What is essentially human in the age of AI?
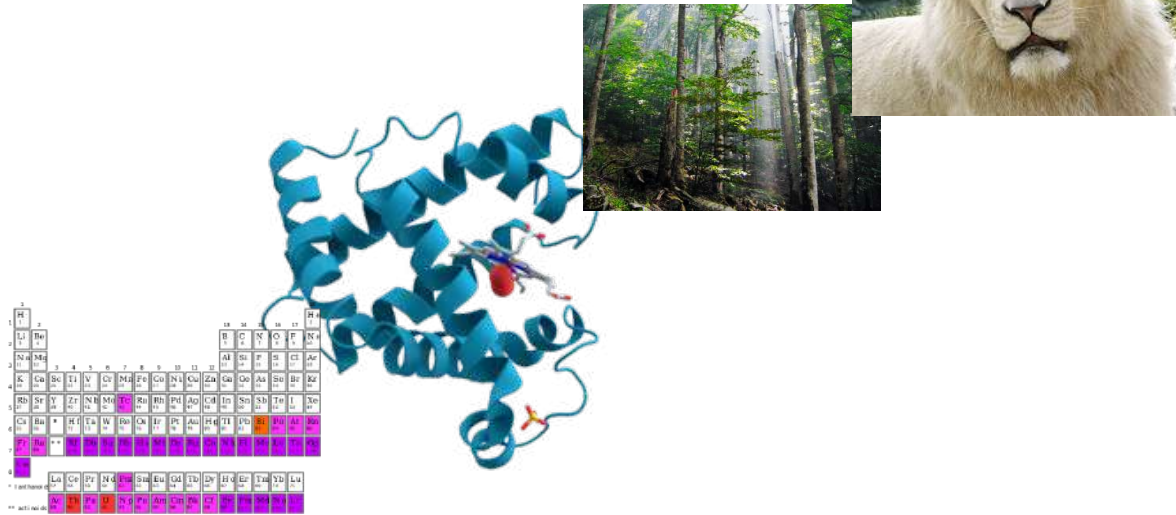
Timo Honkela

University of Helsinki
Finland

European Big Data Value Forum
Helsinki, FI, Oct 14, 2019

Levels of increasing complexity

Perception

Human mind

Emotions, sentiments

Action

Intuition
(experienced mind)

Embodiment

Memory systems

Rationality
(linguistic mind)

Aspects of human existence

Natural and biological sciences have only very limited capacity as explanatory forces for dealing with human individuals and societies

Patterns of behaviour over time and contexts, learning and adaptation, language (symbol systems, structure and meaning), communication, art, culture, history, values, identities, religions, legal systems, political systems, emotions, professions, skills, abilities to build tools, etc. etc.

Images: Wikipedia

Role of AI?

Separate systems?

Variery of people:
professions, skills, values, identities, personalities, etc.

https://clipartfest.com/categories/view/97c2b05418492d1354162eeca5780343bebd1002/free-clip-art-professions.html

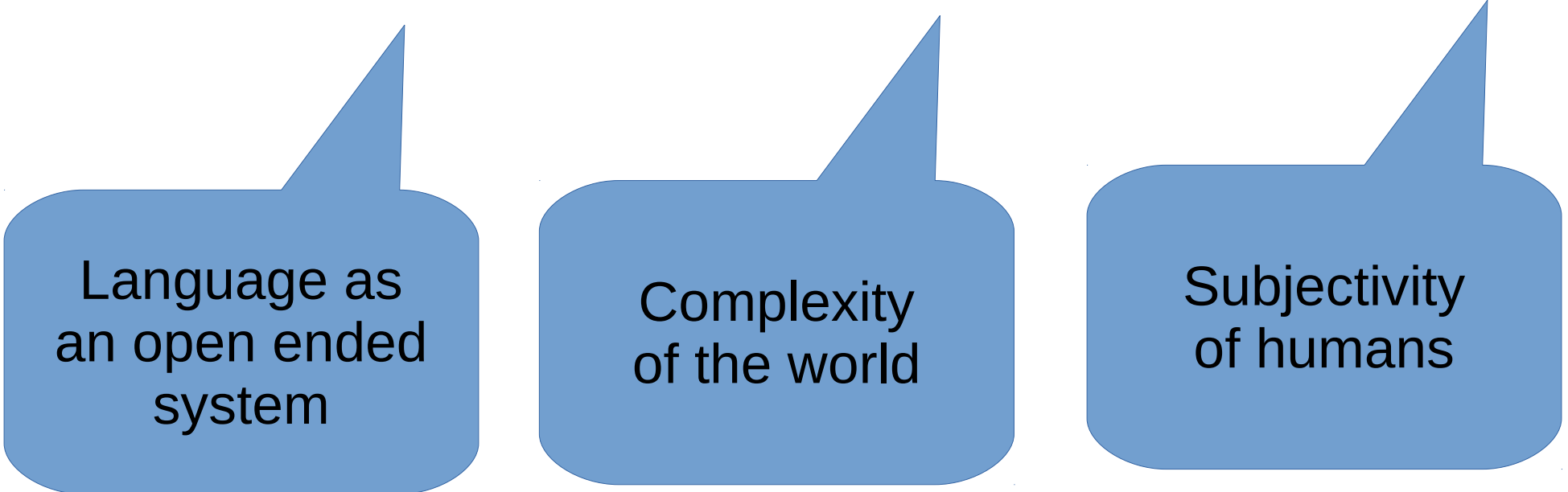# Issues related to
Ethics of AI

Transparency and **accountability**

versus

True **complexity** of reality
and what should be its representation

Note: **Reduction of (re)presentation can be a form of violence!**

Theme of **explanation**

Language as an open ended system

Complexity of the world

Subjectivity of humans

Past – Present - Future

Learning from data versus intentionality

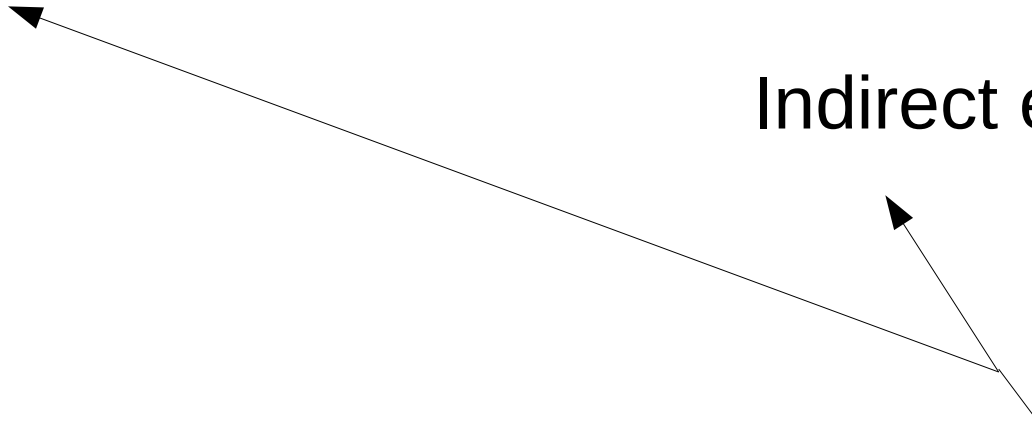# Learning from Experience combined with Intententions

Data in machine terms

Direct experience

Indirect experience

Learning from Experience

Data in machine terms

Complexity & Emergences
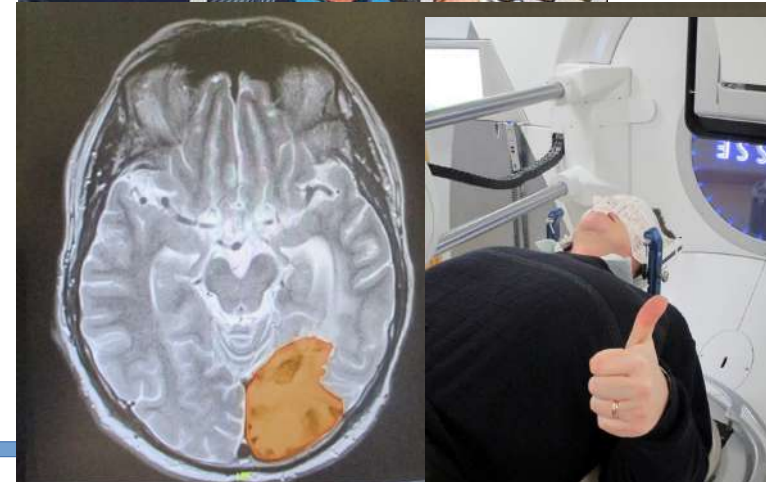
Ontology & Epistemology

Forest

Machine learning serving intentions? (1/2)

- A commonly recognized problem is that machine learning results are based on data that is given to the algorithm

- This often leads into

  - Poor quality model if the data is not representative

  - Model that does not match the intentions or goals

    - Building future that is different from present

    - Taking into account principles, not only what has happened

Machine Learning
serving Intentions (2/2)

- Supervised learning → Old concepts kept
  Unsupervised learning → Finding novel views & systems
  Reinforcement learning → Building systems with goal

- Computational **creativity**: Finding novel solutions

- **Deep learning** of data that indicates what is nature and characteristics of good intentions and successful means to reach positive results

  – *Analogical reasoning* at suitable level of abstraction

    - Like a system can learn a different game,
      it can learn to build means to reach positive goals
      in new domains and different levels of abstraction

Thank you for your attention!