

Selected topics in general psychology II.

Lubomír Kostrůň

The course structure, 2nd part.

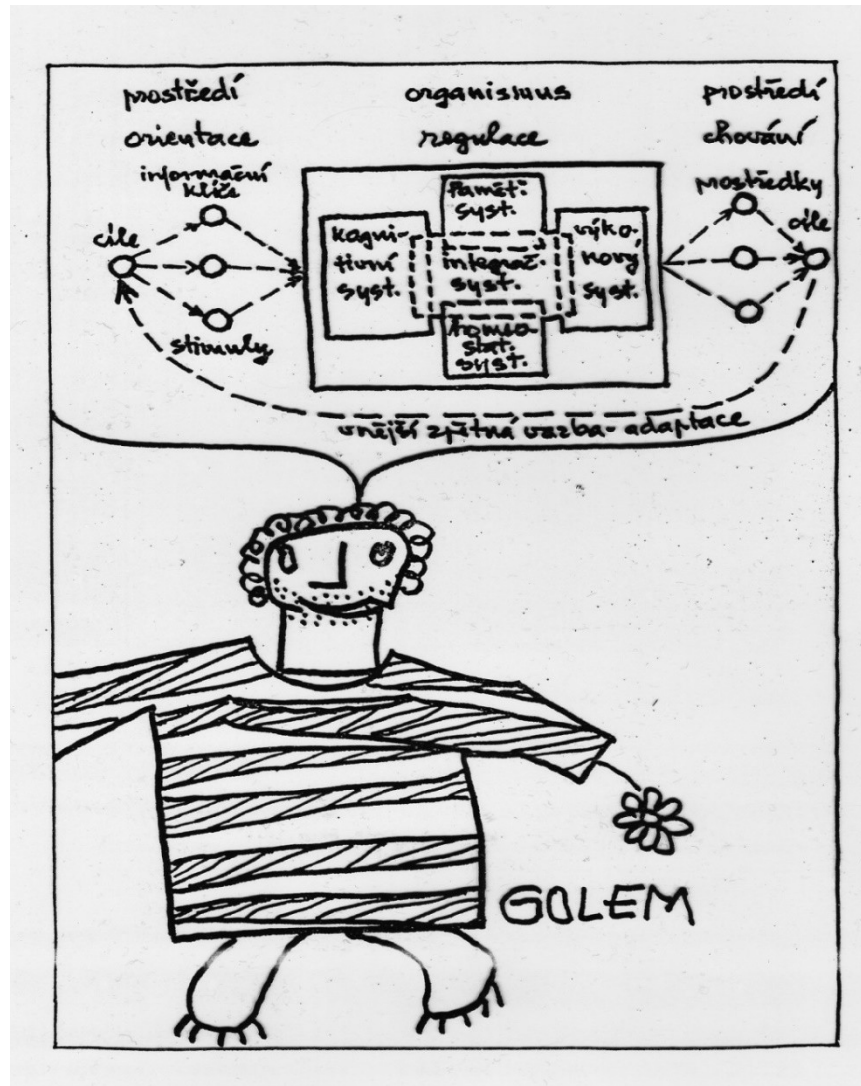
1. *Introduction*
2. *Perception, judgment (and behavioral activities)*
3. *social judgment theory and the nature of information*
4. **A model of personality – what is missing?**
5. **The theory of tasks, situations and the environment/ecology**
6. **The role of emotions and group support in the solution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

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

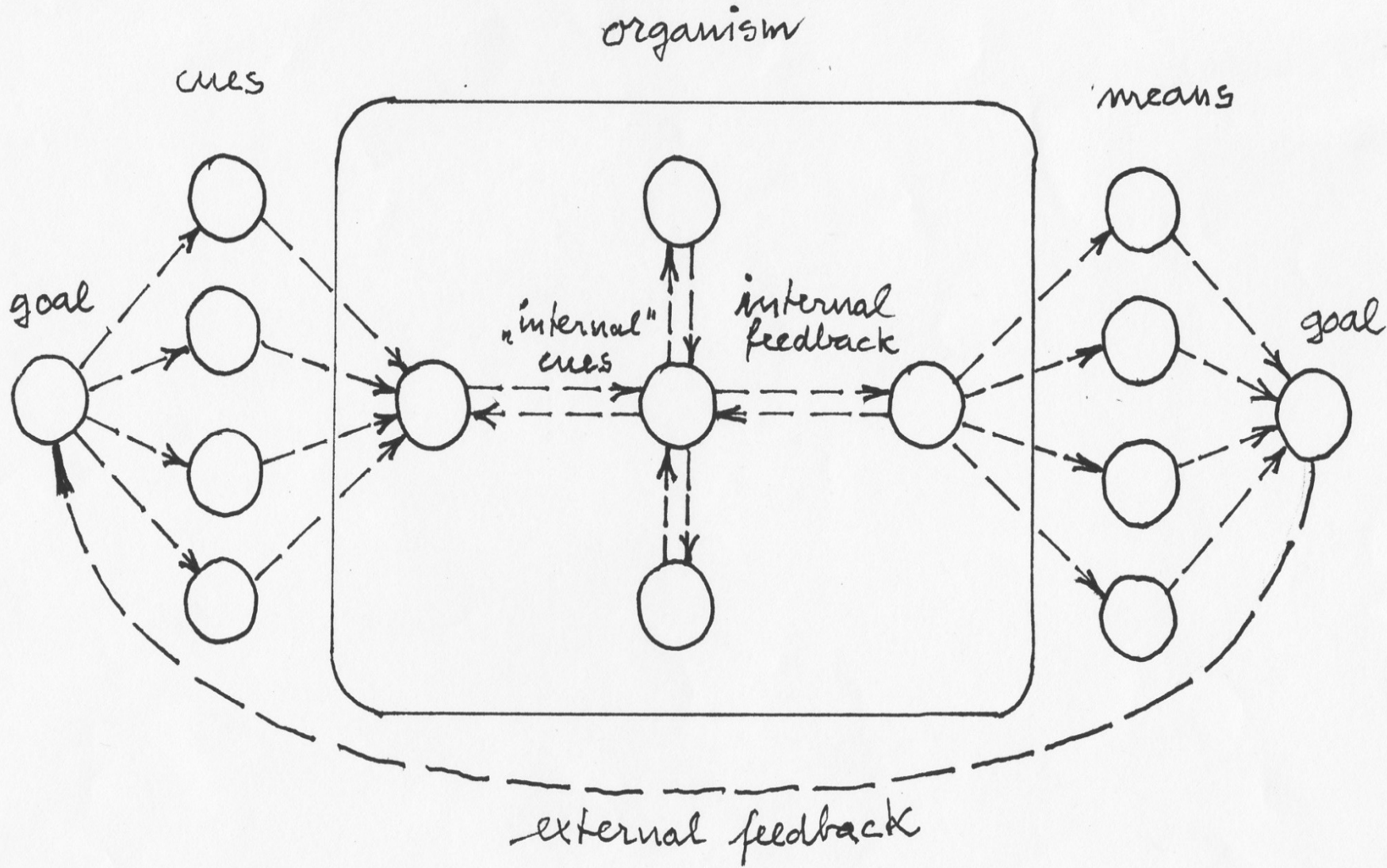
Students are expected to turn in a paper on one of the issues, listed above. For more details see the syllabus.

4. What do we miss so far?

Toward a personality model: the „central region“ of mind.



H.
6.



The central region structure

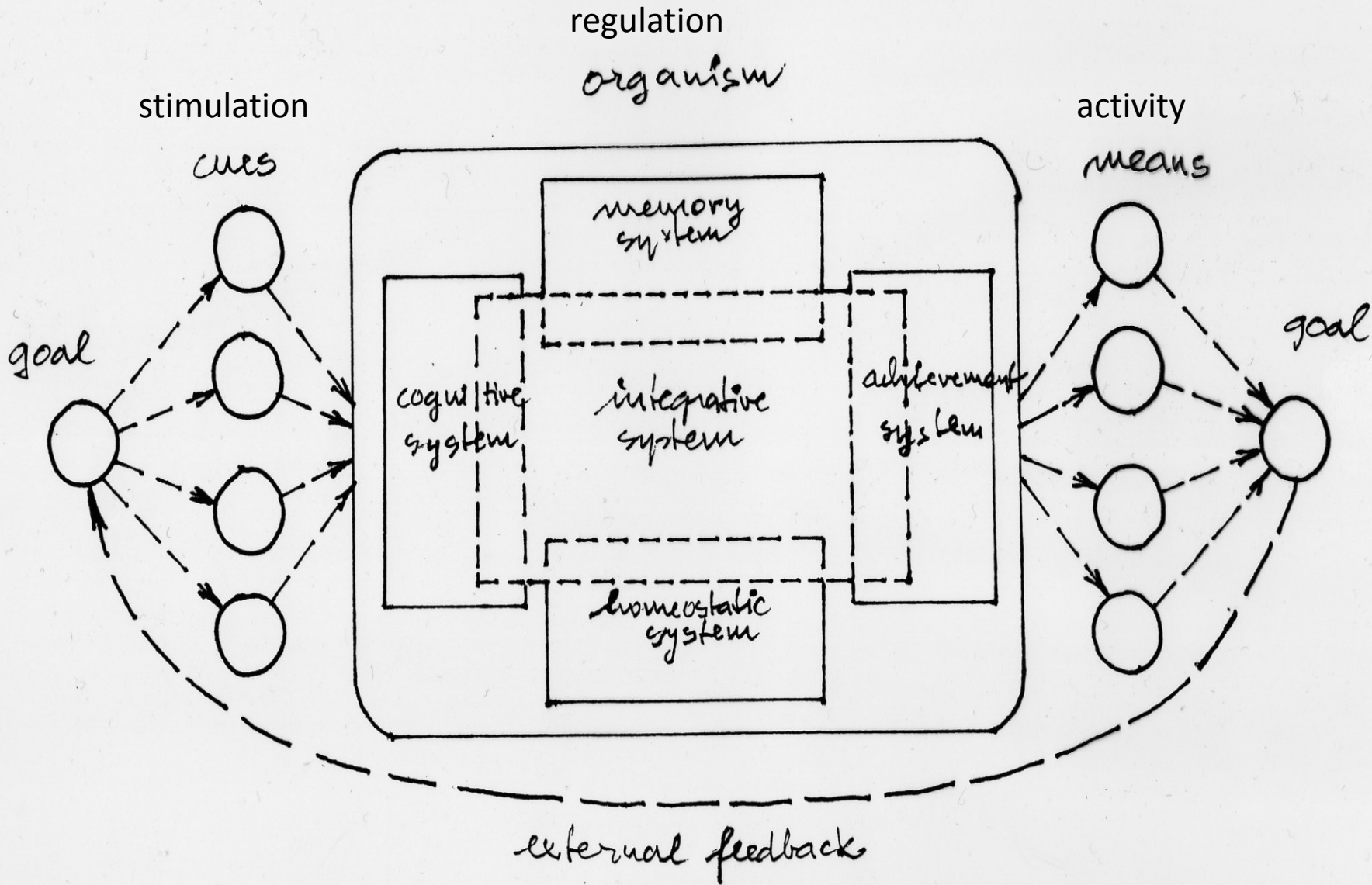
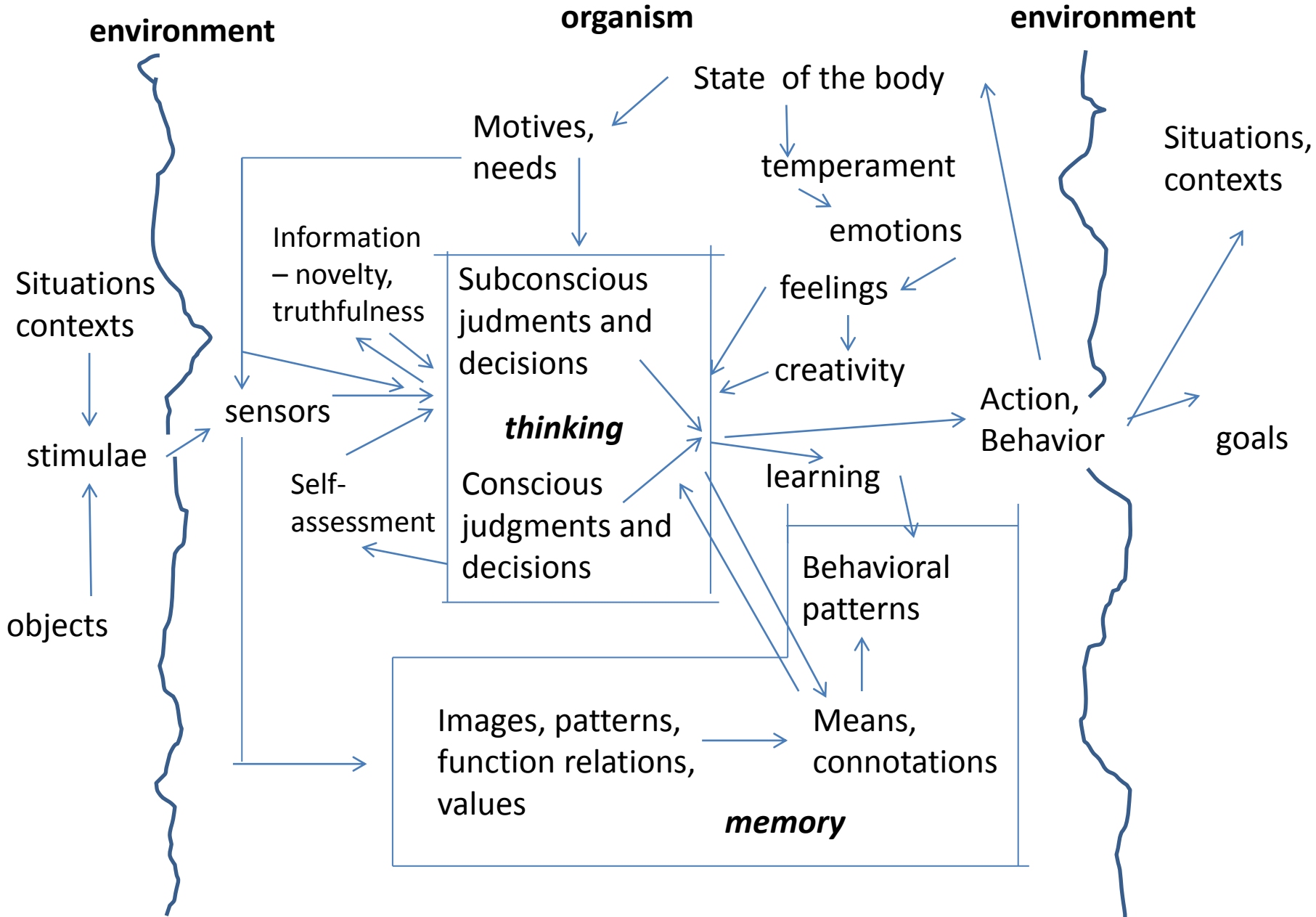


Fig.: 1

Where are the feedback loops?



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 daughter Liserl:

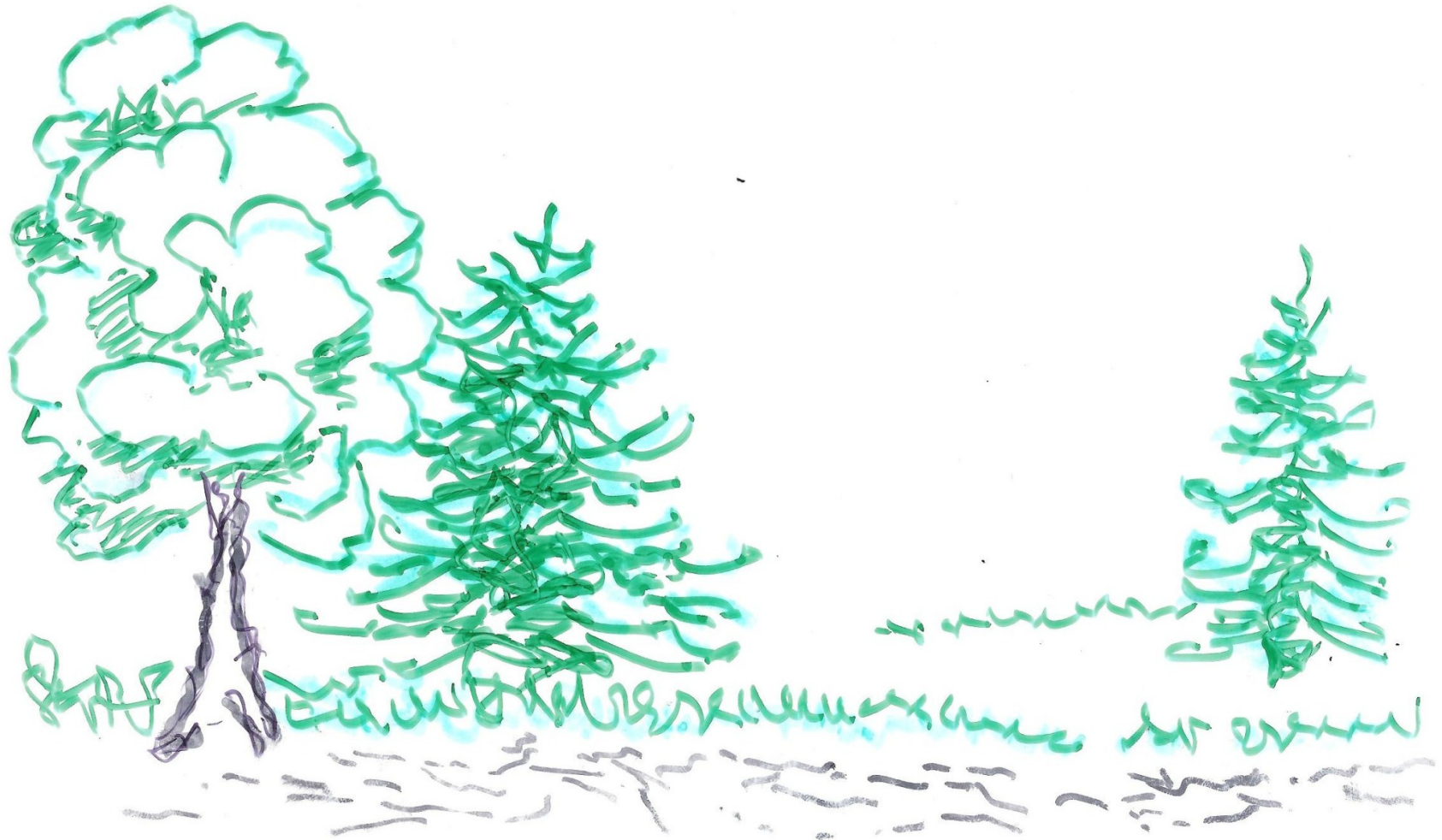
„...there is an extremely powerfull force, for which there is no formal scientific explanation yet. This force includes and rules all the other forces and it is even contained in all the phenomenae operating in the universe, but we did not identify it yet. This universal force is love. When the scientists seeked for an universal unifying theory of the universe, they omitted 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 because 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 $E = mc^2$ 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)**

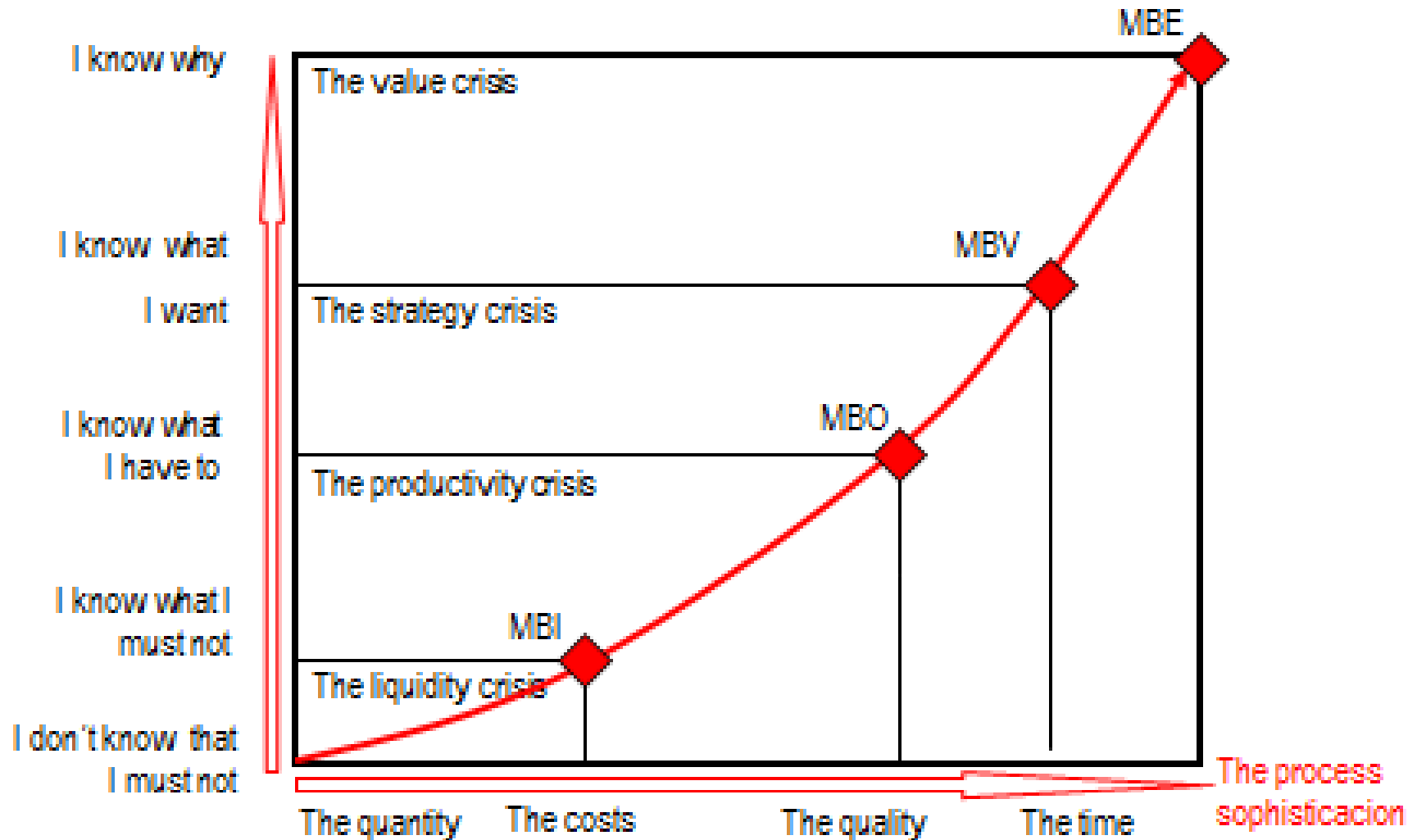


The transformation of motivation: external x internal motivation

The sophistications of organization's processes and the level of self-control

(adapted from Hroník, Galuška, Kopčaj)

Level of self-control



How does it all fit together?

Consider the case of

- an individual,**
- social setting,**
- a civilization**

OBJECT, GOAL
PROBLEM,
FIGURE

CONTEXT,
SITUATION,
BACK GROUND

A PERCEPT

EFFORT: FUNCTIONAL RELAT. ANALYSIS,
COMPARISON OF PATTERNS

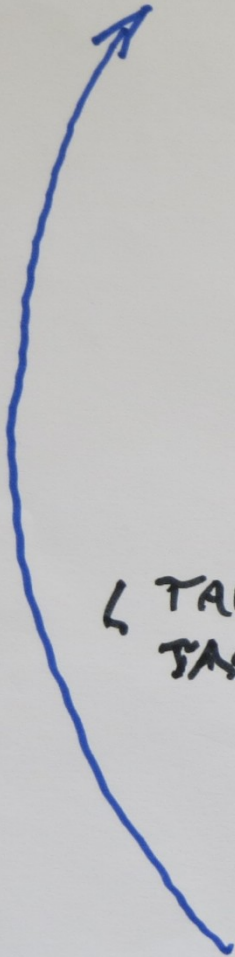
UNDERSTANDING
OF MEANING:
(TANGIBLE INFORMATION,
TACIT KNOWLEDGE)

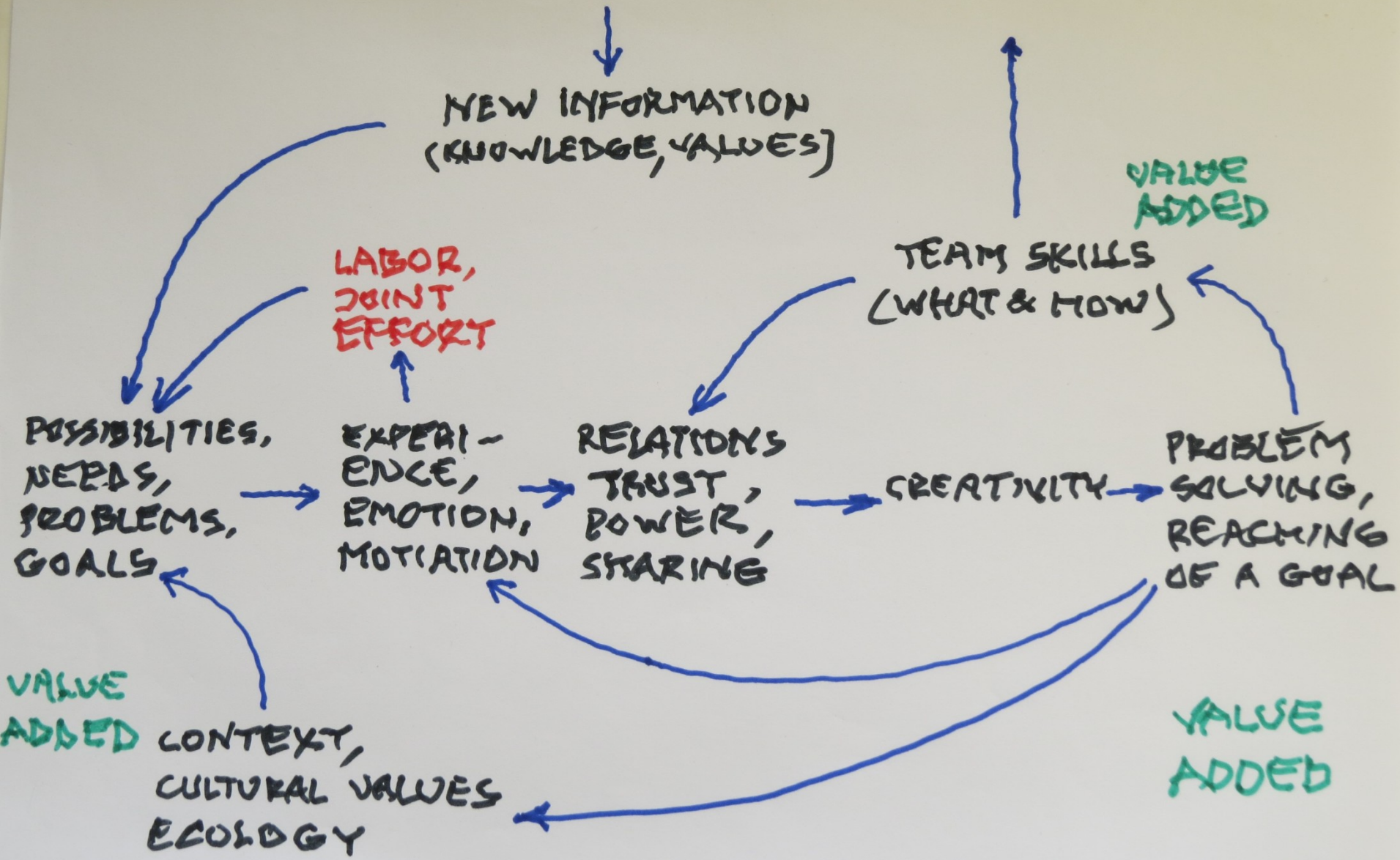
MEMORY:
MENTAL
MODELS,
REPRESENTATIONS

WHAT:
KNOWL.
OF
HOW:
EXPER.

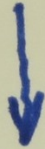
NEW INFORMATION
(KNOWLEDGE, VALUES...)

VALUE
ADDED

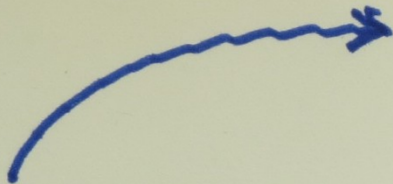




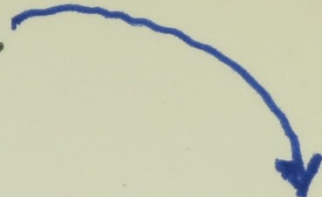
NEW INFORMATION
(KNOWLEDGE,
VALUES)



POSSIBILITIES,
NEEDS, PROBLEMS,
GOALS



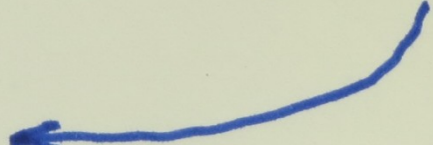
CONTEXT,
CULTURE,
ECOLOGY



SOLUTIONS
INNOVATIONS



RESOURCES



VALUE ADDED:
DYNAMIC BALANCE

There is a catch, a vicious 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 intellectual 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

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

analysis (criteria previously agreed upon)

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

Exploration, problem solving

New information seeking

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

intuition (usual solution possibilities)

The making of strategies and planing.

Assessment, decision - making

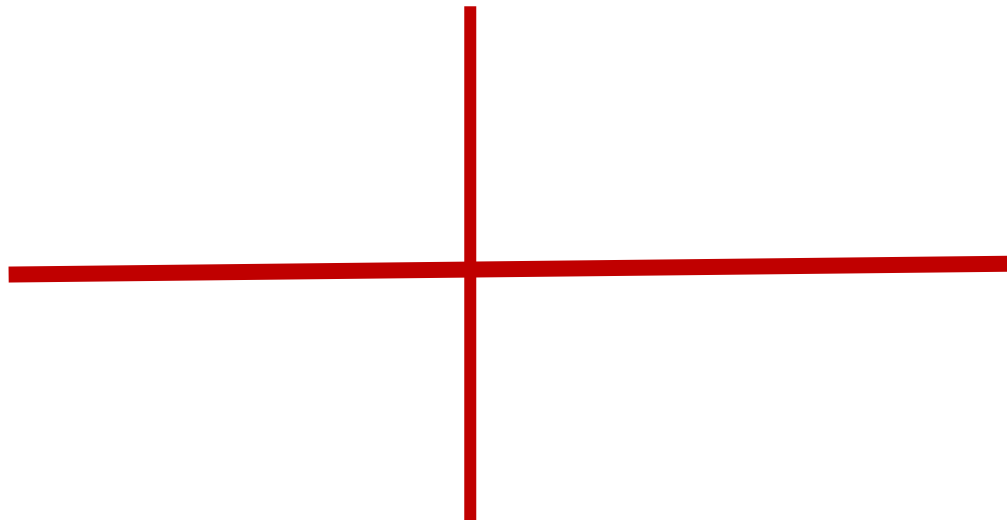
integration

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.

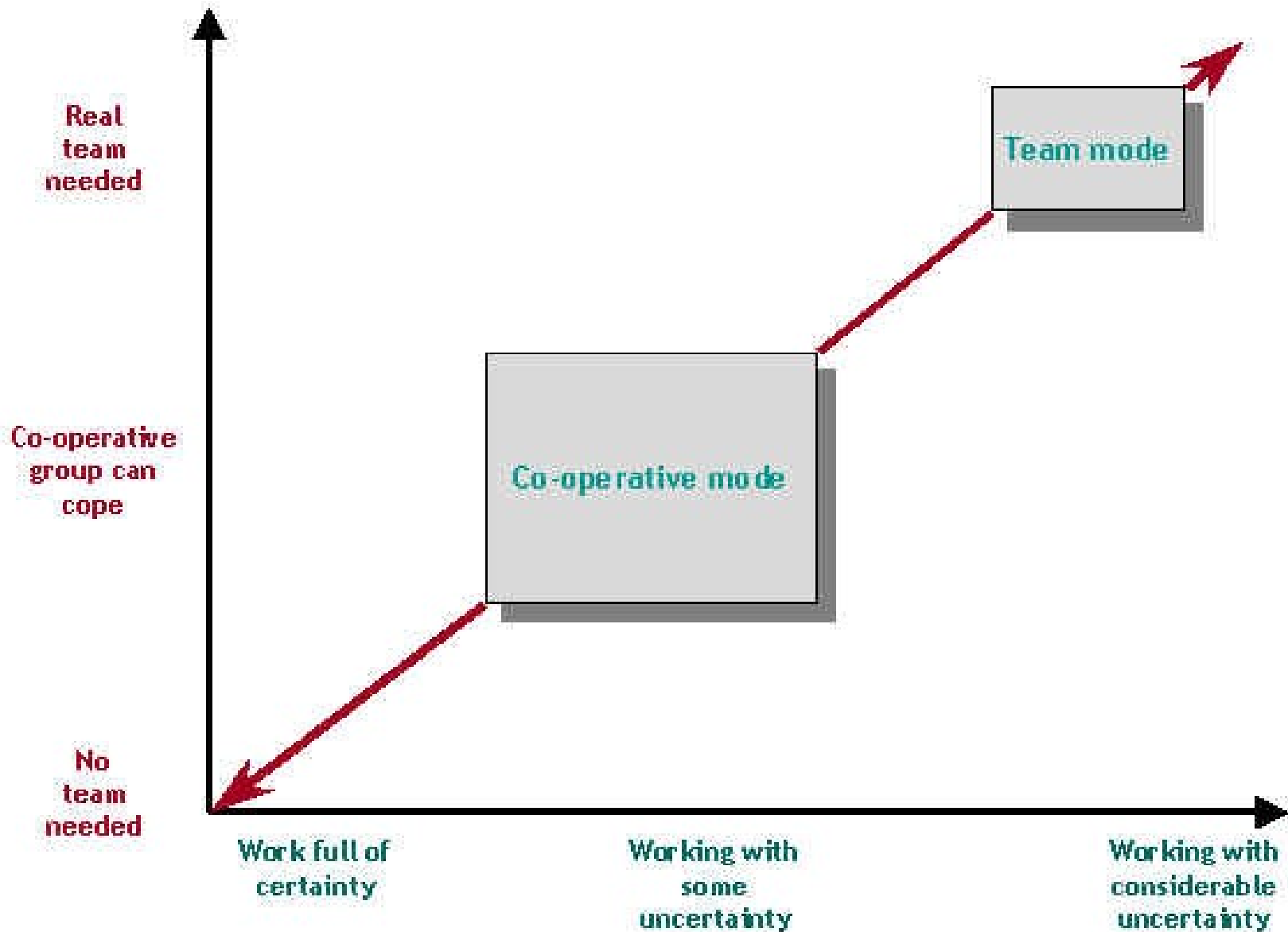


**Bill Critchley,
organizational
consultant**



**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



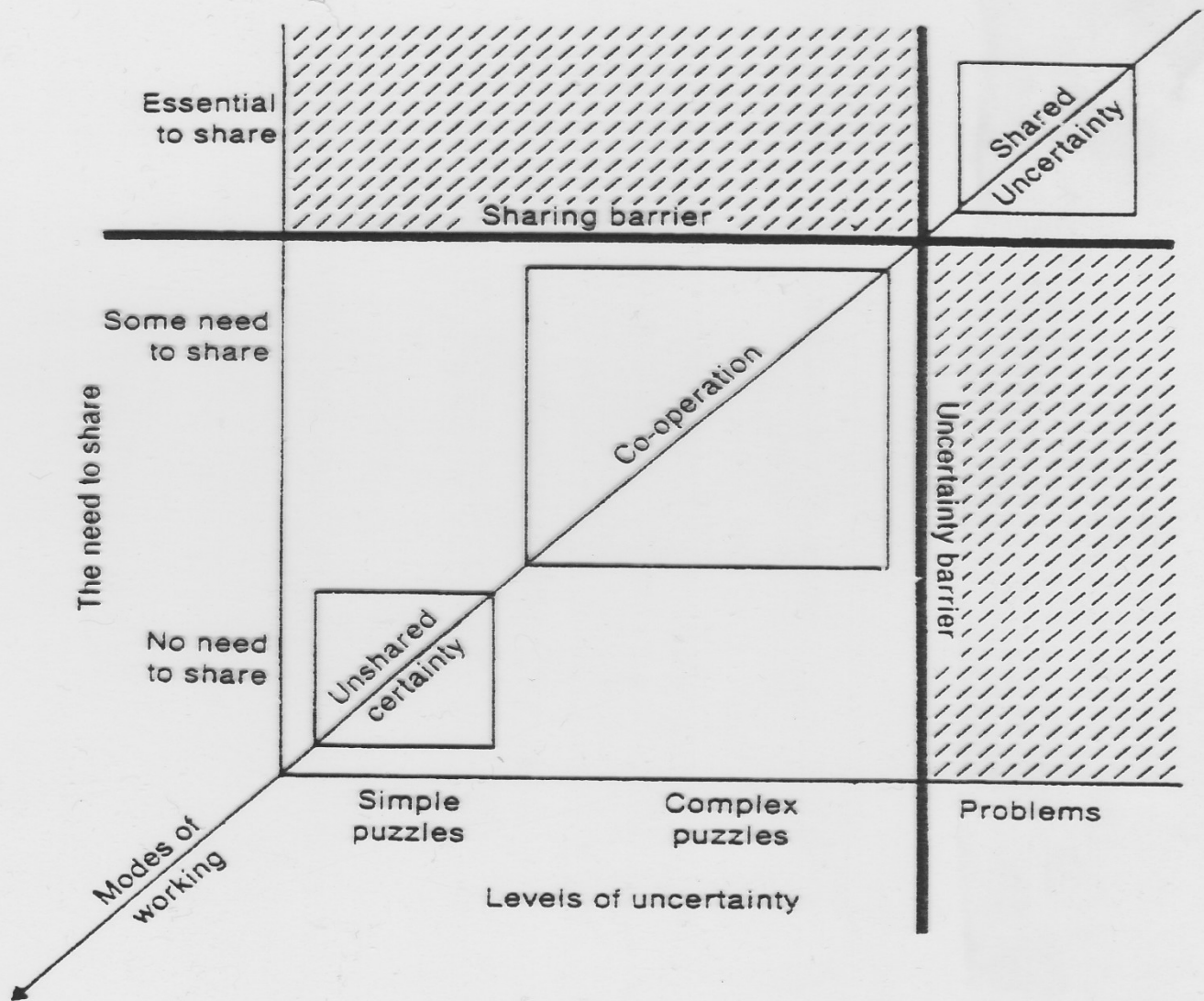


Figure 35.1 The more uncertainty in its task, the more any group has to share

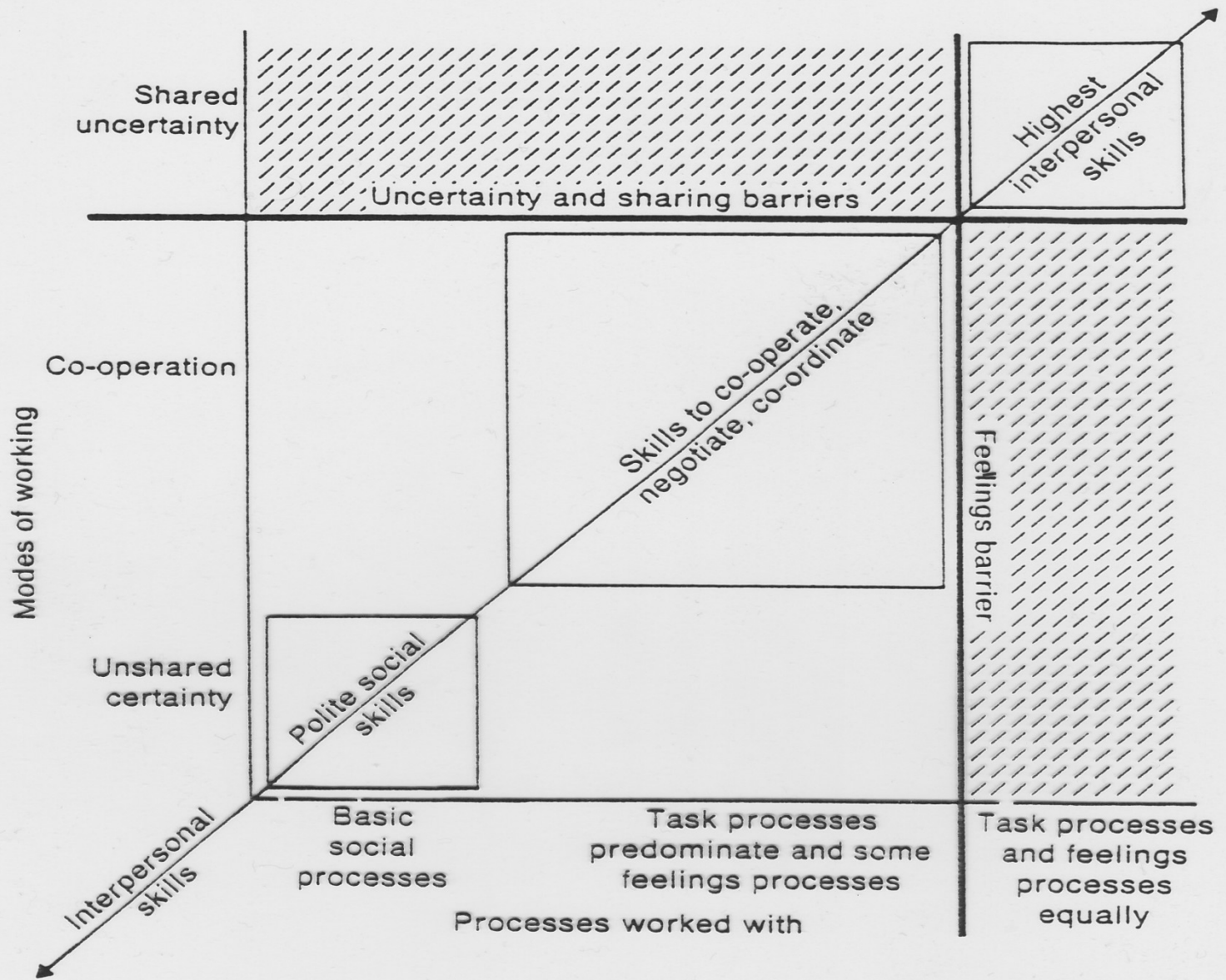


Figure 35.2 Different modes of working require different methods

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.**

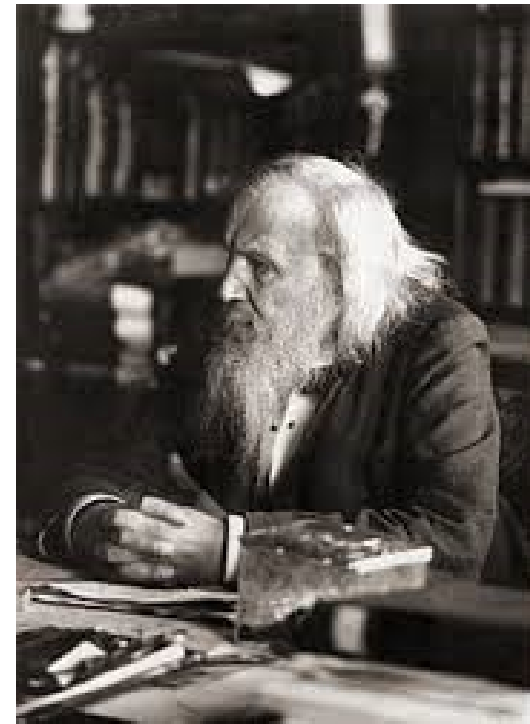
What are the classification criteria?



Dimitirij Ivanovič Mendelejev

8.2.1834 – 2.2.1907

What is the organizing principle?



Periodic Table of the Elements

1	IA	1	H	IIA	2	He	0																															
2		3	Li	4	Be	5	B	6	C	7	N	8	O	9	F	10	Ne																					
3		11	Na	12	Mg	13	Al	14	Si	15	P	16	S	17	Cl	18	Ar																					
4		19	K	20	Ca	21	Sc	22	Ti	23	Y	24	Cr	25	Mn	26	Fe	27	Co	28	Ni	29	Cu	30	Zn	31	Ga	32	Ge	33	As	34	Se	35	Br	36	Kr	
5		37	Rb	38	Sr	39	Y	40	Zr	41	Nb	42	Mo	43	Tc	44	Ru	45	Rh	46	Pd	47	Ag	48	Cd	49	In	50	Sn	51	Sb	52	Te	53	I	54	Xe	
6		55	Cs	56	Ba	57	*La	58	Hf	72	Ta	73	W	74	Re	75	Os	76	Ir	77	Pt	78	Au	79	Hg	80	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn
7		87	Fr	88	Ra	89	+Ac	90	Rf	104	Ha	105	106	107	108	109	110																					

* Lanthanide Series

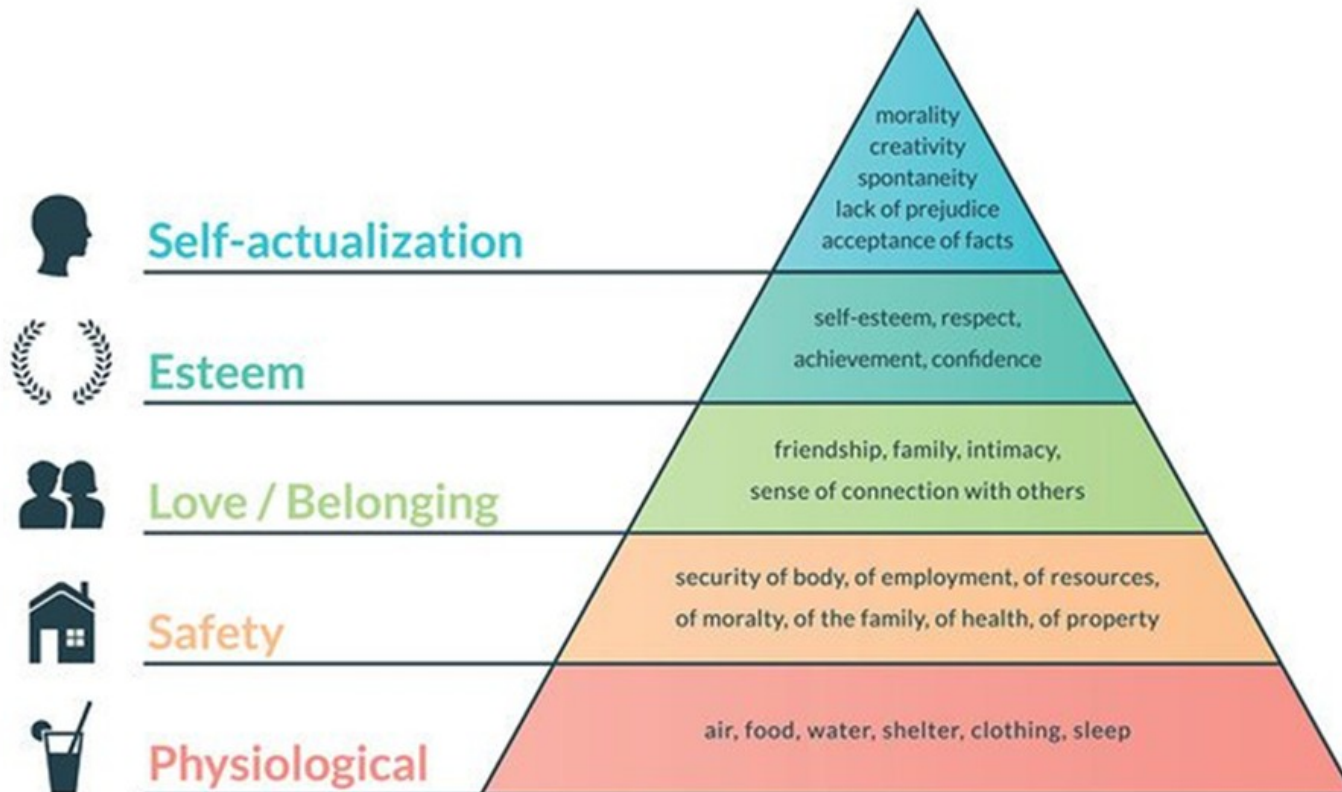
58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu

+ Actinide Series

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Abraham Harold Maslow's hierarchy of needs

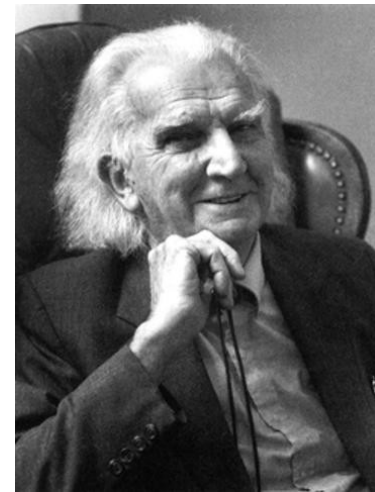
1.4.1908 Brooklyn –
8.6.1970 Menlo Park



Co-founders of the general systems theory :

**Living systems are open systems,
characterized by:**

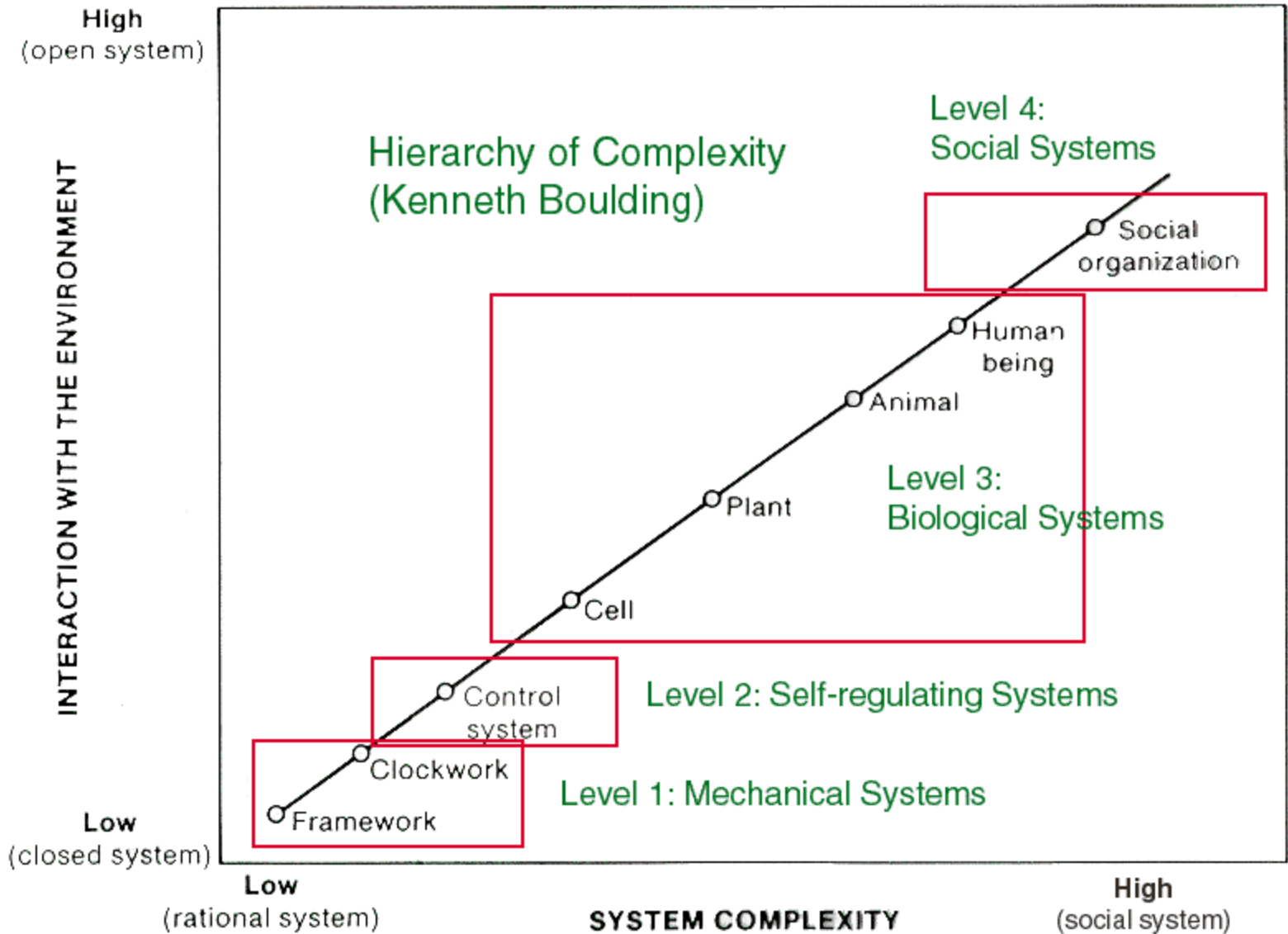
- **complexity,**
- **seeking of a dynamic equilibrium,**
- **use feedback – loops and,**
- **temporarily defy entropy by self-organization.**

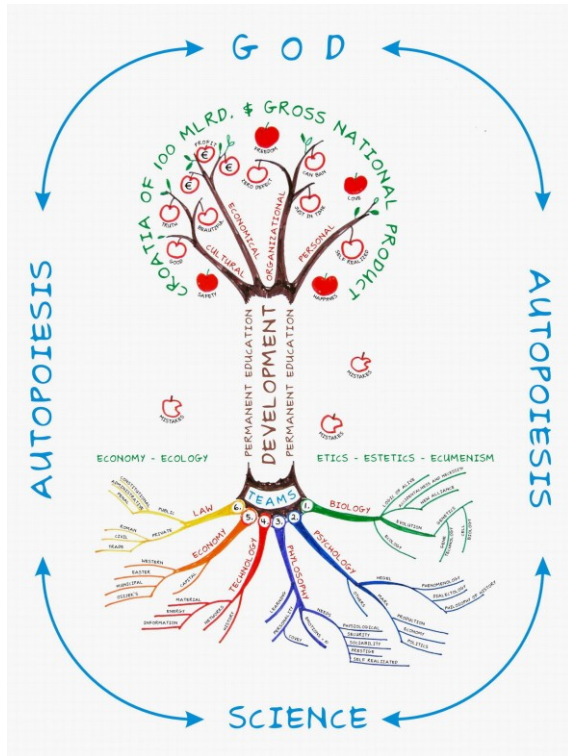


Kenneth Ewart Boulding
18.1.1910 – 18.3.2000



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





Humberto R. Maturana
14.9.1928

A concept of an „autopoietic (self-developing) system“, a separate system, staying as a structure, which behavior is governed by it. Used also in social sciences.

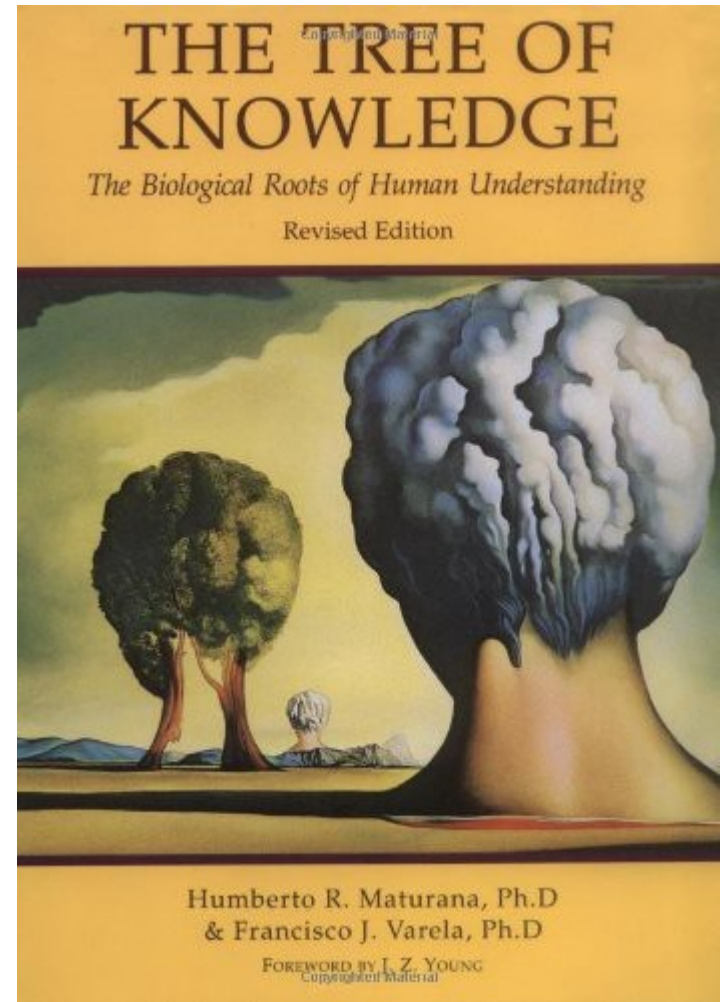


The nervous system is coupled to the organism that it integrates in a manner that its plastic connectivity is being continuously determined though its participation in the autopoiesis of the organism.

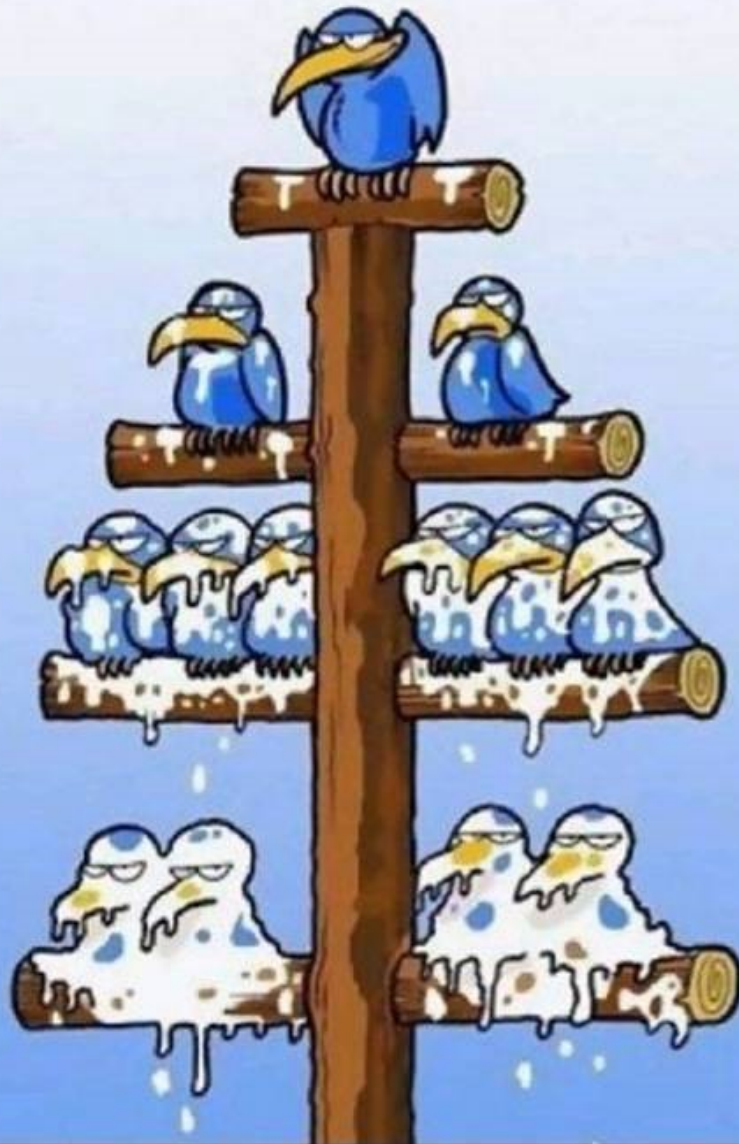
Therefore, the connectivity of the nervous system is coupled to the history of interactions of the organism to which it is coupled.

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.



**When top level guys look down
they see only shit.**

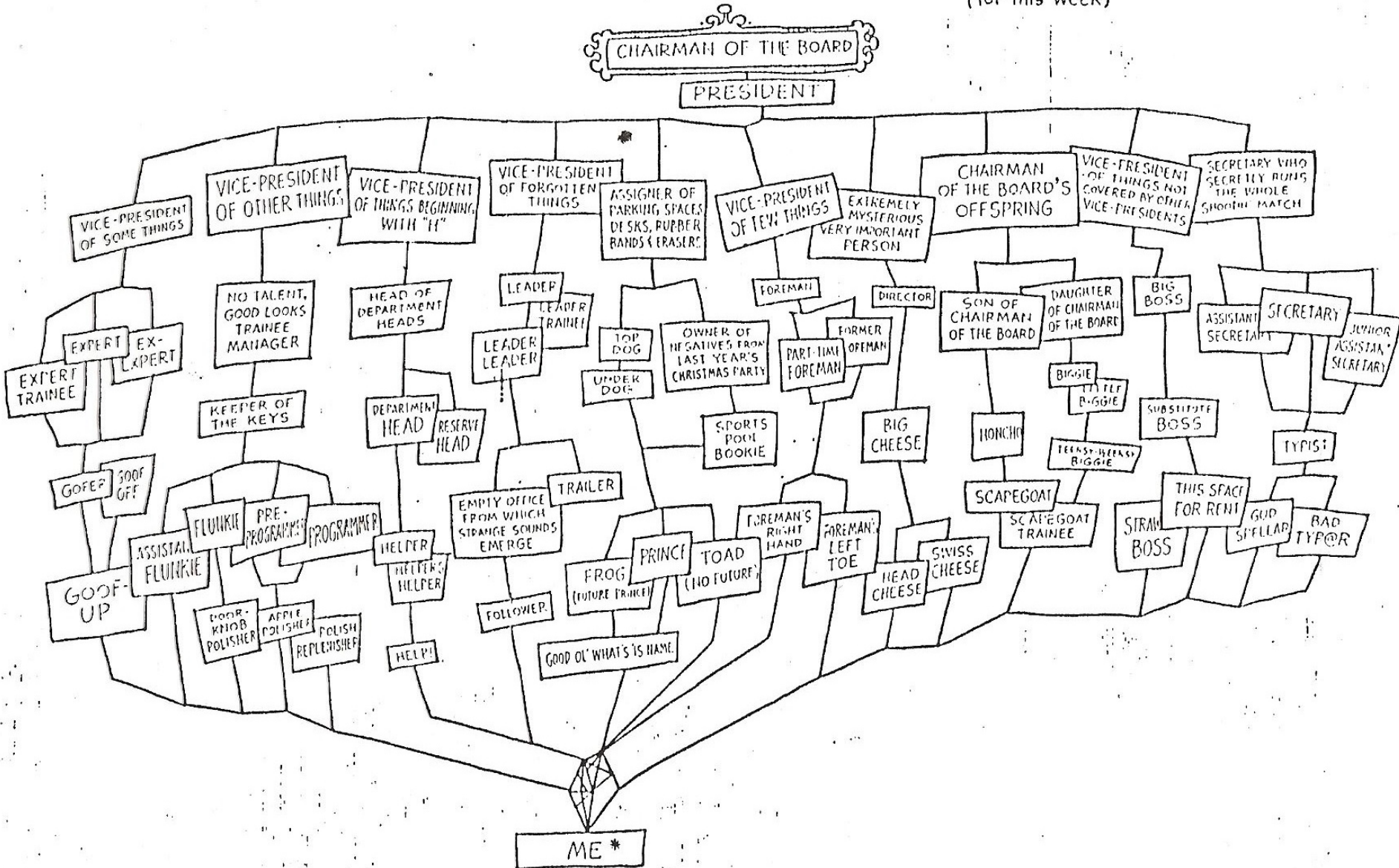


**When bottom level guys look up
they see only assholes.**

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

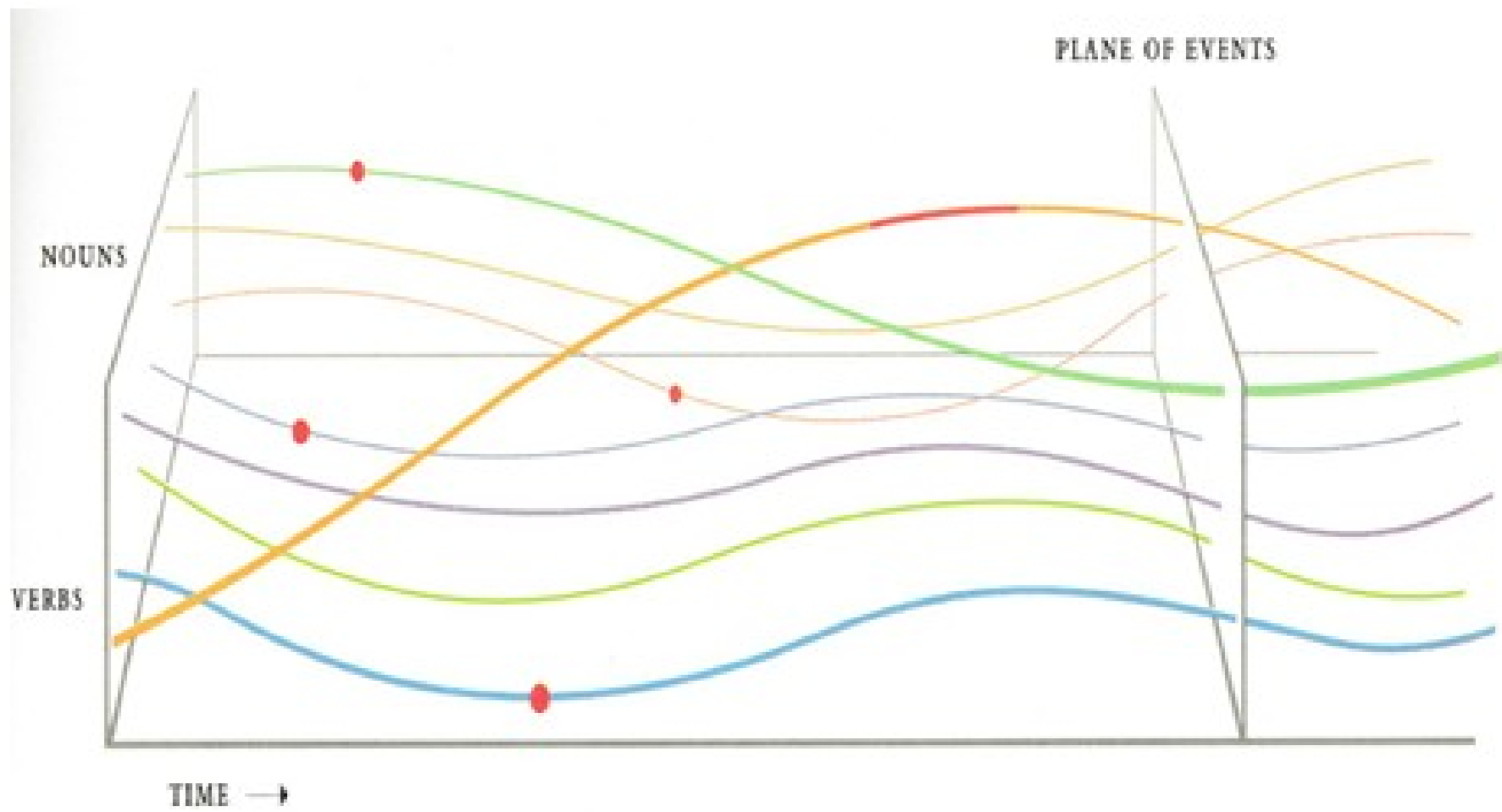
CORPORATE ORGANIZATIONAL CHART

(for this week)

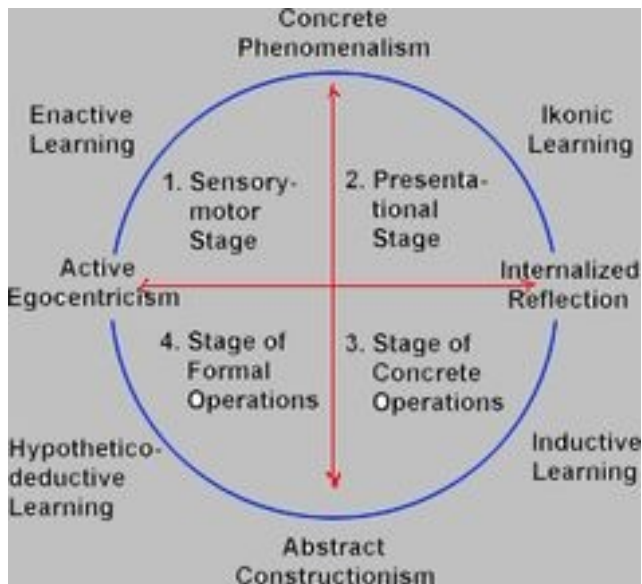


* INDICATES POSITIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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



The cognitive development view



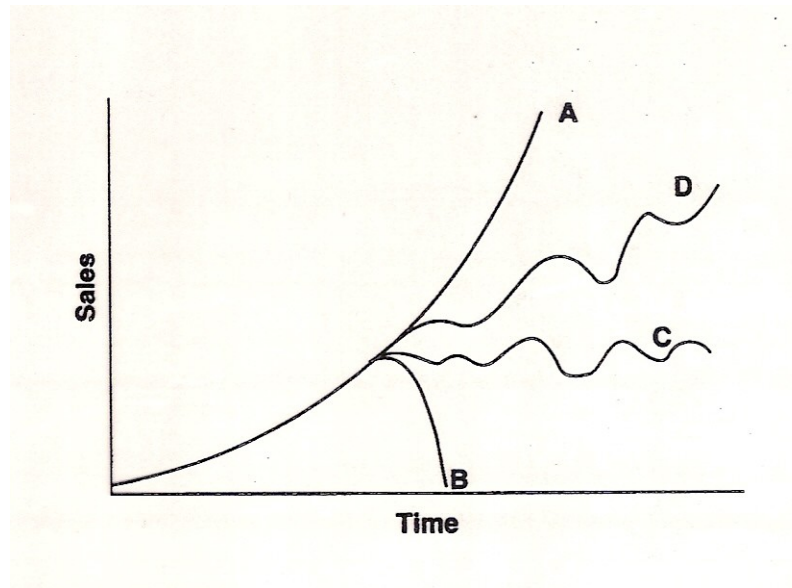
When you teach a child something, you take away forever his chance of discovering it for himself.
J.P.



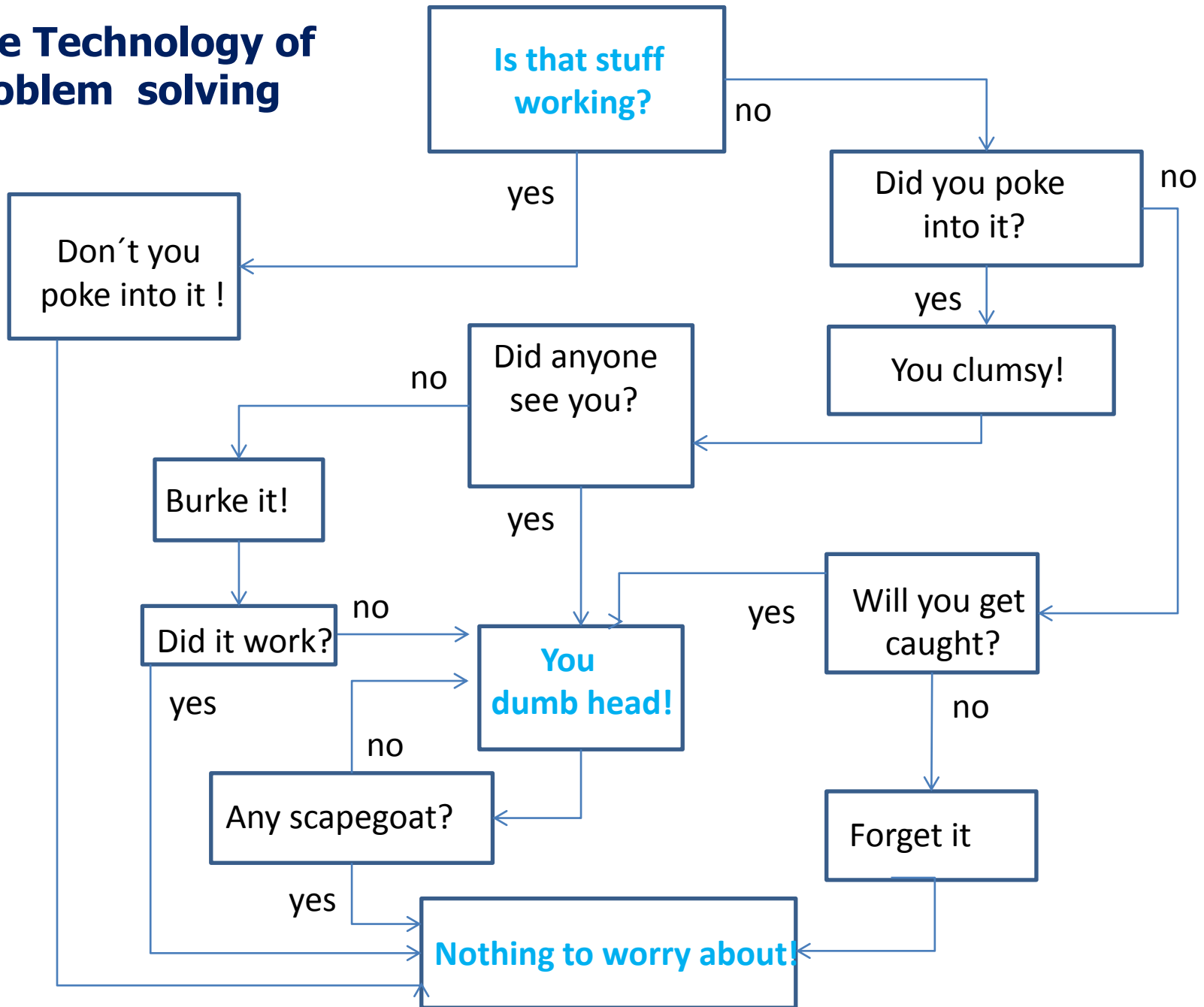
Jean Piaget 1896 Neuchatel - 1980 Geneva

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

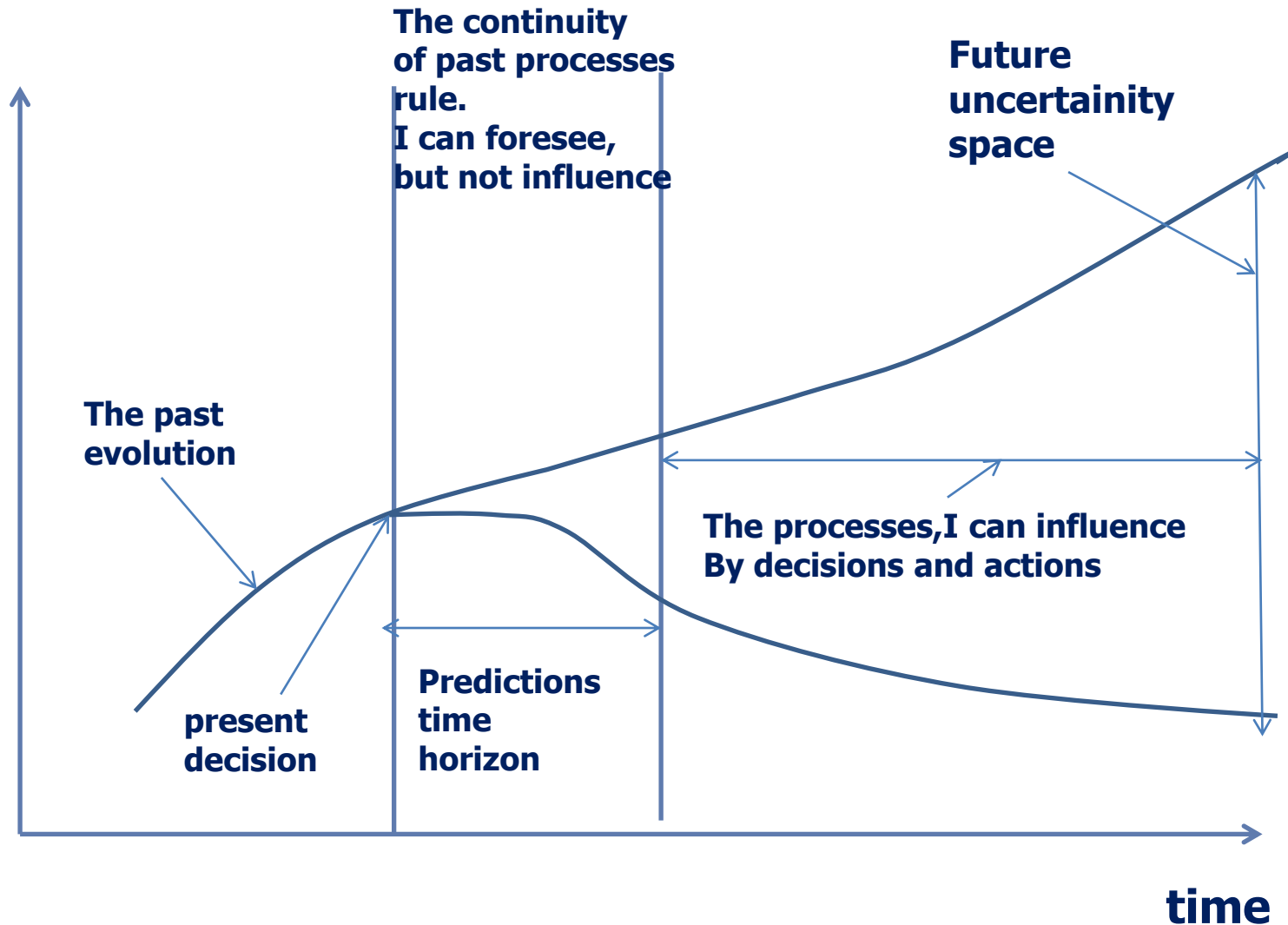
**Picturing change over time – evolution, development.
Linear and non-linear view (see also slides 49 – 54)**



The Technology of problem solving



Decision - making and its consequences



By Jay W. Forrester

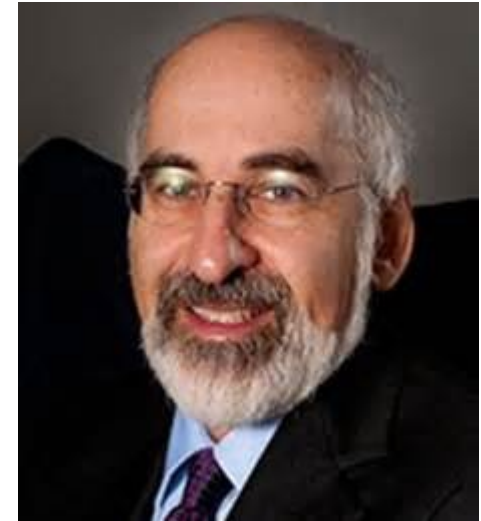
b) A way to a more advanced thinking: the system dynamics



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

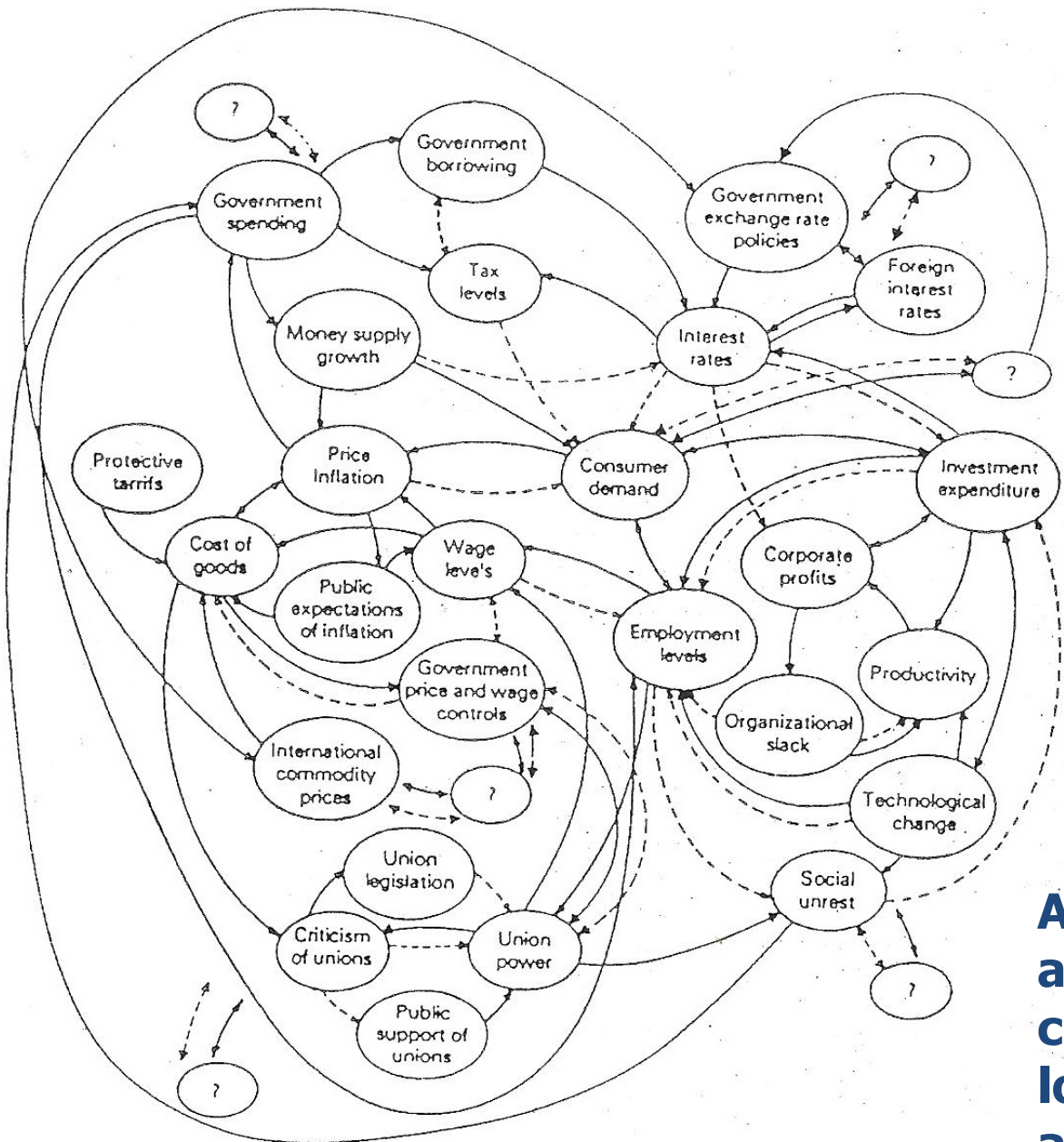


Jay Wright Forrester
14.7.1918 – 16.11.2016
founder of S.D.,
„The world dynamics“



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

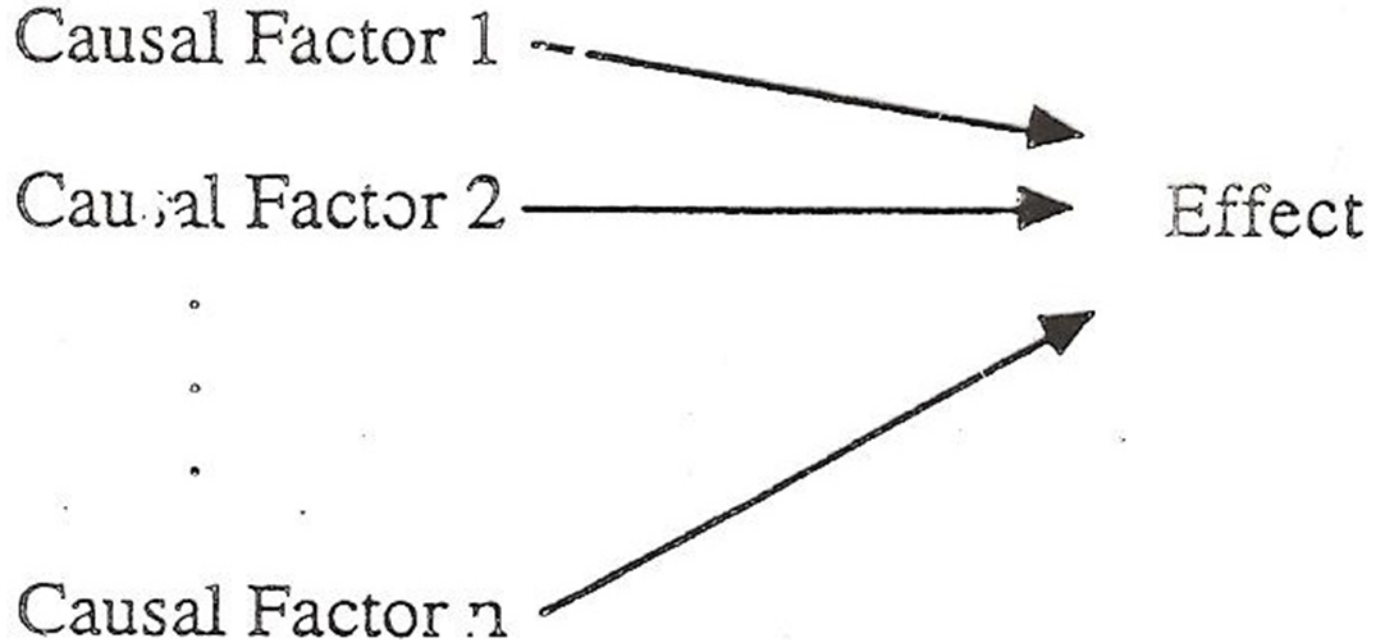
All at the Sloan School of management, M.I.T., Boston

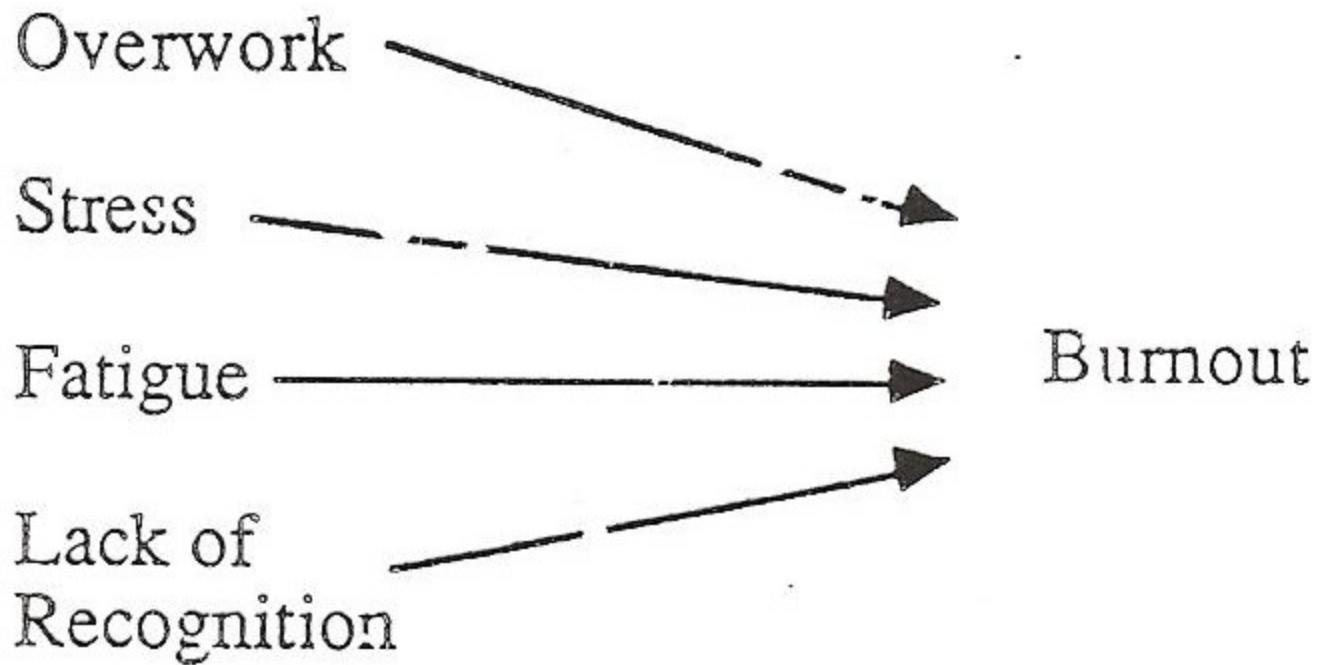


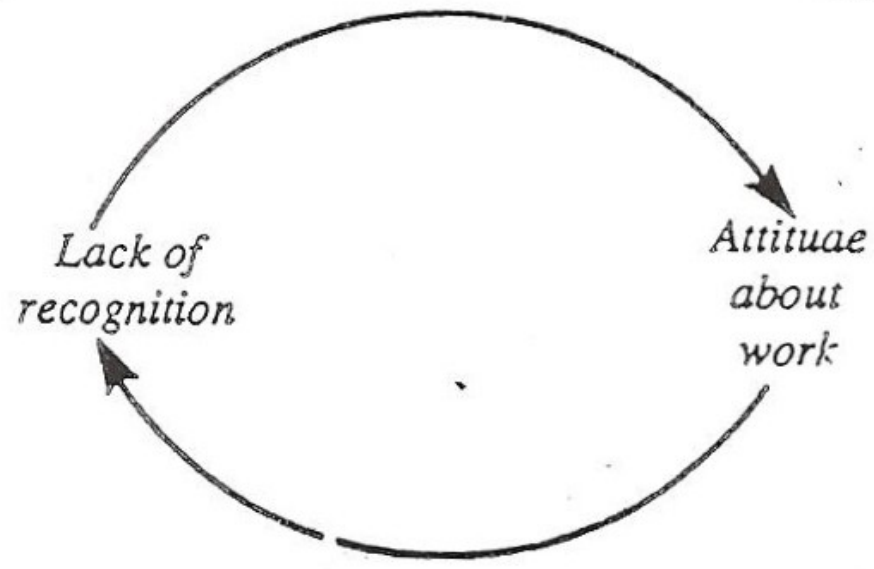
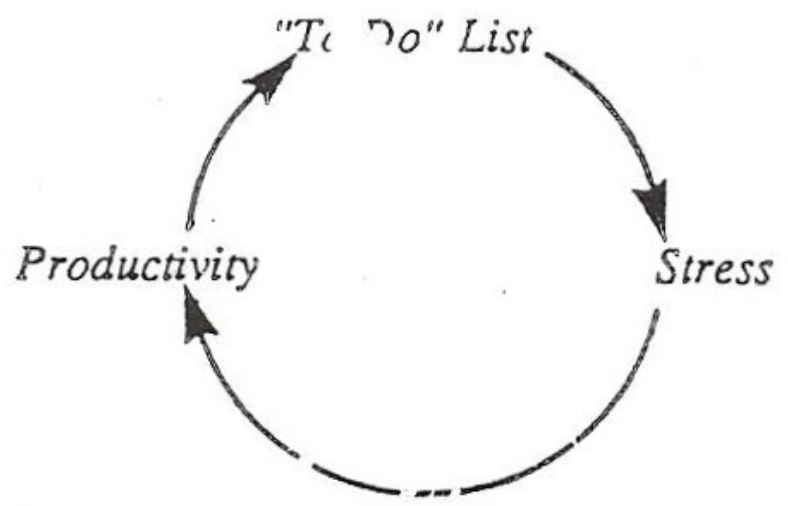
An example of a dynamic structure, consisting of feedback loop processes: a price inflation model

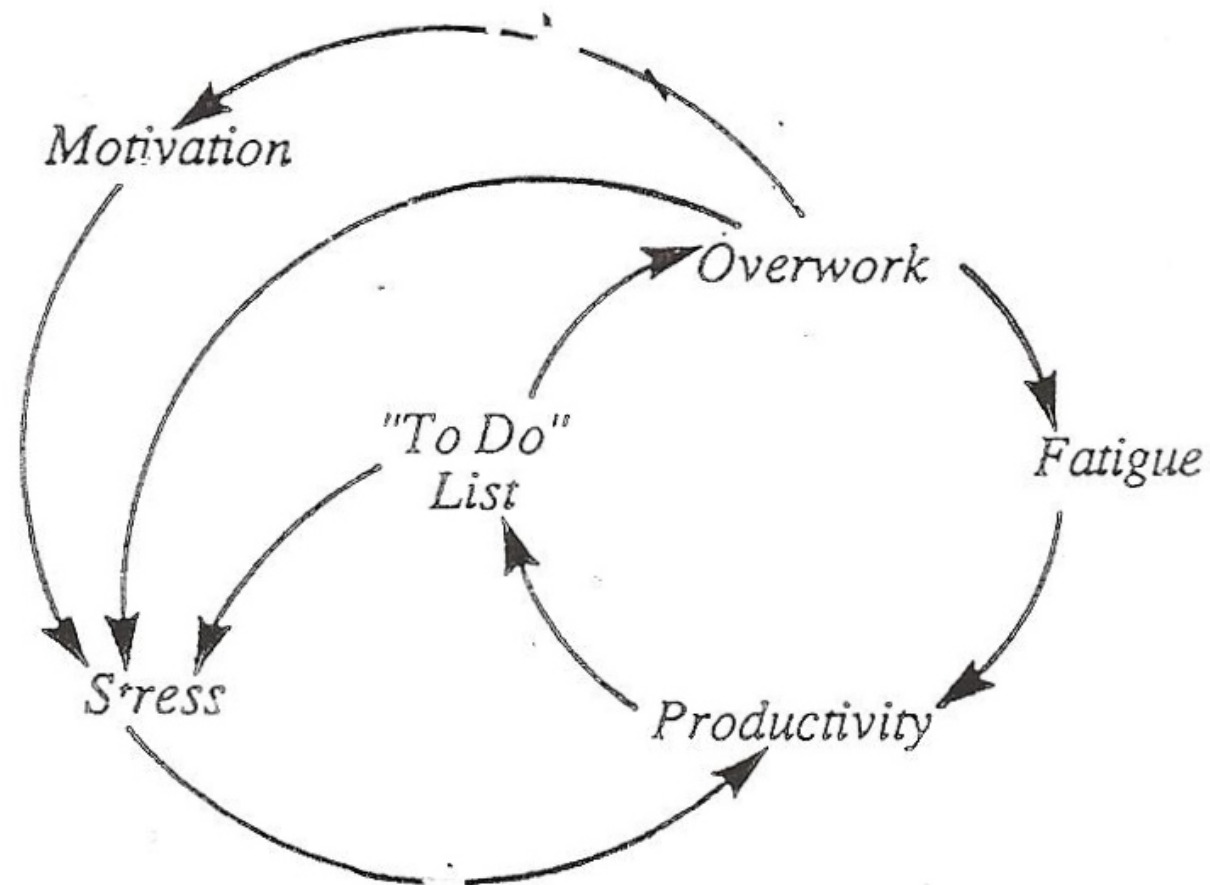
- signifies positive feedback relations where more leads to more and less leads to less
- - - signifies negative feedback relations where changes in one direction are associated with changes in the opposite direction.

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

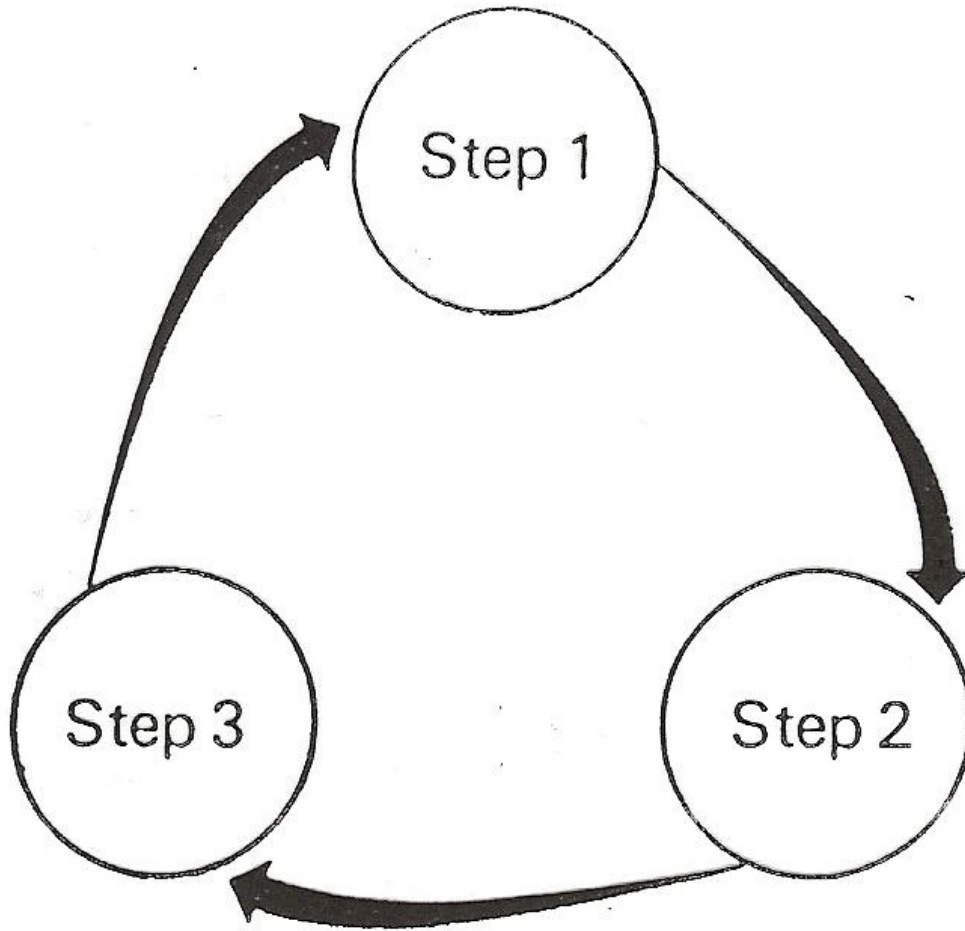




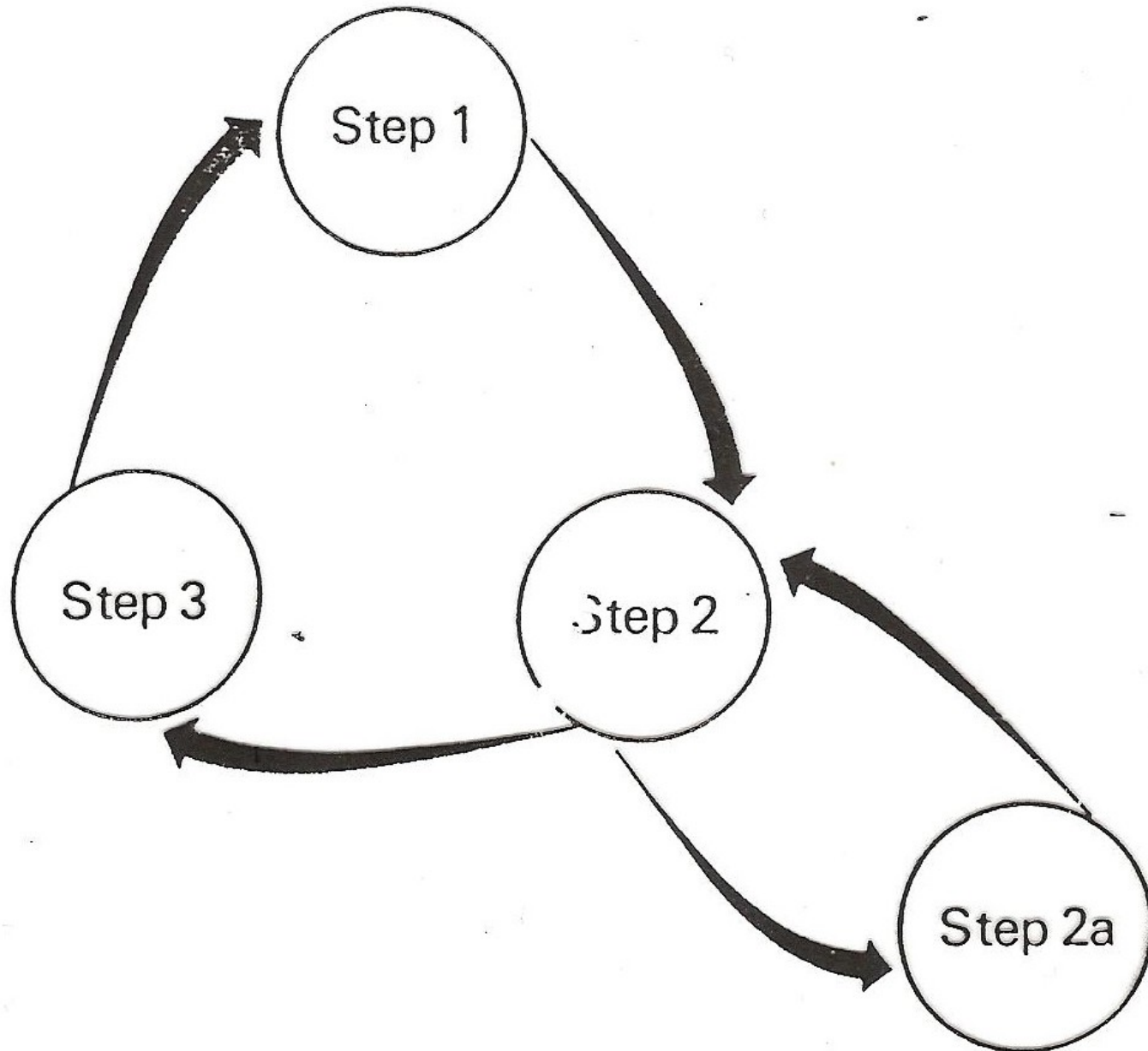


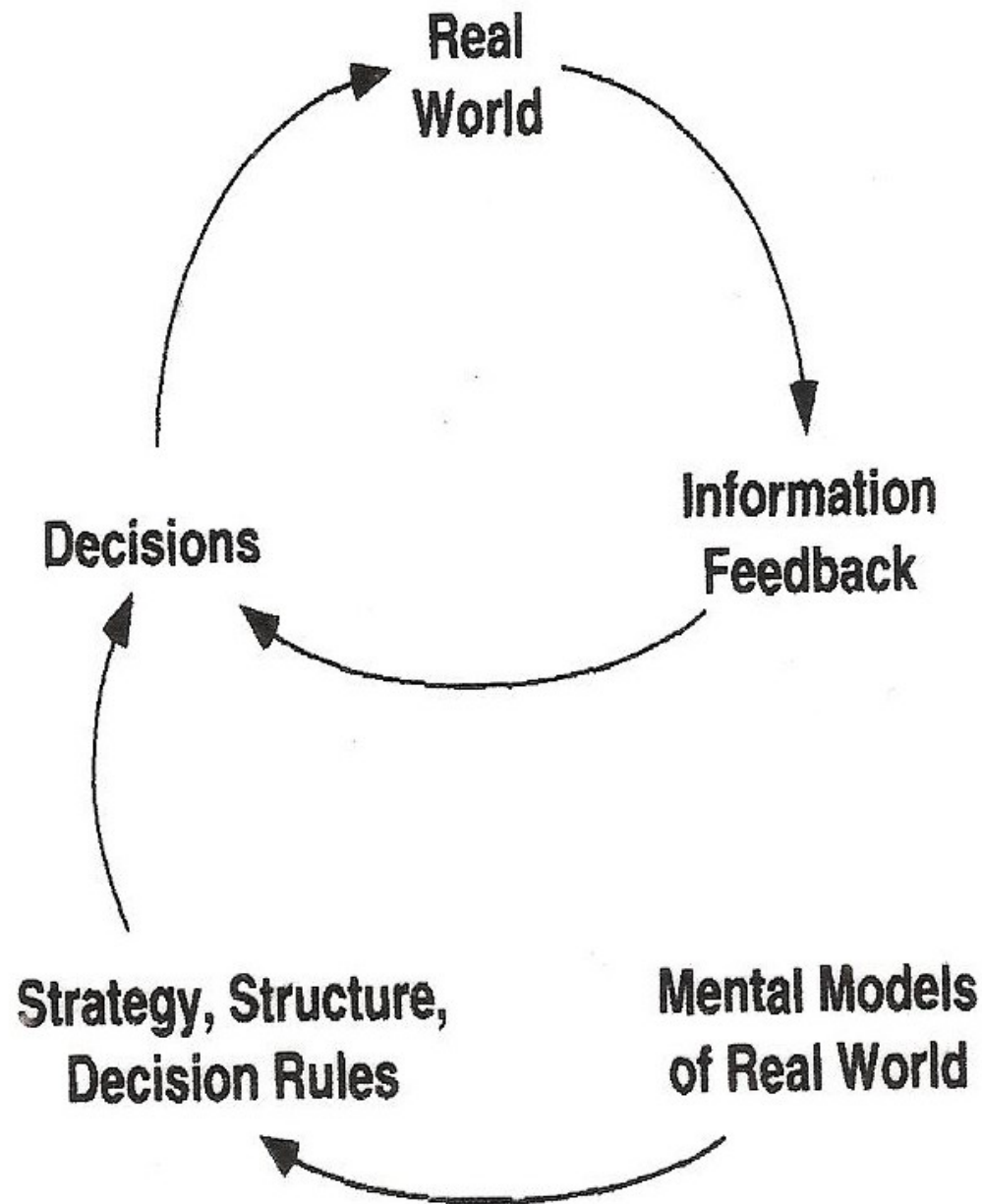


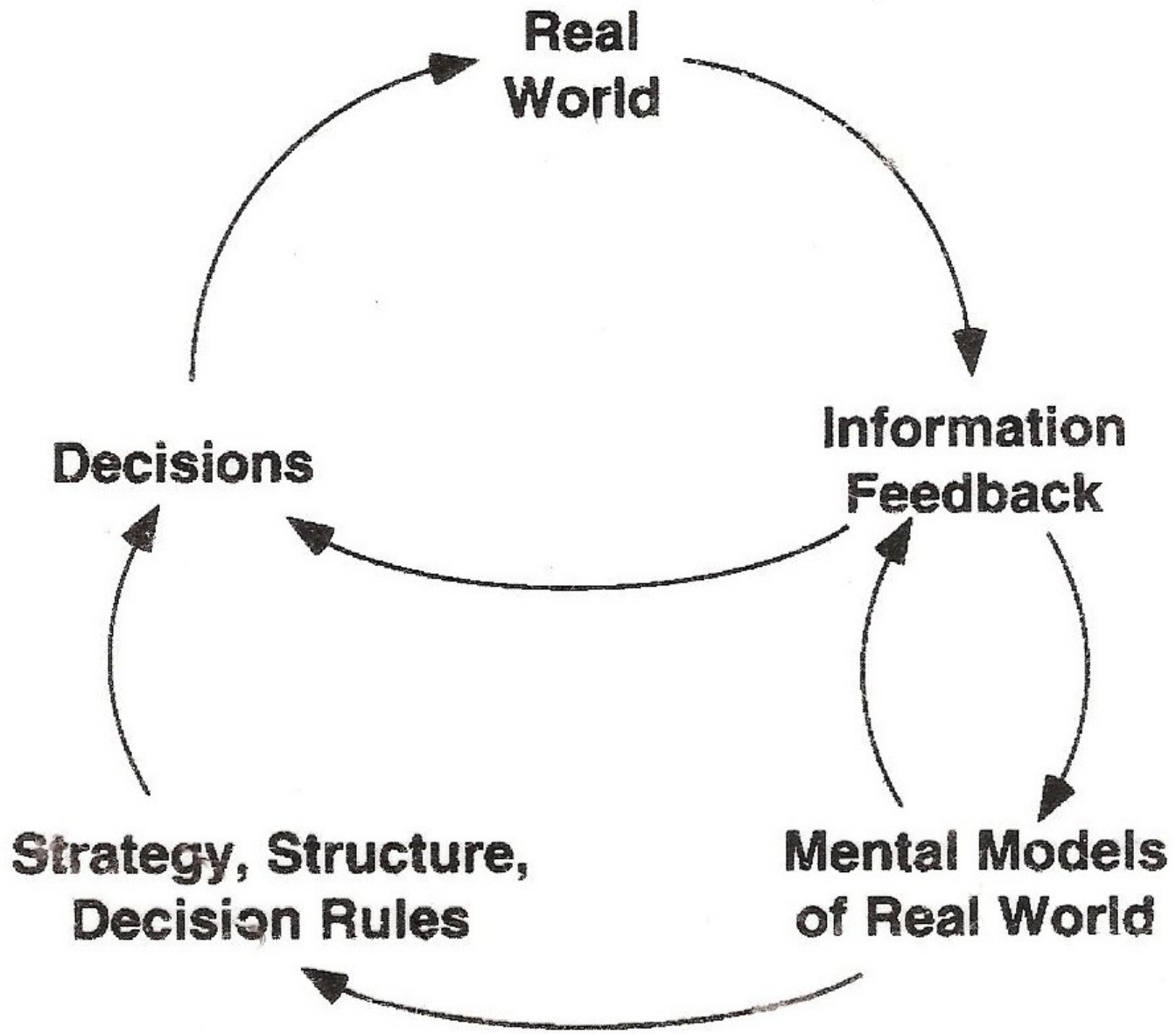
Single-loop learning rests in an ability to detect and correct error in relation to a given set of operating norms:

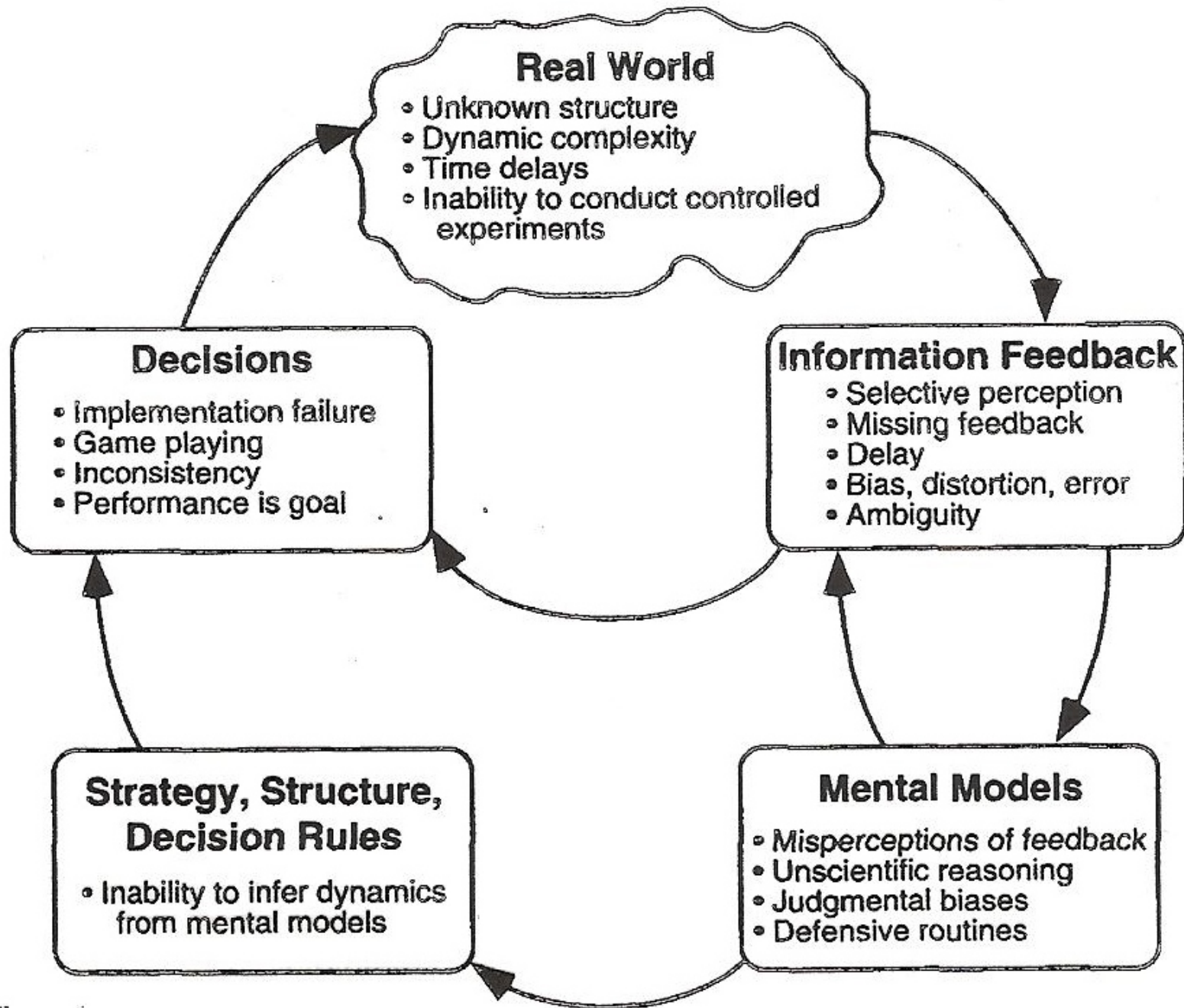


Double-loop learning depends on being able to take a “double look” at the situation by questioning the relevance of operating norms:

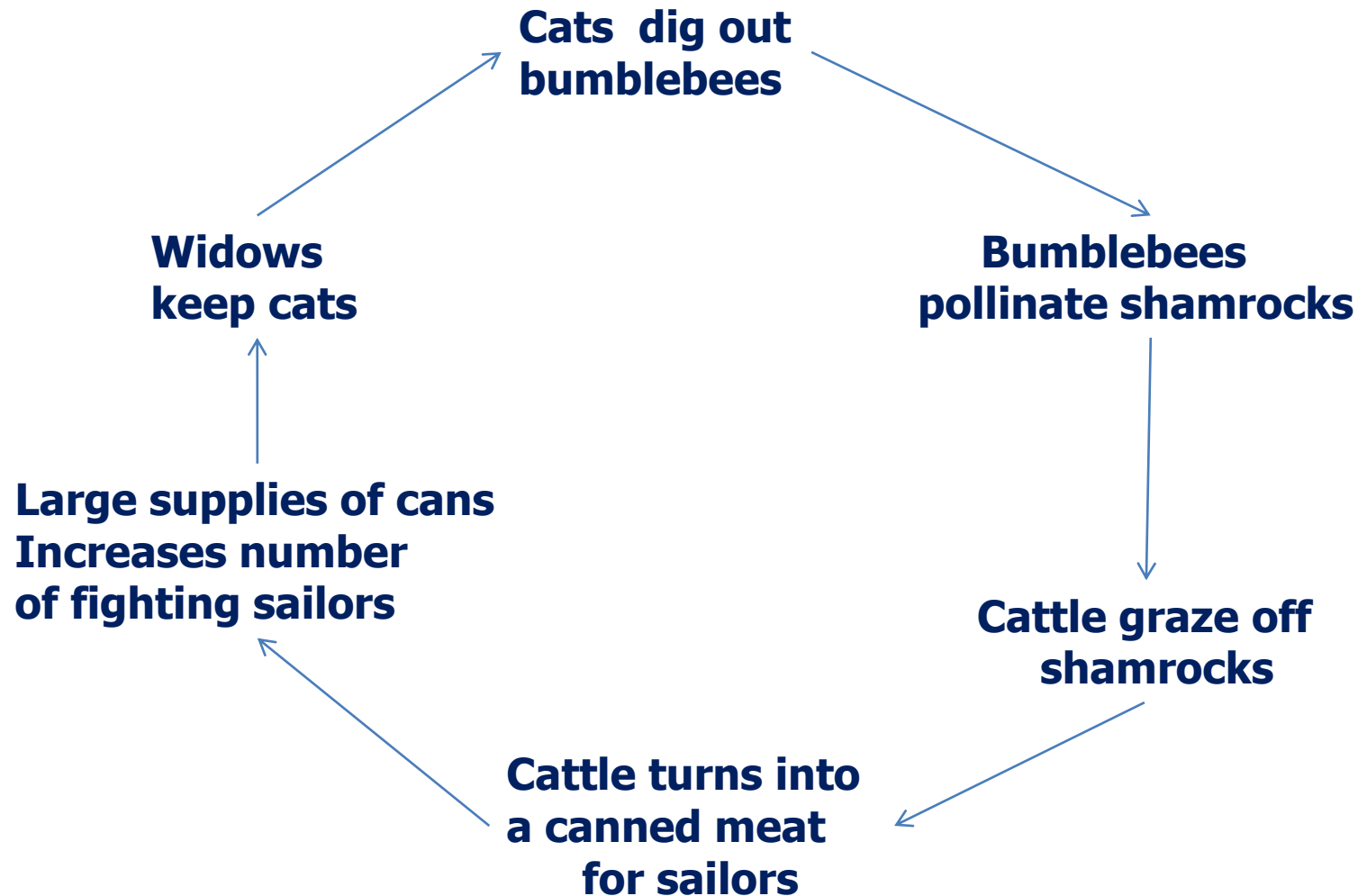


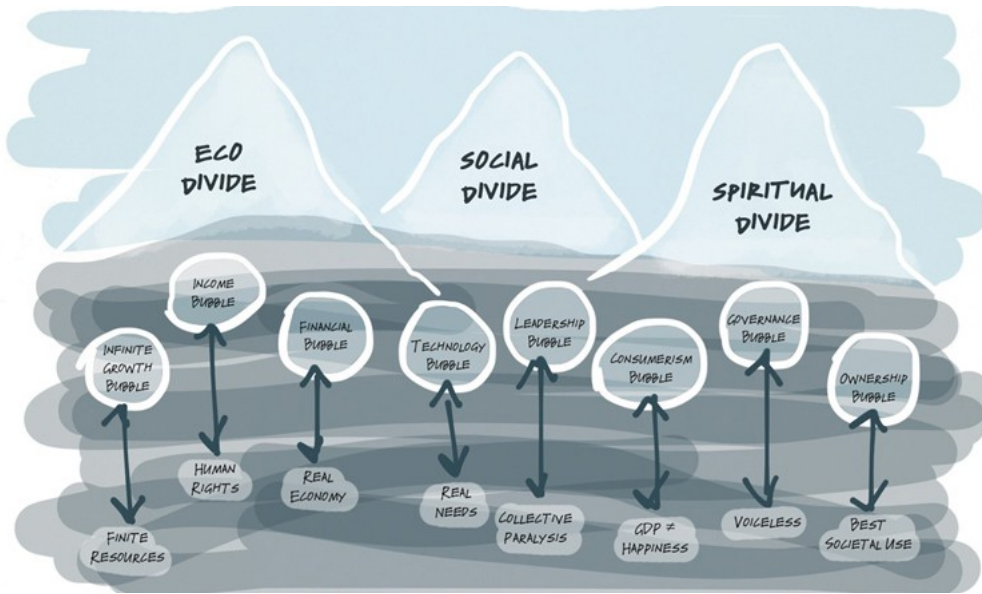




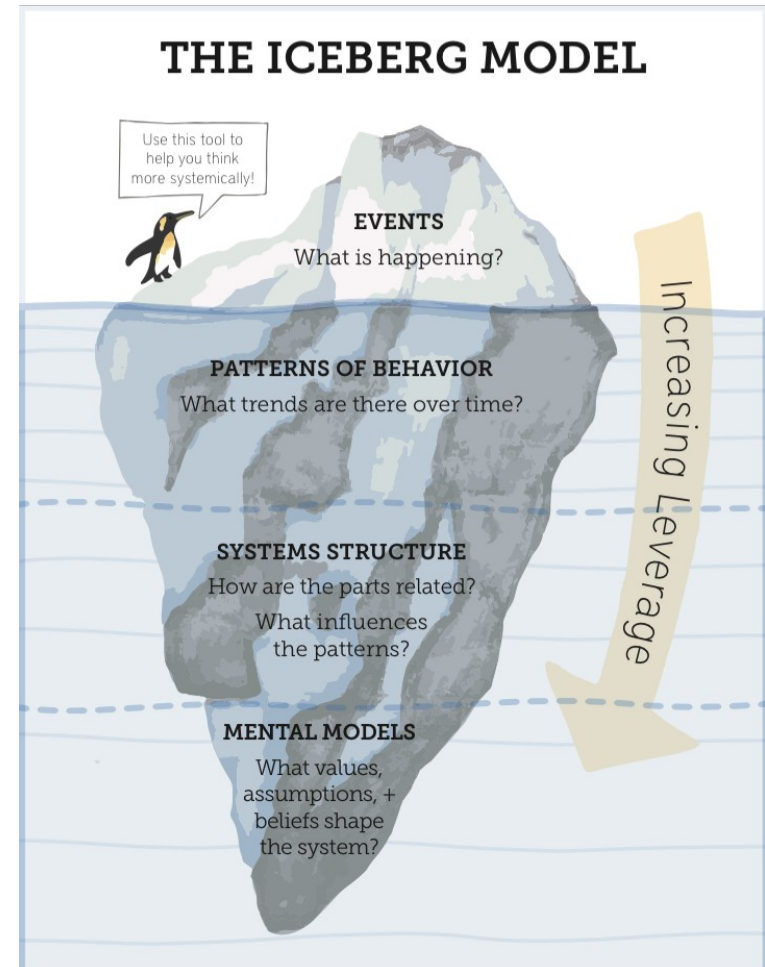
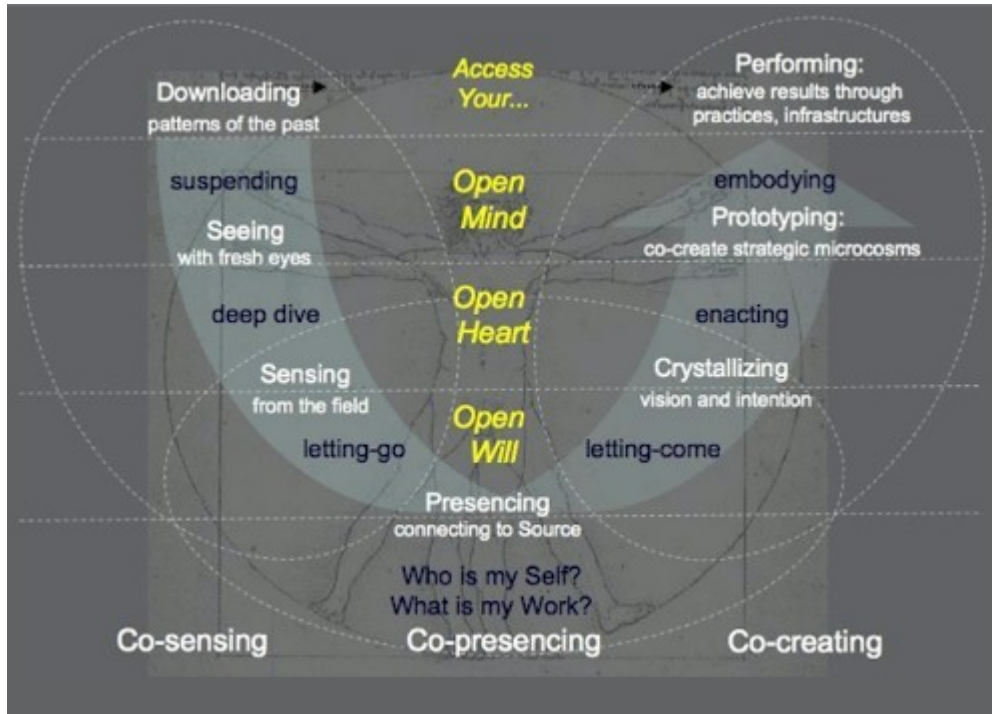


The feedback loop example: The real determinants of the British Navy size

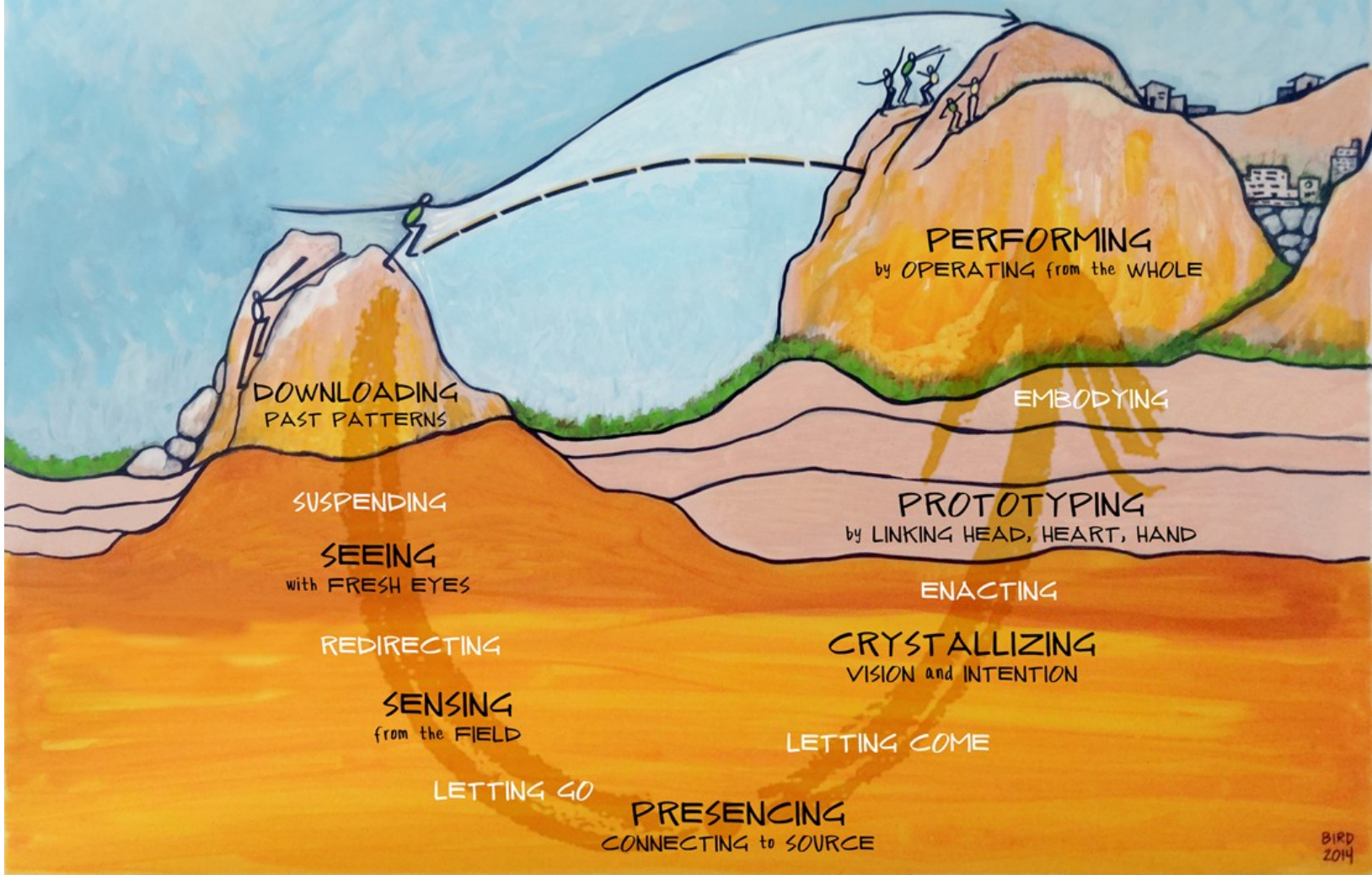




Otto F. Scharmer,
M.I.T.



CROSSING the THRESHOLD: STEPPING into the FIELD of the FUTURE



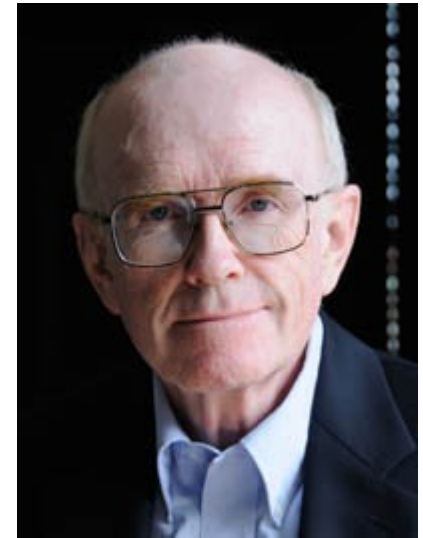
8. Decision-making under uncertainty:

Dimensions of uncertainty – *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

DISTRIBUTED DECISION MAKING

COGNITIVE MODELS
FOR
COOPERATIVE WORK

Edited by

Jens Rasmussen,
Berndt Brehmer and
Jacques Leplat

NEW TECHNOLOGIES AND WORK
A WILEY SERIES



Berndt Brehmer
(1940 - 2014)
Swedish National
Defense College



How Professionals Make Decisions



Edited by
Henry Montgomery
Raanan Lipshitz
Berndt Brehmer



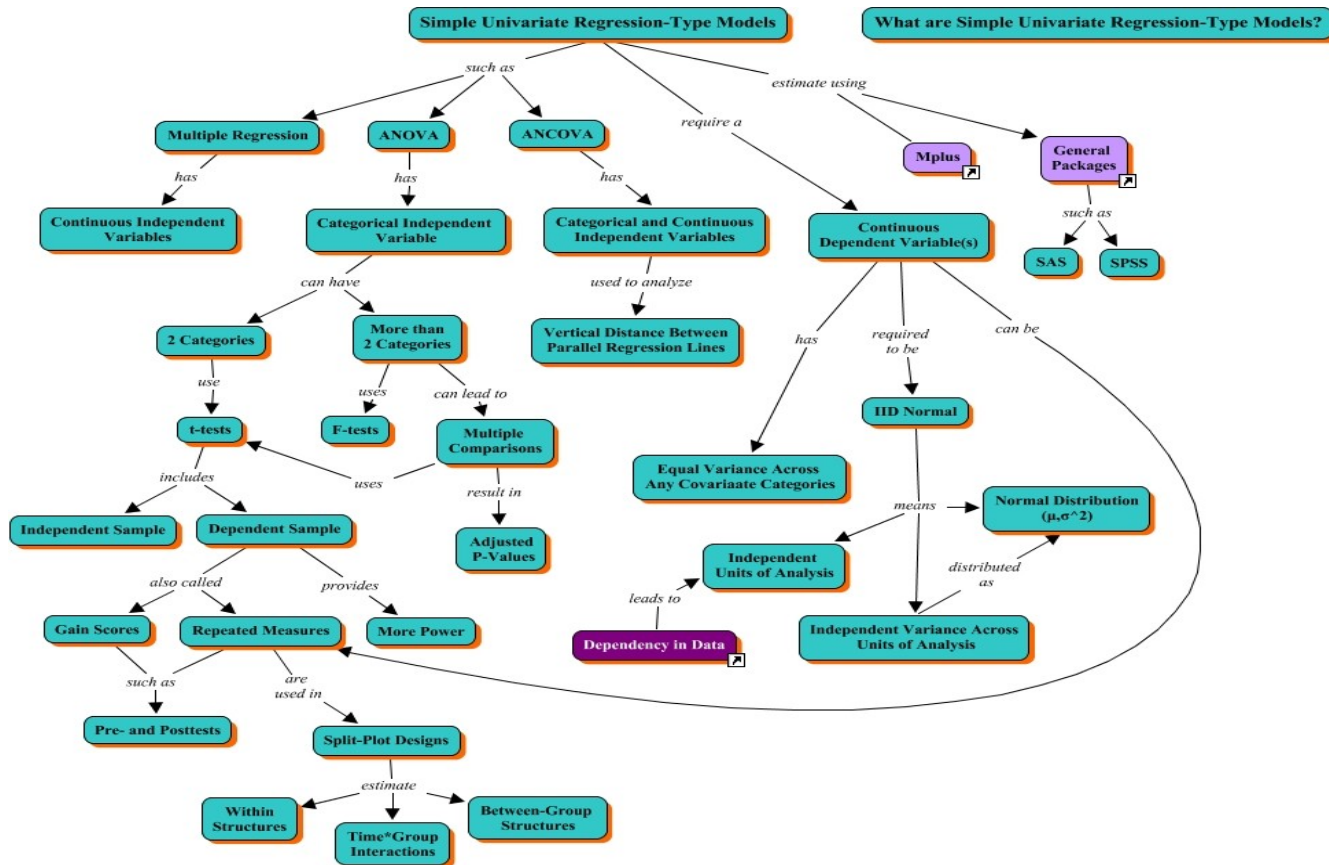
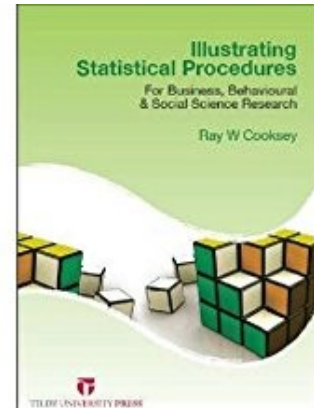
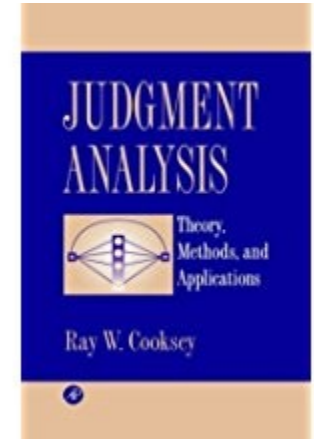
Ray W. Cooksey

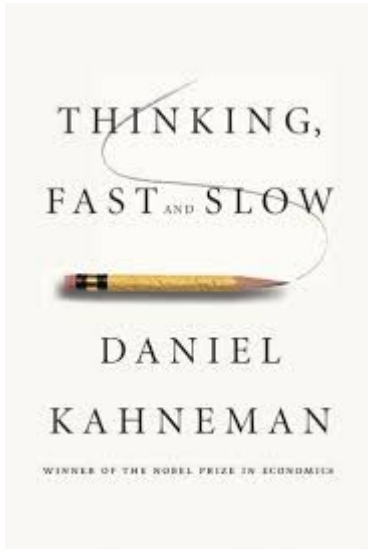
University of Western Australia, University of New England, Business School

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

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

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





Judgment in managerial decision making

- System 1 – intuitive, fast, automatic, effortless, implicit and emotional
- System 2 – conscious, slow, effortful, explicit and logical



The typical heuristics:

1. The availability heuristic – memory
2. The representativeness heuristic – probability
3. The affection heuristic - emotion

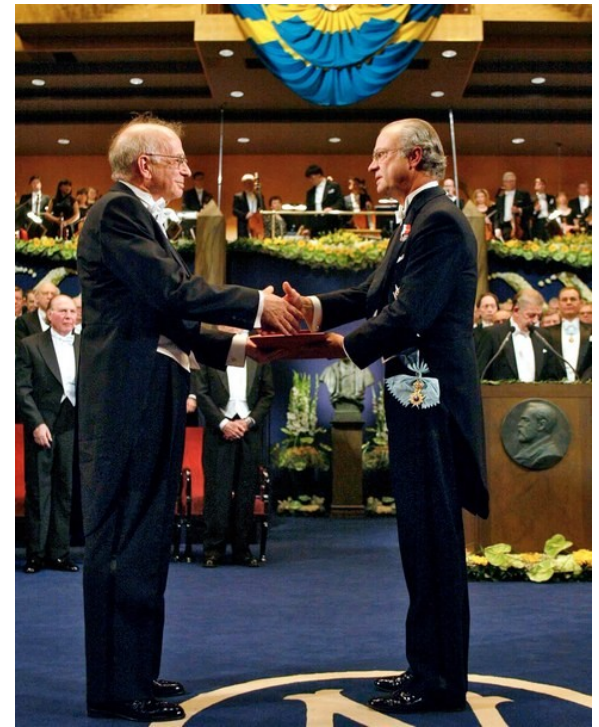
Suzeman, 2006



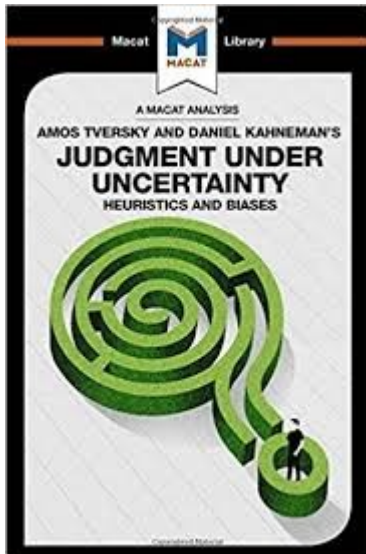
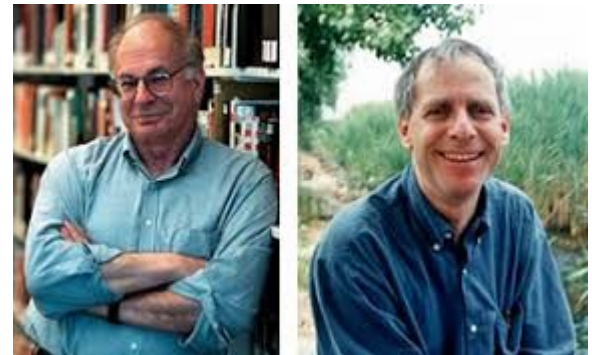
Kahneman & Tversky

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 its 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

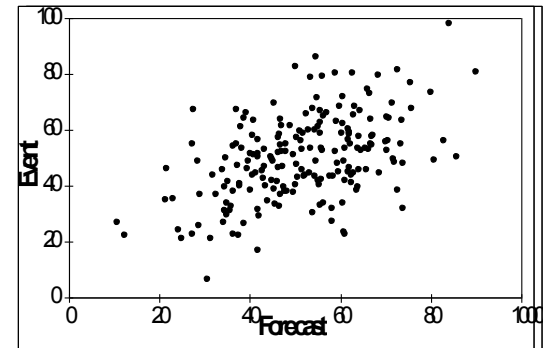
Uncertainty 2 and 3 include epistemic uncertainty. This is uncertainty due to incomplete knowledge of processes that influence events. Incomplete knowledge results from the sheer complexity of the world, particularly with respect to issues at the interface of science and society. As a result, models (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**

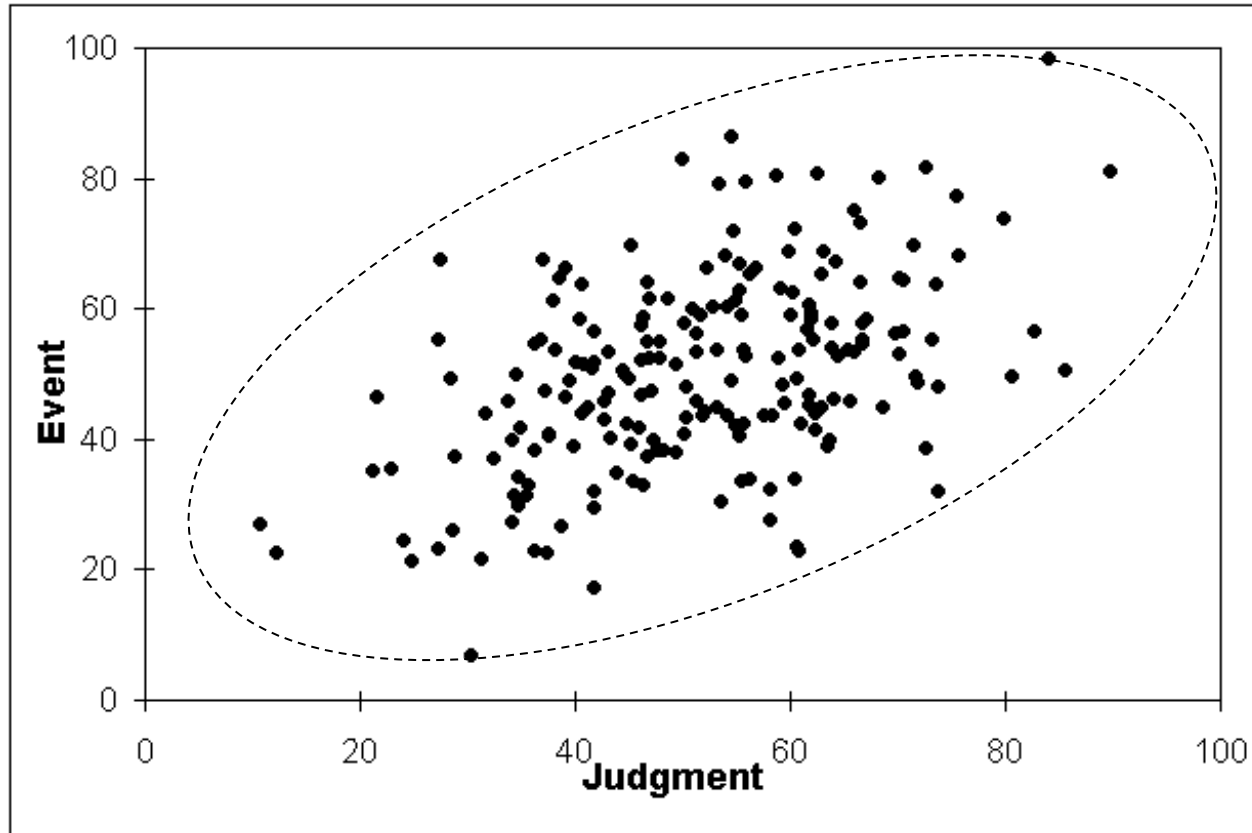
**Any taxonomy –
For instance see slide 28**

Continuous Judgments and Events

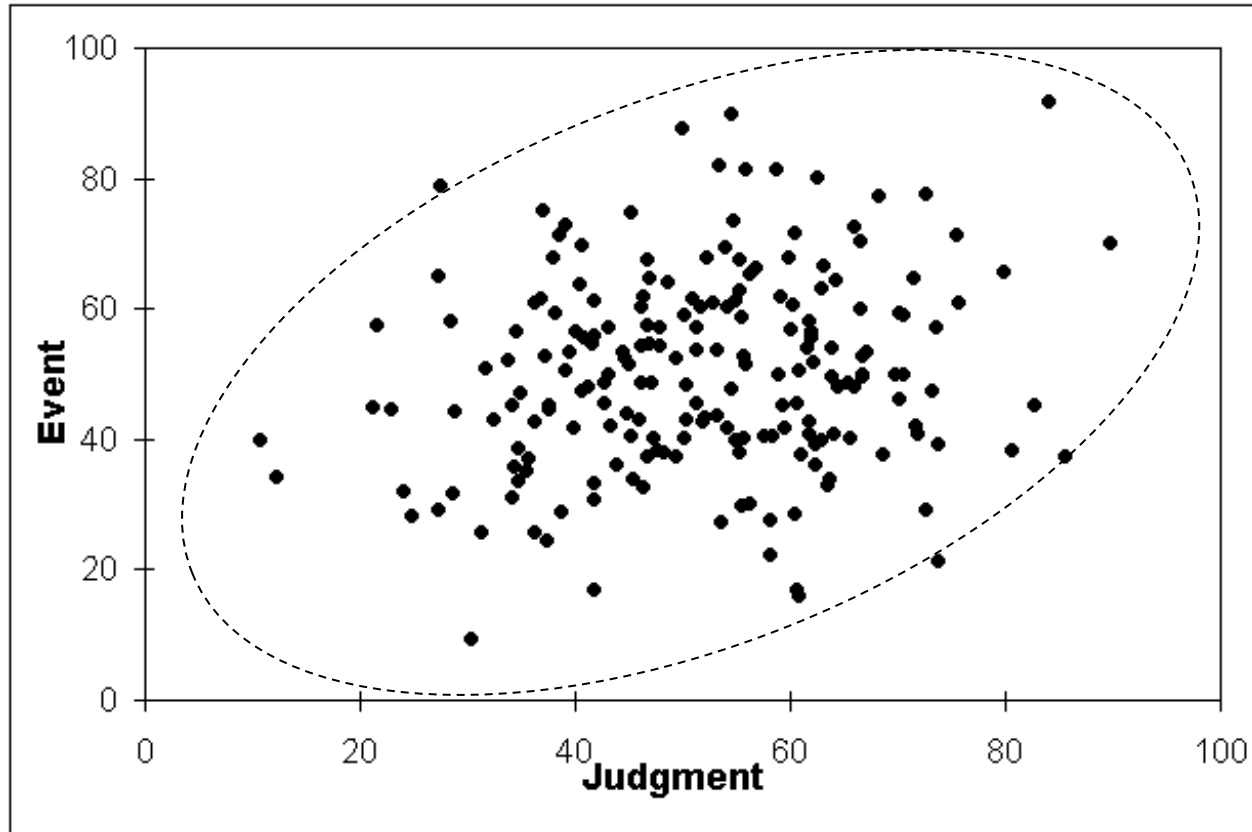
Consider the case of a continuous judgment about a continuous event. Examples:

- 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

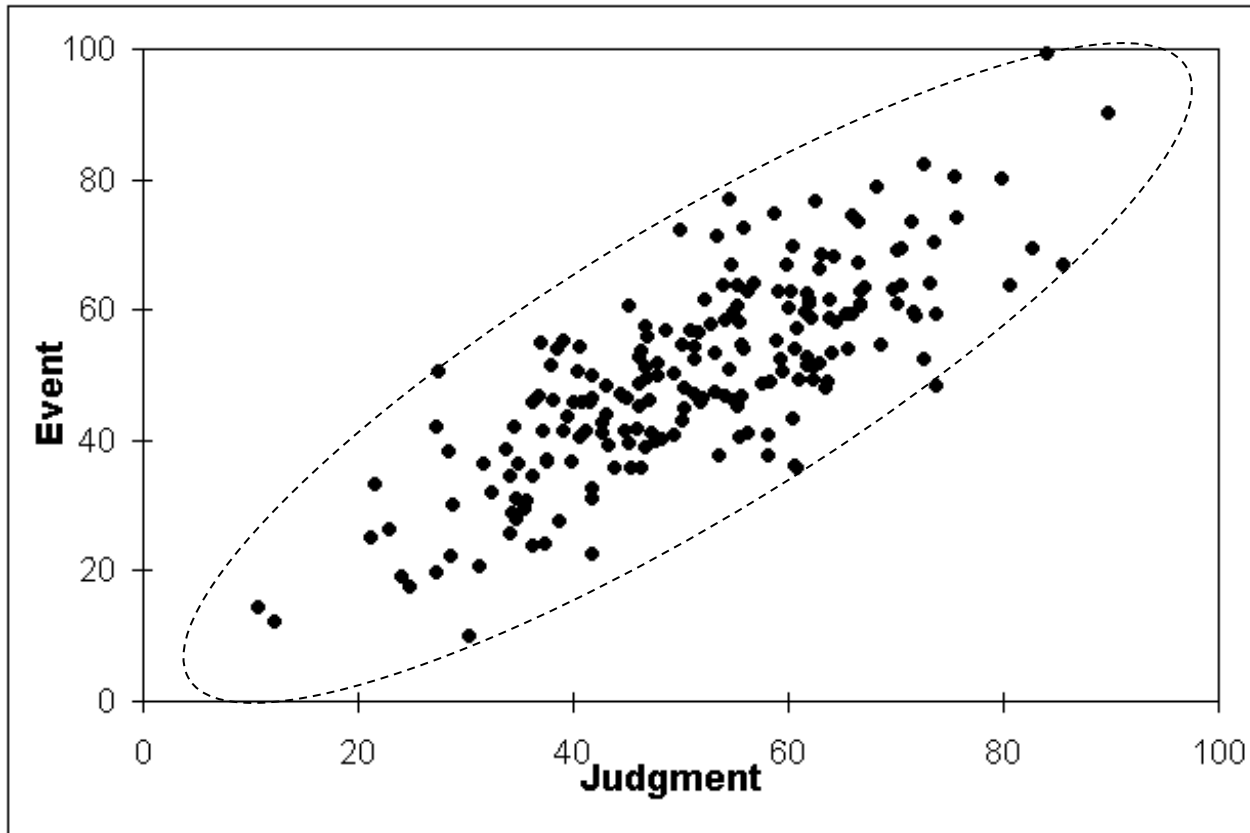
Scatterplot: Correlation = .50



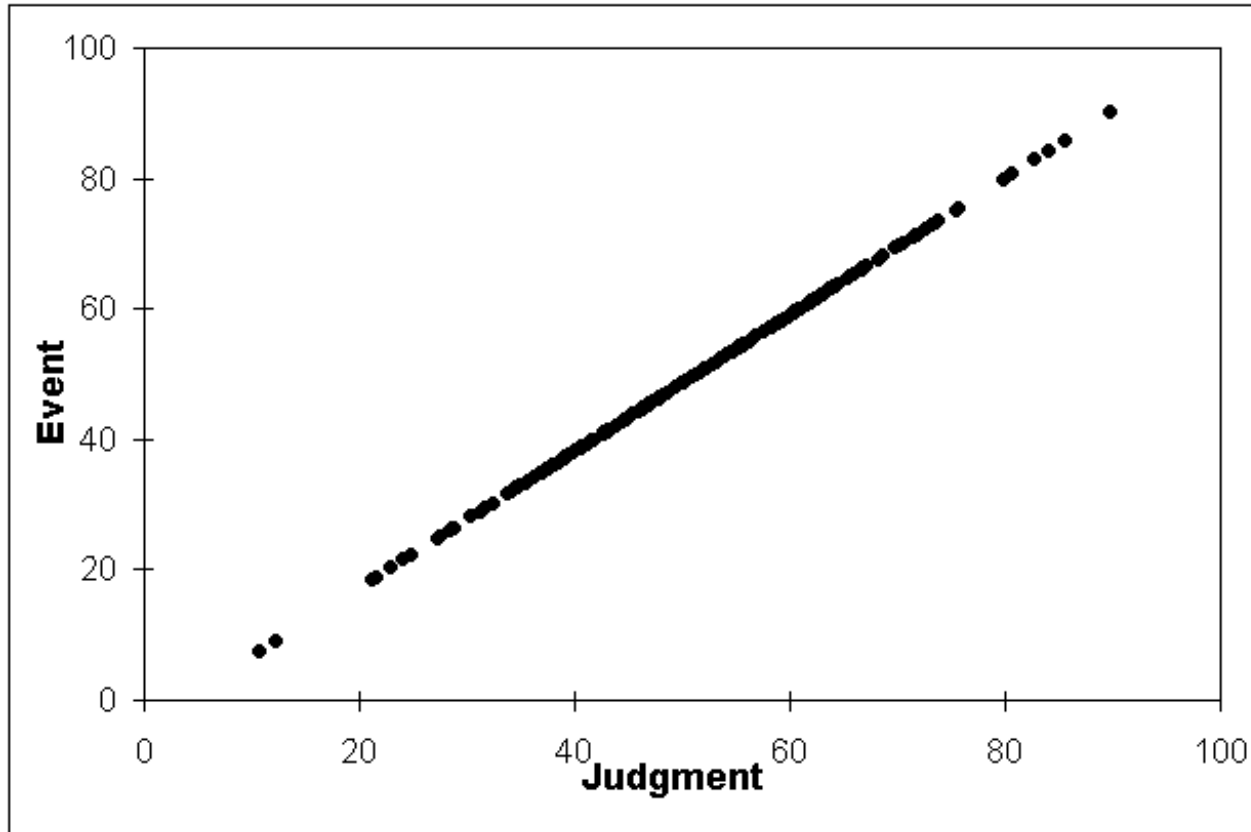
Scatterplot: Correlation = .20



Scatterplot: Correlation = .80



Scatterplot: Correlation = 1.00

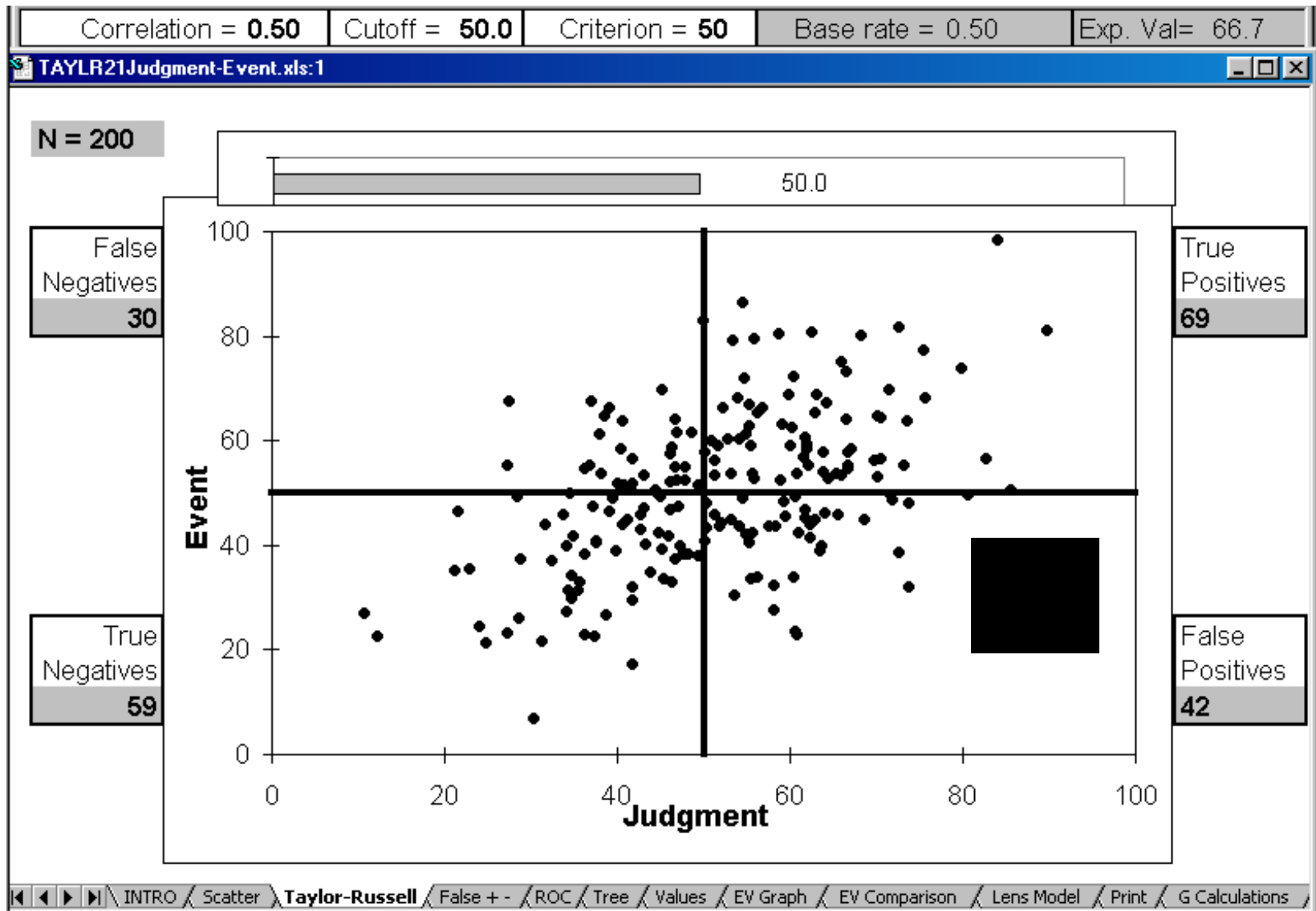


The perfect judgment

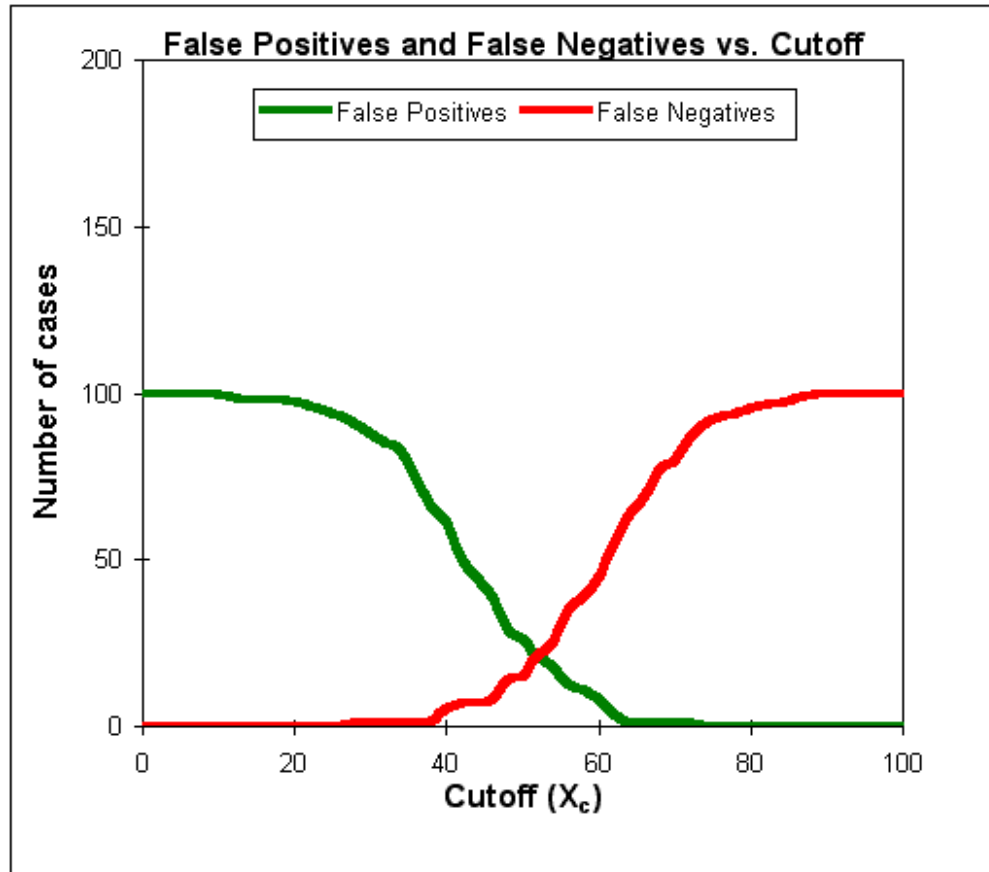
Uncertainty, Judgment, Decision, Error

- **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

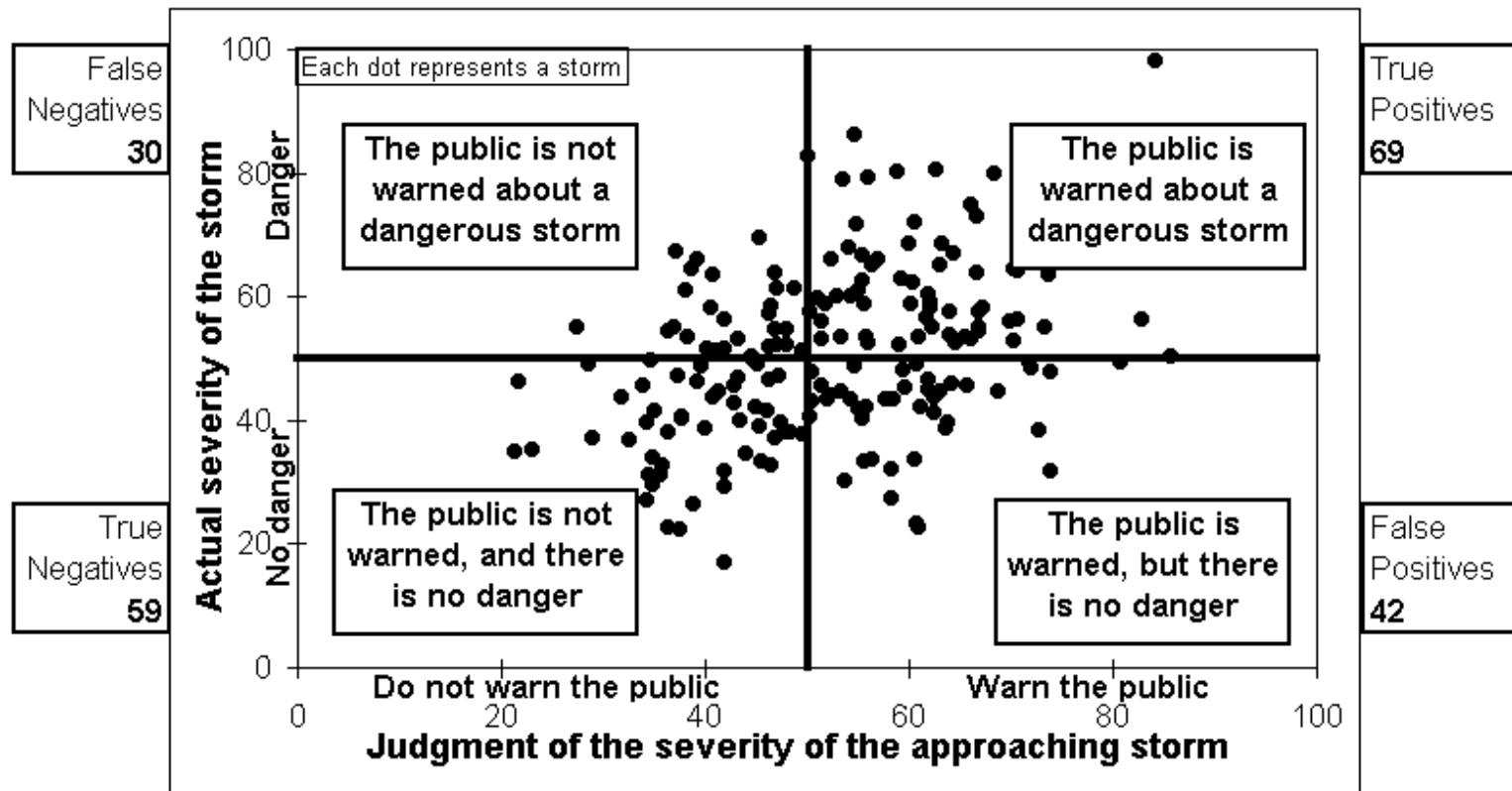


Problem: Optimal decision cutoff

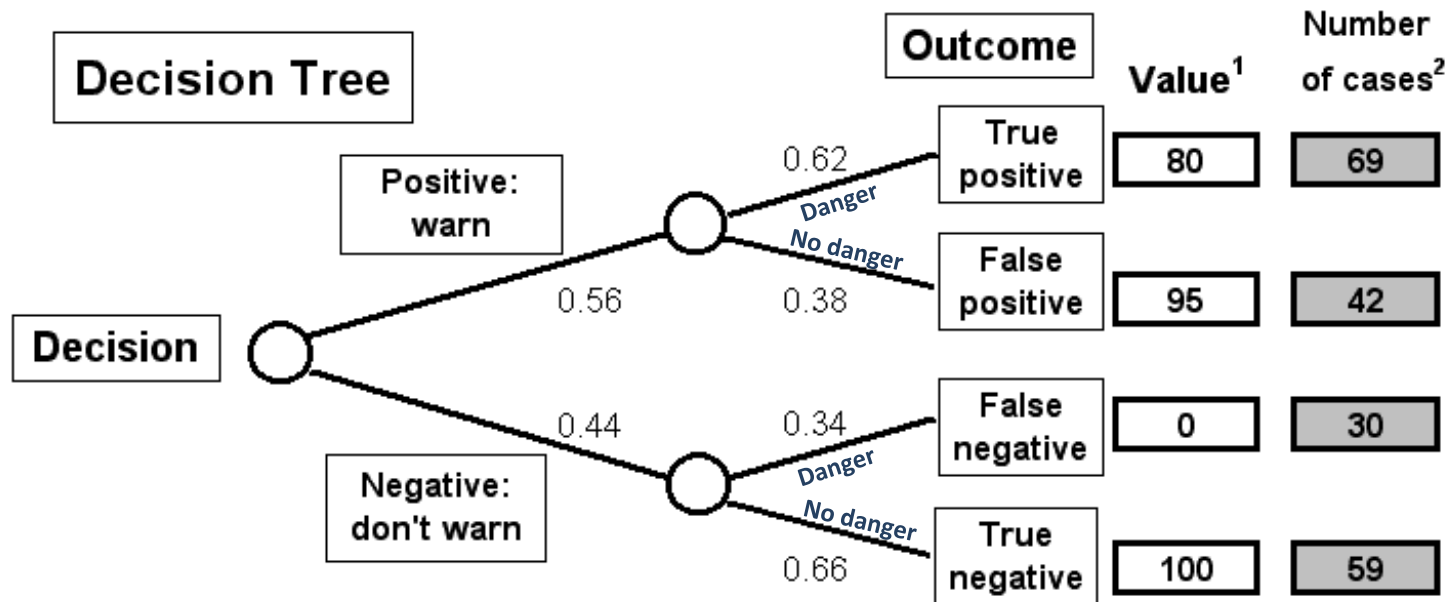
- **Given that it is not possible to eliminate both false positives and false negatives, what decision cutoff gives the best compromise?**
 - Depends on values
 - Depends on uncertainty
 - Depends on base rate
- **Decision analysis is one optimization method.**

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

N = 200



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,
esoteric 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**

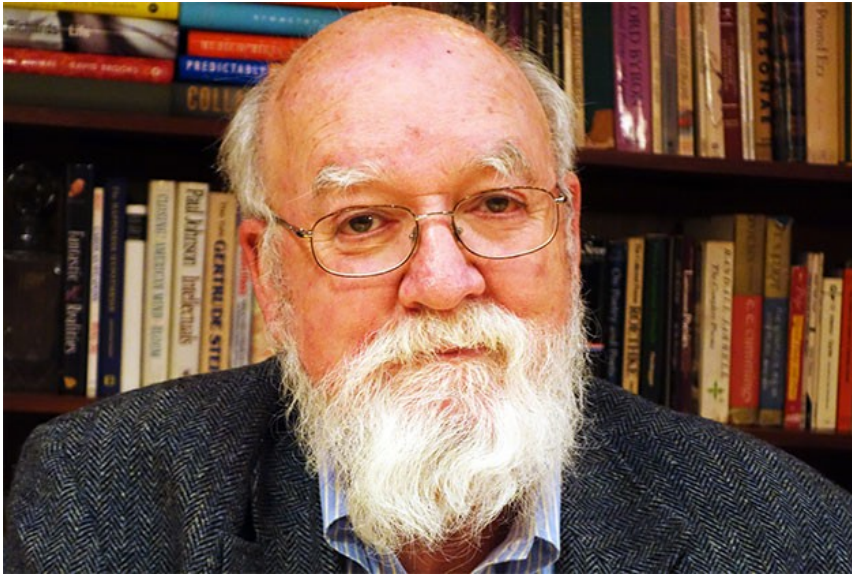
*** knowledge that is shared by a group of people**

Source: Merriam-Webster's Learner's Dictionary

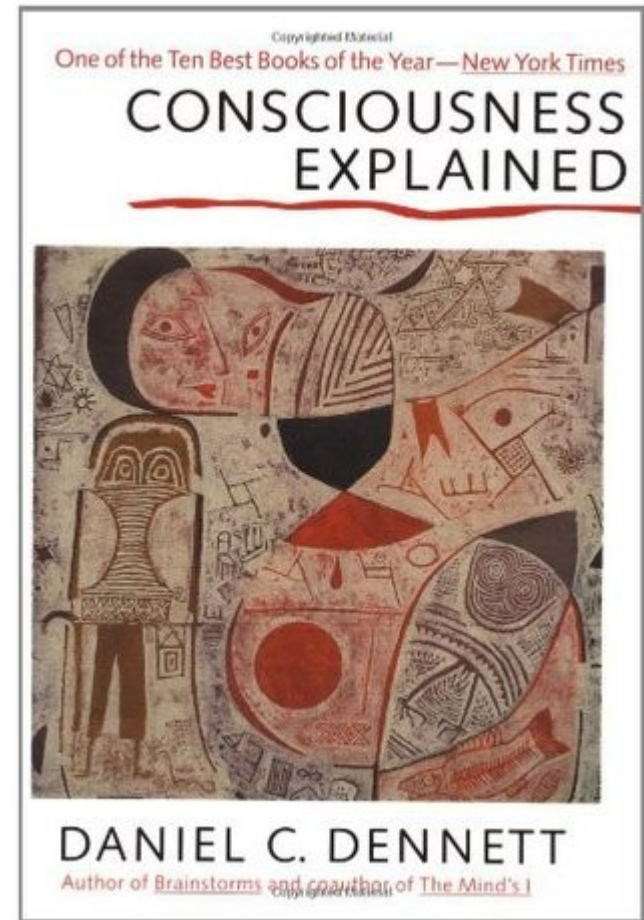
Full Definition of consciousness

- 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:



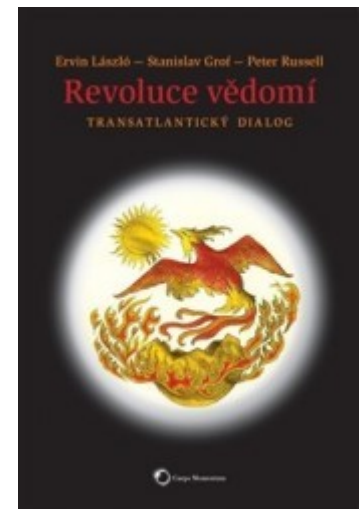
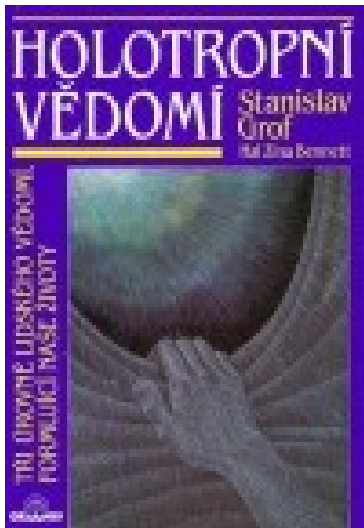
**Daniel C. Dennett,
multidisciplinary approach**



„ 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 anything 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 consciouness“, 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“.

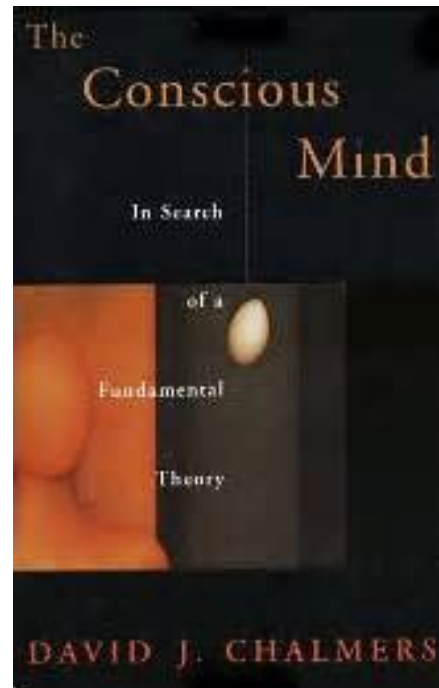
Pablo Kral

Psychiatrists Stanislav Grof (1931), transpersonal psychology

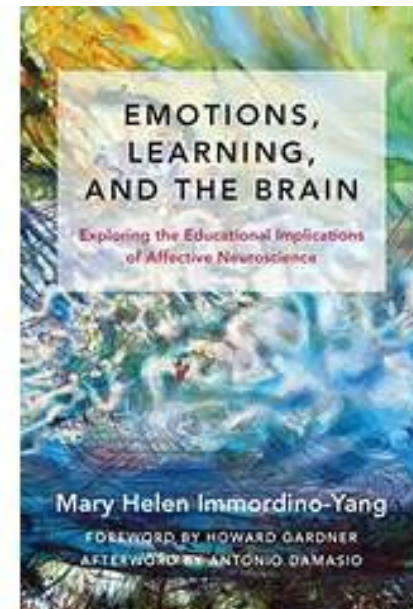
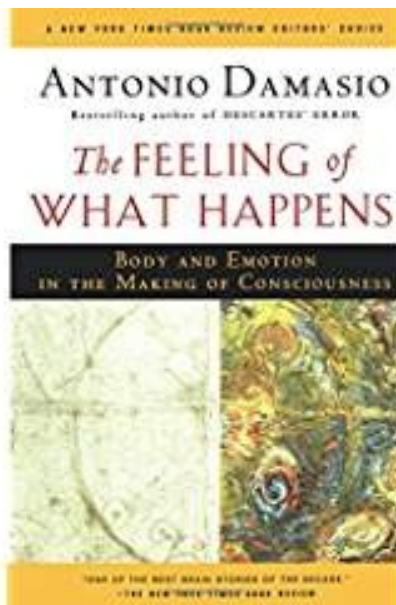


David Chalmers

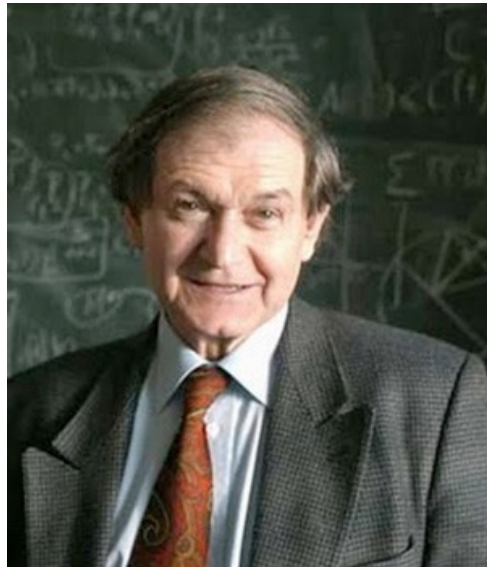
philosopher



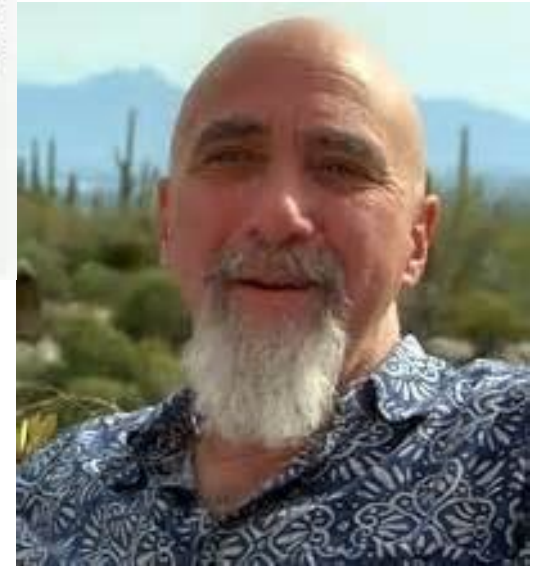
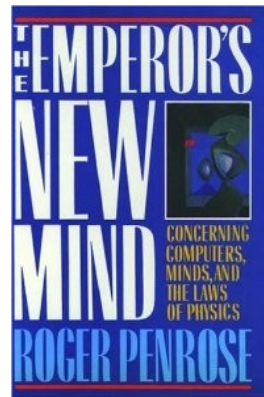
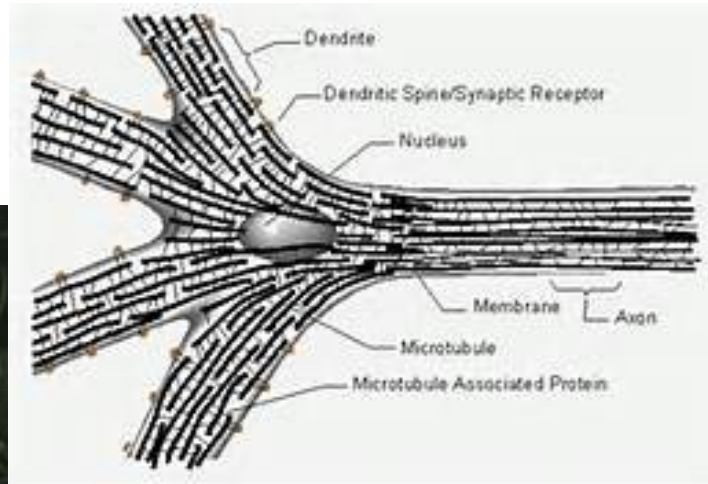
Antonio Damasio neurologist



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



Sir Roger Penrose
Mathematics, physicist



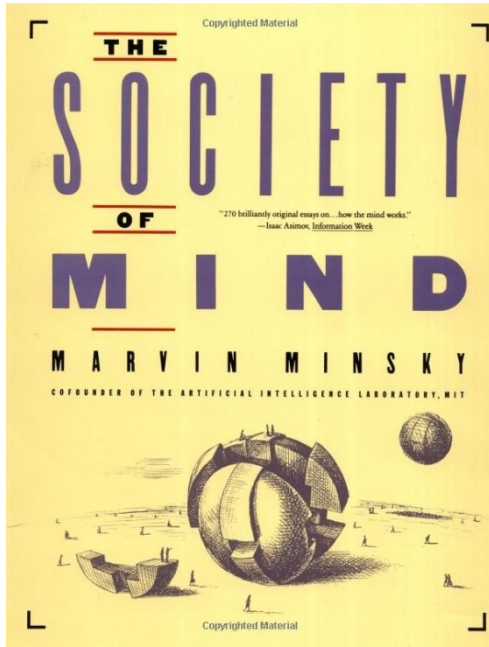
Stuart Hameroff
anesthesiologist

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)

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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Hammond, K. R. (1996). *Human Judgment and Social Policy: Irreducible Uncertainty, Inevitable Error, Unavoidable Injustice*. New York: Oxford University Press.

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Thomas R. Stewart, Ph.D., Center for Policy Research, Rockefeller College of Public Affairs and Policy, University at Albany, State University of New York

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