Déjá vu - mining coal at Dorog

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Supporting decision maker
Knowledge visualization by Concept Mapping
Curriculum Design for open online courses (MOOC)

Supporting smart decision

The decision making process will not become smarter if we analyze more and more data.

Smart Decisions take more than analytics.

Decision makers need to

- combine hard data and soft knowledge in the decision making process
- shift towards handling qualitative aspects

November, 2013

During our coaching work, we

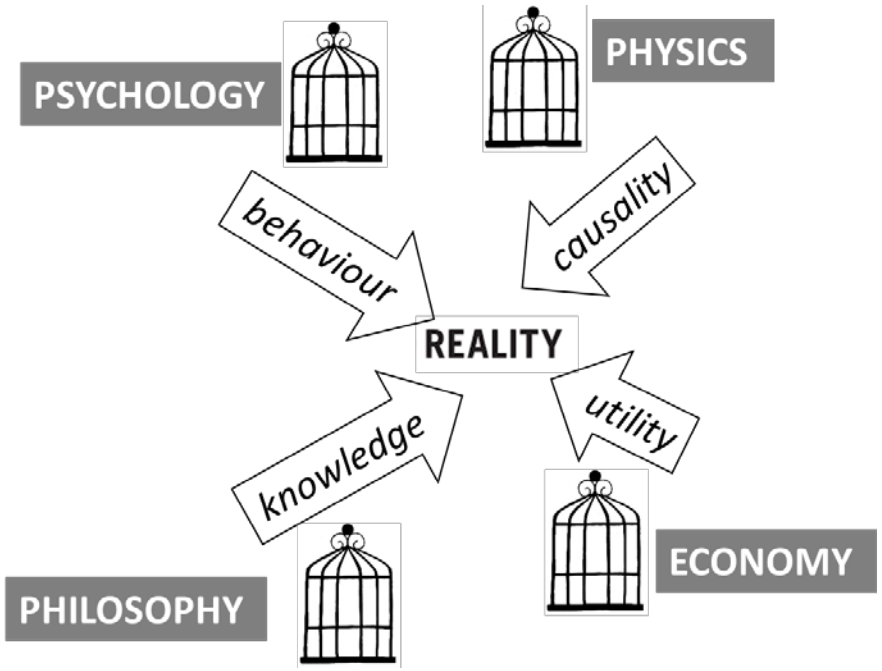
- observe the decision makers
- support to define the different meanings of their concepts
- discover how they would explain their own decisions
- made the preparation of decisions transparent

All observers are the slaves of their disciplines

- which force them to see through the lens of their concepts and methods.

If we want to name reality, we should escape our cage.

Transdisciplinarity examines territories beyond different disciplines. *(Basarab Nicolescu)*



Approaches

Multidisciplinary Approach

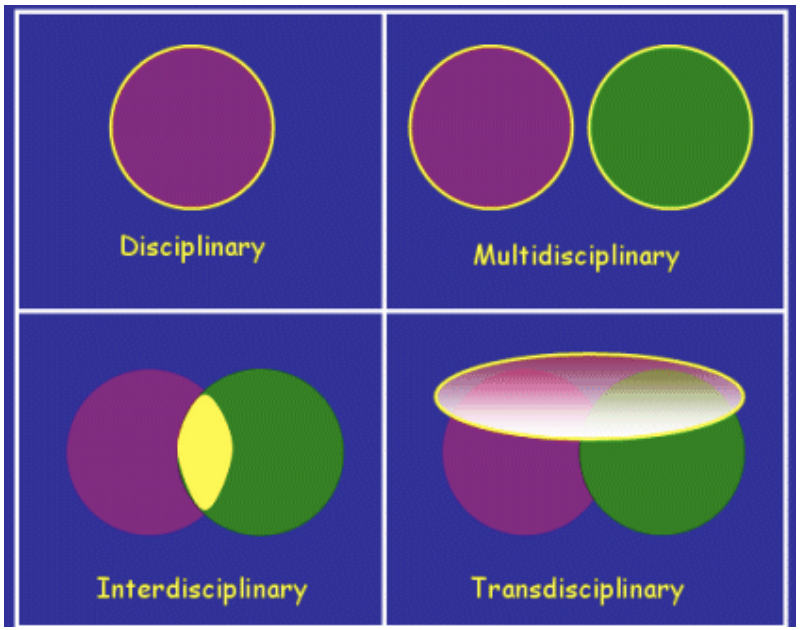
✓not in just one discipline but in several at the same time

Interdisciplinary Approach

✓transfering of methods from one discipline to another

TRANSDISCIPLINARITY

✓We are at once between the disciplines, across the different disciplines, and beyond all disciplines.



The Process of Decision Making

Identity-based Decision Maker (follows rules)
(James G. March)

success = talent + luck
great success = a little more talent + a lot of luck
(Daniel Kahneman)

Objectionless Solution – Intuitive Racionality
(Herbert A. Simon)

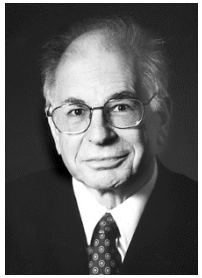
Hydra as a representation of Antifragile.
(learn from failure)
(Nassim N. Taleb)

Humans differ from Econs
(Richard Thaler)

Nobel-prize winners about Decision Making

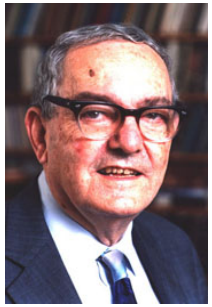
Richard T. Thaler (2017)

Human vs. Econs



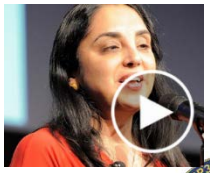
Daniel Kahneman (2002)

Behavior under uncertainty



Herbert A. Simon (1978)

Bounded rationality



Who are your gurus?

Not every single sprinter needs to know as much about sprinting as Bolt knows.

But every single sprinter needs to know how much Bolt knows.

„Cherchez la Femme!”

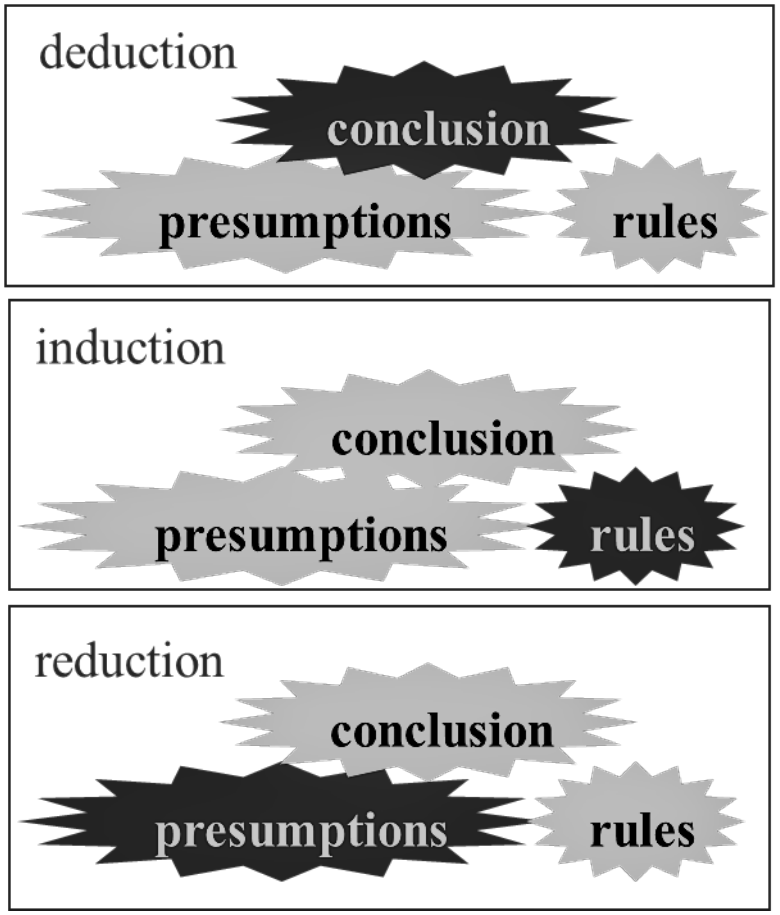
http://doctus.hu/en/software

The Doctus KBS belongs to the area of *symbolic* systems,

- the knowledge representation is based on symbolic logic in the form of „if… then” rules
- uses a fully graphical interface and does not require any coding

DoctuS consists of two main parts

- the *shell*, which contains the inference engine but is empty in terms of the content and
- the *knowledge base*, which is the representation of the expert knowledge



Experience Mining – leadership evaluation

Doctus Knowledge Based System - [career_ind]

File Edit View Search Knowledge Management Window Help

Attributes | Cases | Rule Based Graph | Rules of DECISION | Case Based Graph

	DECISION	rethoric	thinking	loyalty	self-confidence	IQ	contacting people	relation towards chief	empathy	dressing	family	diligence	experience
1	RIGHT ONE	talkative	analytical	loyal	none	normal	formal	critical	selective	stylish	inspire	normal	beginner
2	RIGHT ONE	clear	creative	intriguing	none	normal	formal	critical	none	traditionally	inspire	servant	master
3	PROBLEM	clear	creative	intriguing	extreme	normal	conflicting	critical	selective	traditionally	impede	normal	master
4	PROBLEM	talkative	obscure	neutral	none	extreme	formal	pliant	selective	traditionally	inspire	lazy	master
5	RIGHT ONE	clear	creative	neutral	none	normal	formal	critical	possess	dandy	impede	normal	beginner
6	RIGHT ONE	clear	creative	loyal	proper	normal	formal	pliant	possess	traditionally	inspire	servant	master
7	DANGEROUS	talkative	obscure	neutral	none	normal	informal	straight	selective	elegant	inspire	normal	master
8	OUT	talkative	obscure	neutral		normal	conflicting	pliant	selective	dandy	impede	lazy	beginner
9	OUT	monotonous	obscure	intriguing	extreme	normal	conflicting	straight	none	elegant	inspire	normal	beginner
10	PROBLEM	clear	creative	loyal	none	normal	conflicting	straight	selective	stylish	inspire	servant	master
11	DANGEROUS	clear	creative	loyal	extreme	normal	informal	straight	selective	elegant	inspire	servant	master
12	DANGEROUS	clear	creative	loyal	proper	normal	informal	pliant	possess	elegant	inspire	servant	master
13	OUT	monotonous	analytical	loyal	extreme	normal	conflicting	pliant	selective	traditionally	impede	normal	beginner
14	PROBLEM	talkative	analytical	intriguing	proper	normal	conflicting	critical	selective	traditionally	inspire	servant	master
15	RIGHT ONE	talkative	obscure	neutral	none								
16	RIGHT ONE	clear	analytical	neutral	few								
17	OUT	clear	creative	neutral	few								
18	RIGHT ONE	clear	creative	neutral	few								
19	RIGHT ONE	clear	creative	loyal	none								
20	RIGHT ONE	clear	creative	loyal	extreme								
21	DANGEROUS	monotonous	creative	intriguing	extreme								
22	OUT	clear	creative	intriguing	few								
23	OUT	talkative	obscure	intriguing	extreme								
24	DANGEROUS	talkative	analytical	loyal	none								
25	DANGEROUS	clear	creative	neutral	none								
26	DANGEROUS	talkative	analytical	neutral	extreme								
27	OUT	talkative	obscure	loyal	extreme								
28	RIGHT ONE	clear	creative	loyal	extreme								
29	DANGEROUS	talkative	creative	neutral	none								
30	PROBLEM	monotonous	creative	loyal	few								
31	DANGEROUS	clear	creative	neutral	extreme								
32	RIGHT ONE	clear	creative	loyal	few								

Doctus Knowledge Based System - [Doctus1]

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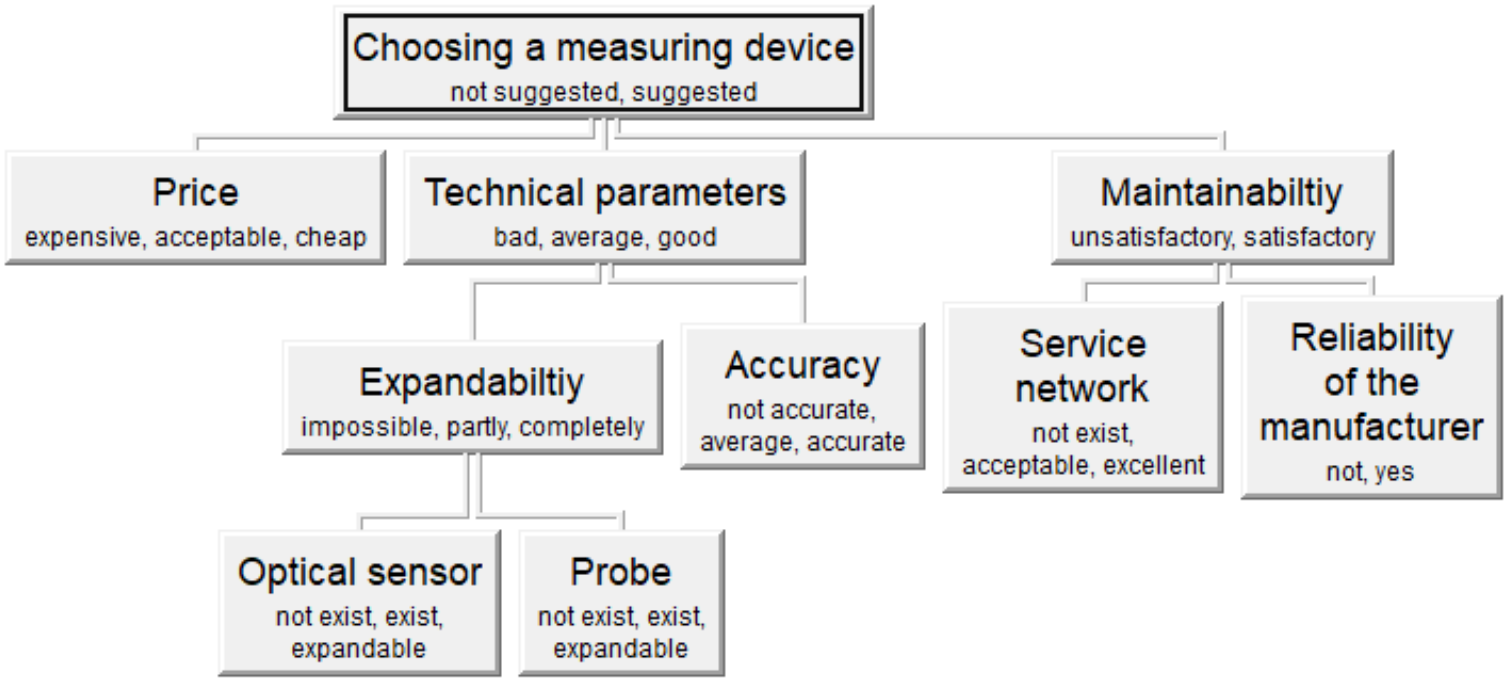
Attributes | Cases | Case Based Rule Graph | Rules of DECISION | Case Based Graph

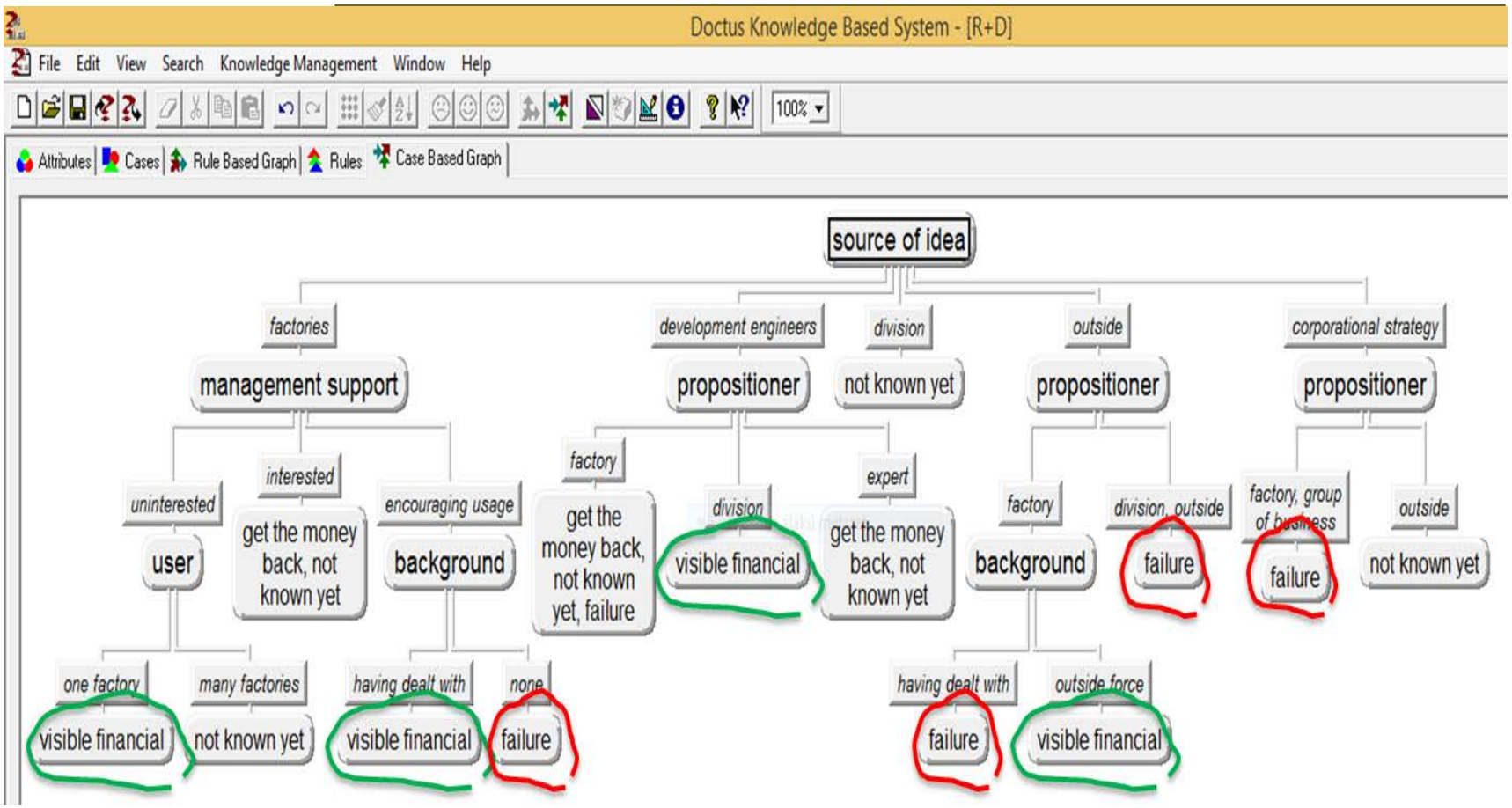
contacting people	experience	diligence	DECISION
informal	*	*	DANGEROUS
conflicting	beginner, advanced	*	OUT
conflicting	master	*	PROBLEM
formal	*	lazy	PROBLEM
formal	*	servant, normal	RIGHT ONE



Comparing different devices

We can not observe all devices with all attributes

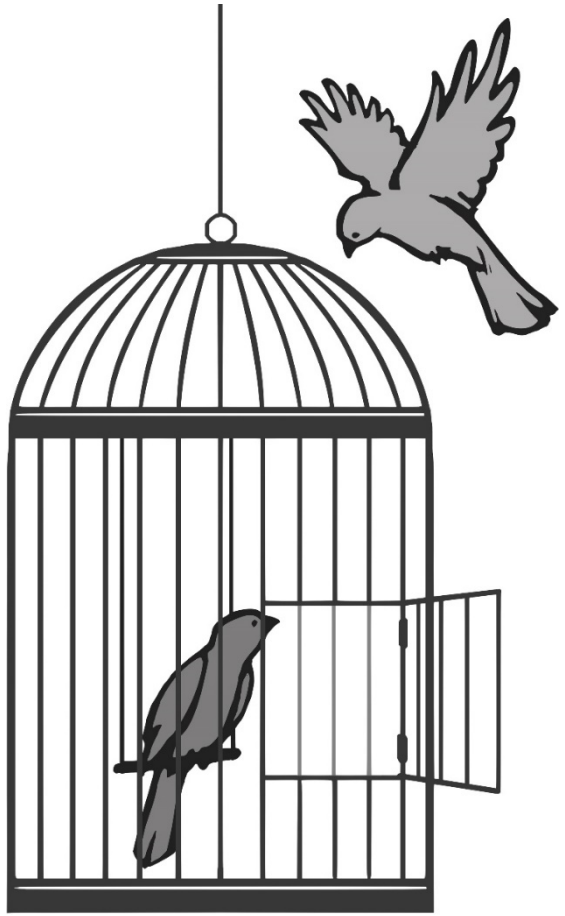
Choosing not the best but satisfied solution



The more obvious benefit of 'smart decision support' is that the number of used attributes is reduced to the informative ones.

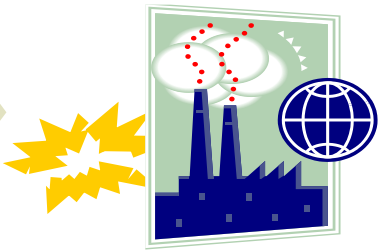
If we break free of our cage, and do not immediately become enslaved to another one,

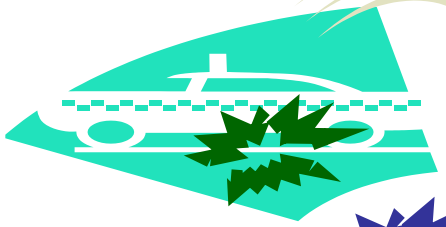
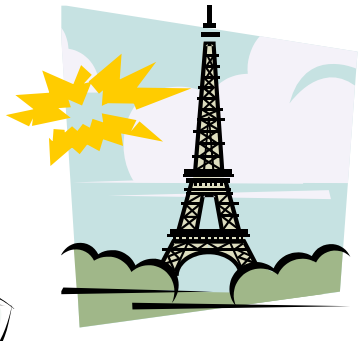
- we will have a better chance of painting a picture of the knowledge of the decision makers.



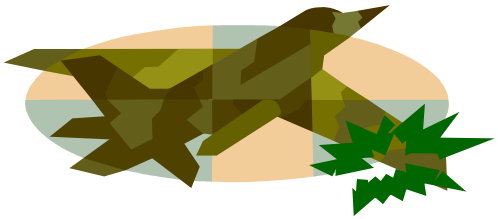
What 'on this picture?

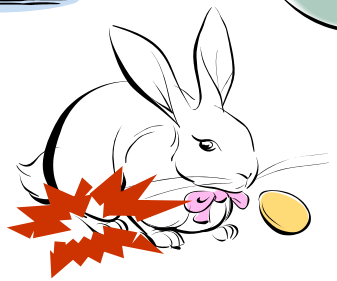


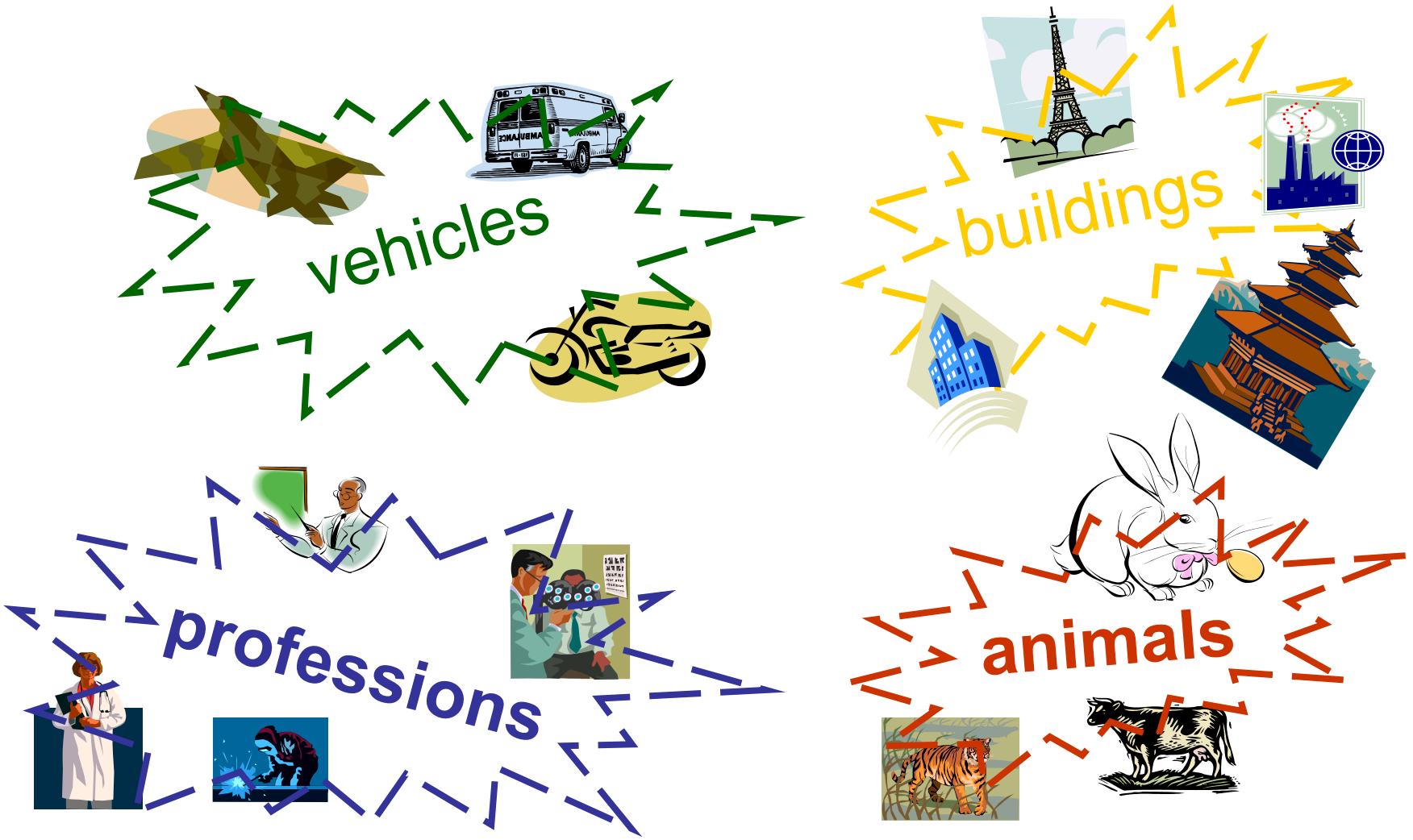









Are there any relations between them?

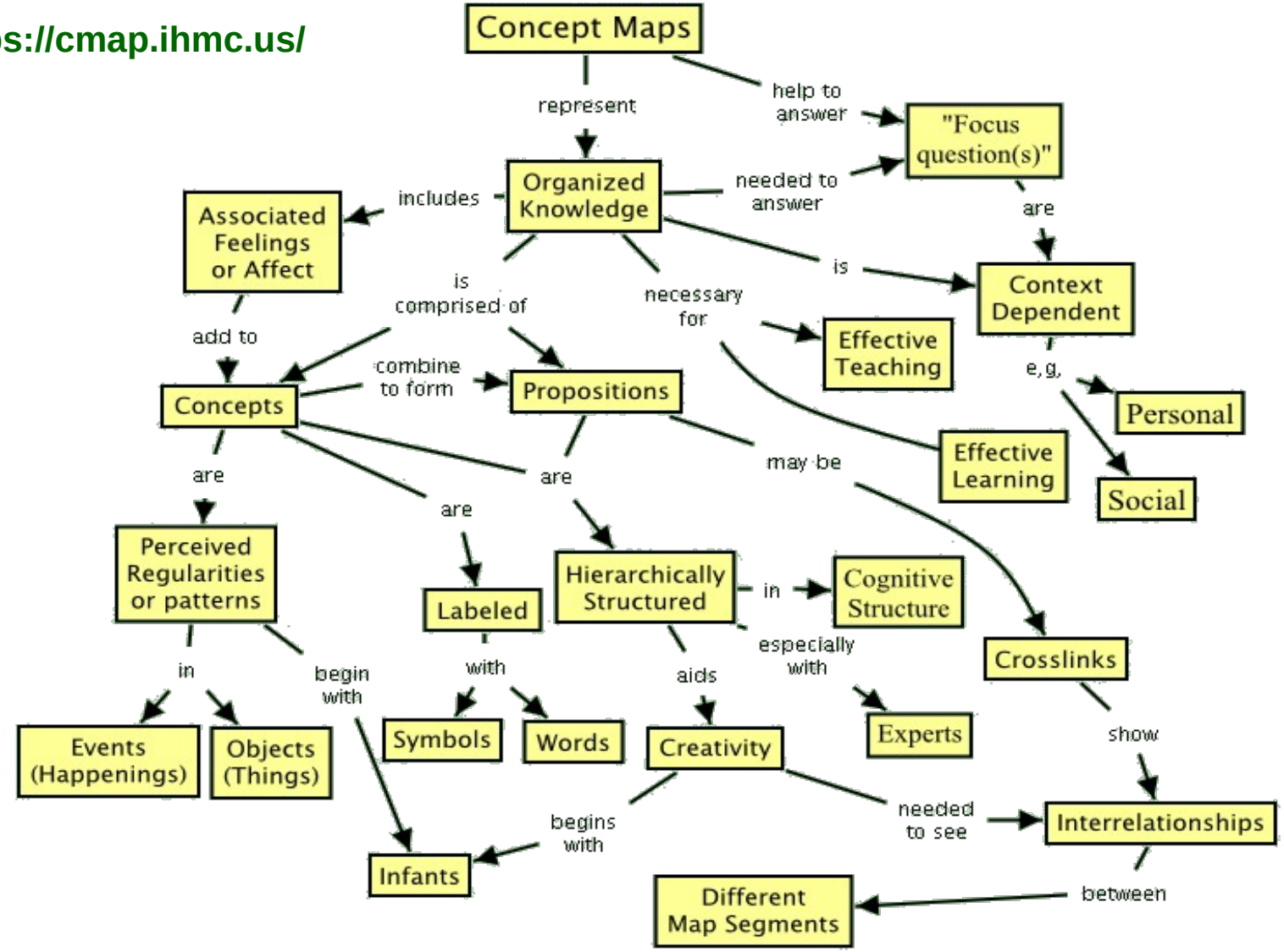


This way?

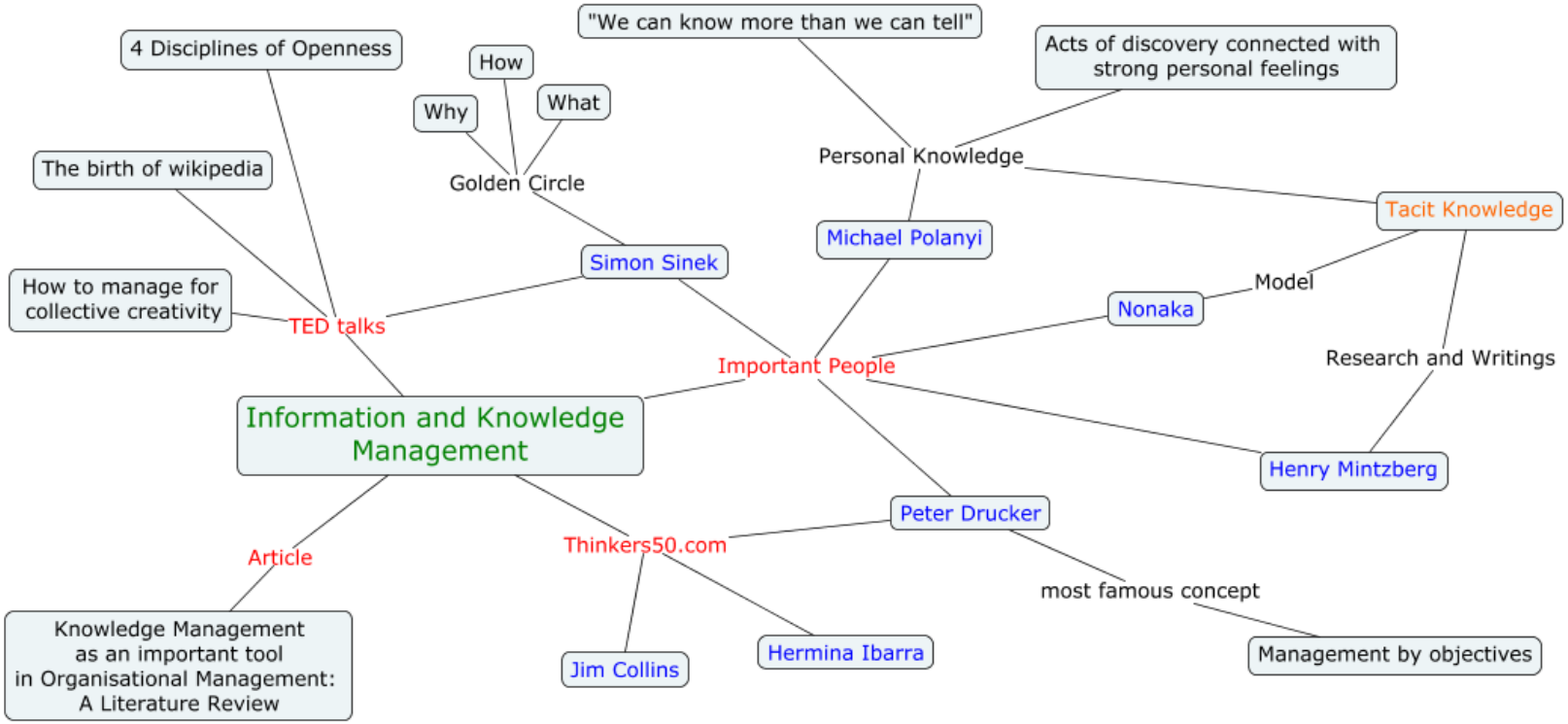

knowledge
we need
taxonomy
professions
vehicles
animals
buildings
doctor
professor
optician
miner
motorcycle
bus
airplane
rabbit
tiger
cow
factory
Eiffel tower
office-block
pagoda

How to make a concept map?

https://cmap.ihmc.us/



Student's cmap for final exam



1. Identify the main concept
2. List related concepts
3. Draw a rough map
4. Identify synonyms and instances
5. Redraw, Redraw, Redraw
6. Get feedback from others

Concept Map with Dilemmas

How to Support the Learning Process?

- Define Dilemmas (16)
- Draw Concept Map
- Use Different Types of Materials

Mashup Contents

- Some dramas was chosen to understand decision makers' catharsis
- Some scenarios were prepared to comic strips
- Video lectures about my own stories