, emotions, motivation

„…It is only with the heart that one can see rightly; what is essential is invisible to the eye".
Antoine de Saint-Exupery

„The heart has its reasons of which reason knows nothing".
Blaise Pascal.

Albert Einstein´s letter to his doughter Liserl:

„...there is an extremely powerfull force, for which there is no formal scientific explanation yet. This force includes and rules all the other forces and it is even contained in all the phenomenae operating in the universe, but we did not identify it yet. This universal force is love. When the scientists seeked for an universal unifying theory of the universe, they omited the most powerfull, invisible force. Love is the light which lits those, who give it and those who obtain it. Love is the gravitation, since it causes that some people are being attracted to the other ones ...."

„... this force explains all and gives a meaning to the life. It is a variable, which we ignored too long time maybe becouse we are scared of it, for love is the only energy in the universe, which we did not learn how to subdue it to our will..."

„... To make love visible, I simply replaced one value in my most famous equation. If we would instead E= mc2 accept, that the energy to cure the world may be obtained through the love times the square of light speed, we would conclude, that love is the strongest force in existence, since it has no limits...."

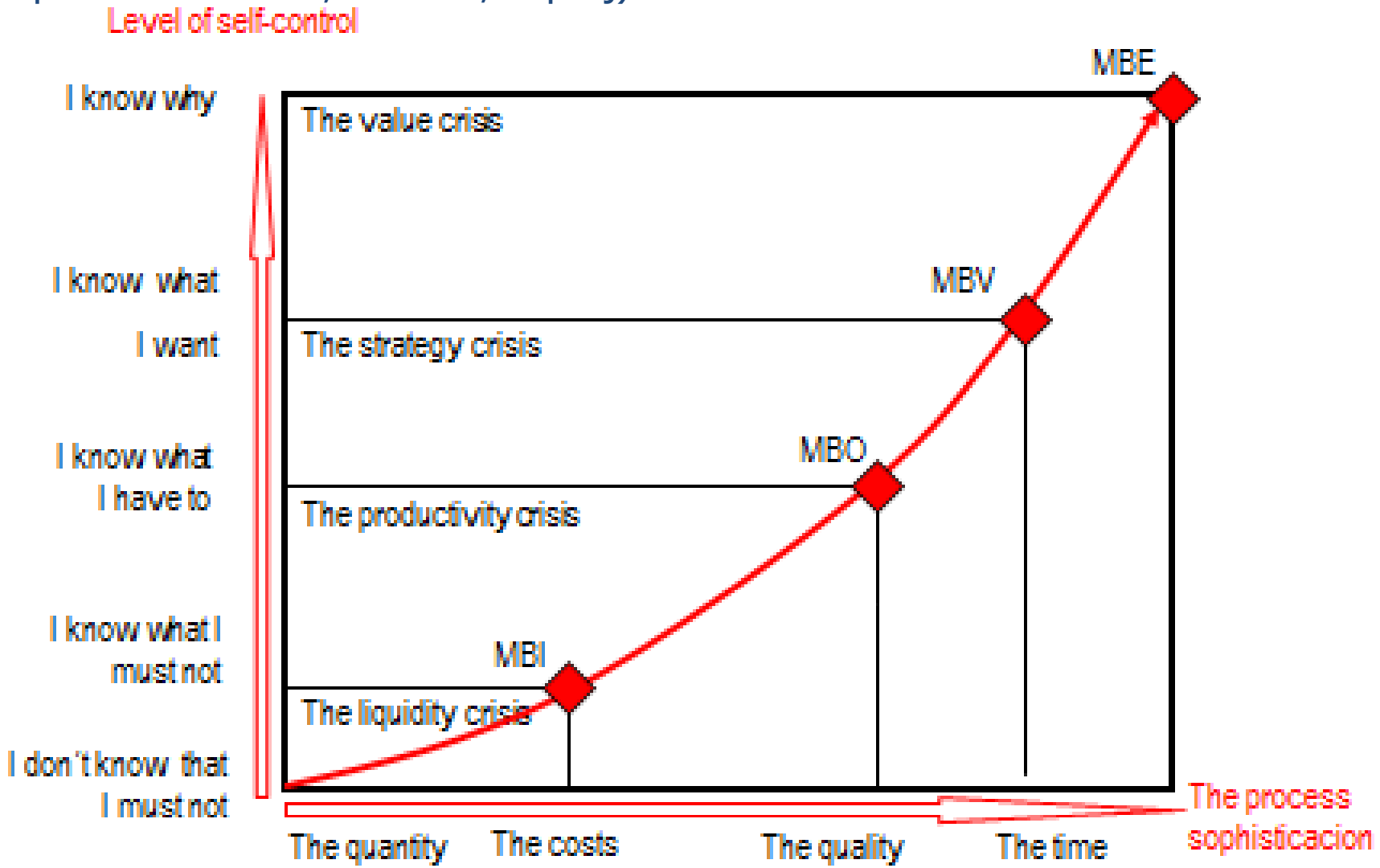
https://wearelightbeings.wordpress.com/2015/04/15/a-letter-from-albert-einstein-to-his-daughter-about-the-universal-force-which-is-love/

The thinking and feeling; the meaning of experiencing and emotions
(an example the organizational structure and culture)

The thinking and feeling; the meaning of experiencing and emotions
(an example of the organizational structure and culture)

The transformation of motivation: external x internal motivation
The sophistications of organization´s processes and the level of self-control

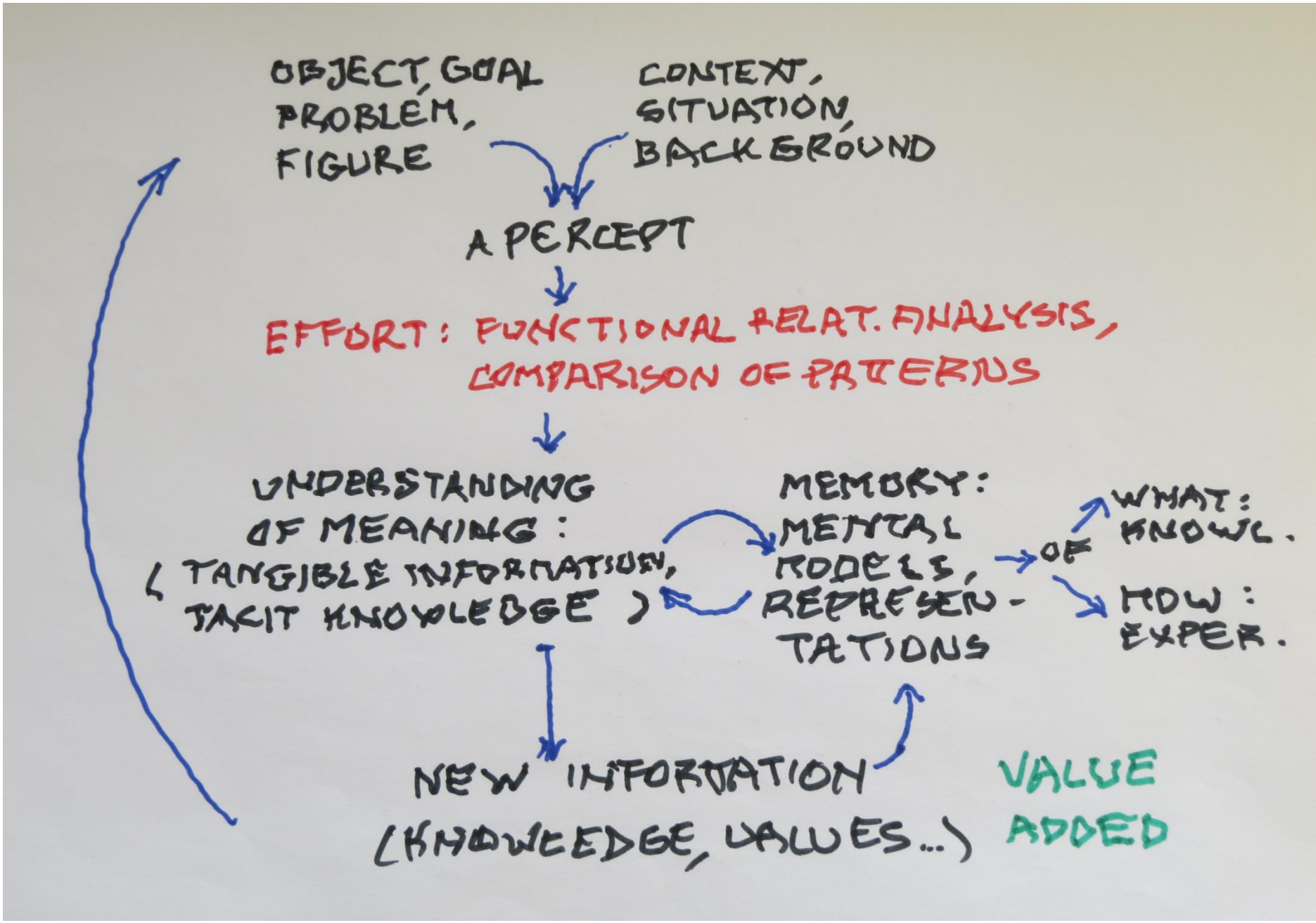
(adapted from Hroník, Galuška, Kopčaj)

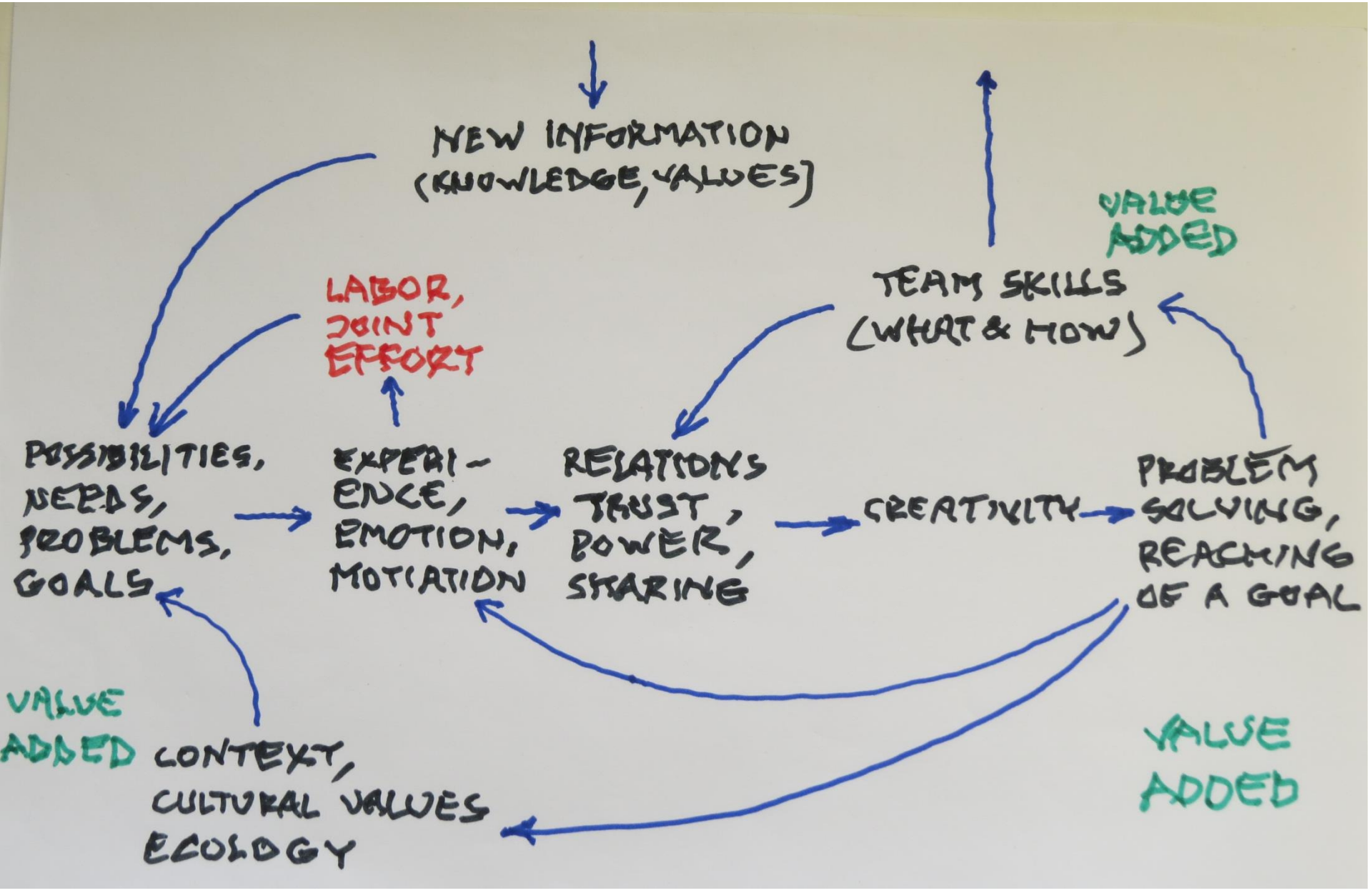


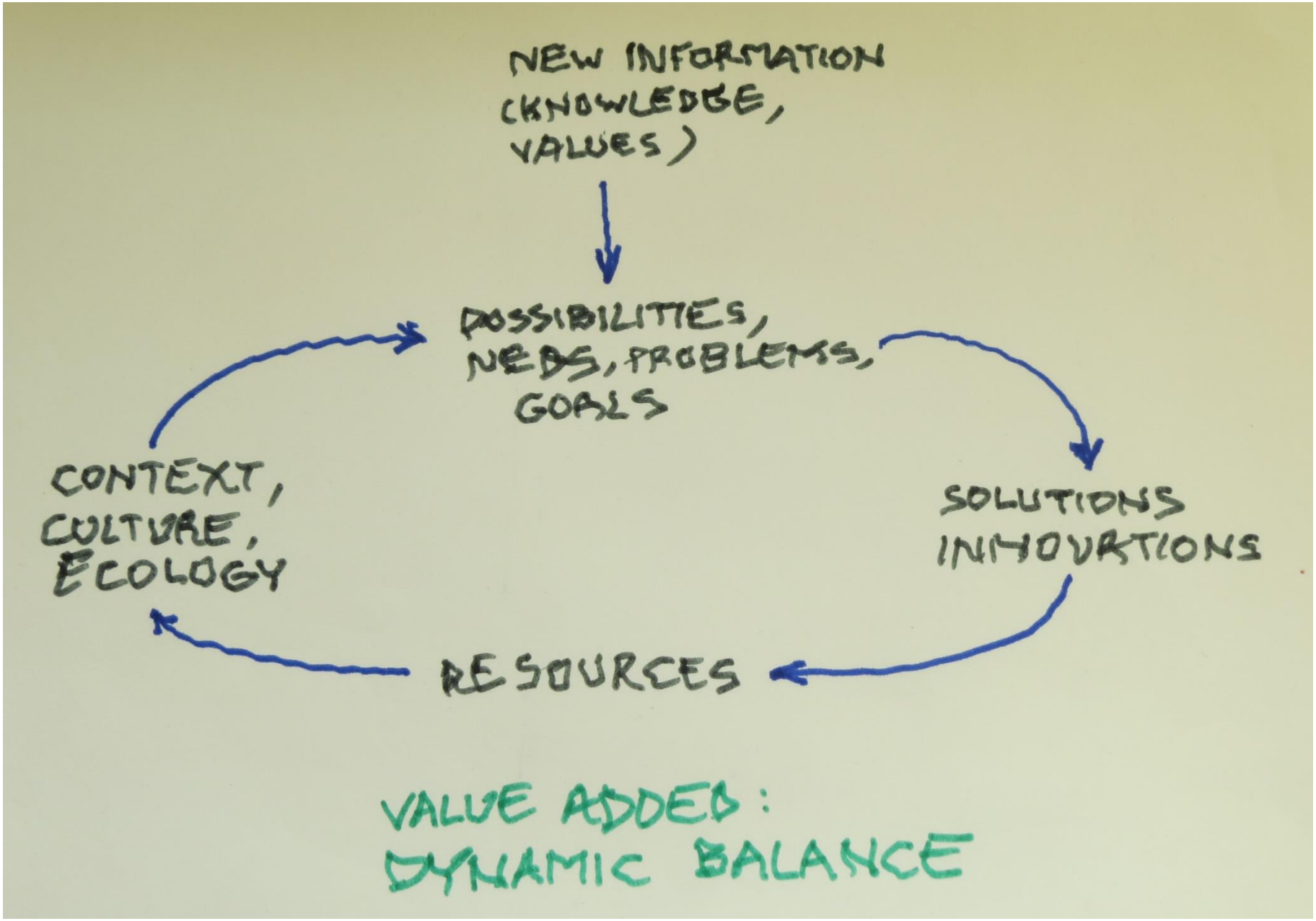
How does it all fit together?

Consider the case of

- an individual,
- social setting,
- a civilization


OBJECT, GOAL
PROBLEM,
FIGURE
CONTEXT,
SITUATION,
BACKGROUND
A PERCEPT
EFFORT: FUNCTIONAL RELAT. ANALYSIS,
COMPARISON OF PATTERNS
UNDERSTANDING
OF MEANING:
(TANGIBLE INFORMATION,
TACIT KNOWLEDGE)
MEMORY:
MENTAL
MODELS,
REPRESEN-
TATIONS
OF
WHAT:
KNOWL.
HOW:
EXPER.
NEW INFORMATION
(KNOWLEDGE, VALUES...)
VALUE
ADDED


NEW INFORMATION
(KNOWLEDGE, VALUES)
VALUE ADDED
TEAM SKILLS
(WHAT & HOW)
LABOR, JOINT EFFORT
POSSIBILITIES, NEEDS, PROBLEMS, GOALS
EXPERI-ENCE, EMOTION, MOTIATION
RELATIONS TRUST, POWER, SHARING
CREATIVITY
PROBLEM SOLVING, REACHING OF A GOAL
VALUE ADDED
CONTEXT, CULTURAL VALUES ECOLOGY
VALUE ADDED


NEW INFORMATION
(KNOWLEDGE,
VALUES)
POSSIBILITIES,
NEEDS, PROBLEMS,
GOALS
SOLUTIONS
INNOVATIONS
RESOURCES
CONTEXT,
CULTURE,
ECOLOGY
VALUE ADDED:
DYNAMIC BALANCE

There is a catch, a witchious circle:

in order to determine a tool, which would serve us to understand a person´s behavior, we need to understand that person first!

5. The tasks, situations, environments - the psychological theory of ecology

The Brunswik ´s requirement of representative experimental design (representative samaples of subjects as well as their ecology)

The Hammond´s theory of ecology is based on formal characterists of stimulae/cues/information, which the ecology presents (any classification based upon the „content" is not realistic).

The cues/incoming information induces either more analytical processes, or intuition: the „quasirational thinking" consists of a mixture of both (see picture 16).

Which exceptional situations/tasks induce usualy rational thinking or intuition?

The personality and the environment problem

- There are many psychological theories of personality;
- Psychological theories of the environments/situations are rare;
- The perception of a situation is influenced by its meaning for a given person. However, the understanding of the meaning may be influenced by an understanding of a much wider framework/context (for instance - history).

The typology of intelectual tasks by John Rohrbaugh, S.U.N.Y. at Albany, Rockefeller College of Public Affairs and Policy

http://grantome.com/grant/NSF/IIA-9014357

differentiation

Negotiation, common goals

New information seeking

More parties, many criteria, different interests. Agreement negotiations. The conflict of interests.

More solutions possible with outcomes, which may be divided; a co-operation is not necessary; creative generation of ideas.

analysis (criteria previously agreed upon)

intuition (usual solution possibilities)

Few possibilities of a solution; total co-operation is important; the cognitive conflict.

The making of strategies and planing.

Exploration, problem solving

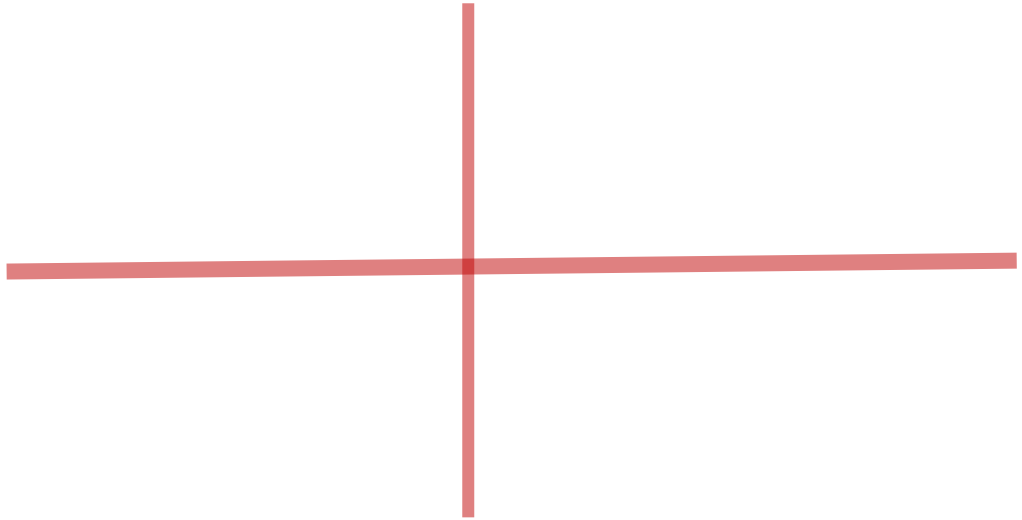
integration

Assessment, decision - making

The situational - experiencing space

(a metaphore: the linear and curvilinear spacetime)

Exceptional, significant, symbolic and threatening situations (emotions at play, the subjective time experiencing changed).



individual

group, crowd

usual, common situation.

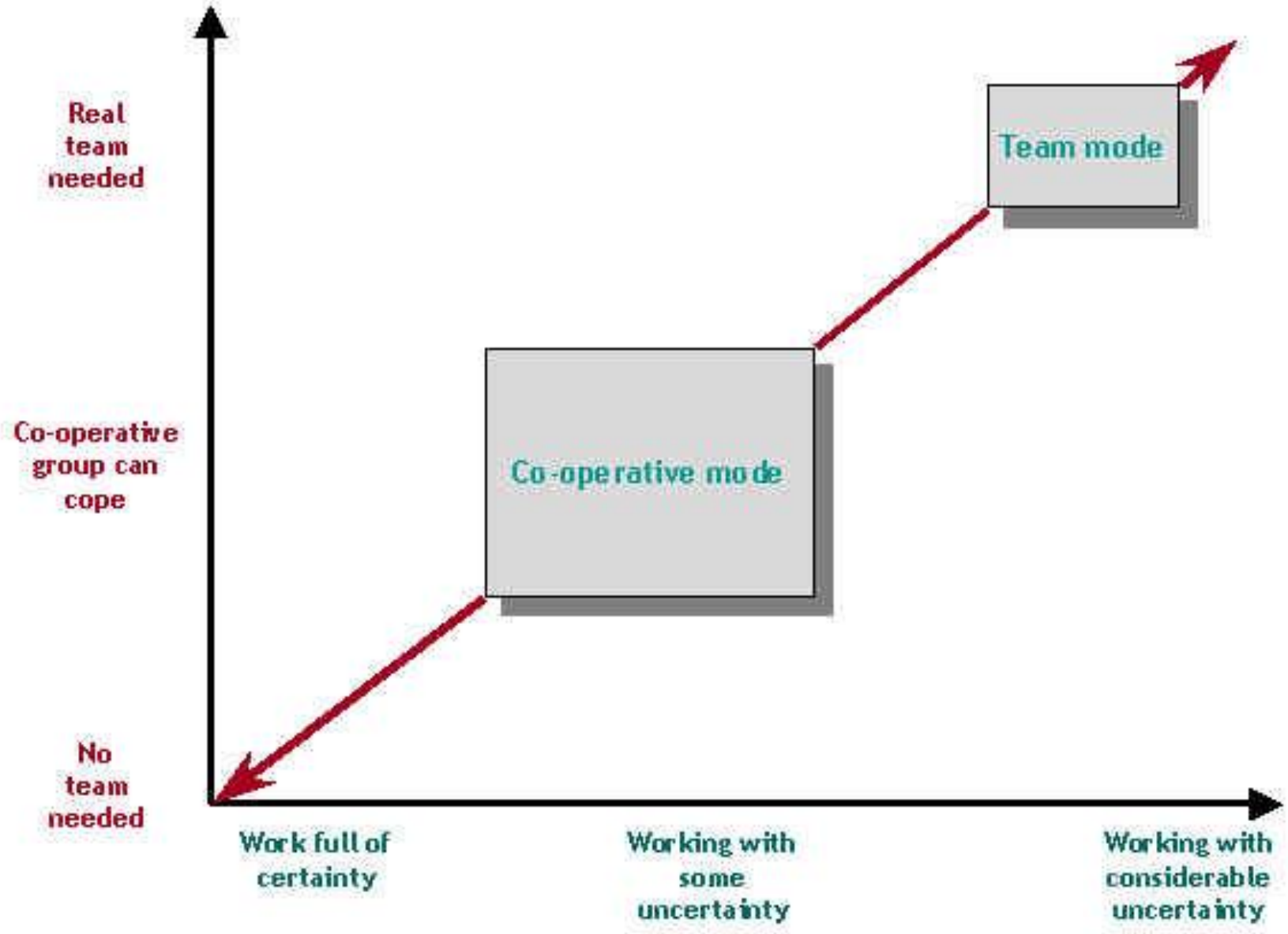
Related concept - genius loci

6. The role of emotions (and group support) in solving ill defined problems solution.

Bill Critchley, organizational consultant

Dave Casey - Director at Fire and Emergency Training Institute/ Louisiana State University (perhaps not a picture of the right person…? But he look good.)

Bill Critchley, David Casey : tasks, emotions, work - building of a team



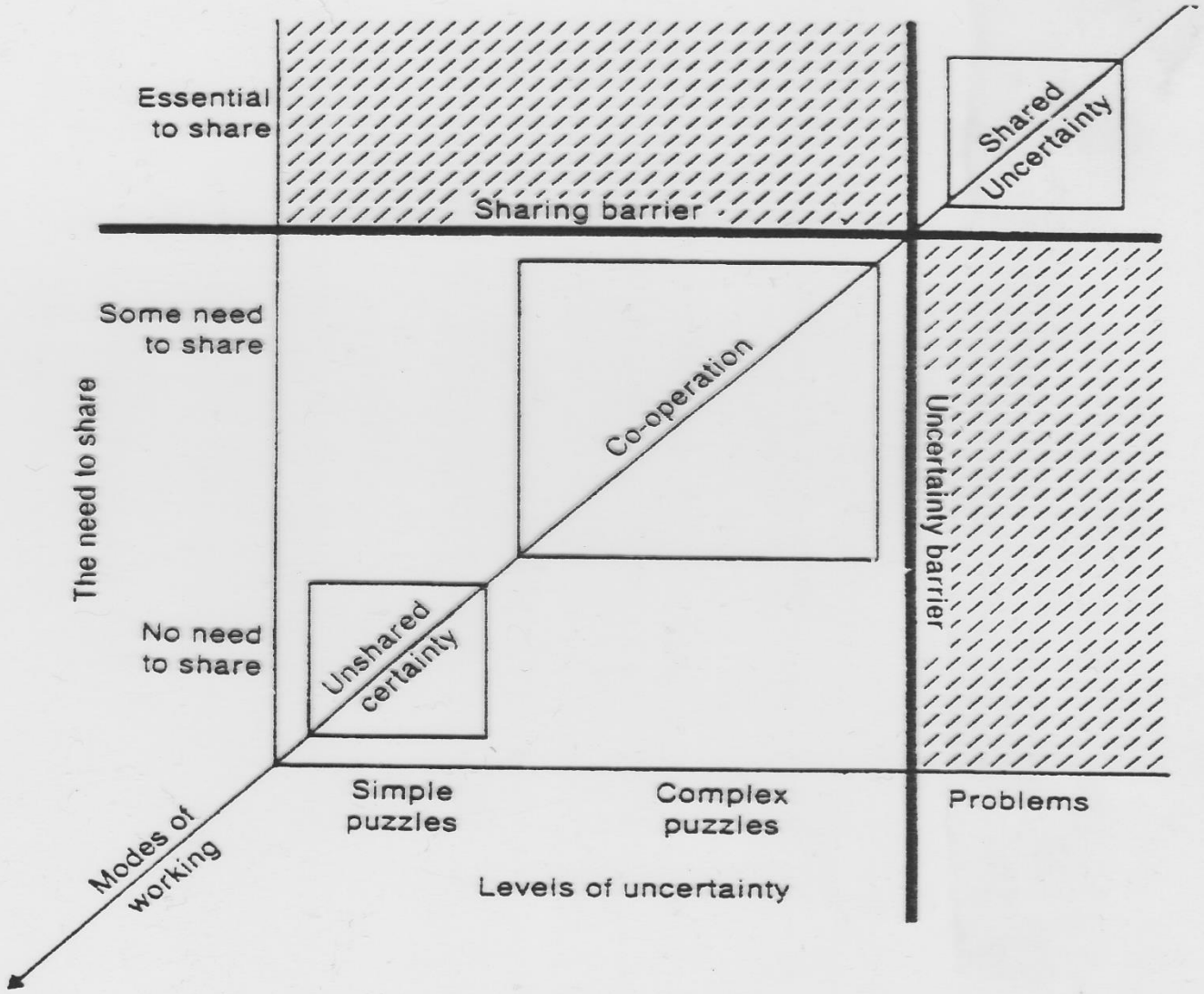


Figure 35.1 The more uncertainty in its task, the more any group has to share

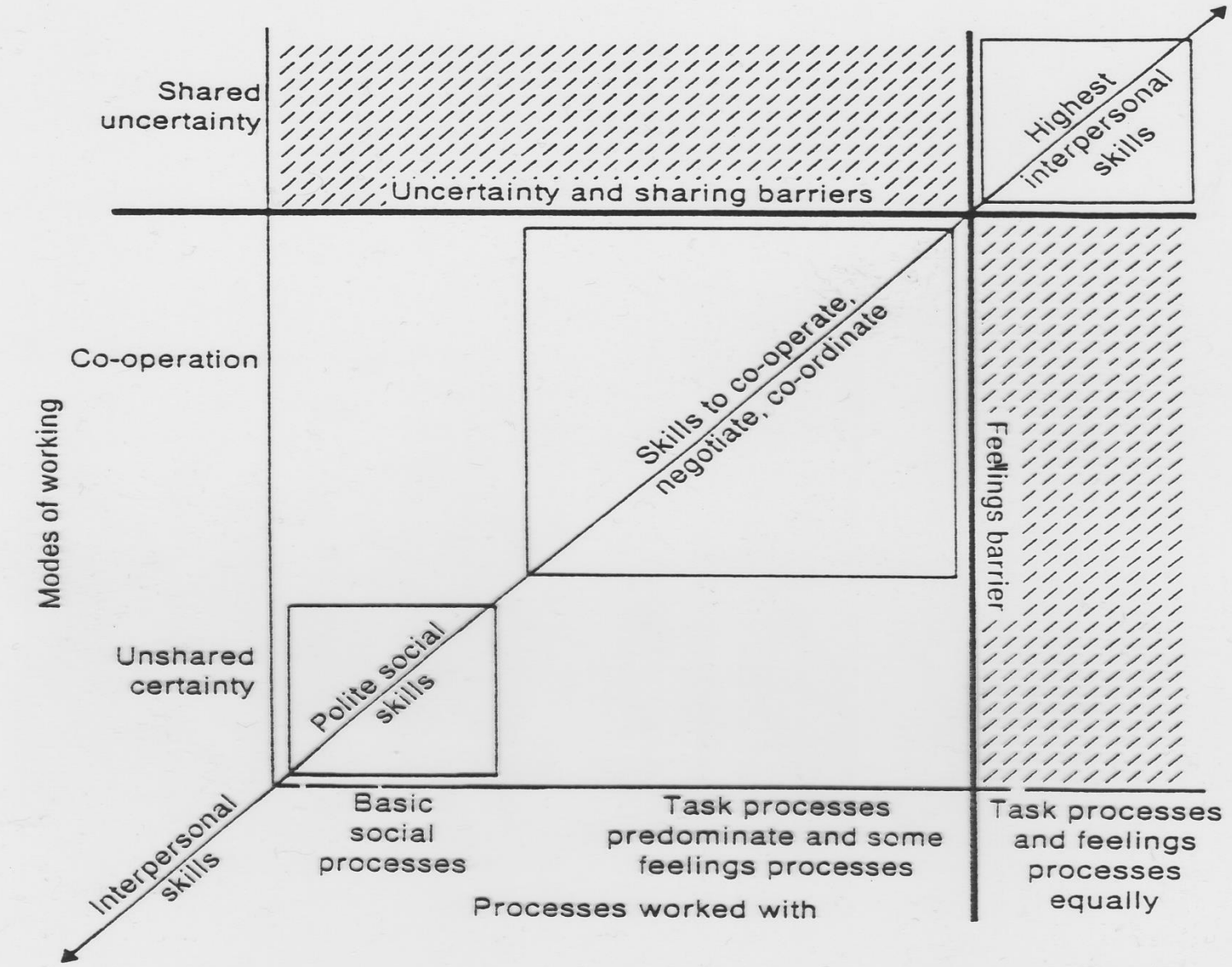


Figure 35.2 Different modes of working require different methods

7. System dynamics - learning to see…
What connects perception, thinking memory and learning? The beginning of knowledge is:

- bringing „static order" into chaos,
- recognizing change, processes, systems
- a single loop learning – adaptation
- a double loop generative learning

a) The static view of the world: Classification, bringing order/system into chaos.

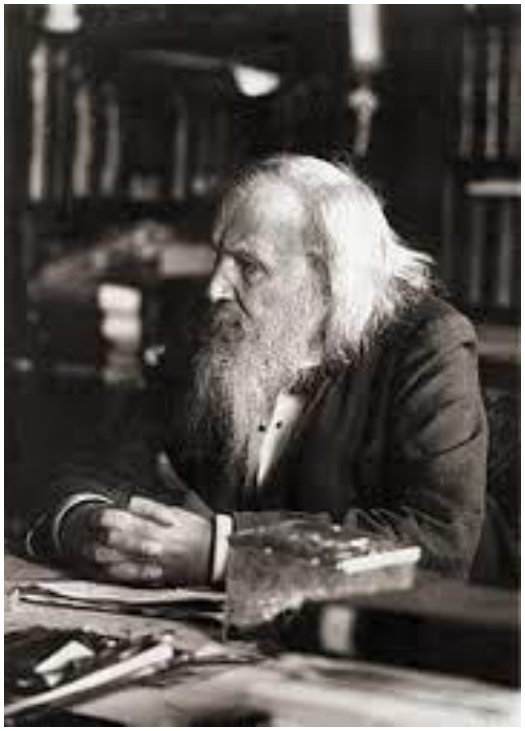
Some notable examples:

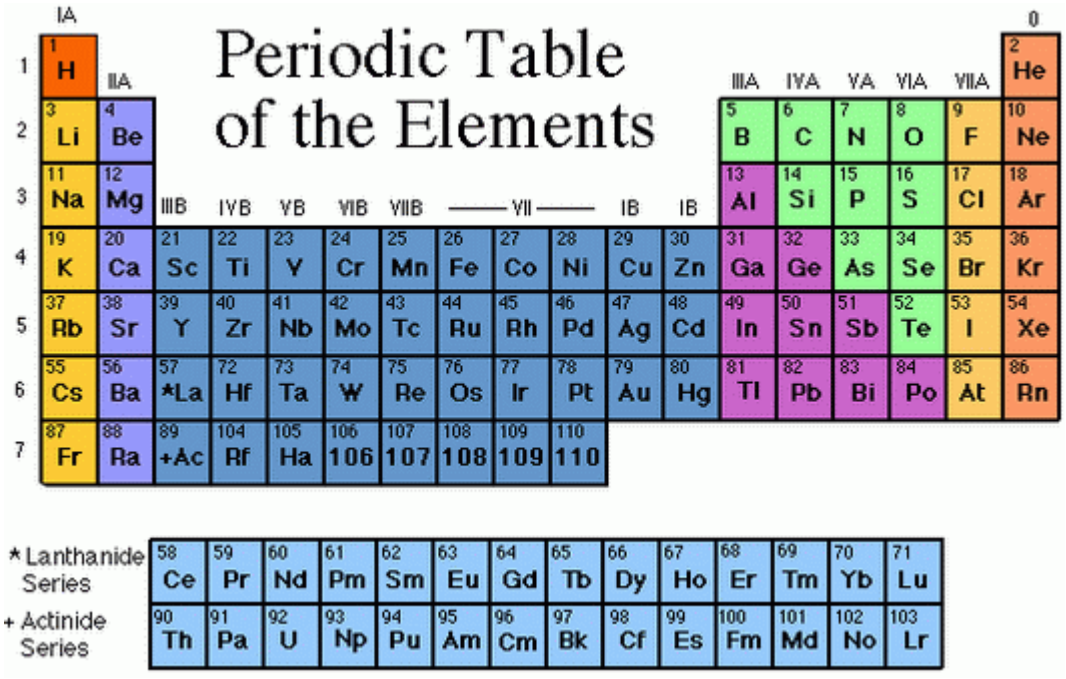
Carl von Linné or Carolus Linnaeus, 1707 – 1778
is often called the Father of Taxonomy.
Classification of plant and animals.

What are the classification kriteria?

Dimitirij Ivanovič Mendelejev
8.2.1834 – 2.2.1907

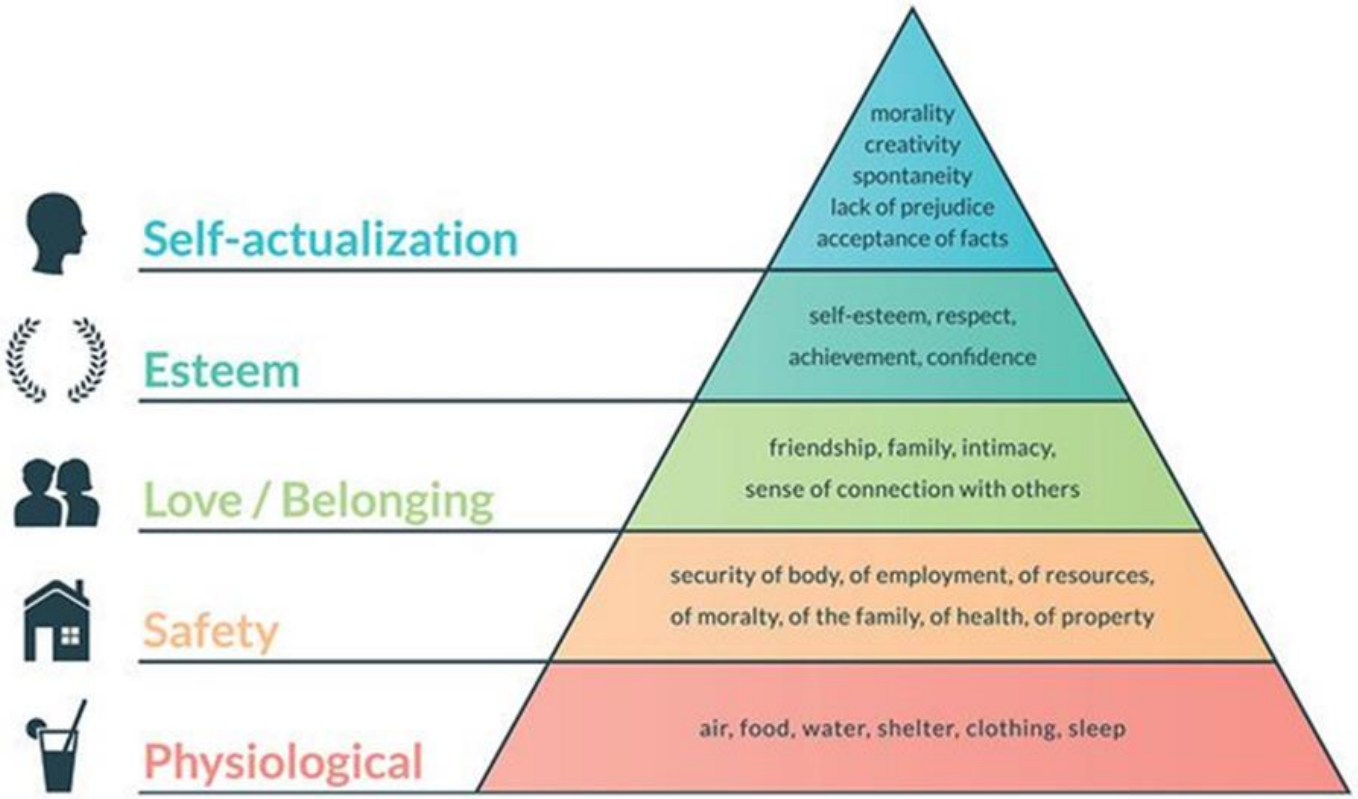
What is the organizing principle?



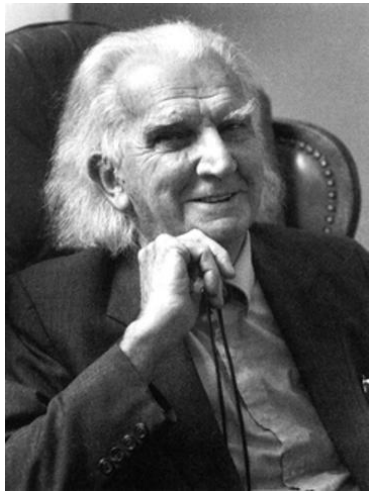


Abraham Harold Maslow´s hierarchy of needs

1.4.1908 Brooklyn –
8.6.1970 Menlo Park



Co-founders of the general systems theory :

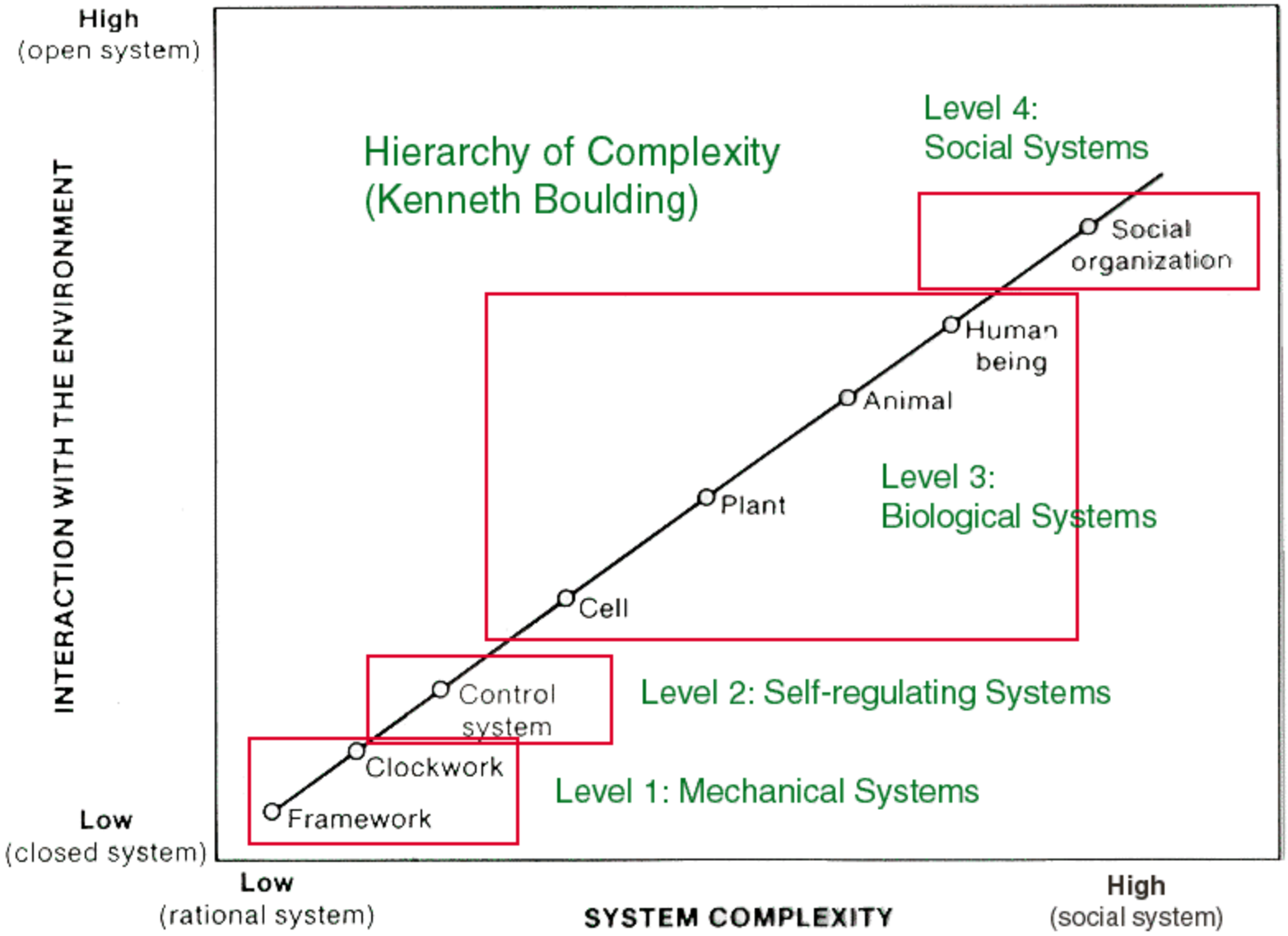


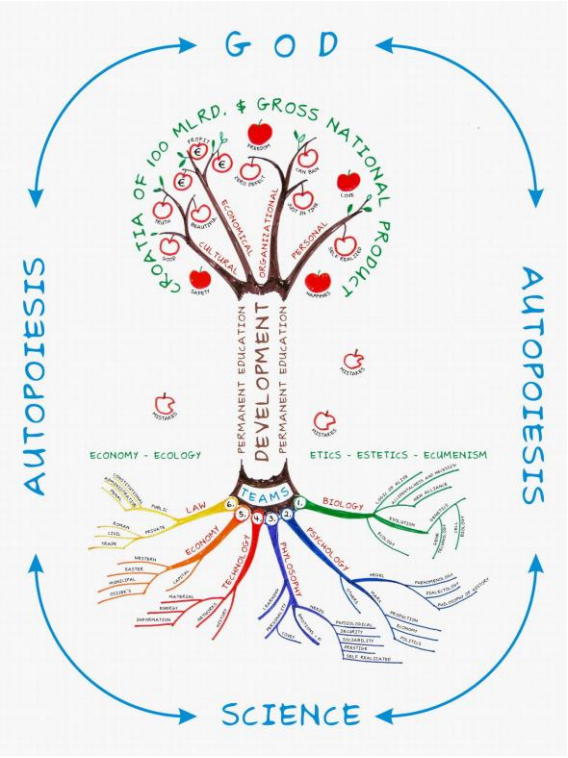
Kenneth Ewart Boulding
18.1.1910 – 18.3.2000

Living systems are open systems, characterized by:

- **complexity,**
- **seeking of a dynamic equilibrium,**
- **use feedback – loops and,**
- **temporarily defy entropy by self-organization.**

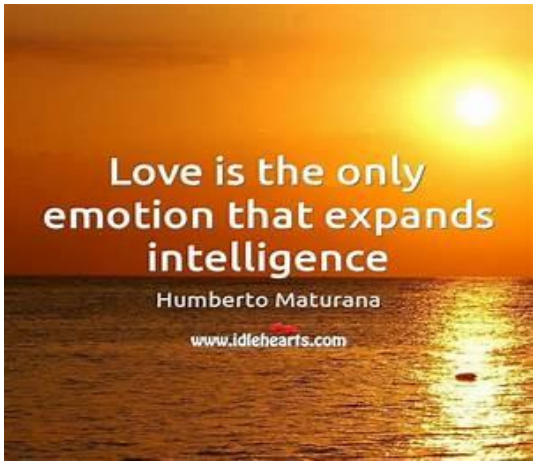
Ludwig von Bertalanffy 19.9.1901
Vienna – 12.6.1972 Buffalo, N.Y.


High
(open system)
INTERACTION WITH THE ENVIRONMENT
Low
(closed system)
Hierarchy of Complexity
(Kenneth Boulding)
Level 4:
Social Systems
Social
organization
Human
being
Animal
Plant
Cell
Level 3:
Biological Systems
Control
system
Level 2: Self-regulating Systems
Clockwork
Framework
Level 1: Mechanical Systems
Low
(rational system)
SYSTEM COMPLEXITY
High
(social system)



Humberto R. Maturana
14.9.1928

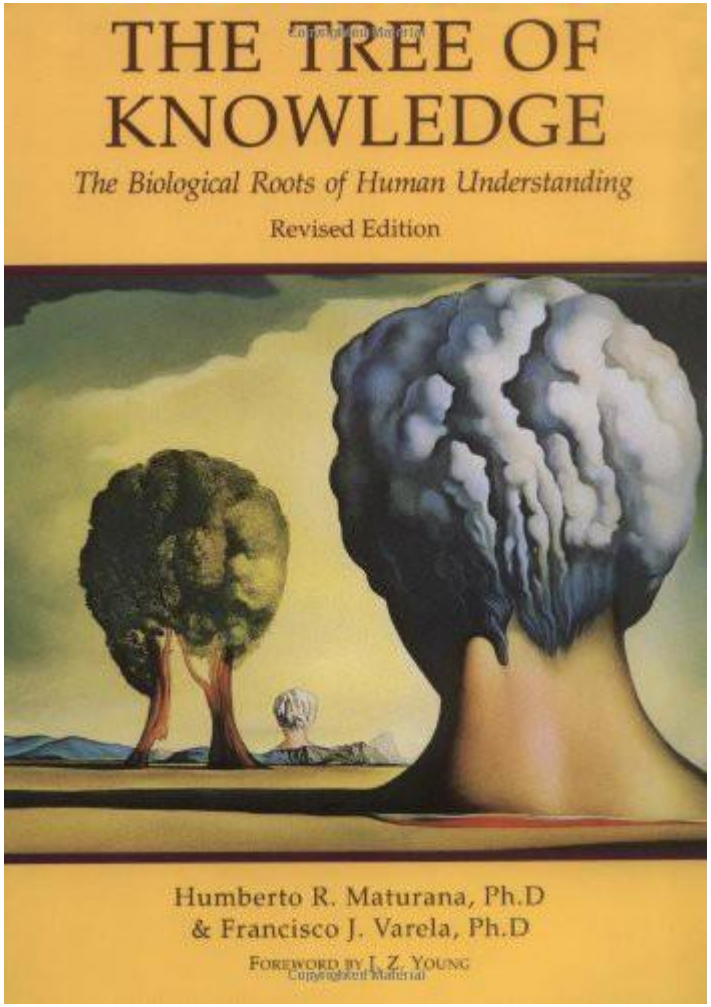
A concept of an„autopoietic (self-developing) system", a separeate system, staying as a structure, which behavior is governed by it. Used alo in socials ciences.



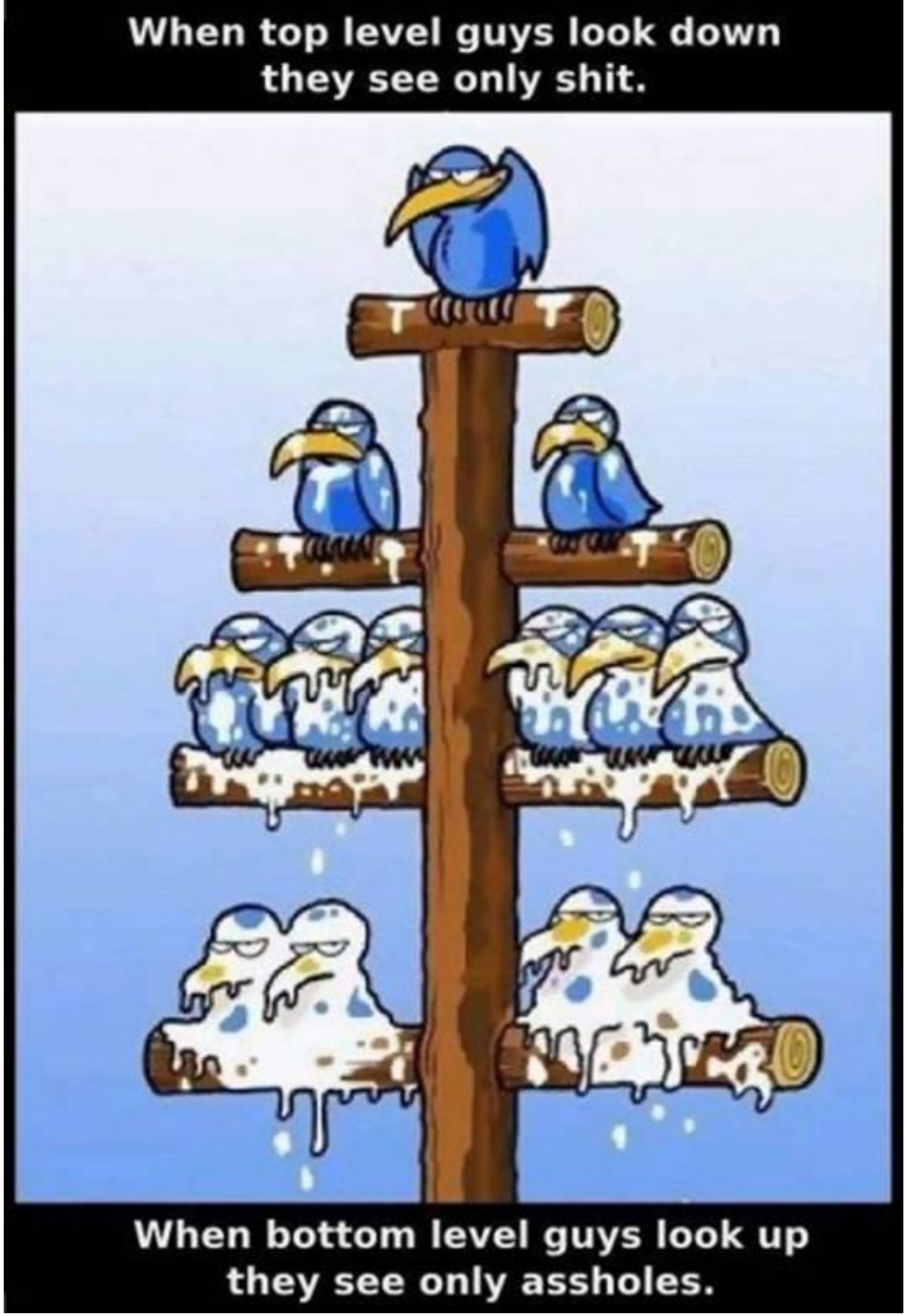
The nervous system is coupled to the organism that it integrates in a manner that its plastic connectivity is being continuously determined though its participation in the autopoiesis of the oprganism.

Therefore, the connectivity of the nervous system is coupled to the history of interactions od the organism to which it is coupled.

Humberto Maturana, Cognitive strategies



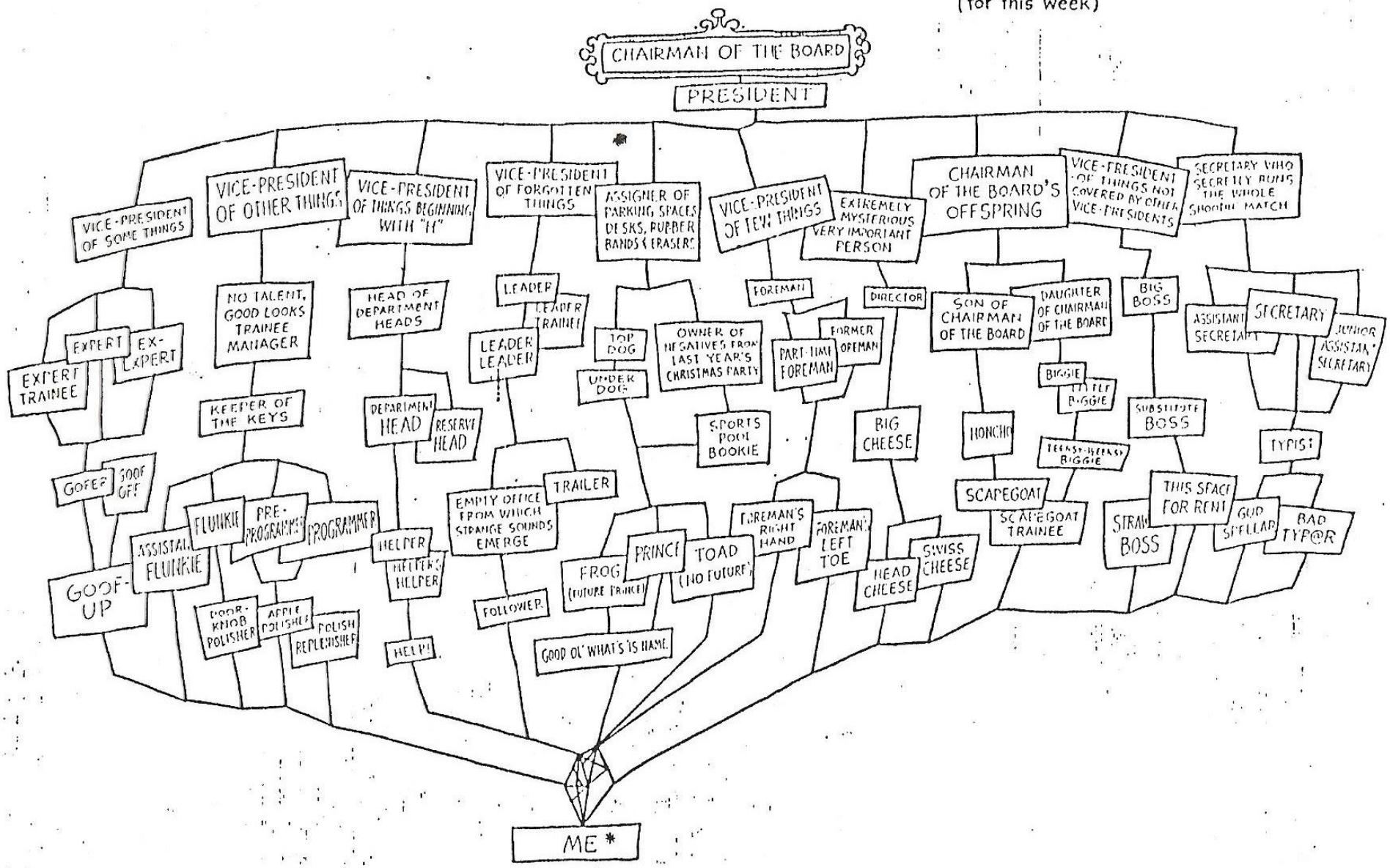
Science is not a domain of objective knowledge, but a domain of subject dependent knowledge defined by a methodology that specifies the properties of the knower.



Two examples
of a static systems view
in the theory of organization

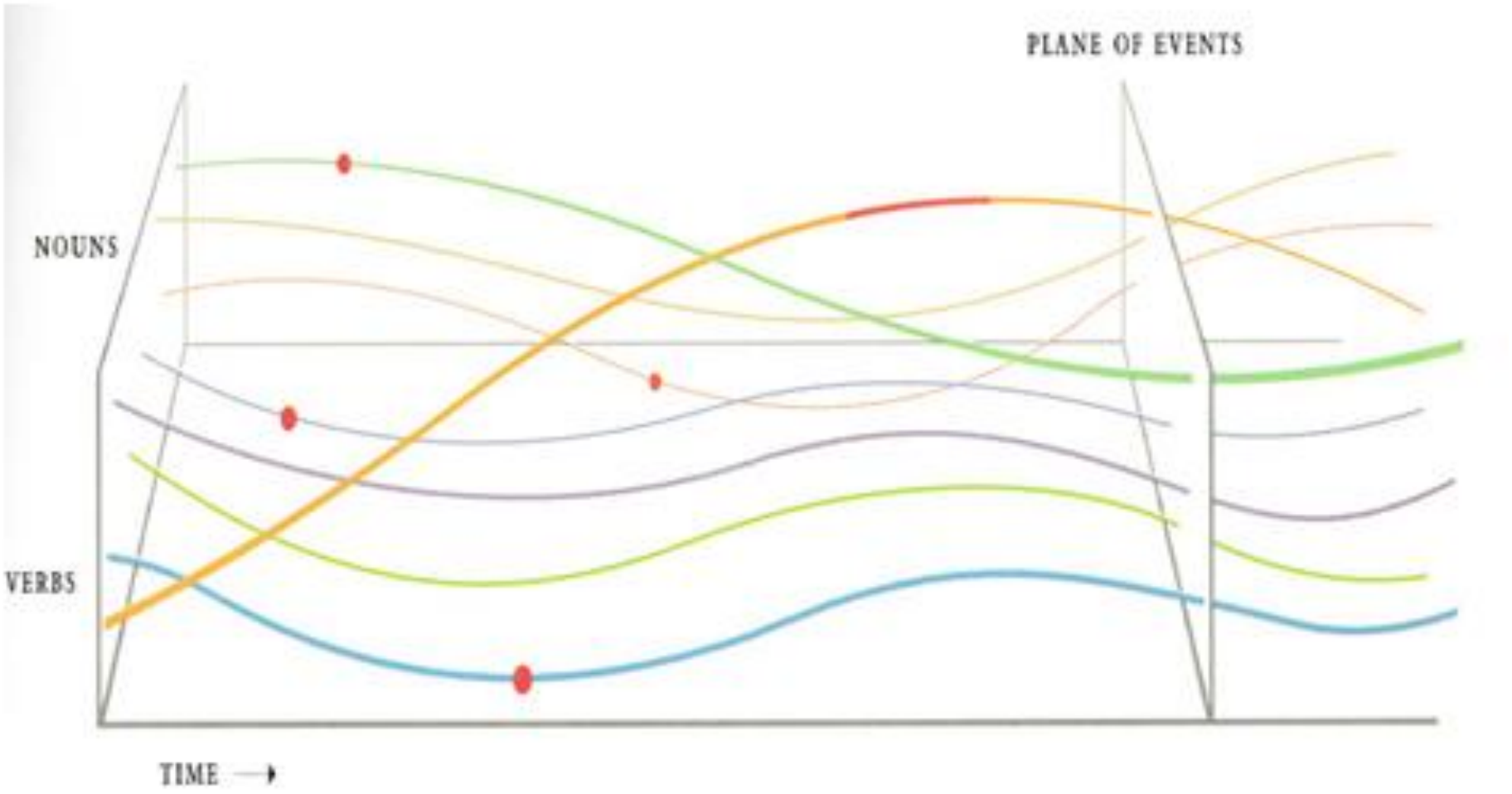
CORPORATE ORGANIZATIONAL CHART

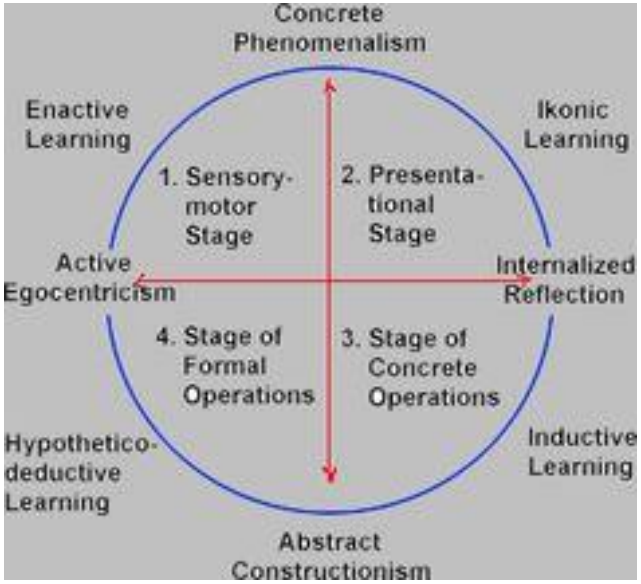
(for this week)



* INDICATES POSITIONS SUBJECT TO CHANGE WITHOUT NOTICE.

The transformation of static picture into a dynamic moving pictures.
An event is always only a part of a story ….





The cognitive development view

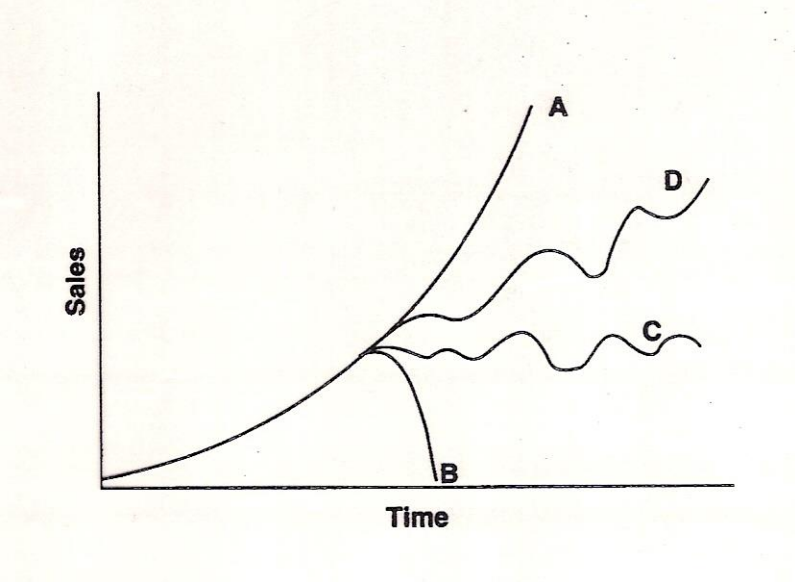
When you teach a child something, you take away forever his chance of discovering it for himself.

J.P.

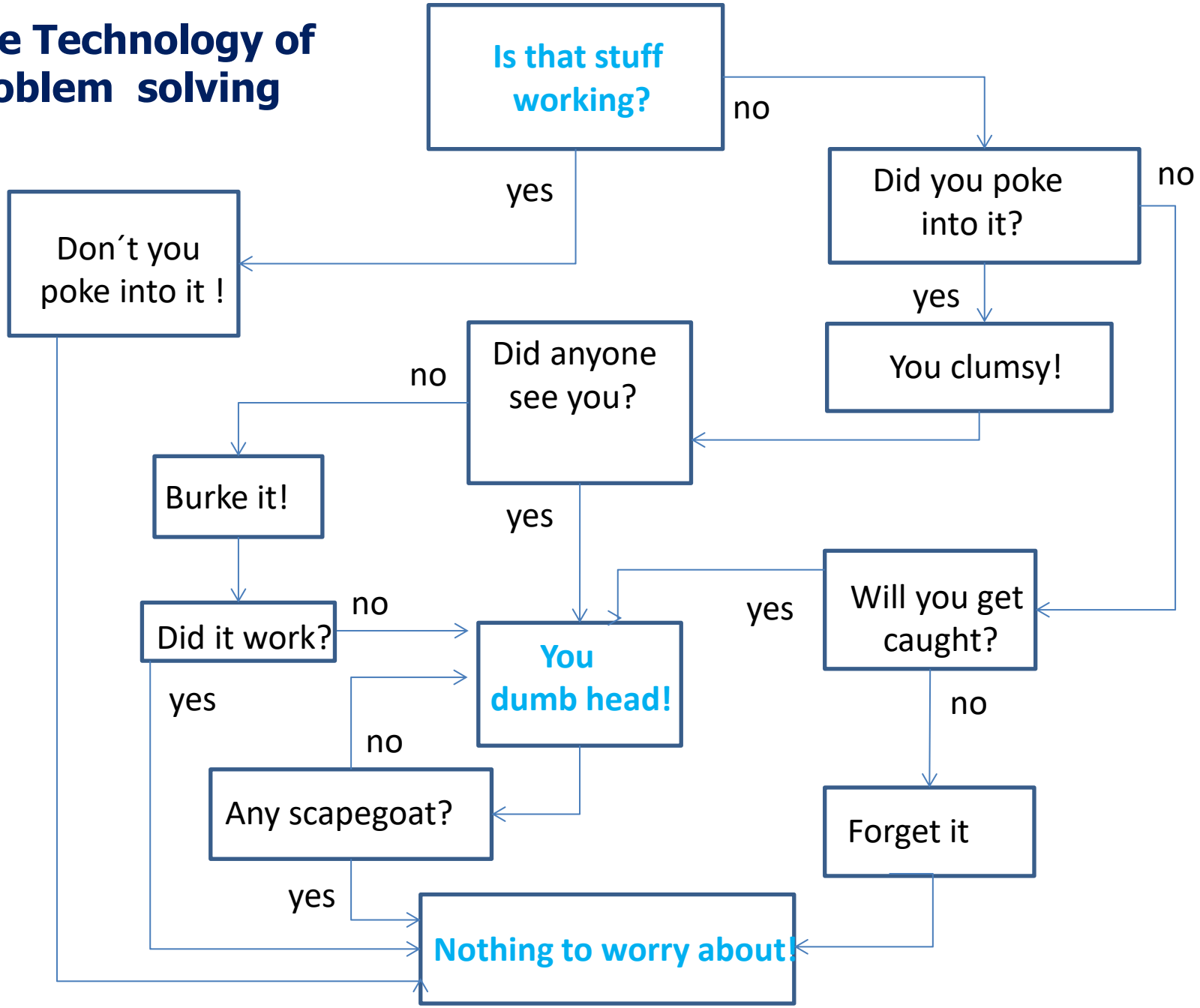
Jean Piaget 1896 Neuchatel - 1980 Geneva

Sensorimotor	Birth - 2 years	-Identifies object permanence: the object still exists when out of sight -Recognition of ability to control objects and acts intentionally
Preoperational	2 - 7 years	-Begins to use language -Egocentric thinking: difficulty seeing things from other viewpoints -Classifies objects by single feature: example- color
Concrete Operational	7 - 11 years	-Logical thinking -Recognizes conservation of numbers, mass and weight -Classifies objects by several features and can place them in order
Formal Operational	11 years and up	-Logical thinking about abstract propositions -Concerned with the hypothetical and the future -Create hypotheses and test

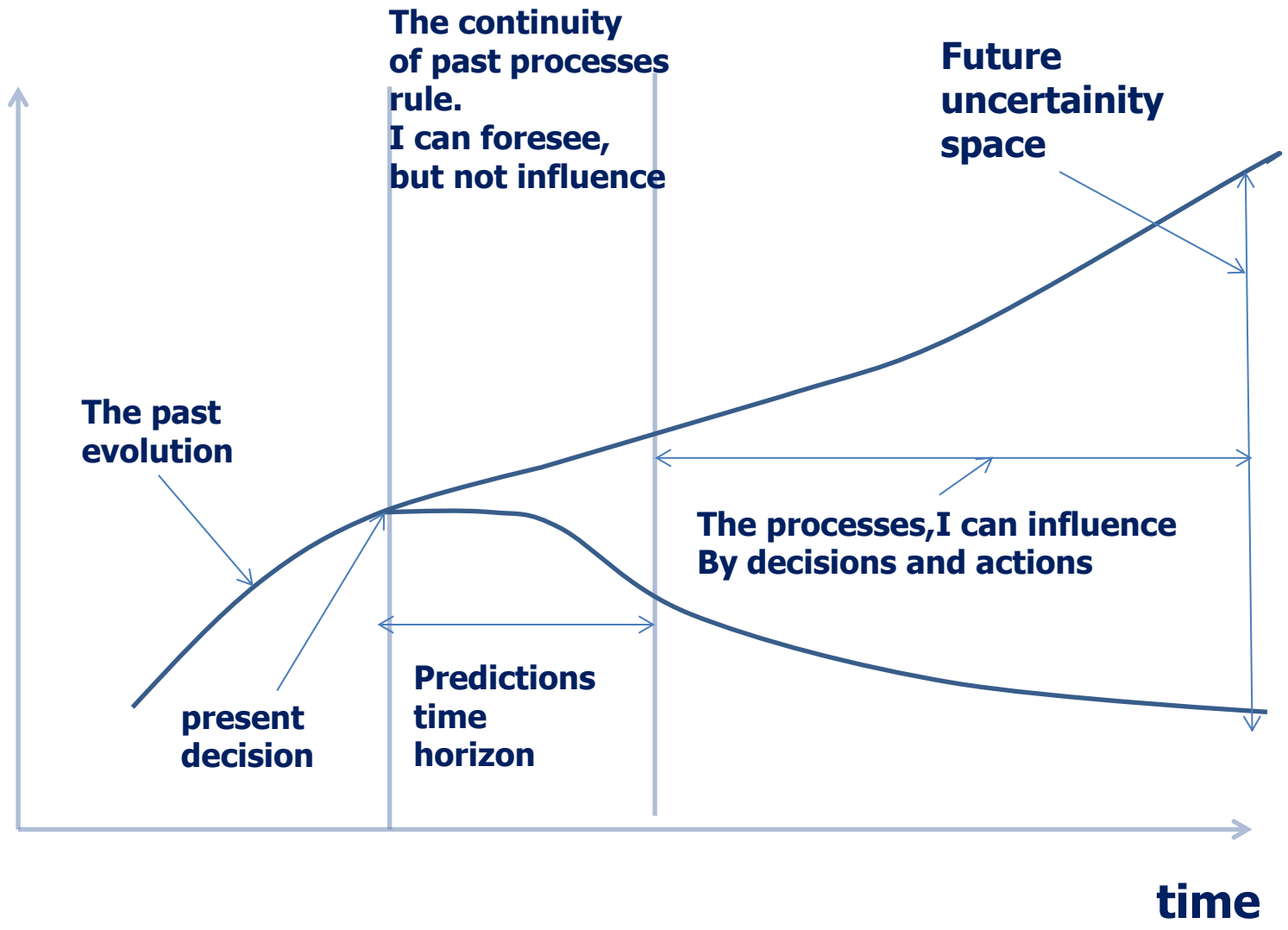
Picturing change over time – evolution, development. Linear and non-linear view (see also slides 49 – 54)



The Technology of problem solving

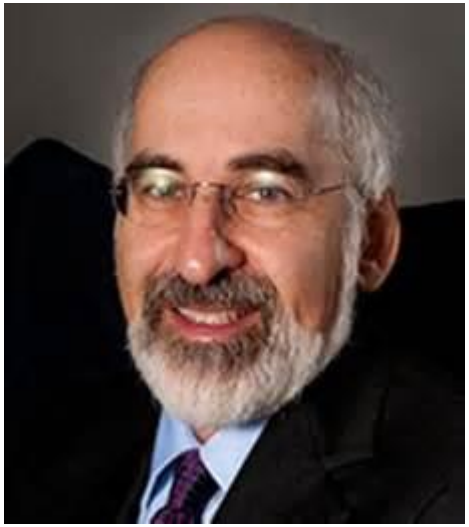


Decision - making and its consequences



By Jay W.Forrester

b) A way to a more advanced thinking: the system dynamics

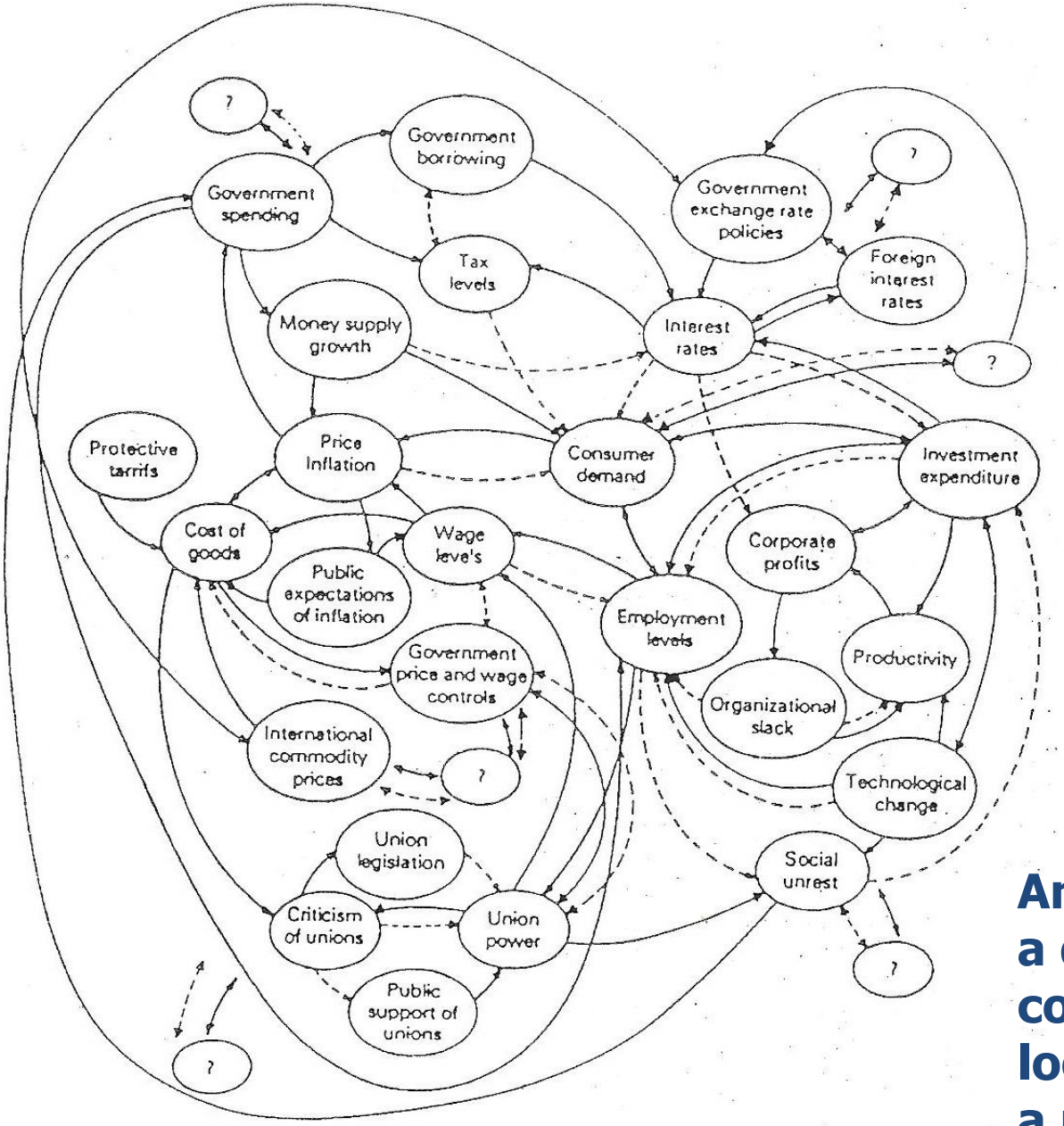


Peter M.Senge
1947 Stanford:
System dynamics thinking – „The learning organization“

Jay Wright Forrester
14.7.1918 – 16.11.2016
founder of S.D.,
„The world dynamics“

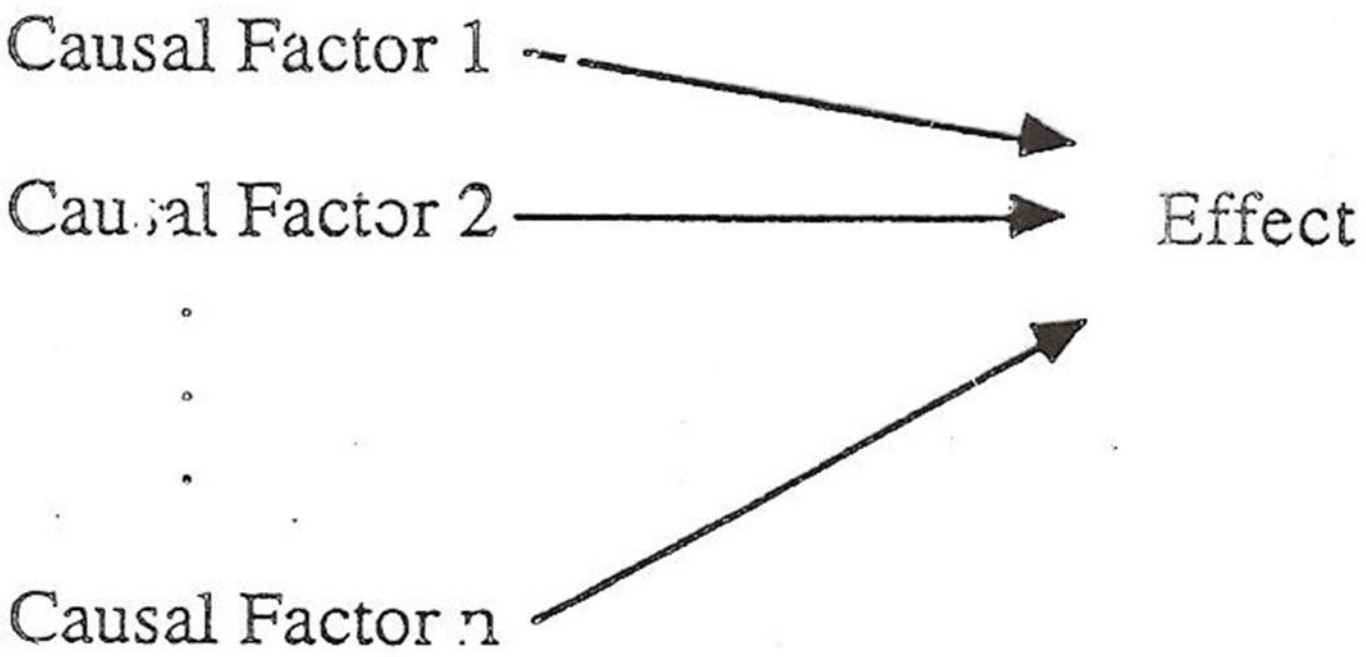
John Sterman :
system dynamics modelling – „The Business Dynamics“

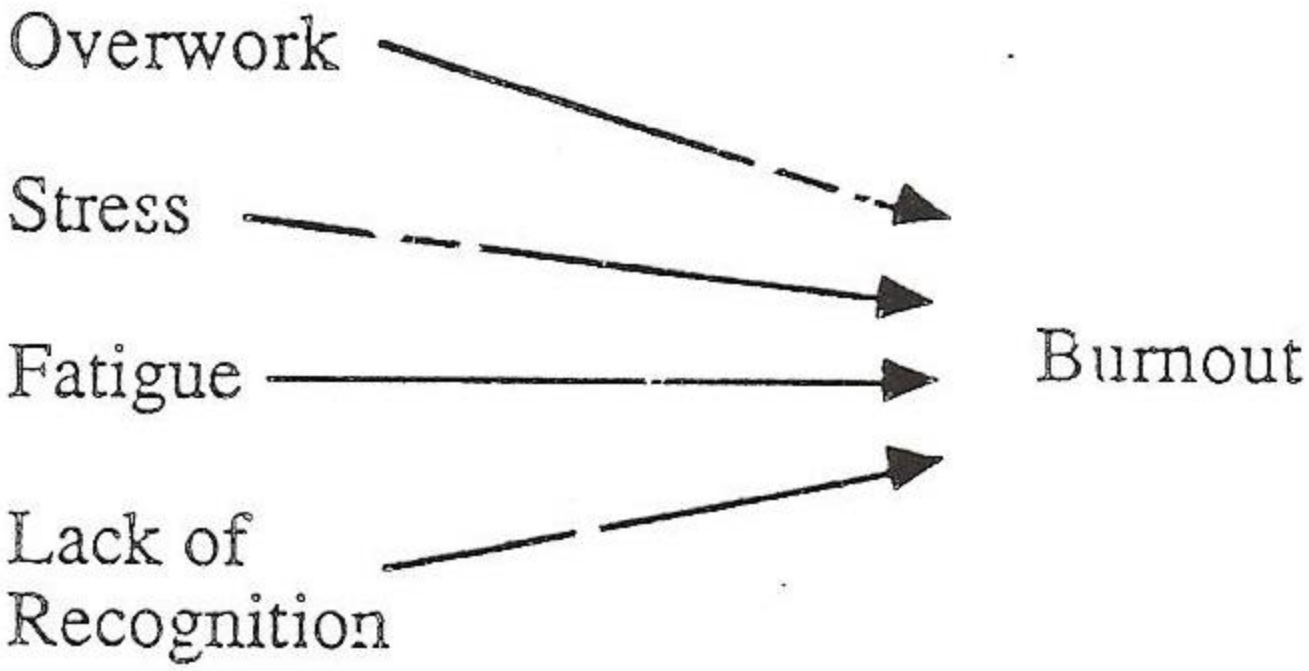
All at the Sloan School of management, M.I.T., Boston



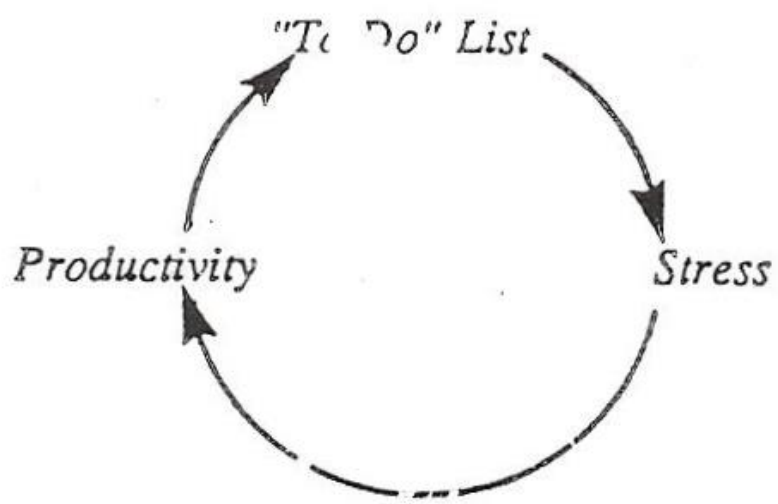
An example of a dynamic structure, consisting of feedback loop processes: a price inflation model

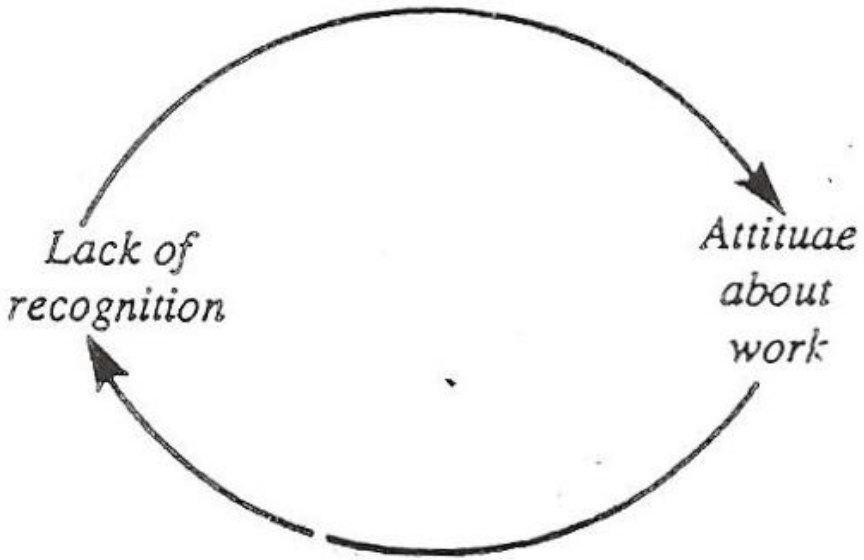
An example: how to turn the SWOT table into a set of processes, which hide the root cause of a problem

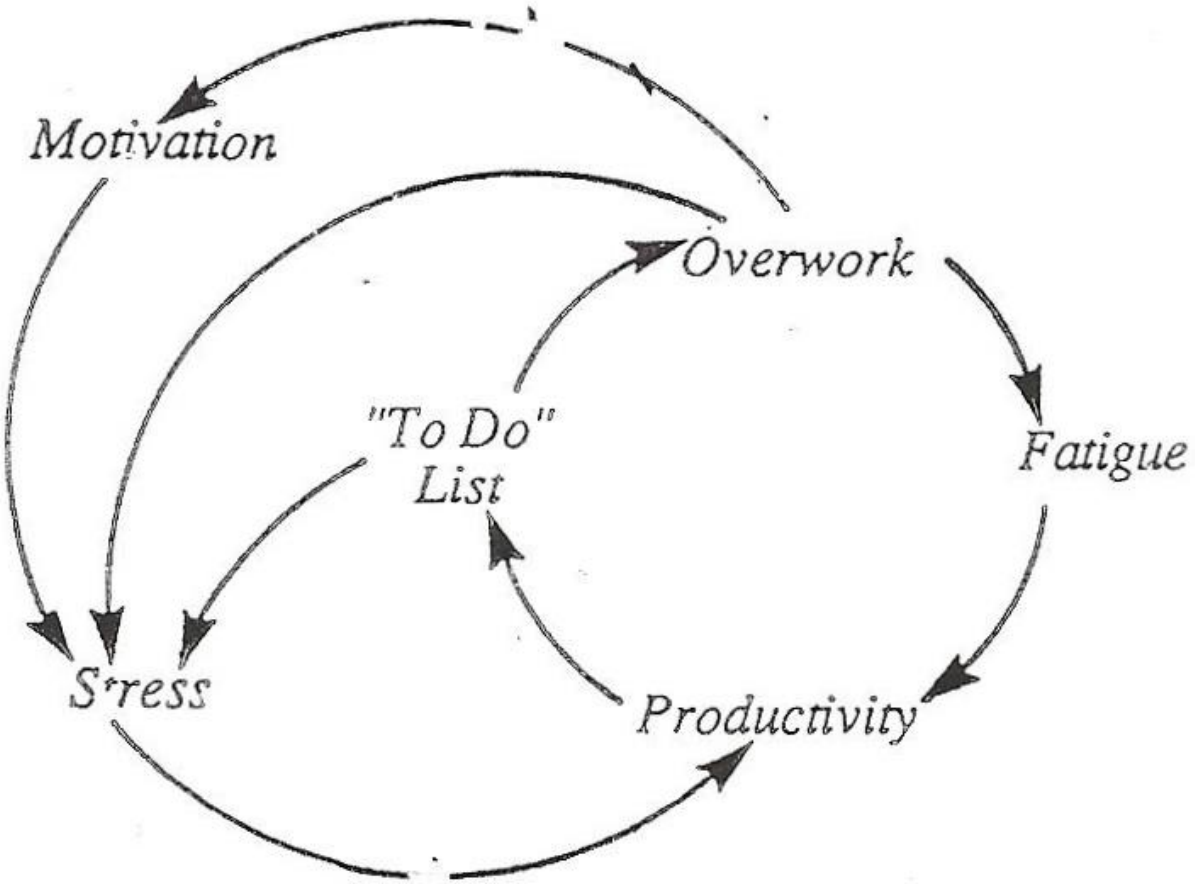



Overwork
Stress
Fatigue
Lack of
Recognition
Burnout

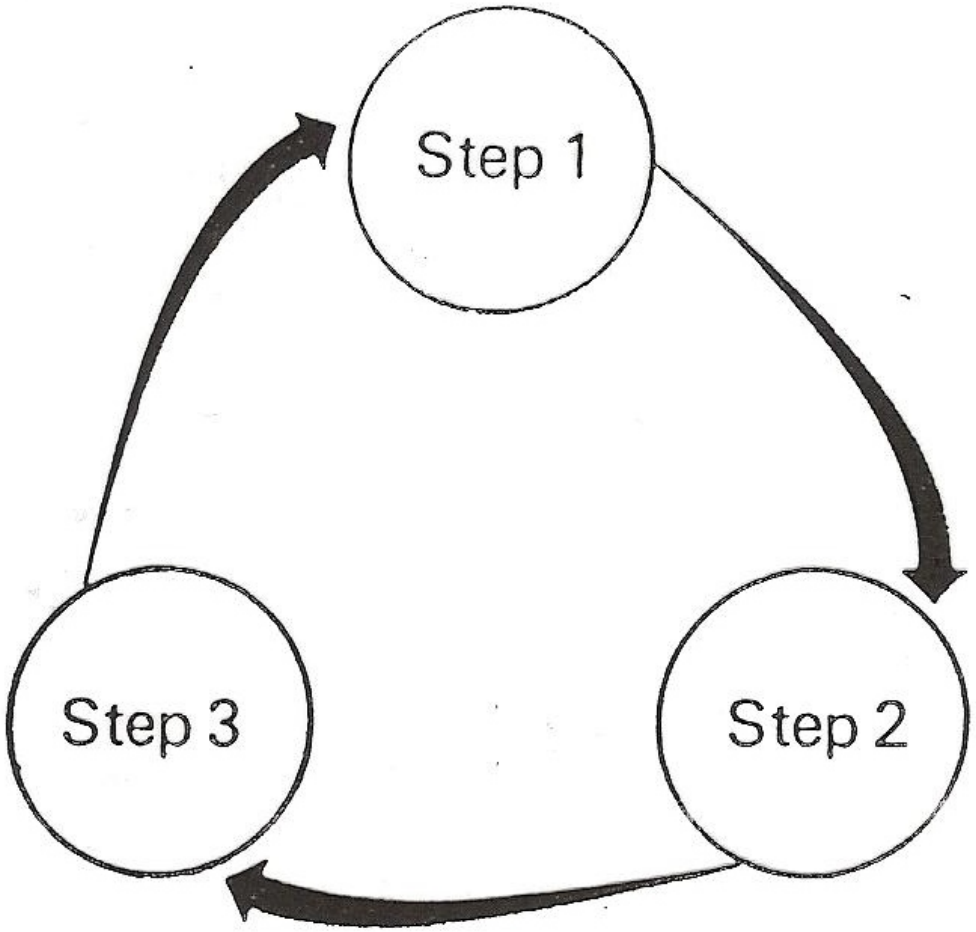

Overwork
"To Do" List
Fatigue
Productivity


"To Do" List
Productivity
Stress

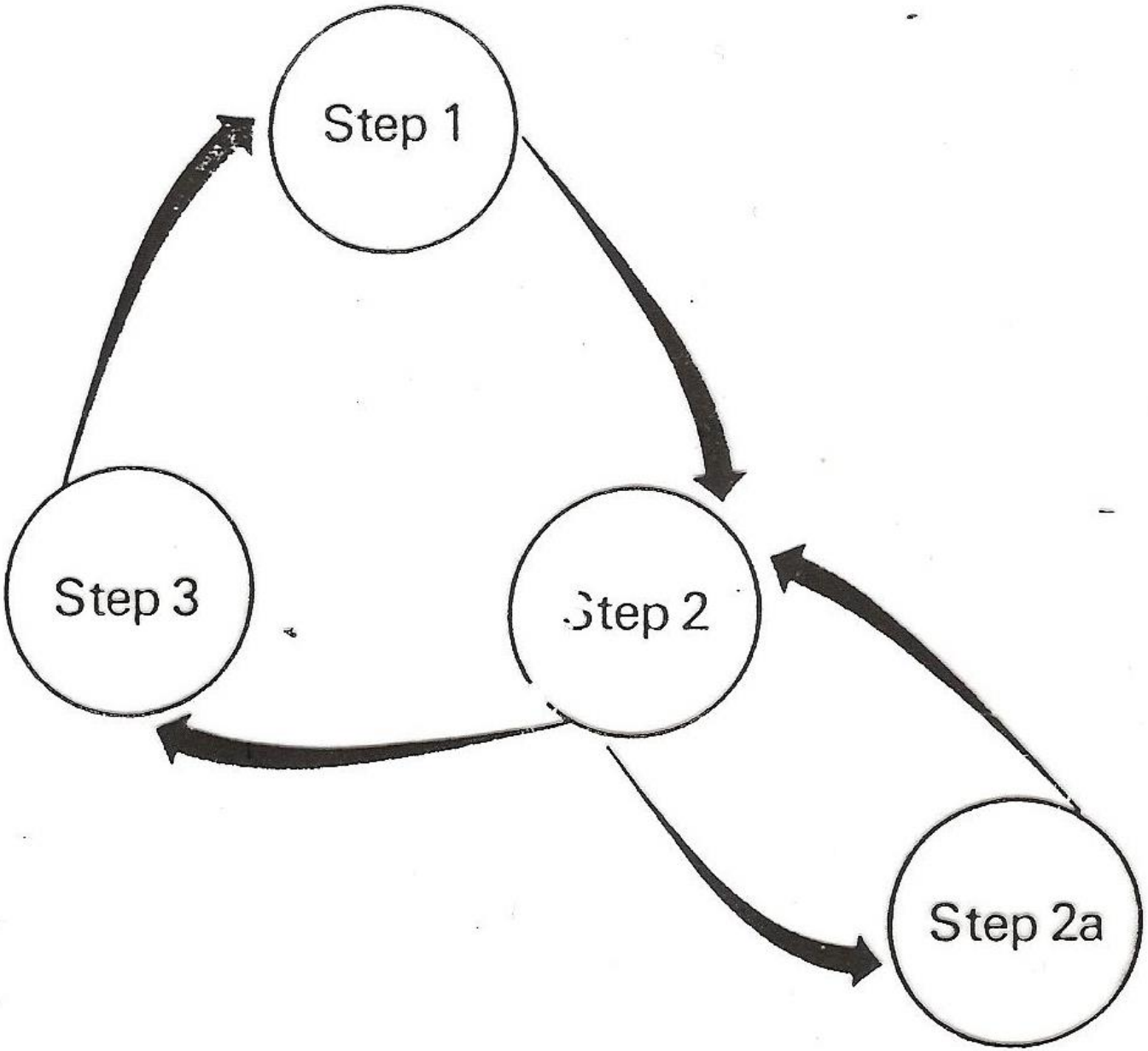

Lack of recognition
Attituae about work

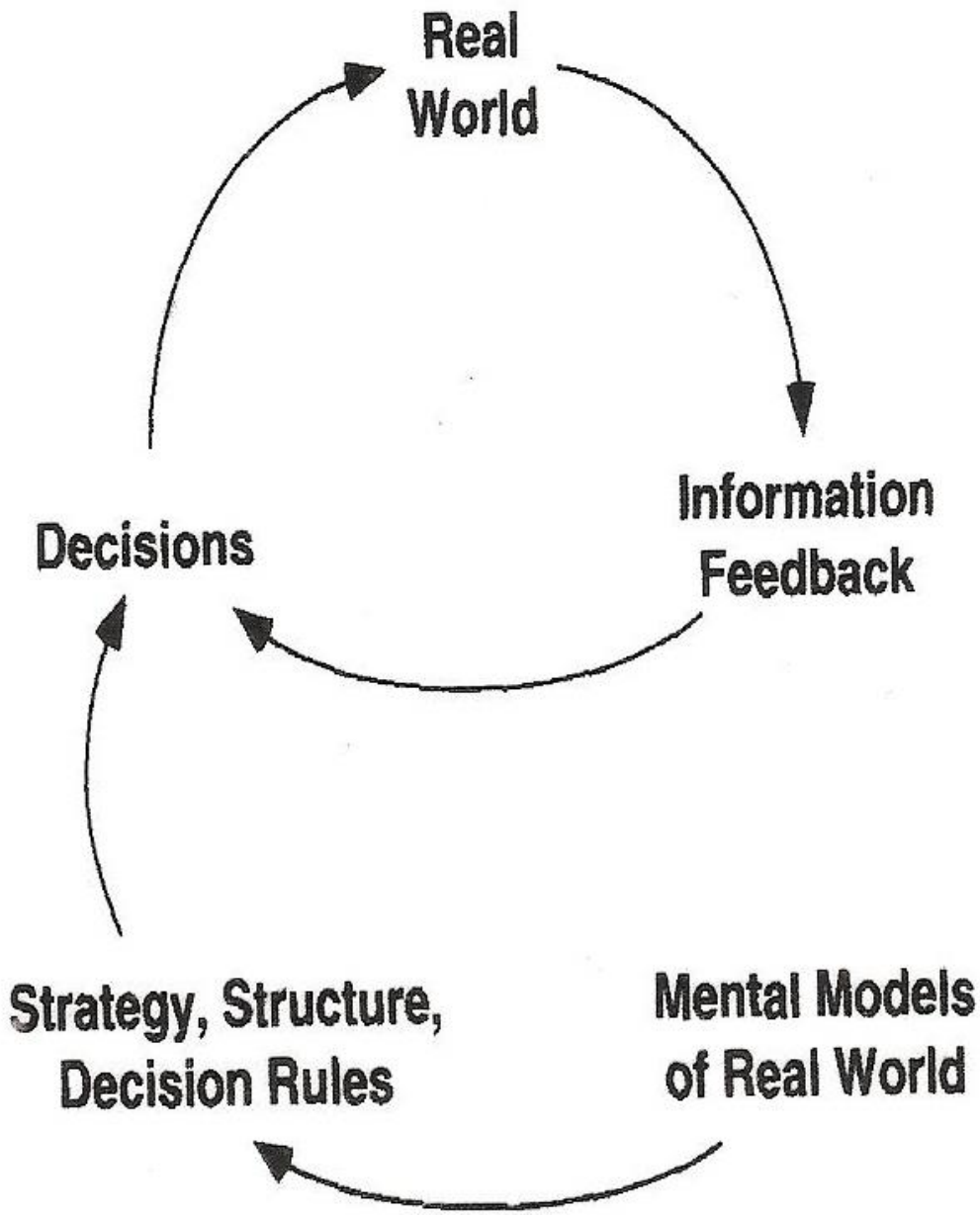

Motivation
Overwork
"To Do"
List
Fatigue
Stress
Productivity

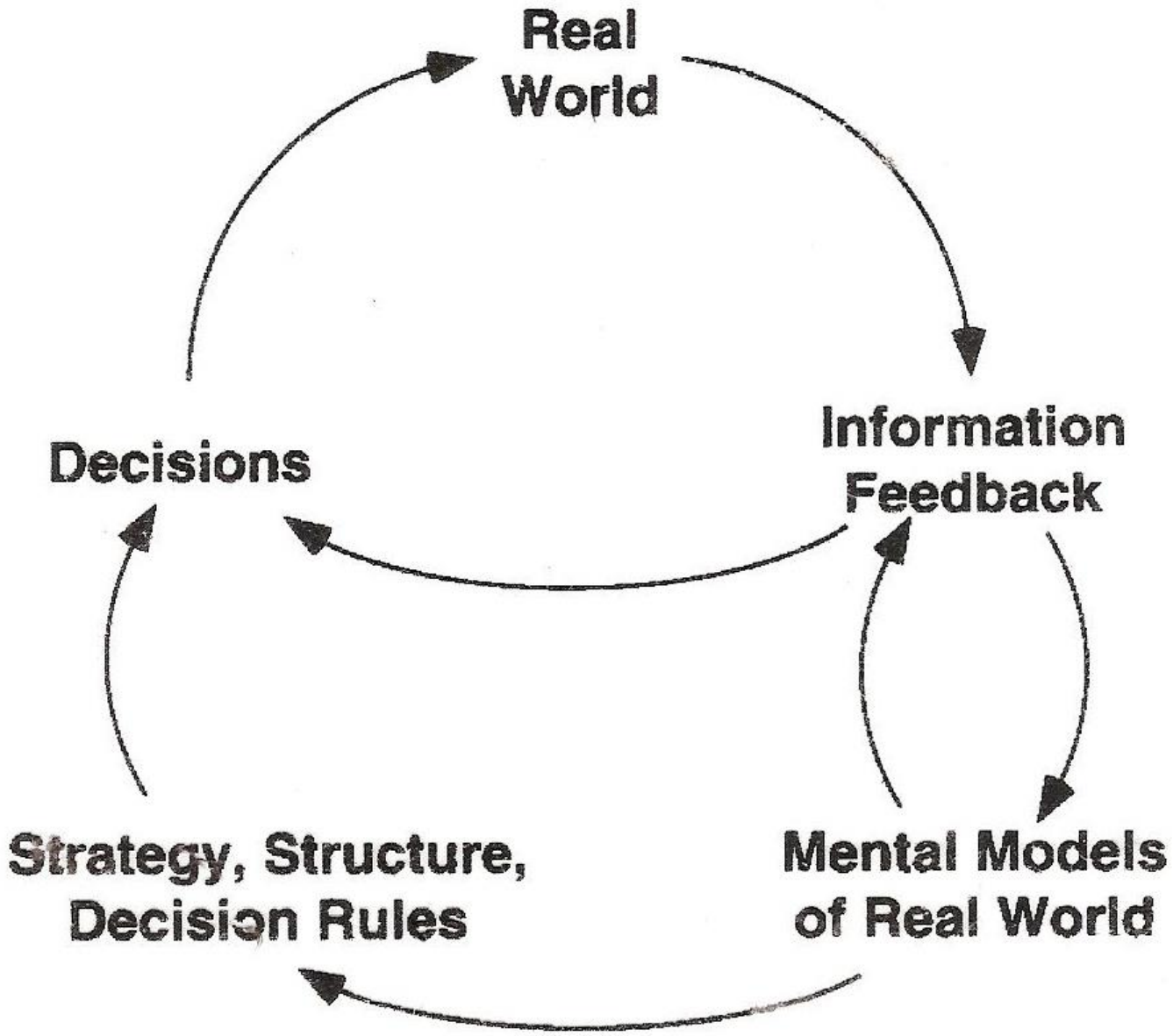
Single-loop learning rests in an ability to detect and correct error in relation to a given set of operating norms:

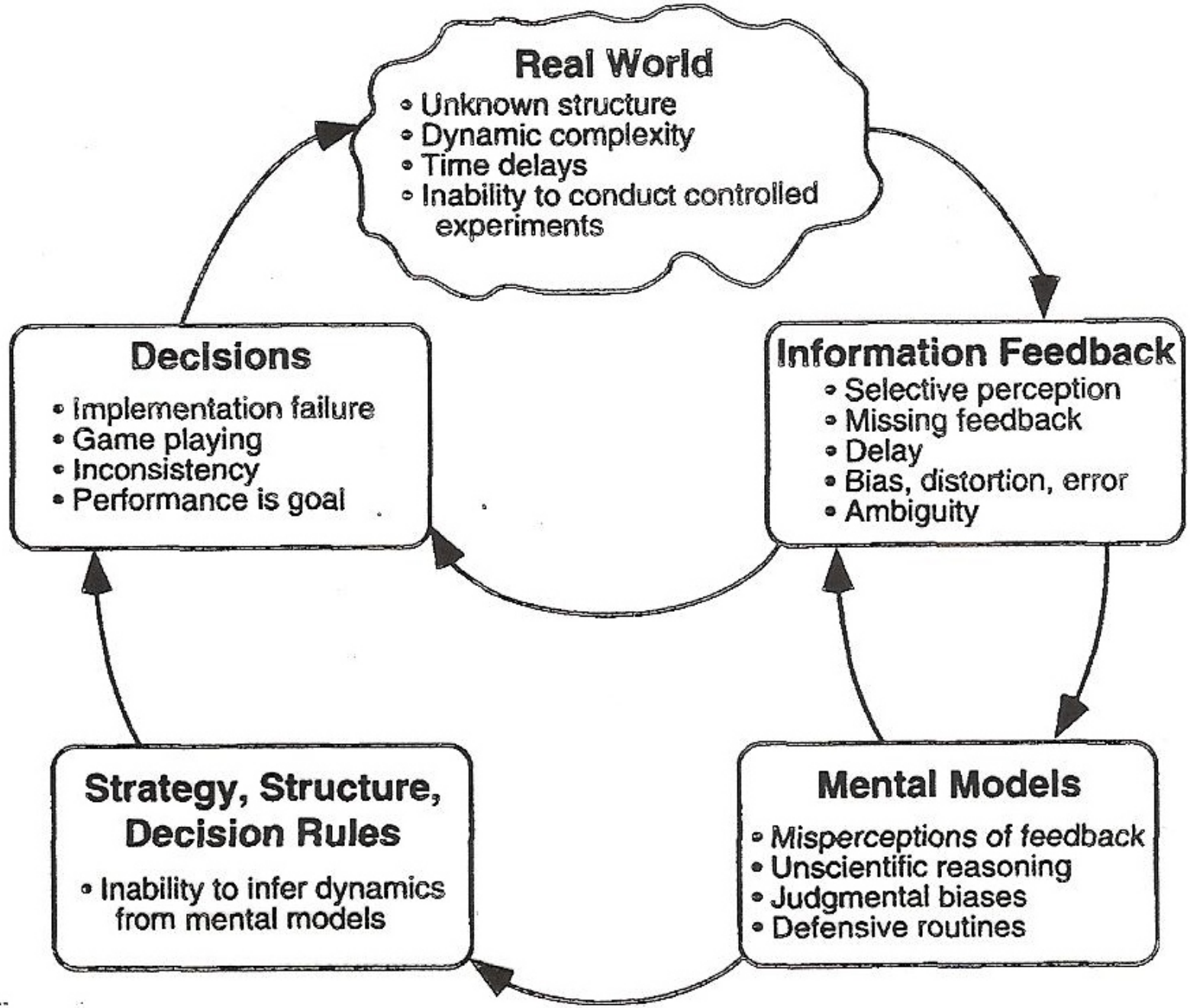


Double-loop learning depends on being able to take a "double look" at the situation by questioning the relevance of operating norms:

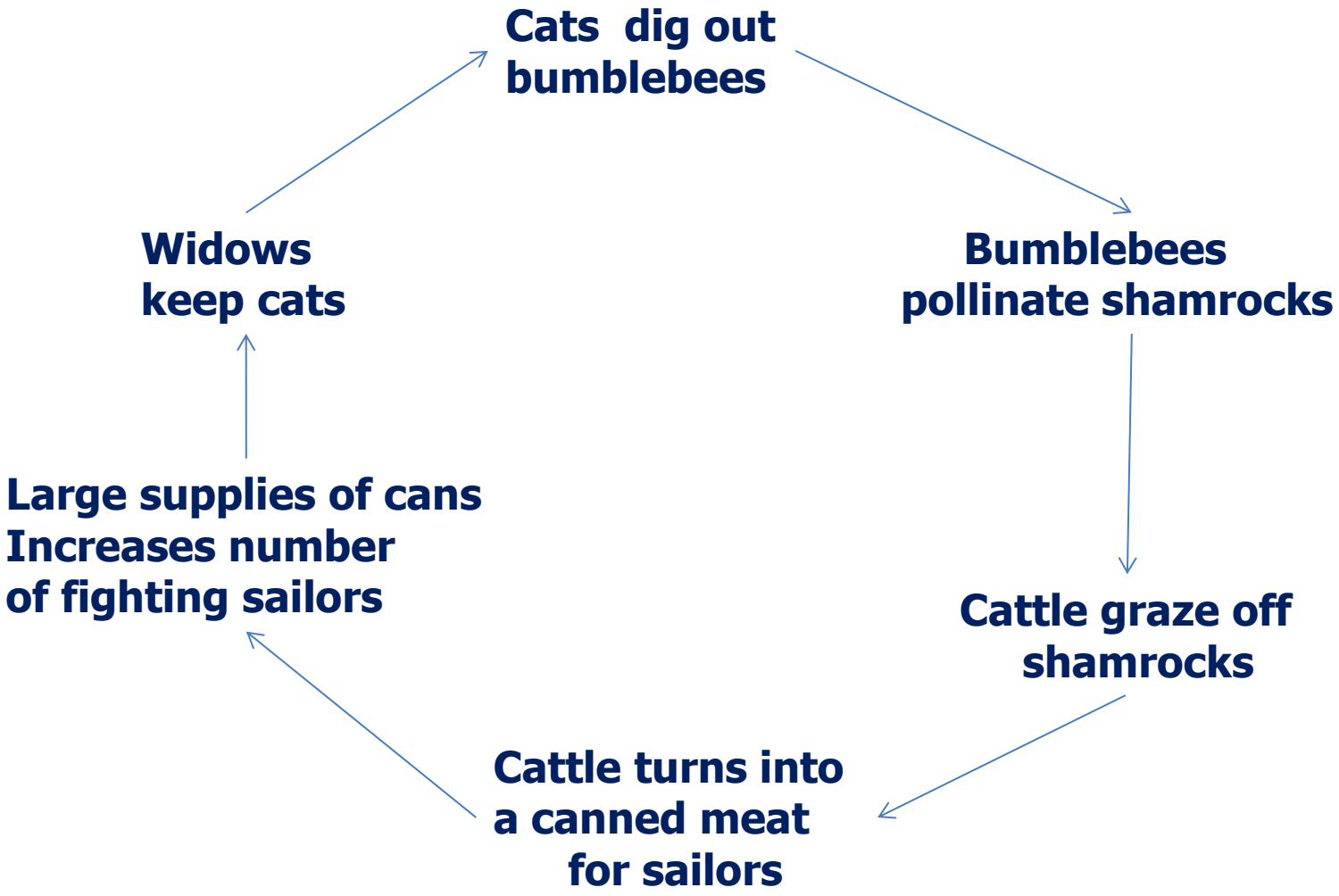


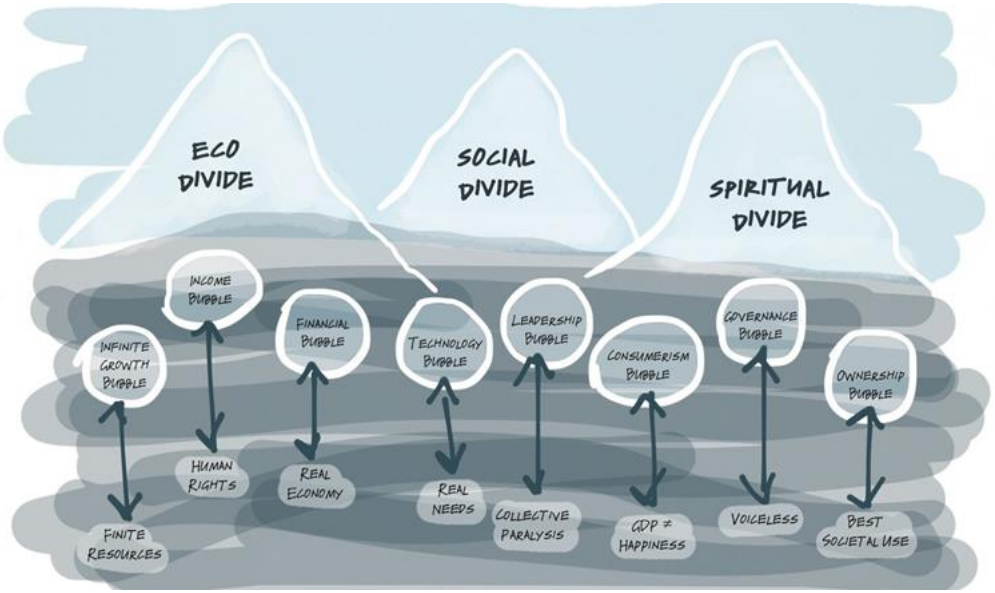

Real
World
Information
Feedback
Decisions
Strategy, Structure,
Decision Rules
Mental Models
of Real World


Real
World
Information
Feedback
Mental Models
of Real World
Strategy, Structure,
Decision Rules
Decisions

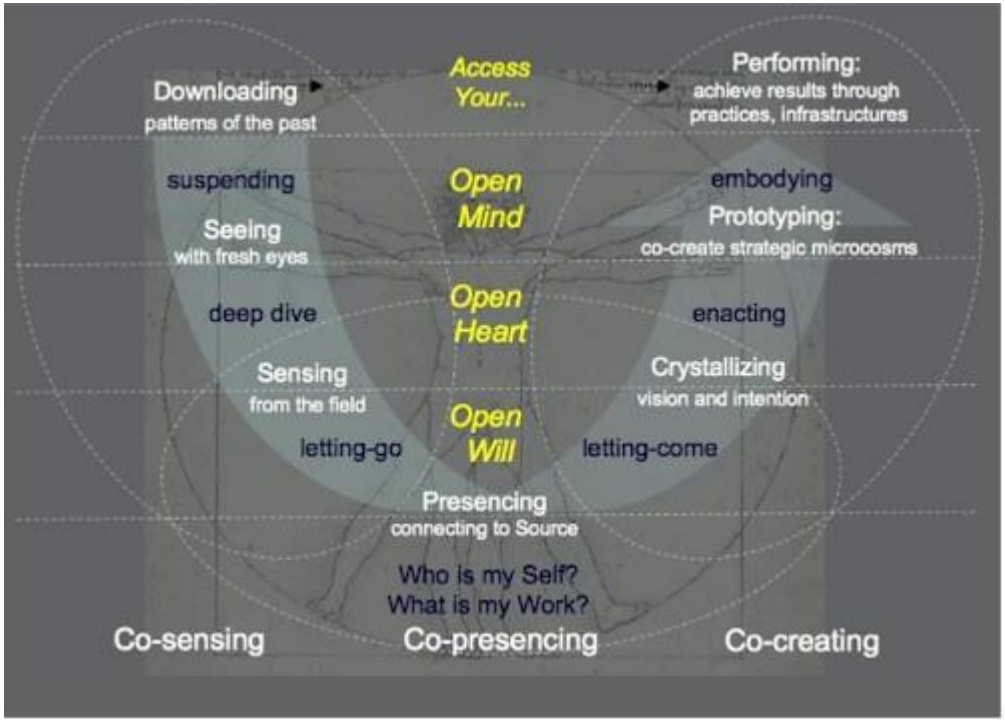

Real World
• Unknown structure
• Dynamic complexity
• Time delays
• Inability to conduct controlled experiments
Information Feedback
• Selective perception
• Missing feedback
• Delay
• Bias, distortion, error
• Ambiguity
Mental Models
• Misperceptions of feedback
• Unscientific reasoning
• Judgmental biases
• Defensive routines
Strategy, Structure, Decision Rules
• Inability to infer dynamics from mental models
Decisions
• Implementation failure
• Game playing
• Inconsistency
• Performance is goal

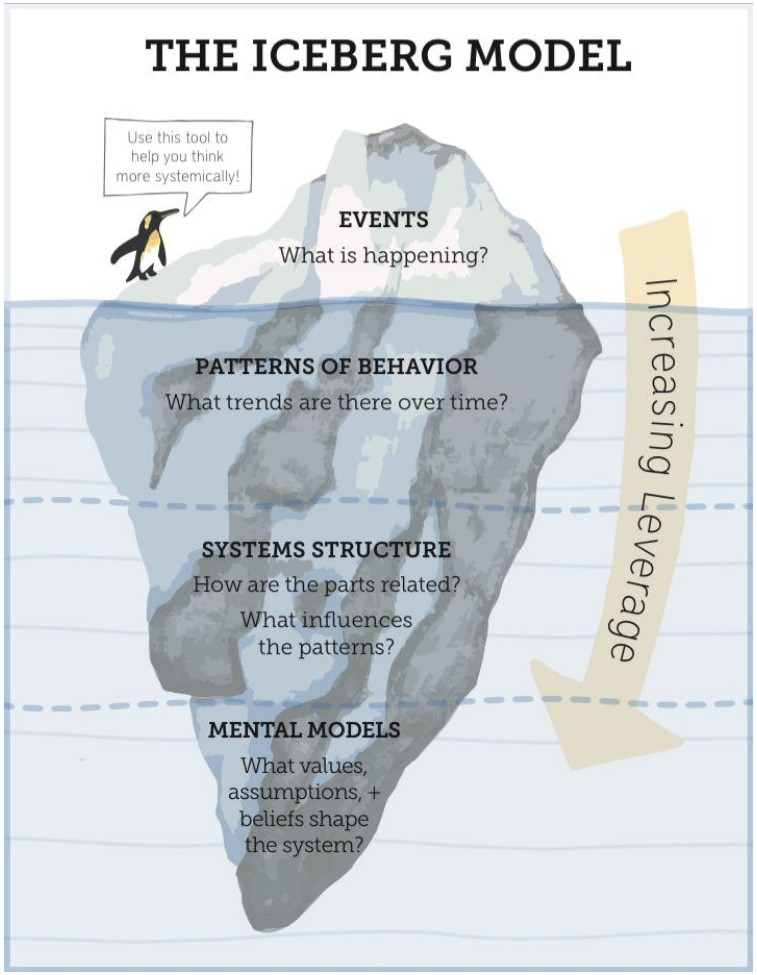
The feedback loop example:
The real determinants of the British Navy size

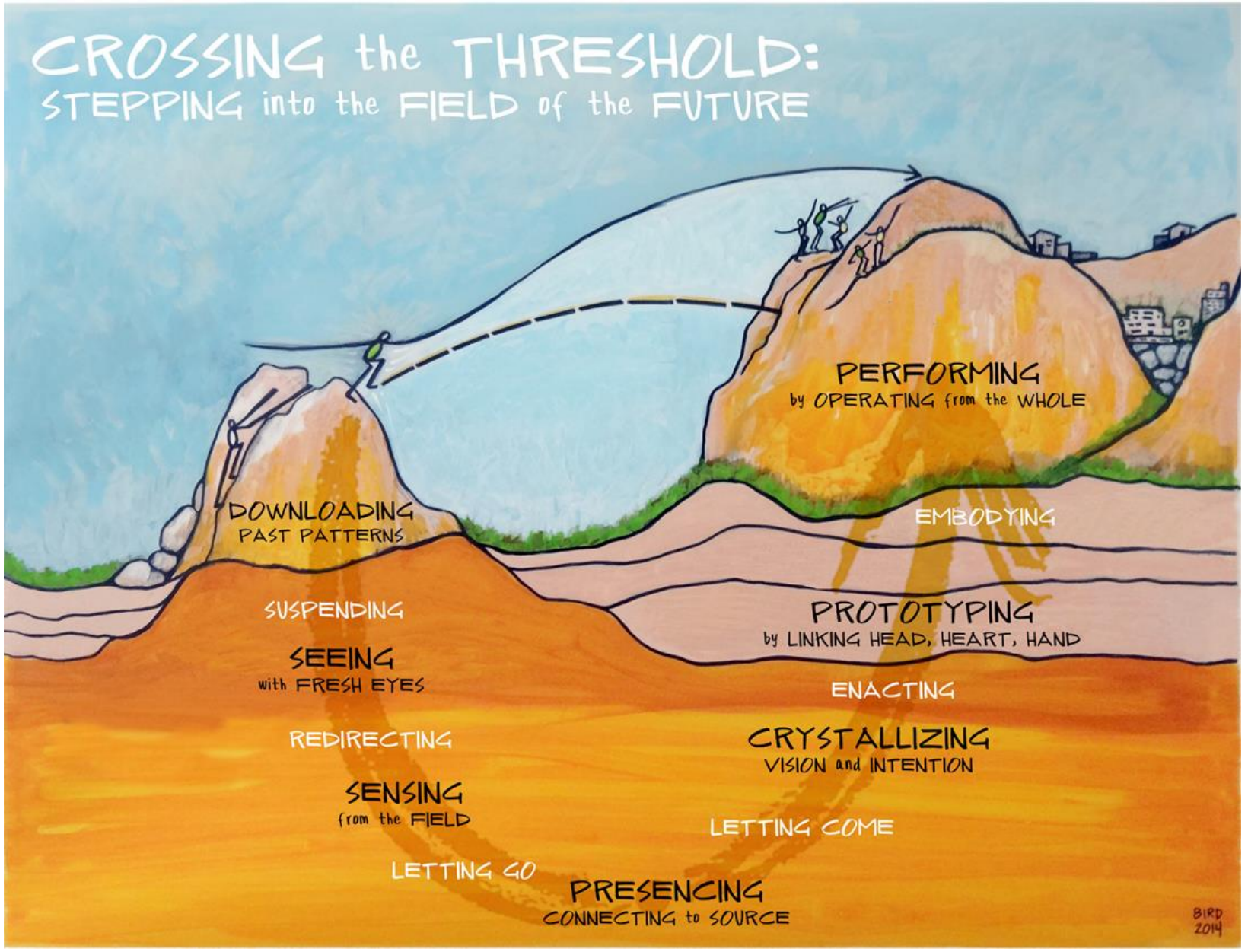




Otto F. Scharmer,
M.I.T.






CROSSING the THRESHOLD:
STEPPING into the FIELD of the FUTURE
PERFORMING
by OPERATING from the WHOLE
DOWNLOADING
PAST PATTERNS
EMBODYING
SUSPENDING
PROTOTYPING
by LINKING HEAD, HEART, HAND
SEEING
with FRESH EYES
ENACTING
REDIRECTING
CRYSTALLIZING
VISION and INTENTION
SENSING
from the FIELD
LETTING COME
LETTING GO
PRESENCING
CONNECTING to SOURCE
BIRD
2014

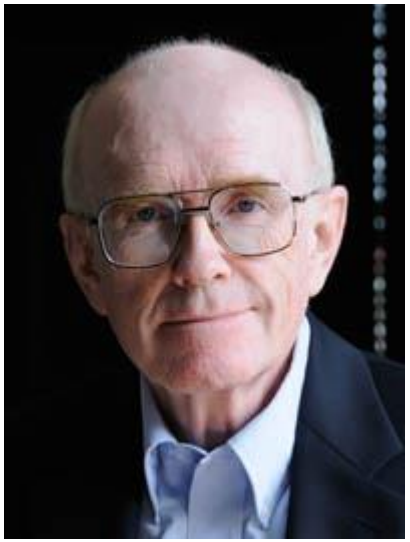
8. Decision-making under uncertainty:

Dimensions of uncertainity – *the object*, *the ecology/situation* and *the decision-maker*

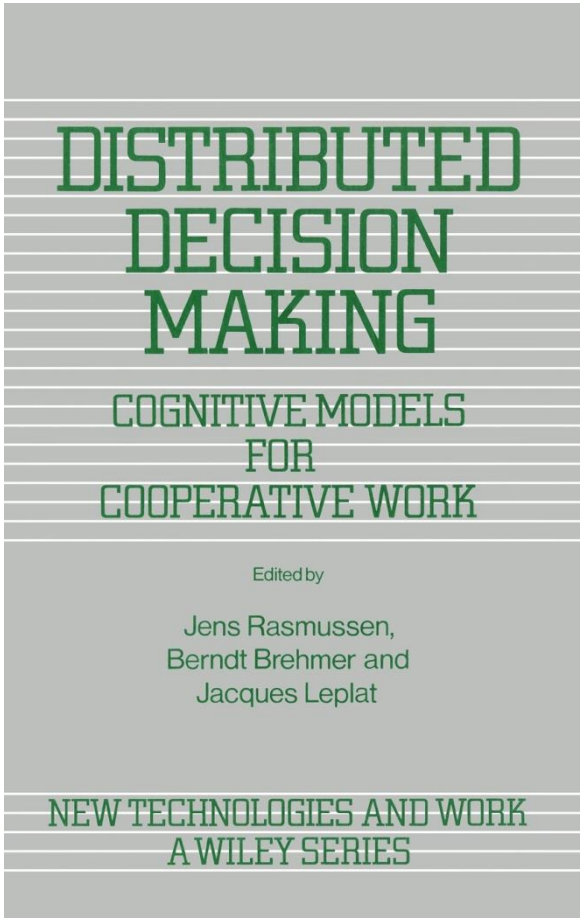
Uncertainty occurs when, given current knowledge, there are multiple possible states of nature.

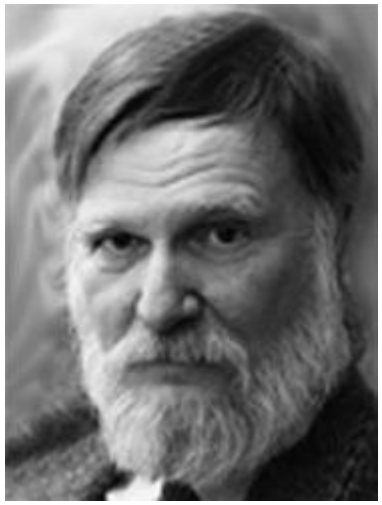
S.U.N.Y. at Albany

Rockefeller College of Public Affairs and Policy

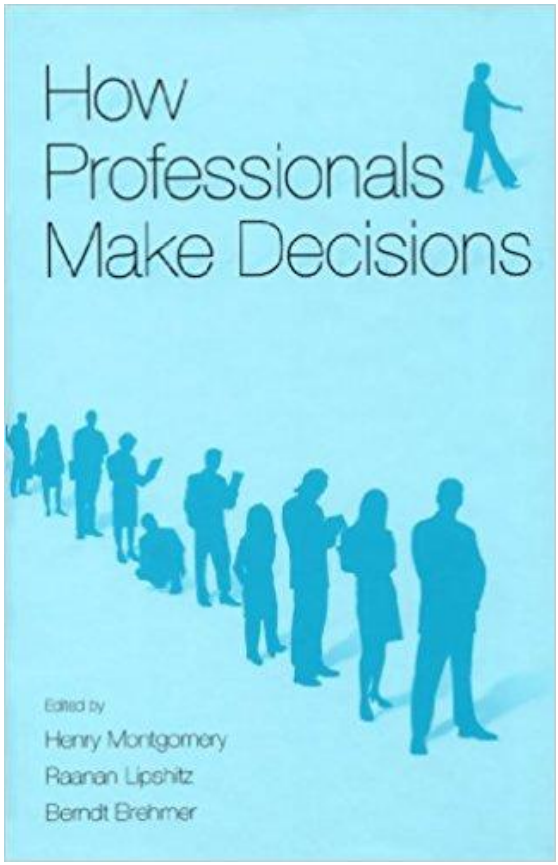


Thomas Stewart





Berndt Brehmer
(1940 - 2014)
Swedish National Defense College



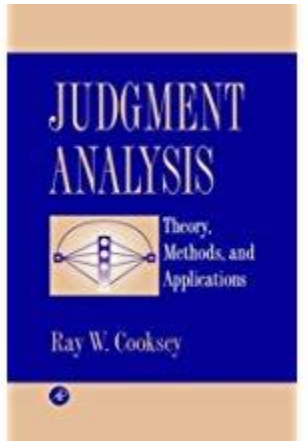
Ray W.Cooksey

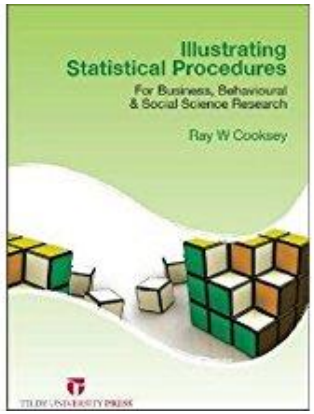
University of Western Australia, University of New England, Business School

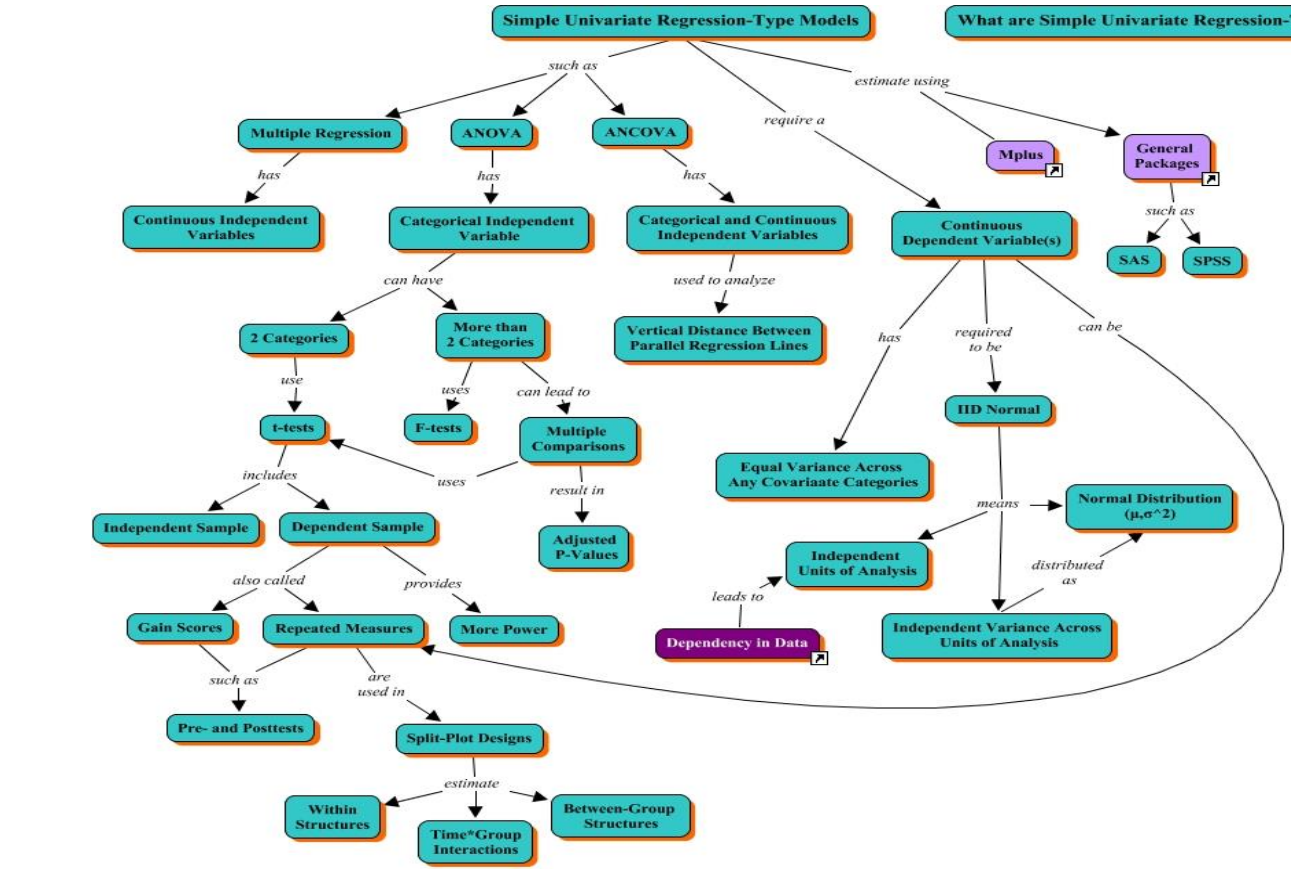
https://www.youtube.com/watch?v=g2or-MWzwWQ

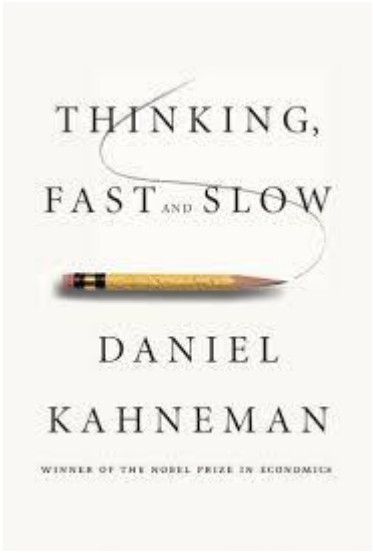
https://www.youtube.com/watch?v=PJ1uYgRyssI

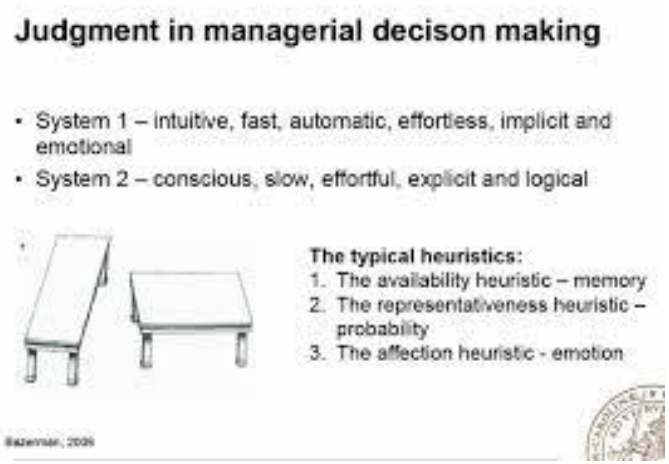
https://www.une.edu.au/staff-profiles/business/rcooksey

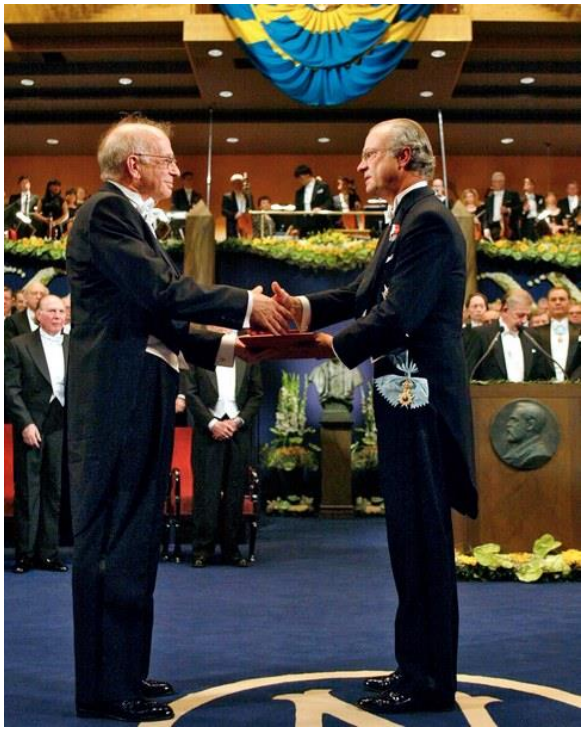


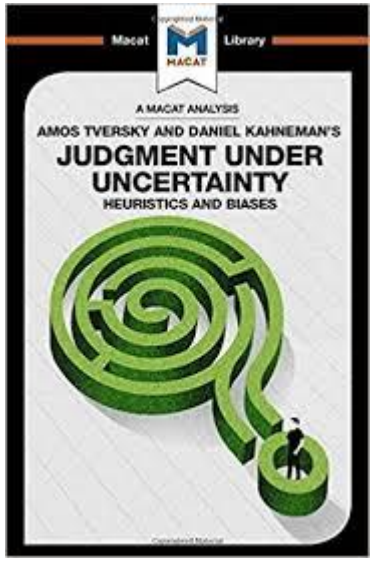












Kahneman & Tversky

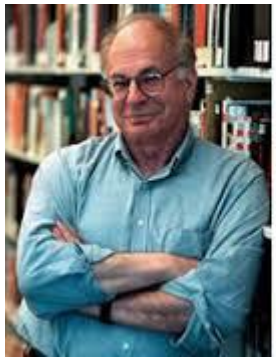
Proposed 3 main ideas:

1. People rely on heuristics to make social inferences

2. Heuristics simplify the process of making social inferences

3. Heuristics sometimes lead to faulty reasoning

Daniel Kahneman, psychologist,
2002 Nobel Price in Economics



Tom Steward´s slides: Probability is the most widely used measure of uncertainty

- **Relative frequency**
  - **The probability of an event is the frequency of it's occurrence divided by the number of experiments, or trials (for a very large number of trials).**
- **Subjective probability (Bayesian)**
  - **The probability of an event is the degree of belief that a person has that it will occur.**

Morgan, M. G., & Henrion, M. (1990). *Uncertainty: A Guide to Dealing with Uncertainty in Quantitative Risk and Policy Analysis*. New York: Cambridge University Press.

Types of Uncertainty

- **Uncertainty 1 - States (events) and probabilities of those events are known**
  - **Coin toss**
  - **Die toss**
  - **Precipitation forecasting (approximately)**

Note: This is sometimes called aleatory uncertainty. It reflects the nature of random processes. For example, even though you know a fair die has six sides, you cannot reduce the uncertainty about what the next roll will show. But you can quantify the uncertainty. For the simple case of the die, the odds are 1 in 6 of any particular face turning up.

Types of Uncertainty

- **Uncertainty 2 - States (events) are known, probabilities are unknown**
  - **Elections**
  - **Stock market**
  - **Forecasting severe weather**

Types of Uncertainty

- **Uncertainty 3 - States (events) and probabilities are unknown**
  - **Y2K**
  - **Global climate change**

- **The differences among the types of uncertainty are a matter of degree.**

Epistemic Uncertainty

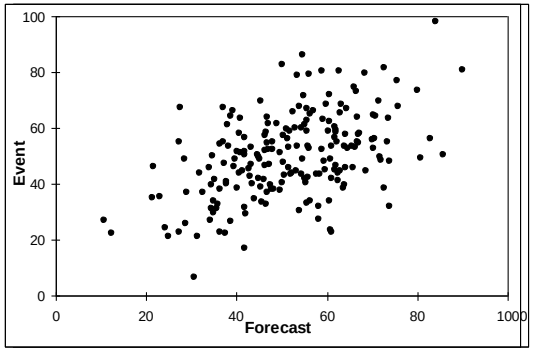
Uncertainty 2 and 3 include epistemic uncertainty. This is uncertainty due to incomplete knowledge of processes that influence events. Incomplete knowledge results from the sheer complexity of the world, particularly with respect to issues at the interface of science and society. As a result, models (computer or mental) necessarily omit factors that may prove to be important. It is possible to judge the relative level of epistemic uncertainty, i.e., because of the time frames and number of potentially confounding factors, it is higher in nuclear waste disposal and climate prediction than in the prediction of weather and asteroid impacts. Total uncertainty is the sum of epistemic and aleatory uncertainty.

(see Brunswik)

Picturing uncertainty

- **There are many ways to depict uncertainty. For example,**

Continuous events: scatterplot



Discrete events: decision table

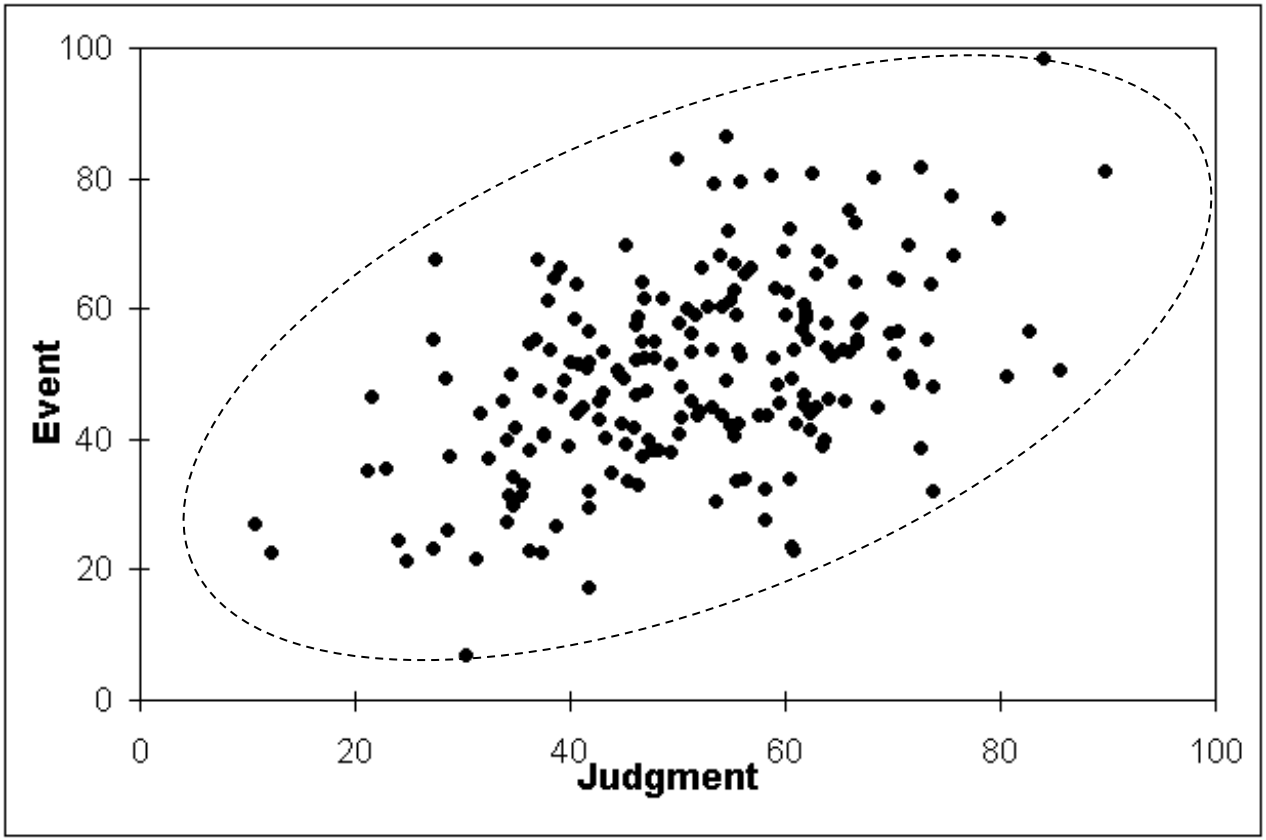
Any taxonomy –
For instance see slide 28

Continuous Judgments and Events

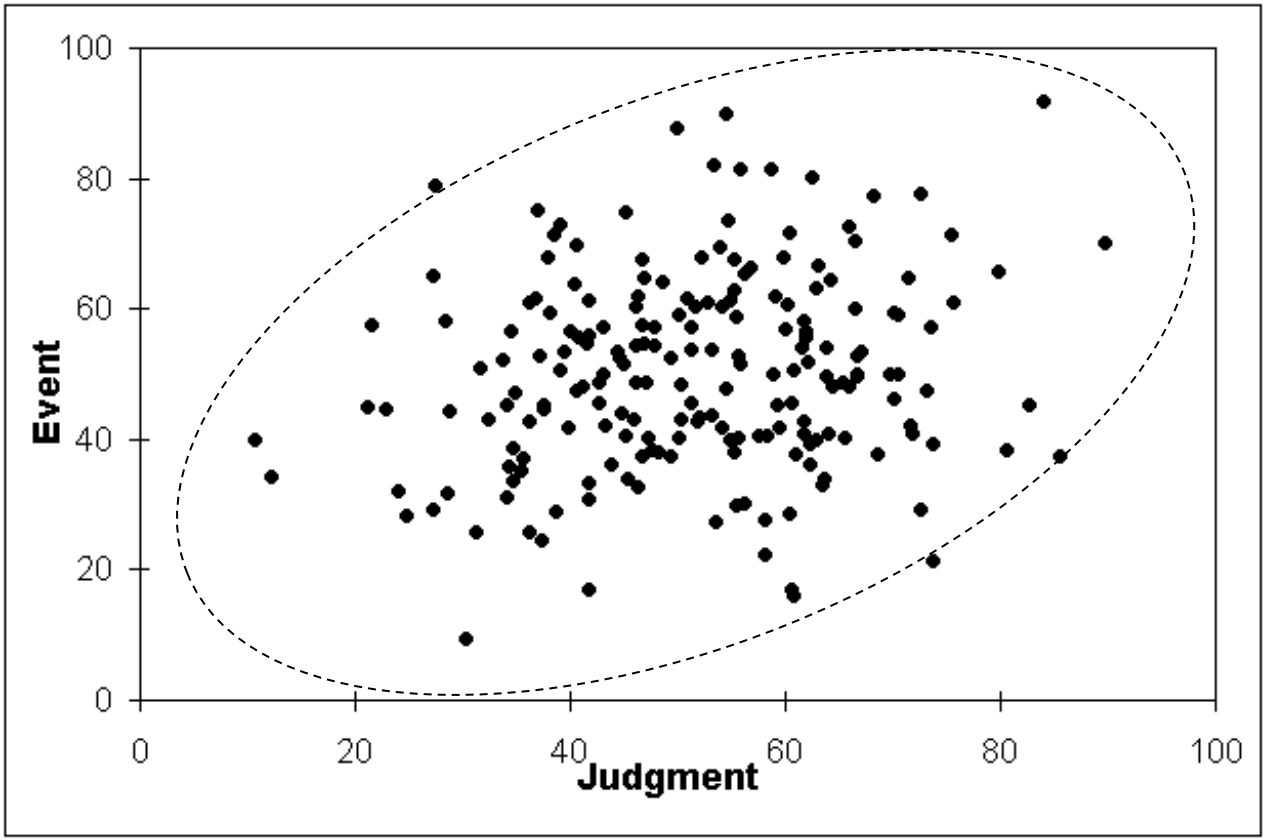
Consider the case of a continuous judgment about a continuous event. Examples:

- **Weather forecasts of windspeed, temperature**
- **Economic forecasts of unemployment, inflation**
- **Medical diagnosis of severity of disease**
- **Judgment of suitability of a job applicant**
- **Judgment of quality of college applicant**
- **Judgment of need for admission to hospital**

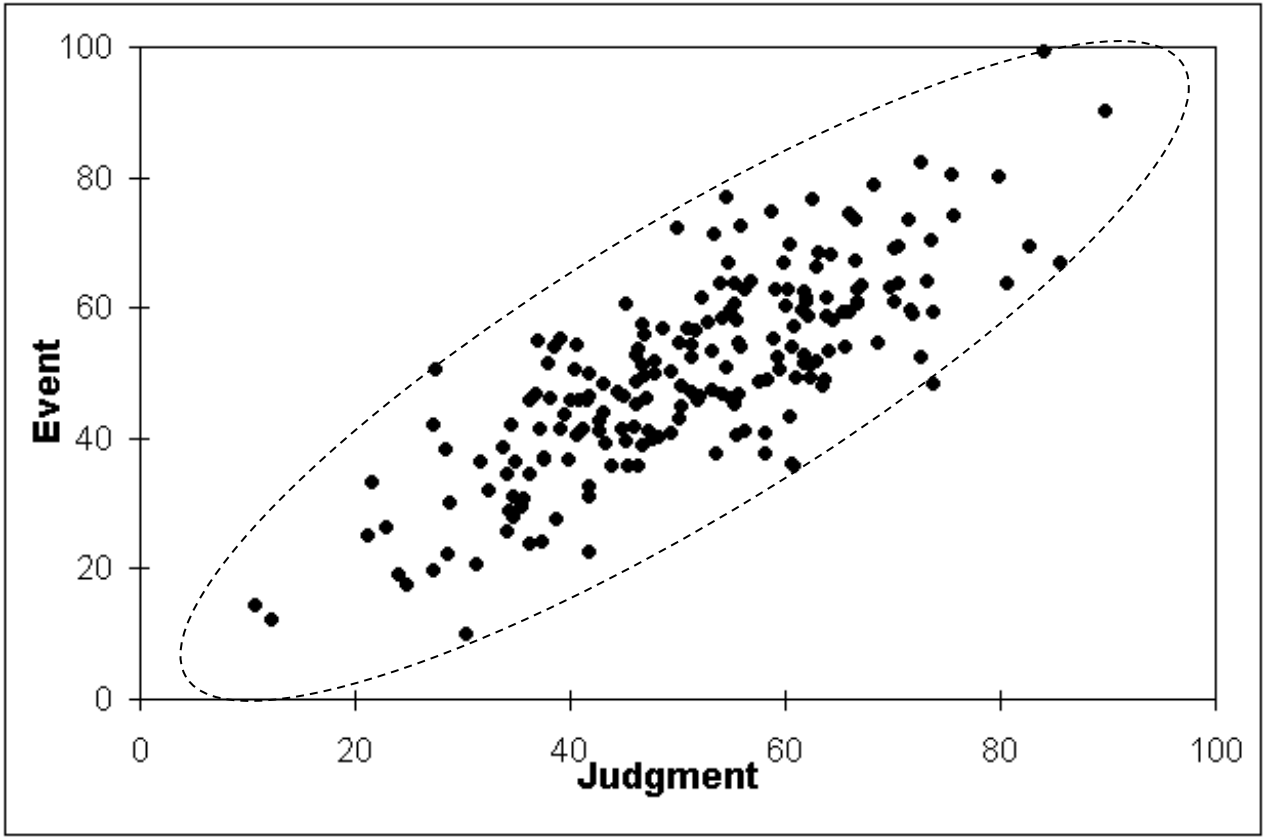
Scatterplot: Correlation = .50



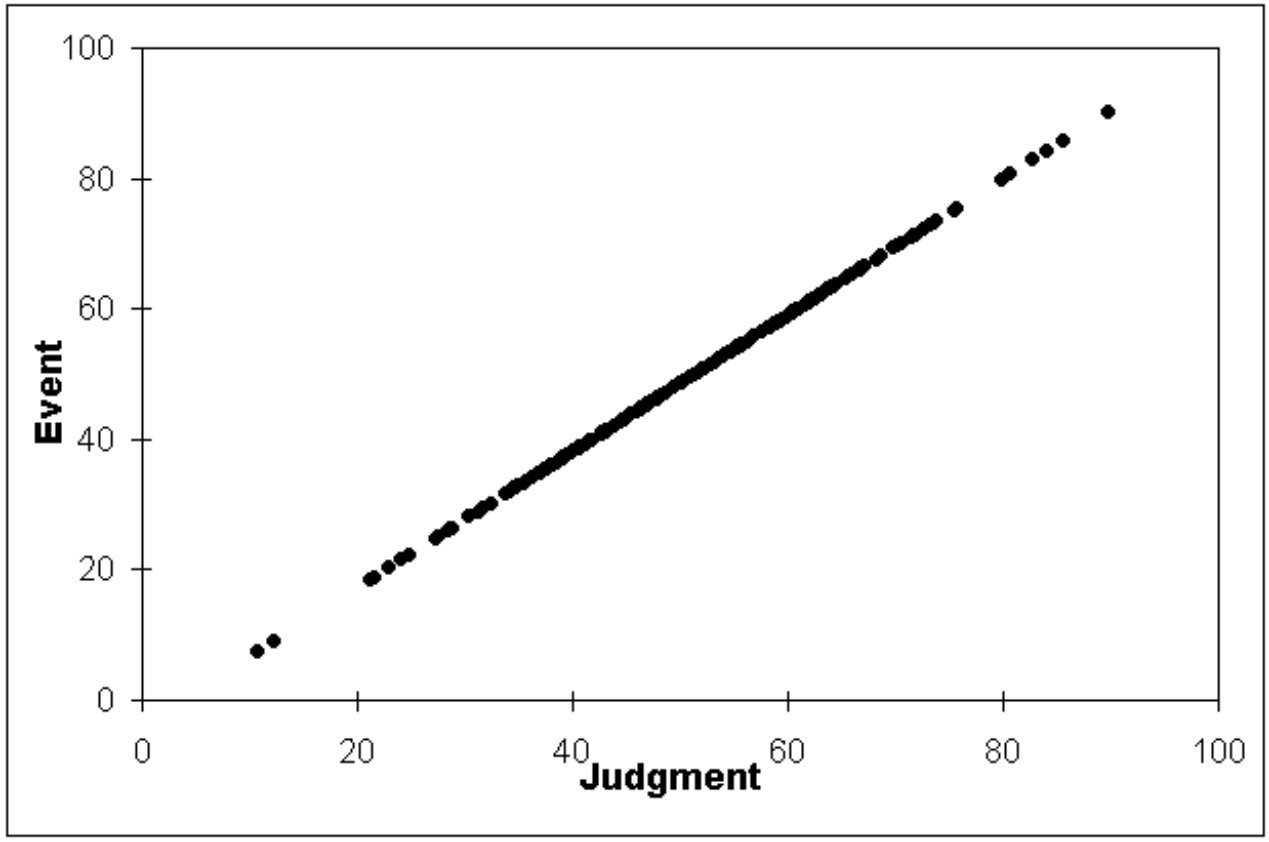
Scatterplot: Correlation = .20



Scatterplot: Correlation = .80



Scatterplot: Correlation = 1.00

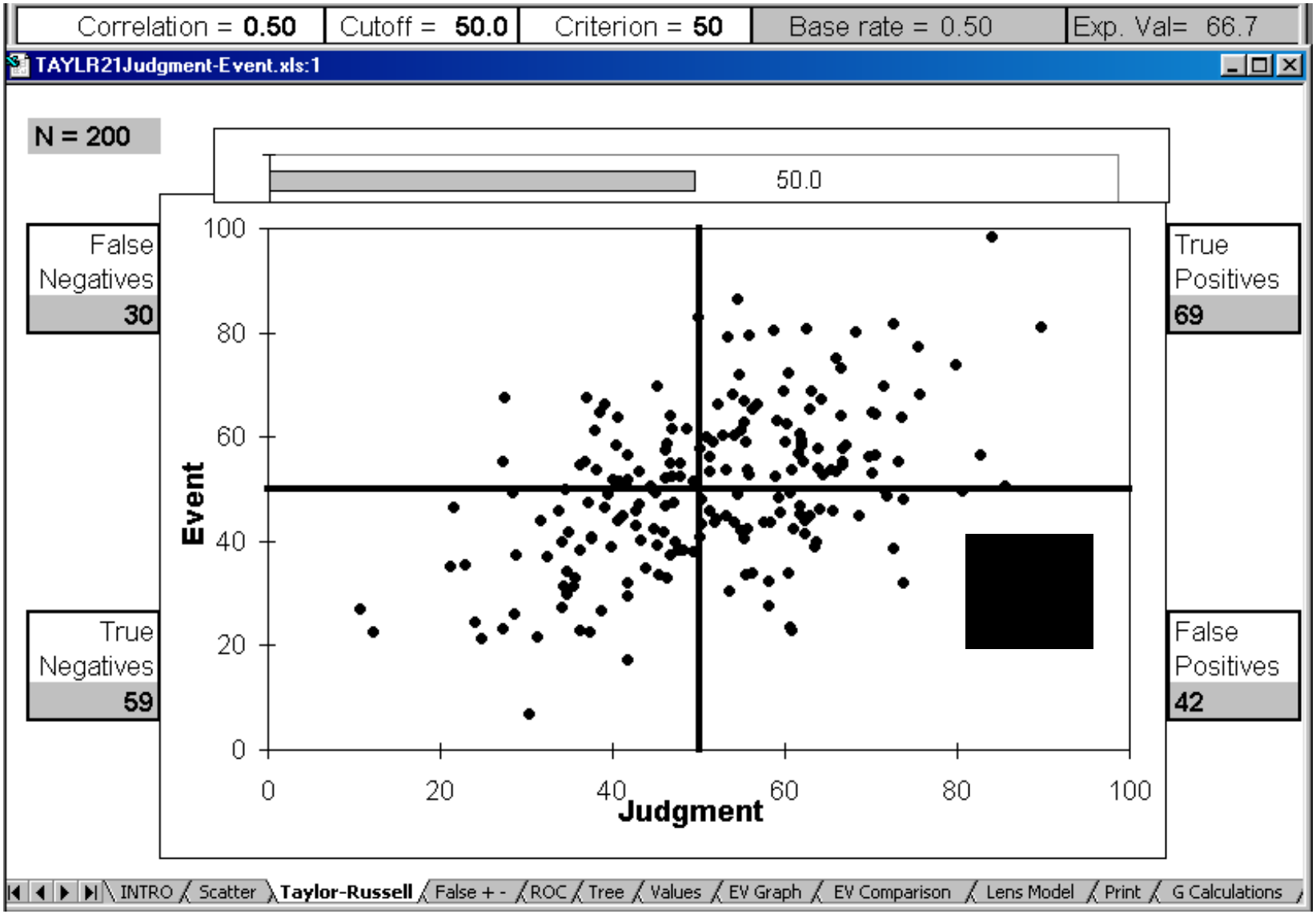


The perfect judgment

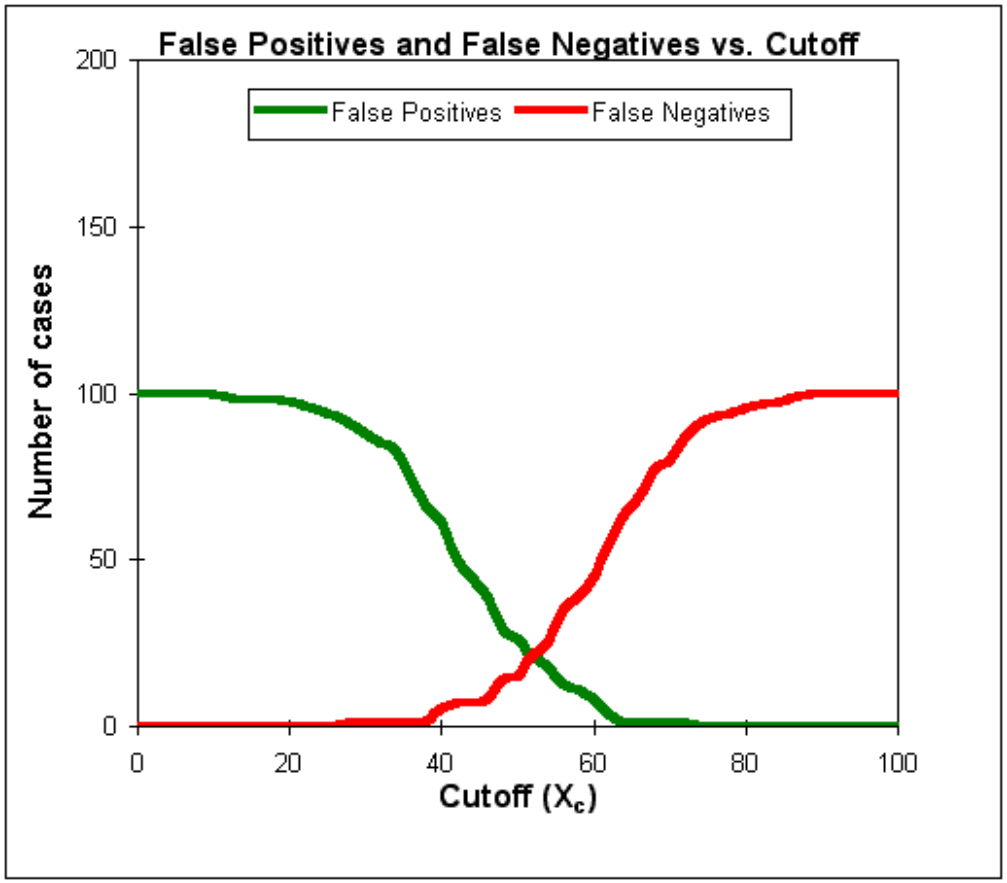
Uncertainty, Judgment, Decision, Error

- Taylor-Russell diagram
  - Decision cutoff
  - Criterion cutoff (linked to base rate)
  - Correlation (uncertainty)
  - Errors
    - False positives (false alarms)
    - False negatives (misses)

Taylor-Russell diagram



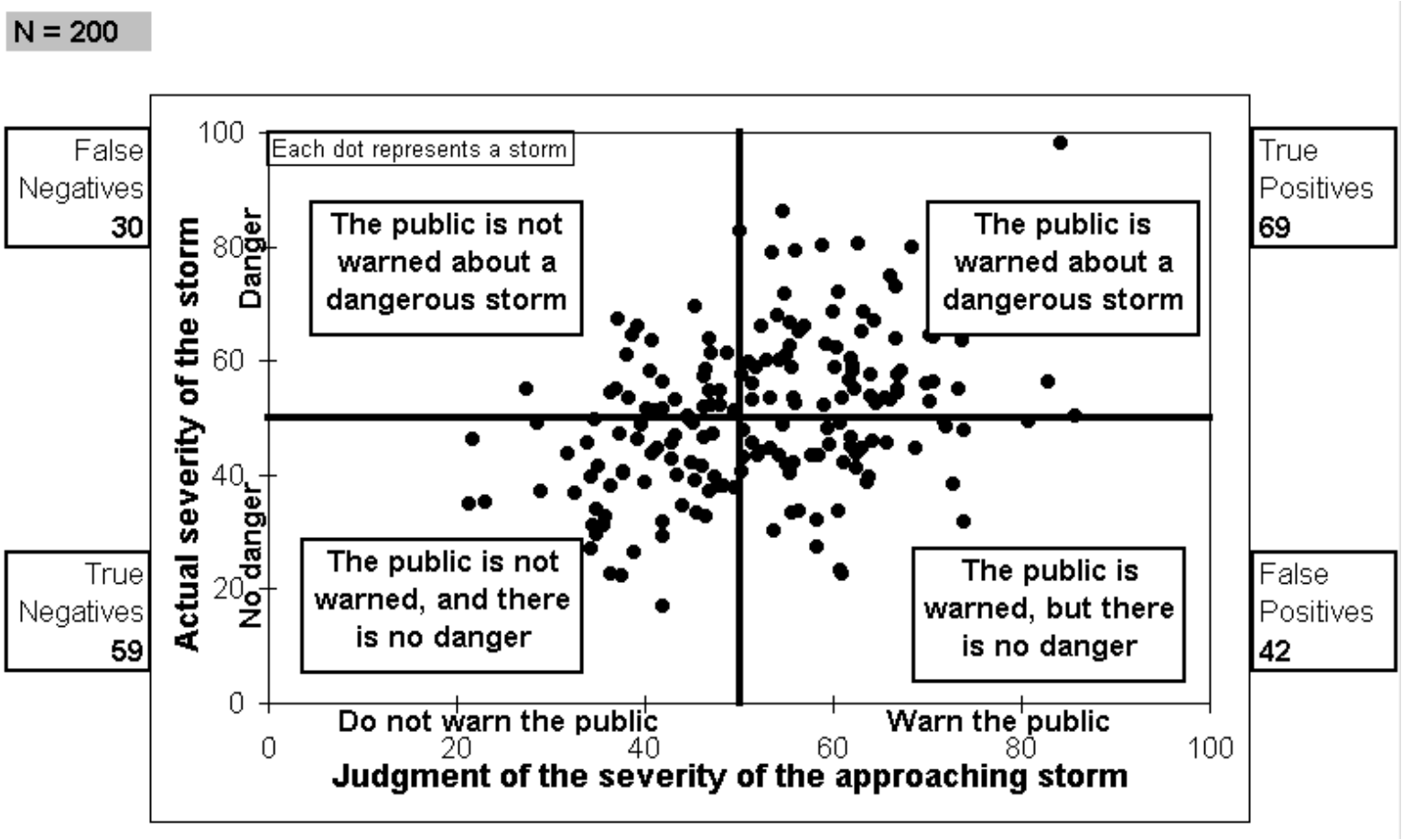
Tradeoff between false positives and false negatives



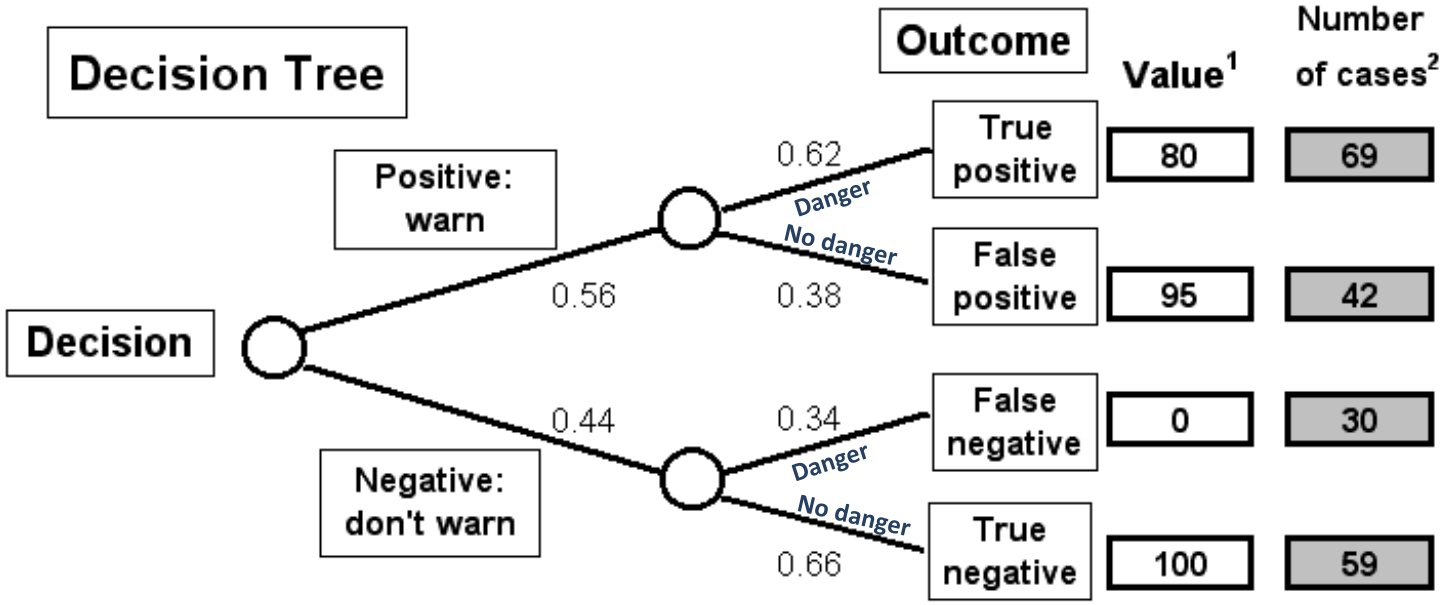
Problem: Optimal decision cutoff

- Given that it is not possible to eliminate both false positives and false negatives, what decision cutoff gives the best compromise?
  - Depends on values
  - Depends on uncertainty
  - Depends on base rate
- Decision analysis is one optimization method.

Example: Weather forecaster's decision to warn the public about an approaching storm



Decision tree



The trouble is to create the hierarchies of problems to be solved according to their urgency in a constant flow of situations, presenting us with new tasks.
What to deal with and what to forget.

What are the desired consequences of decisions (goals) and what is the possible array unexpected consequences?

Problem solving of well or poor structured tasks returns us back to the cognitive continuum theory.

10. The most difficult and ages old puzzles of self-awareness and consciousness:

- exactly, what are they?
- Where do they come from?
- How did they evolve?
- too difficult just for psychologists:

Philosophers, shamans, clergyman, physicians, intellectuals,
esotheric seers, psychologists, physicists, neurologists
neuronal nets folks, artificial intelligence, artificial life folks ….

Simple Definition of consciousness

*** the condition of being conscious : the normal state of being awake and able to understand what is happening around you**

*** a person's mind and thoughts**

*** knowledge that is shared by a group of people**

Source: Merriam-Webster's Learner's Dictionary

Full Definition of consciousness

1 a : the quality or state of being aware especially of something within oneself

b : the state or fact of being conscious of an external object, state, or fact

c : awareness; especially : concern for some social or political cause

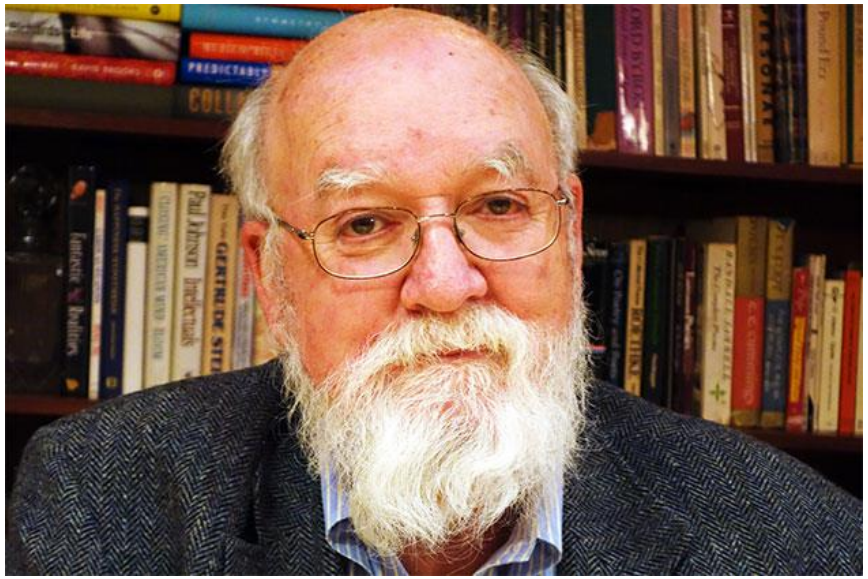
2 : the state of being characterized by sensation, emotion, volition, and thought : mind

3 : the totality of conscious states of an individual

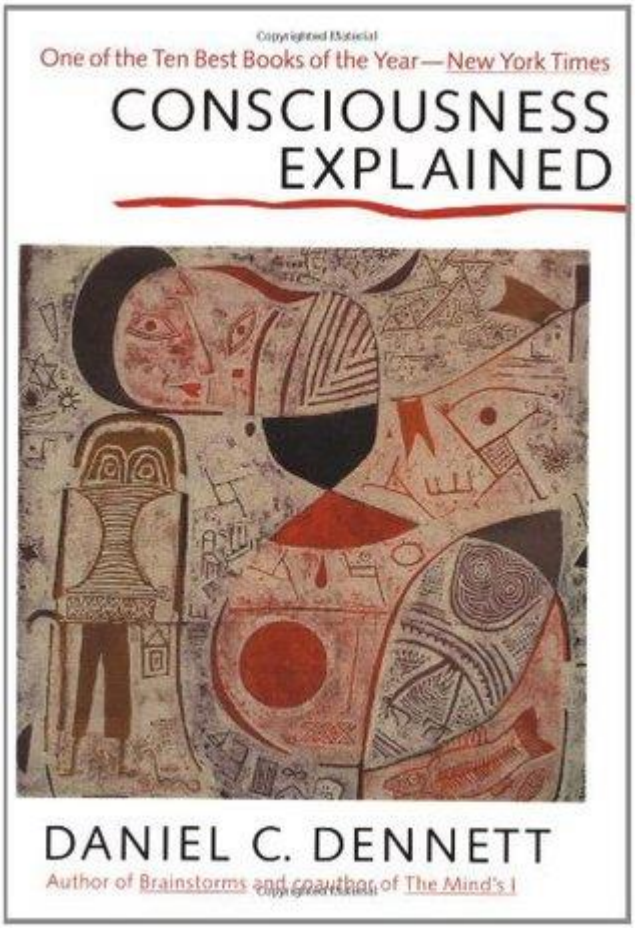
4 : the normal state of conscious life <regained consciousness>

5 : the upper level of mental life of which the person is aware as contrasted with unconscious processes

Some examples:



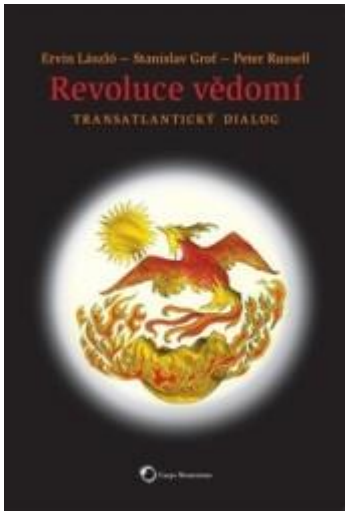
Daniel C.Dennet, multidisciplinary approach



„ Grof tries to disproof materialistic world view. He claims, that the interpersonal reality is equally real, as our usual reality, if not even more so. The criticism of his scientific and artistic legacy (see The Sisyfos Club – Grof „breaks the bonds of spacetime and thus he can get into anyhing at any time") is right in a sense, that the proof of consciouness primacy over matter is hard to defend – it assumes the a priory „absolute consciousness", or „the pregnant void". I guess that this issue is primarily a matter of belief. The western science was never able to clarify the mind – matter relation".

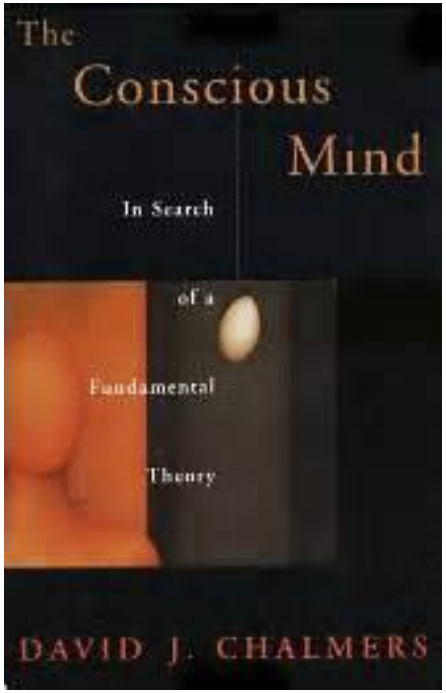
Pablo Kral

Psychiatrits Stanislav Grof (1931), **transpersonal psychology**

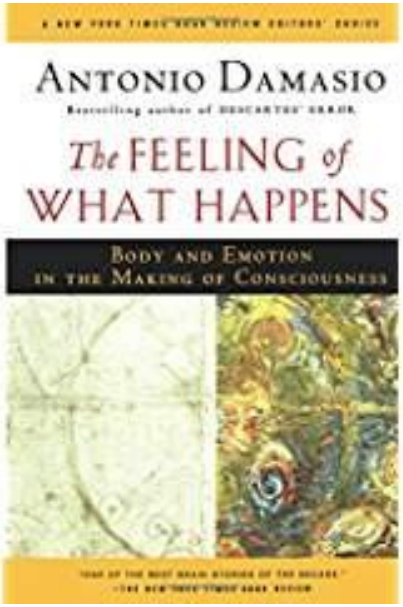


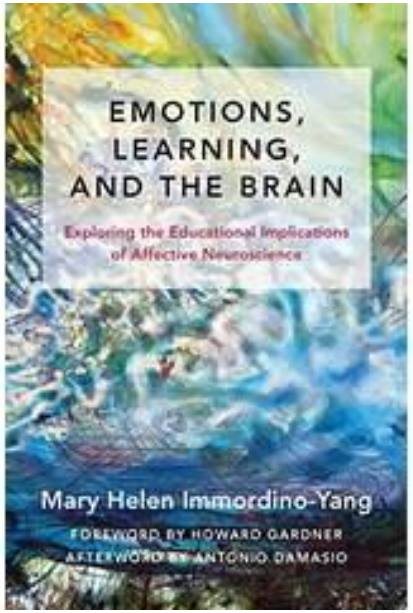
David Chalmers

philosopher

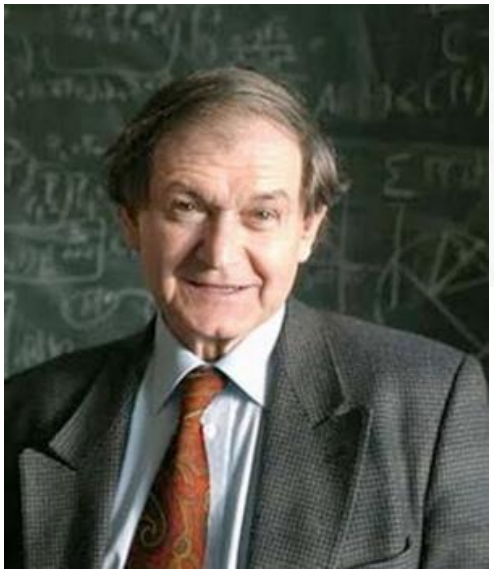


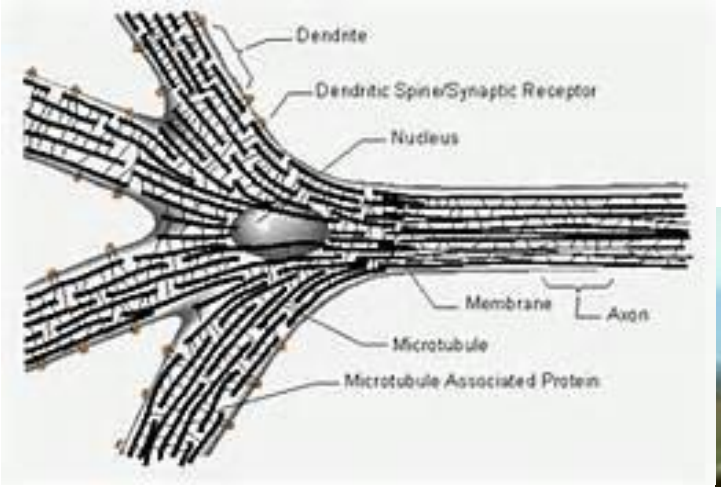
Antonio Damasio
neurologist

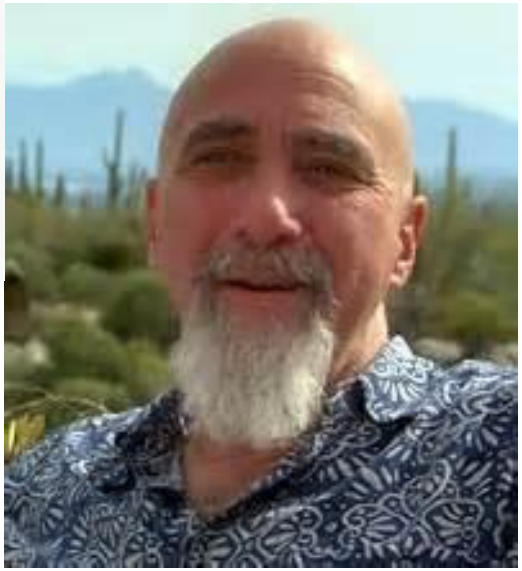




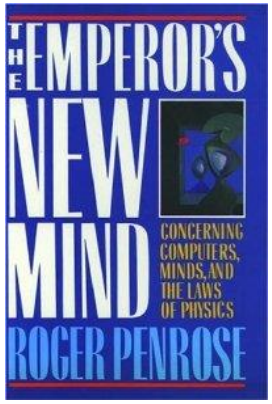
Quantum physics theory of consicousness mind. Microtubules and quantum consciousness.







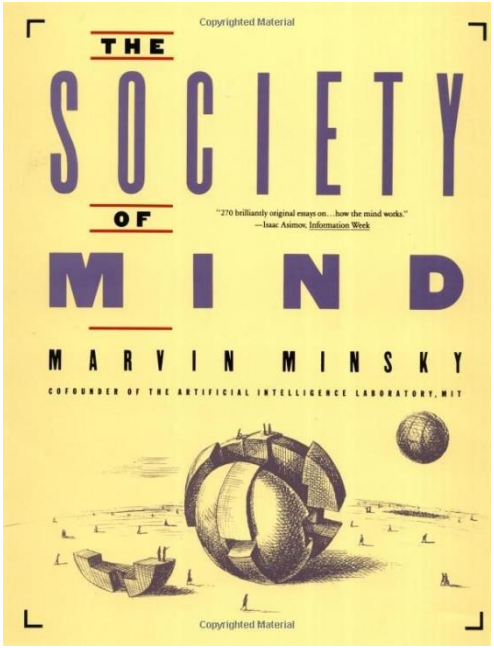
Sir Roger Penrose
Mathematics, physicist



Stuart Hameroff
anesthesiologist

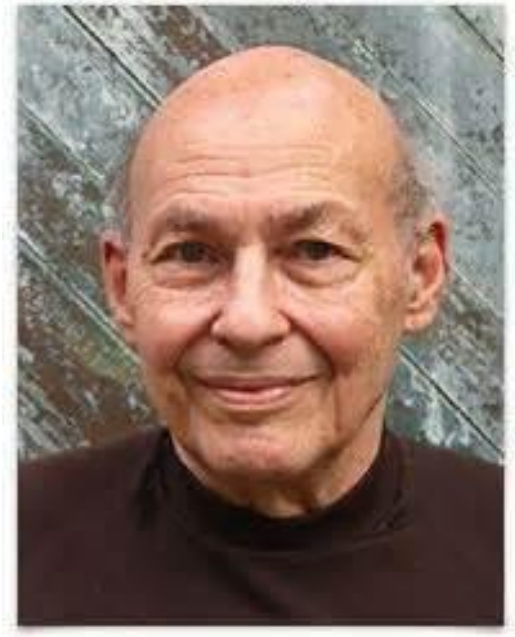
The soul does not die , but returns to the universe

Stuart Hameroff and sir Roger Penrose claim, that human brain is a biological computer and our consciousness is a software, which runs there. This program does not cease to exist even after our death. The soul exists in the structures of filamentous brain cells called microtubules. When people enter the stage of clinical death, their microtubulae loose their quantum state, but the information contained there changes into a wave state and stays preserved. Quantum information can not be destroyed, it can only disseminate into a larger space.
Thus our soul is rather as program and our consciousness is a result of "quantum gravitation" processes within the microtubular structures ("orchestrated objective reductions" – Orch-OR).
http://www.quantumconsciousness.org/



Marvin Minsky
M.I.T.

cybernetics;
A.I., A.L.
groups



What magical trick makes us intelligent? The trick is that there is no trick. The power of intelligence stems from our vast diversity, not from any single, perfect principle.

(Marvin Minsky)

izquotes.com

11. The ultimate knowledge – the art of asking the smart questions

see III. the Art of Asking Smart Questions series.

"By God, for a minute there it suddenly all made sense!"

Will you contribute to these explorations in any way?
Original views are of those, who know less!

Now read some more, think, submerge into your own imagination, make a choice and write!

Look forward to see what you come up with…

Literature:

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