

Information processes produce the imperfections in the data

How does the information infrastructure compensate?

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Today's talk is in four steps:

- 1. set the scene: tiered ontology**
- 2. foundation: information processes connecting the tiers with their imperfections**
- 3. generalization: kinds of imperfections**
- 4. final: methods to reduce influence of imperfections on decisions**

- information is used to make decisions
- data quality \rightarrow imperfection in data

Ontological Tier

Social

Constructions

physical world

Physical Objects

Point-Observations



tier 0

"Ontology"

Tiered Ontology

Ontological Tier

Process

Constructions

**Construction
Grounding**

Scale:

X

counts as Y in
context Z

Z

Physical Objects

Mental classification

stable in time

Granulation

**Point-
Observations**

**Observation
process**

closed loop
semantics



Tiered Ontology

Ontological Tier

Constructions

Physical Objects

**Point-
Observations**



Process

**Construction
Grounding**

Mental classification
Affordances
Granulation

**Observation
process**

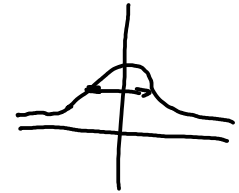
Imperfection

**context dependent:
supervaluation**

Fuzzy Logic

Probabilistic

Random



Kind of Imperfections

Probabilistic

Classification

Fuzzy logic

Grounding

Context

Methods to reduce influence

Redundancy

Safety margins

$$R - S > 0$$

Relevant level of detail

classification

Absorption

Supervaluation

*improve data
assess the quality
identify blunders*

Waldo Tobler

Everything is related to everything,

but nearby things are more related.

restriction.

- same frequency of process
 - | spatial
 - | temporal