



Faculty of Design

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A library of systemic relations

Sevaldson, Birger

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A library of Systemic Relations

Birger Sevaldson

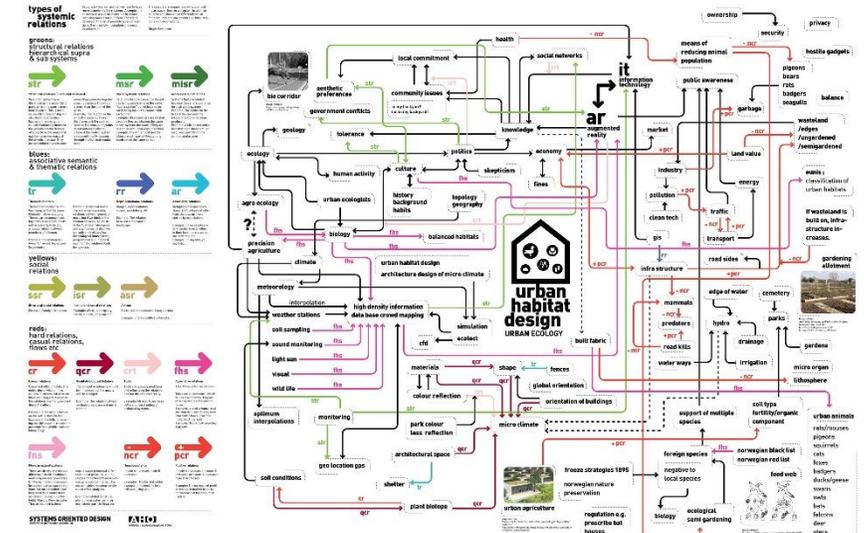
www.systemsorienteddesign.net

Presentation

RSD5 Symposium

Systemic Design for Social Complexity

Relating Systems Thinking and Design (RSD5) Symposium
OCAD University Toronto, Canada October 13-15, 2016

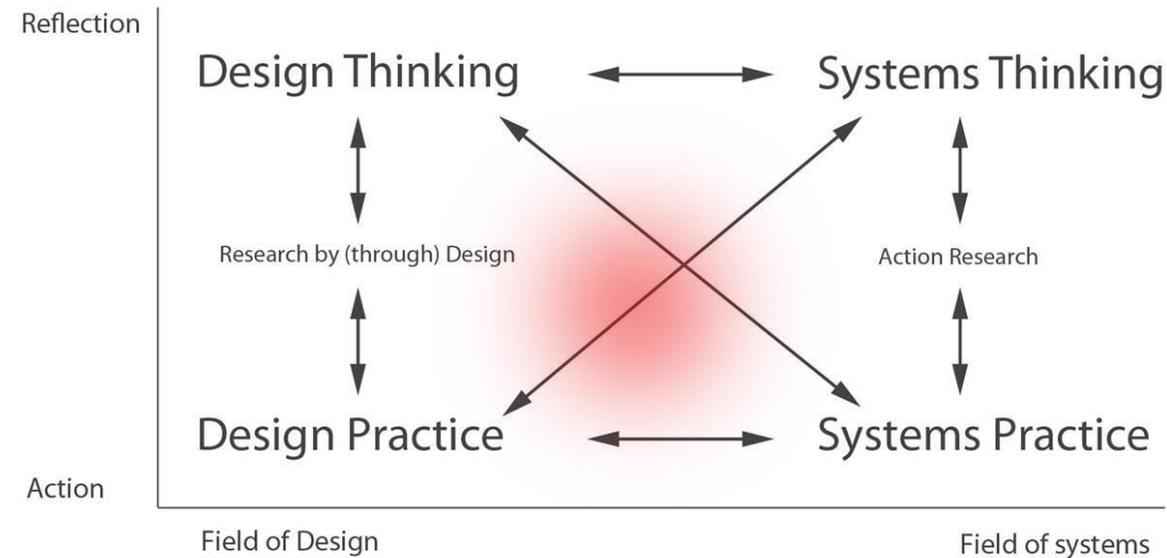


SOD

Systems Oriented Design (SOD) is a dialect in the emerging field of Systemic Design.

It is maybe the most designerly and practice oriented approach.

The red blurry dot in the diagram below shows SOD being off center, closer to design and closer to practice.



There are many resources on www.systemsorienteddesign.net

The Library of Systemic Relations and other concepts, tools and approaches are found there.

SOD SOD NEWS INFORMATION GIGA-MAPPING PROJECTS RESEARCH

Systems Oriented Design

The designerly way to work with systems

The main mission of Systems Oriented Design is to build the systems thinking can fully benefit from design thinking and thinking.

RSD4 program online

News Created: 07 August 2015

Follow SOD on **FACEBOOK**

INSTITUTIONS

Mother institution:

AHO
Arkitektur- og designhøgskolen i Oslo
The Oslo School of Architecture and Design

dR Centre for Design Research

(Birger Sevaldson 2006-)

PRAXIOLOGY

Cross, N. (1999). Design Research: A Disciplined Conversation. *Design Issues*, 15(2), 5–10.

Praxiology in the sense I use it has its main references in practice.

Externalised practice knowledge.

Combination of theories of practice, experience, skills, tacit and explicit.

The expressed competence how to go about things in the world.

Phronesis: Practical wisdom. The ability and intellect to act in the world.

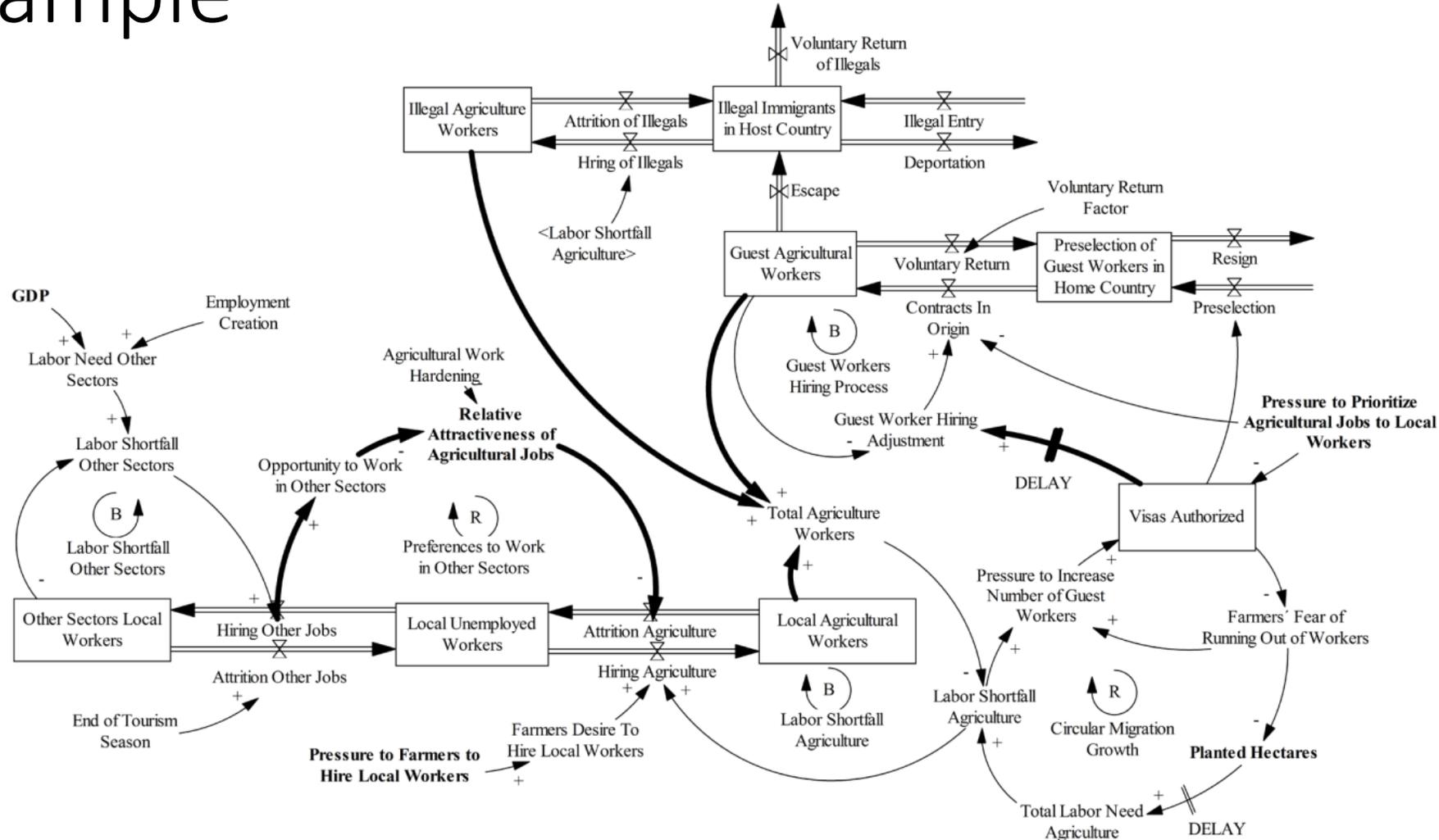
Praxiology example

Comparing the conceptions of relations from a traditional system dynamics model with a praxiology approach to relations.

Here an example of a systems dynamics model.

The relations are quantifiable. There is a limited and formalized way of describing the relations.

The basic model is the concept of positive and negative relations.



The Dynamics of Circular Migration in Southern Europe: An Example of Social Innovation - <http://www.rafamara.com/blog/the-dynamics-of-circular-migration-in-southern-europe-an-example-of-social-innovation/> (

(Rafael Maranon)

In contrast to the Systems Dynamics and other traditional systems models, the Library of Systemic Relations is mapping out the many different types of relations we could imagine or conceptualized, without considerations if they would fit into one or the other systems model. These include quantitative and qualitative relations. The library also includes relations that are not easily depicted graphically with nodes and connectors.

The next image shows an example of using the Library. This example also demonstrates the challenges we meet when looking deeper into the nature of the connectors.

Note: The black connectors are unclassified.

1.2 SEMANTIC (Semiotic), THEMATIC, ASSOCIATIVE AND REPRESENTATIONAL RELATIONS (BLUE) (ATR)



1.2.1. Semantic relations (SR):

Semantic relations are entities being connected through a sentence where a word is forming the relation. Example: Fish - lives in - Water. Fish and water are the entities, lives in is the relation connector.

Cow - is a - mammal

See more here >>>>>



1.2.2. Categorical relations (CR):

Categorical relations are entities being part of the same thematic field or category. Themes and categories are manmade sorting devices and there is not necessarily e.g. a causal relation between members of a category.

Note: Categorization has its own problems especially with border line cases and items that fit into multiple categories. See also thematic relations as the term is used in linguistics.

Example: the relation between Universal Design and Ergonomics

Example: Genres of music. There are many possible relations between genres of music but if we think of the relation between the music of the Australian aborigines and a symphony by Bach we can only think of very few like biological (music being programmed in our genes) and thematic relations (both being music).



1.2.3. Associative relations (AR):

Metaphors and analogies: These are the types of relations that pop up in brain storms by associations.

EuroVoc definition: The **associative relationship** is a relationship between two concepts which do not belong to the same hierarchical structure, although they have semantic or contextual similarities.

Example: If two people are very similar to each other in their look there is an associative relation.

Example: If I say bird, you say fish....

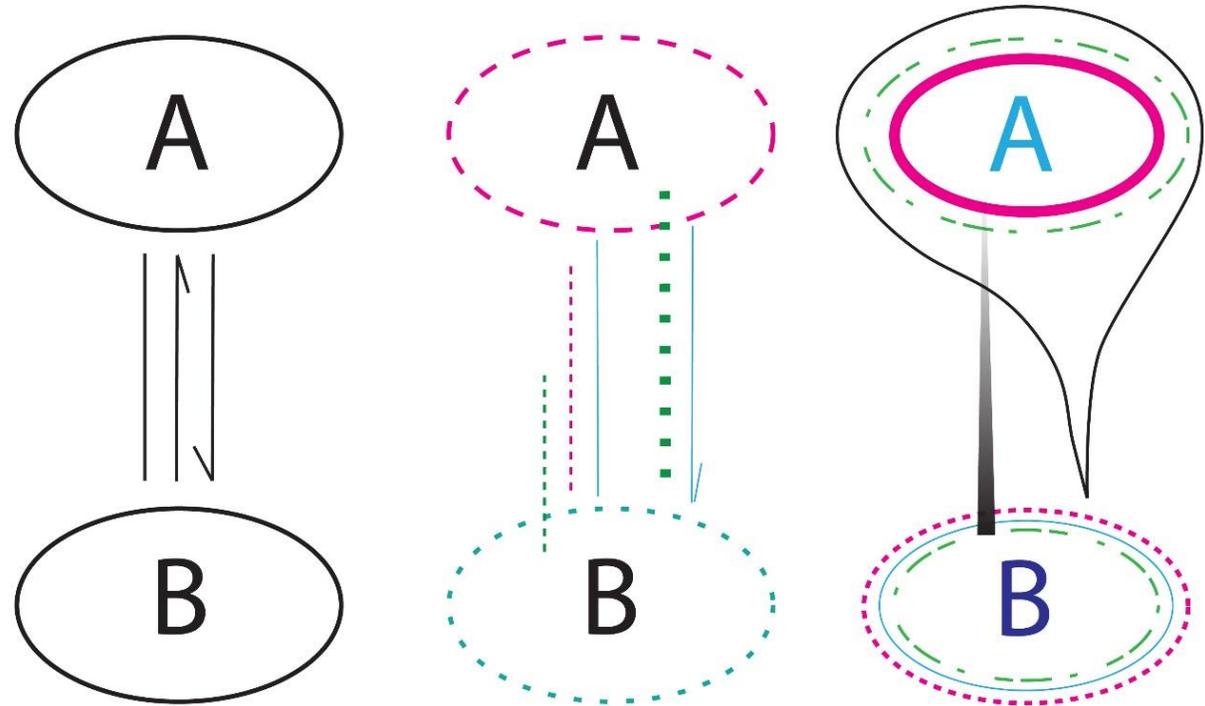
One of the most common misconception is that there is only one relation between two nodes. Normally we can identify several connections between two nodes.

As designers we can exploit graphics to distinguish relations and to describe different features of the relations.

Line weight can indicate importance.

Dashed lines could indicate relations that are not always active. A gradient could indicate unequal importance of a relation. (Your relation to your bank might be important to you but hardly makes a difference for the bank)

Also Boundary conditions could be treated graphically to indicate resistance and other qualitative features of the nodes



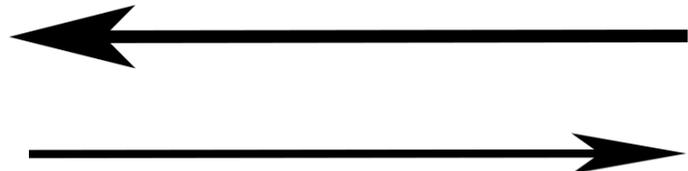
(Birger Sevaldson 2001- 2013)

The "Grandmother Diagram"



Obviously a mutual relation

(Birger Sevaldson 2016)



But is it balanced?





Genetic Relation



Emotional Relation



Emotional Relations might be unbalanced

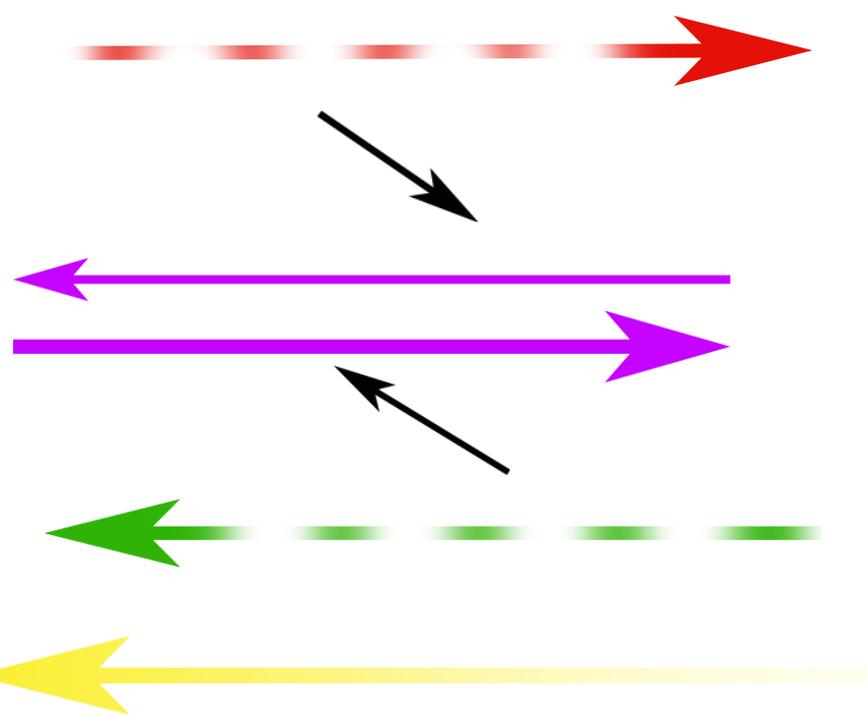


Economic Relation:
Grandmother helps grandson
with his studies



Grandson helps grandma and brings flowers





Relations are interconnected and operate in networks of relations. They can reinforce or weaken each other.

Can we quantify this?

Some things we can count directly.

- Count the amount of money

- The frequency of visits etc.

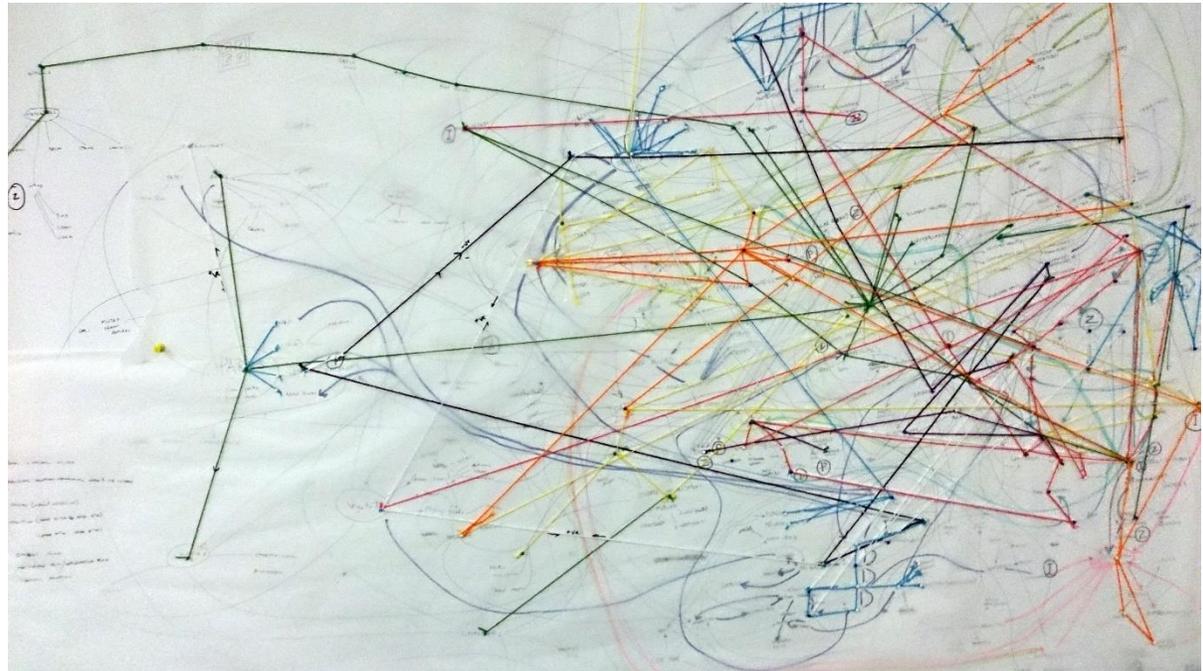
Other things can be measured in various ways.

- Questionnaires regarding emotions etc.

- Ethnographic studies etc.

But these only indirectly indicate the state and content of the relations them selves.

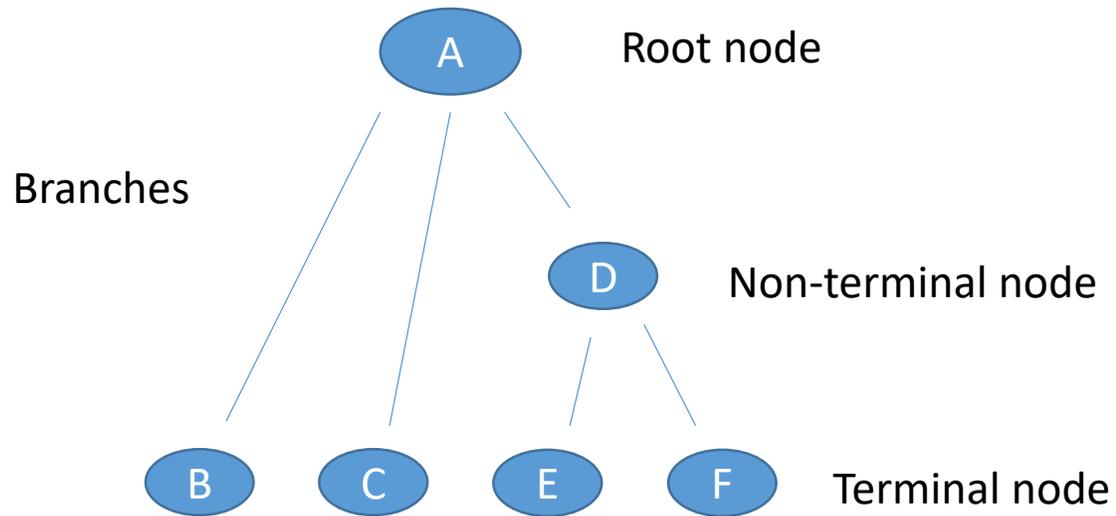
No singular type of relation (or systemic model) is sufficient to explain the interplay between things in the world



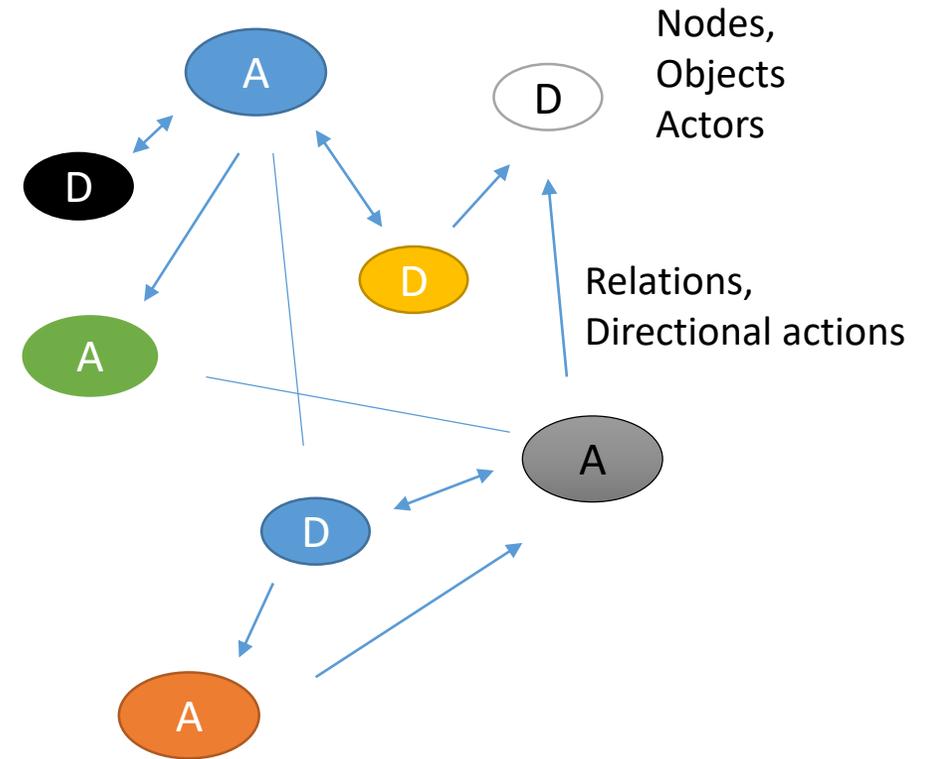
Karin Backlund, Maxwell Kevin Otieno, Evelina Peterson, 2015

Some types of relations

Structural relations



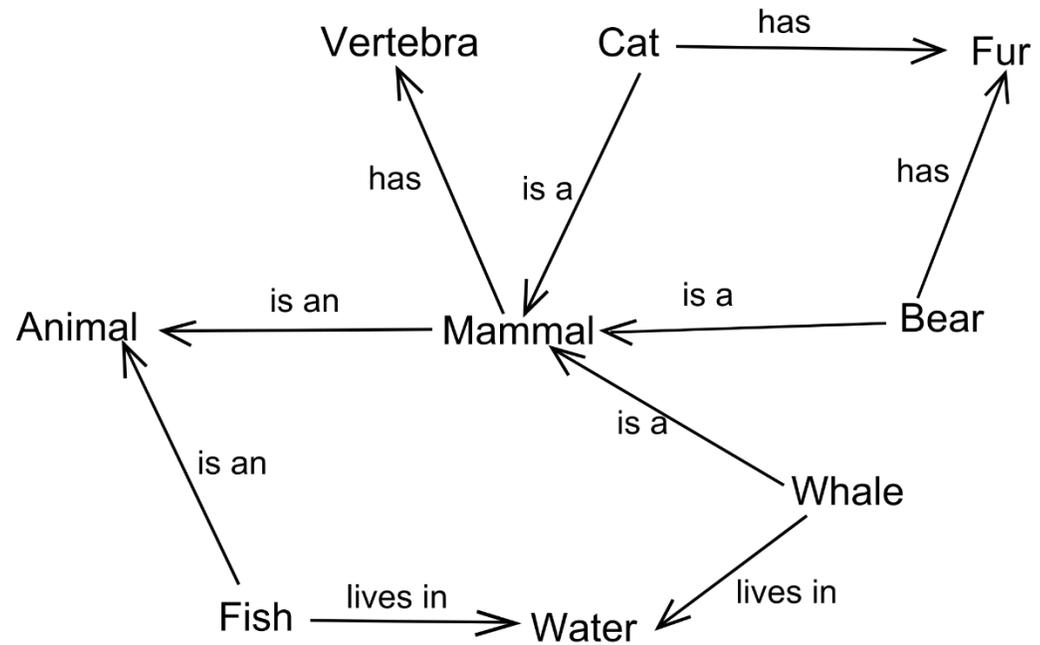
Hierarchical Structure
(Closed and ordered structure)



Non-hierarchical structure
(Open and “messy” structure)

Semantic Relations

Semantic networks
Categorical relations
Associative relations
Representational relations



A Semantic Network

(Public Domain)

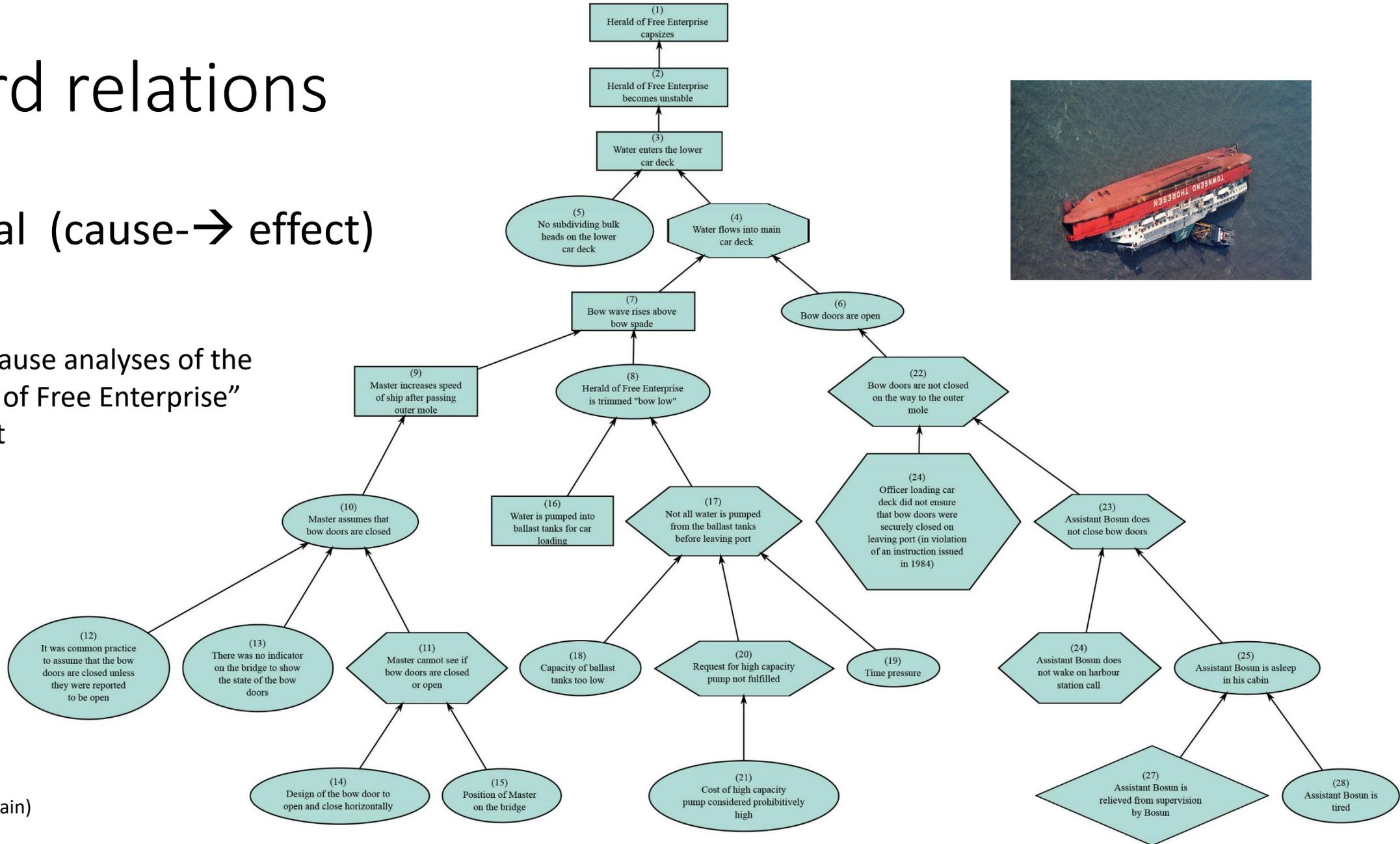
Social relations

- Individual social relations (Family, friends)
- Professional relations (Workplace, profession)
- Institutionalized social relations, (Sharing religion, citizen of a nation)
- Political relations (Sharing or not sharing political beliefs)
- Action relations (Social relations emerging from common activities)

Hard relations

Causal (cause-→ effect)

A root cause analyses of the “Herald of Free Enterprise” accident



(Public domain)

SYSTEMIC RELATIONS THAT RESIST THE MODEL OF NODES AND CONNECTORS

Proximity: A school and a petrol station situated close to each other will influence each other. Observation from a Oslo primary school show how the petrol station is used by students in their free quarters. The rhythm of the school influences the rhythm of the petrol station.

(Images are not from the observed location, because in the meantime the petrol station is gone)

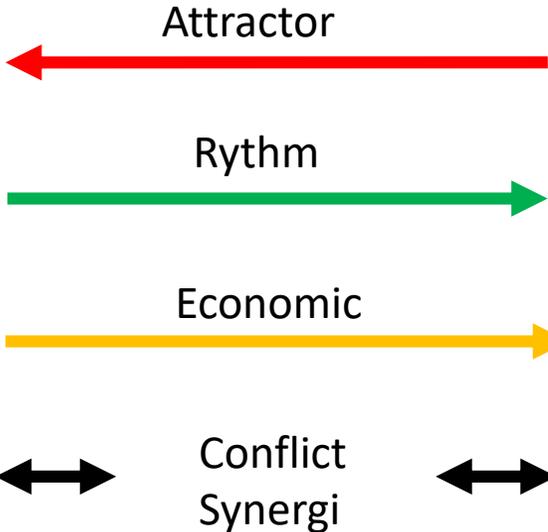


No direct connection



Proximity is not a connection in its self. But it might trigger connections.

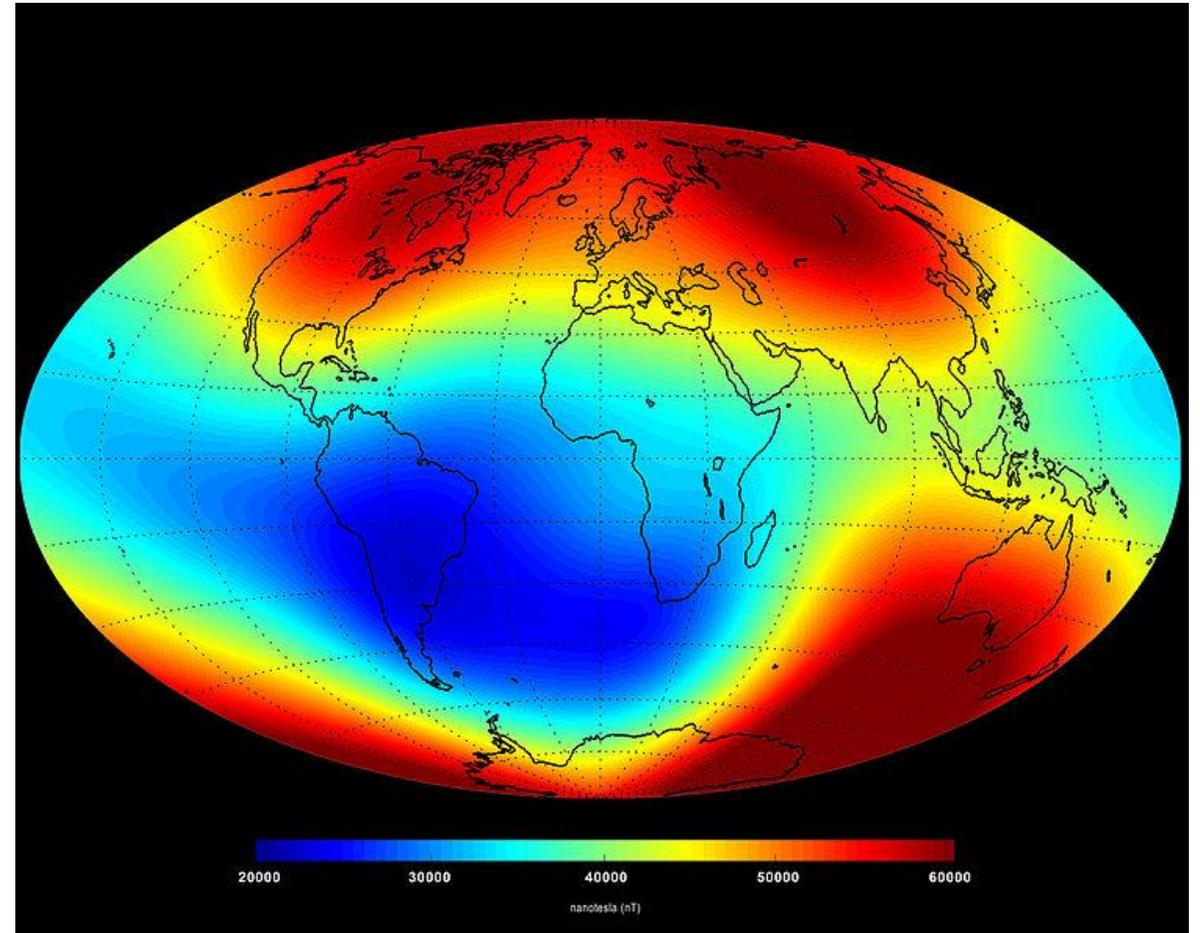
Particular emergent relations that are triggered by proximity.



Spatial distributions (intensity) is in a sense one object itself.
It is not easily described in a network of nodes and connectors, though singular links might be abstracted.
The abstraction into nodes and connectors is insufficient to capture the dynamic interplay that might take place in a field condition.

Fields:
E.g. interactions are getting so intertwined and entangled as well as ubiquitous that they operate more as fields rather than singular interaction.

(Based on Erik Stolterman, Keynote at RSD5 2016)



Magnetic Field (Public domain)

Read more about the library of Systemic Relations on

<http://systemsorienteddesign.net/index.php/giga-mapping/types-of-systemic-relations>

Feedback? Suggestions to improve the library?

Please write me an email

Birger.Sevaldson@aho.no