

Media Transformation

Vorlesung

WiSe 2022-23

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Woche 5



Data analysis

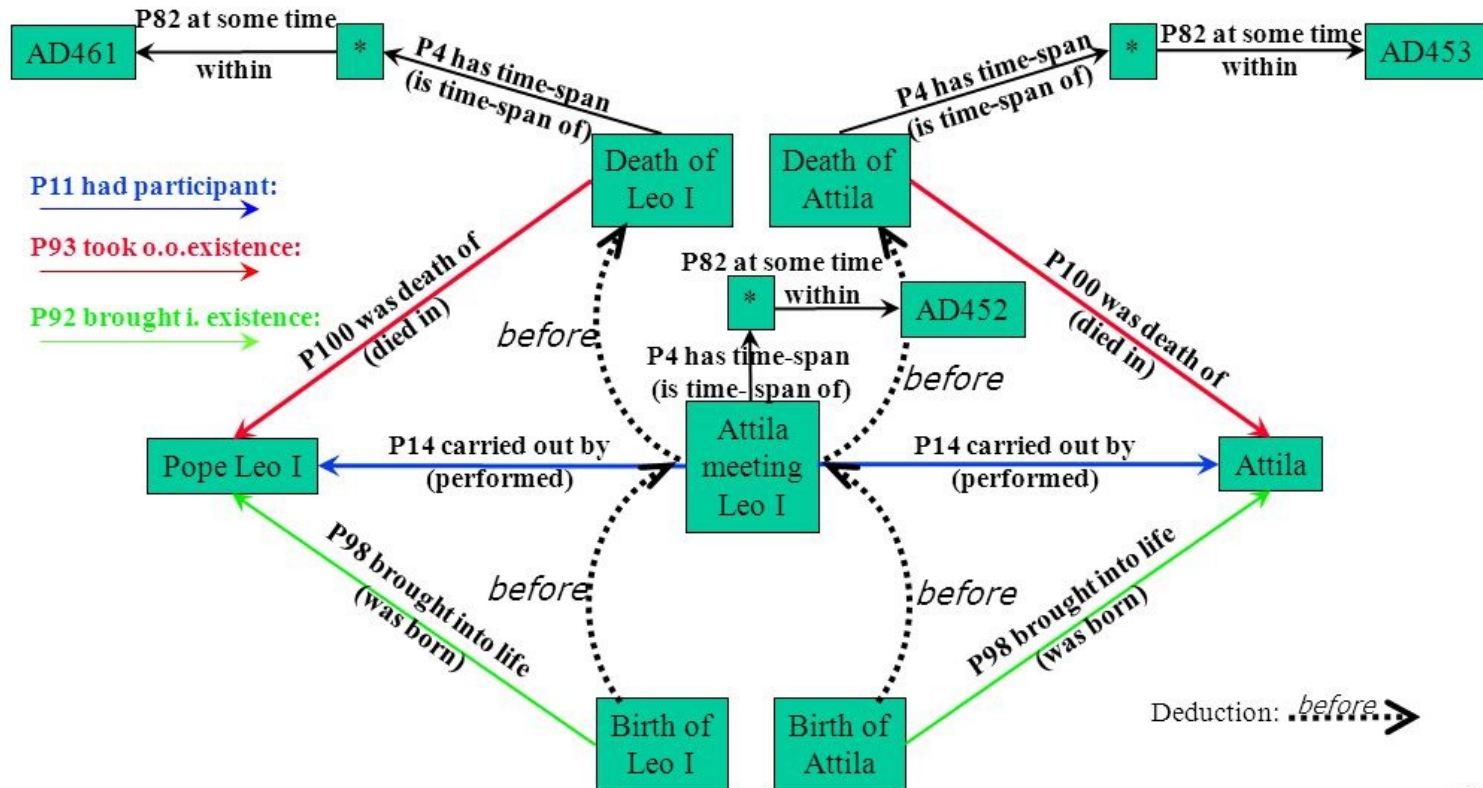


- How to cope?
 - extracting the important story from the data

<http://darkroom.baltimoresun.com/2014/03/three-mile-island-nuclear-disaster-pennsylvania/>

The CIDOC CRM

Termini postquem / antequem



23

Database based stories in cultural history

Which stories can we tell based on this CIDOC-CRM model?

Intimacy with machines

```
(defparameter *eliza-rules*  
  '(((((* ?x) hello (* ?y))  
    (How do you do. Please state your problem.))  
    ((((* ?x) I want (* ?y))  
      (What would it mean if you got ?y)  
      (Why do you want ?y) (Suppose you got ?y soon))  
      ((((* ?x) if (* ?y))  
        (Do you really think its likely that ?y) (Do you wish that ?y)  
        (What do you think about ?y) (Really-- if ?y))  
        ((((* ?x) no (* ?y))  
          (Why not?) (You are being a bit negative)  
          (Are you saying "NO" just to be negative?))  
          ((((* ?x) I was (* ?y))  
            (Were you really?) (Perhaps I already knew you were ?y)  
            (Why do you tell me you were ?y now?))  
            ((((* ?x) I feel (* ?y))  
              (Do you often feel ?y ?))  
              ((((* ?x) I felt (* ?y))  
                (What other feelings do you have?))))))
```

Computer generated stories: How?

- What people want to communicate
 - thus human agenda driven
 - *answering* questions
 - An Eliza using external data sets
- Analyse data
 - “mining data for meaning and insight”
- Deliver analysis in natural language

Natural language generation

- Translating
 - *from* computer based representations
 - *into* natural language representations
- Either explicit models (grammars)...
- ...or statistical models of human text
 - as in NLP in general



Publish or perish

- Need more text produces
- Less time to produce it
- Solution
 - domain-independent creative writing tool
 - when quality is not essential
 - based on large content collections
- Machine learning
 - topic analysis of content



Creative writing assistance

- Domain dependent template
 - built automatically
 - event description, biography, political news, ...
 - can include dialogue/argumentative structure
- Epistemic structure
 - extracted from texts in domain



Creative writing

- Search the web
 - tool
- Find pieces
 - tool
- Merge them
 - tool, human do final acceptance/rejection
- Final text polishing
 - human



The process

- For any idea
 - a similar document exists
- Cannot really invent something new
 - find that document
 - substitute
- Starting point
 - seed sentences
 - basis for construction of search



Questions

- Who will read all this text?
 - computers?
 - algorithms analysing it to make new texts?
- What is it to tell a story
 - to express oneself?
 - to produce a number of words?



So what is this really?

- Analysis of data...
- ...presented not as a graph...
- ...but as a text
- Stories as a visualisation tool
 - from image to text—as—visualisation
 - (impression of) objectivity?
- So who is the winner?
- Poetry or painting?
 - that is, the textual or the graphical?

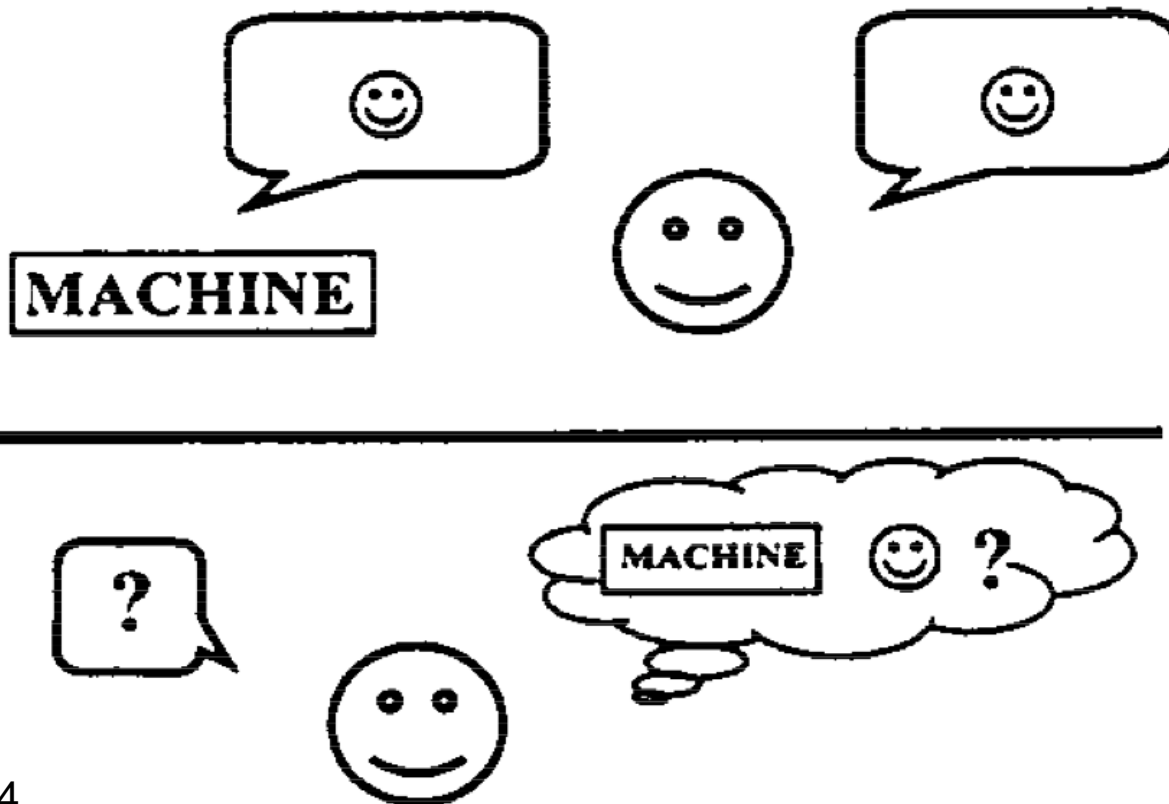
Interactivity

- The quality or condition of interaction
- Can be higher or lower
- Human to human interactivity
 - communication between people
- Human to computer interactivity
 - the artefact does not desire communication
 - interactive behaviour experienced by human



The Turing test

- Alan Turing, 1950
- Testing the machine's ability to show intelligence



Saygin, A. P.; Cicekli, I.; Akman, V. (2000), "Turing Test: 50 Years Later" (PDF), *Minds and Machines*, 10 (4): 463–518

Dialogism

- Dialogue between people talking
- Dialogue with historical sources
- Dialogue with natural environment
- Text and text interpreter
- Bakhtin: literary texts are dialogical
 - intertextuality
- Forming thoughts through dialogue
 - learn what we know by saying it



Affordances

- Based on the verb “to afford” (Gibson)
- Complementarity animal—environment
- Relative to the animal
 - surface of the lake for a flea and for a dog
- Intention irrelevant
 - a tree is shelter against the rain
 - this is not the purpose or intention of the tree

In dialogue with our surroundings

- Using affordances
 - natural
 - language: potentials in concrete utterances (Linell)
- The language is part of the dialogue
- Context of interaction
- Interaction at many levels
 - with each others
 - with tools
 - with landscape...



Grounding problem

- General Problem Solver (1957)
 - could solve all problems... when they were formalised
 - symbol based solutions
- How can AI systems be connected to the world?
 - complexity of representation
- How do humans connect to the world?
 - no representation (ecological understanding)
- *Can one connect formal symbol systems to an external reality?*



Interhuman communication

- Talking to each other
- Happens in context
- Significant shared background
 - common affordances
- Face to face
 - sound, sight, smell, touch, ...
- Mediated
 - narrower in varying degree



Intercultural communication

- Less common affordances
 - language differences
 - cultural differences
- Emotional differences
 - culture and the individual
- Common languages
 - football
 - laughter
 - rituals
- Communication always possible
 - but can be hard



Interspecies communication

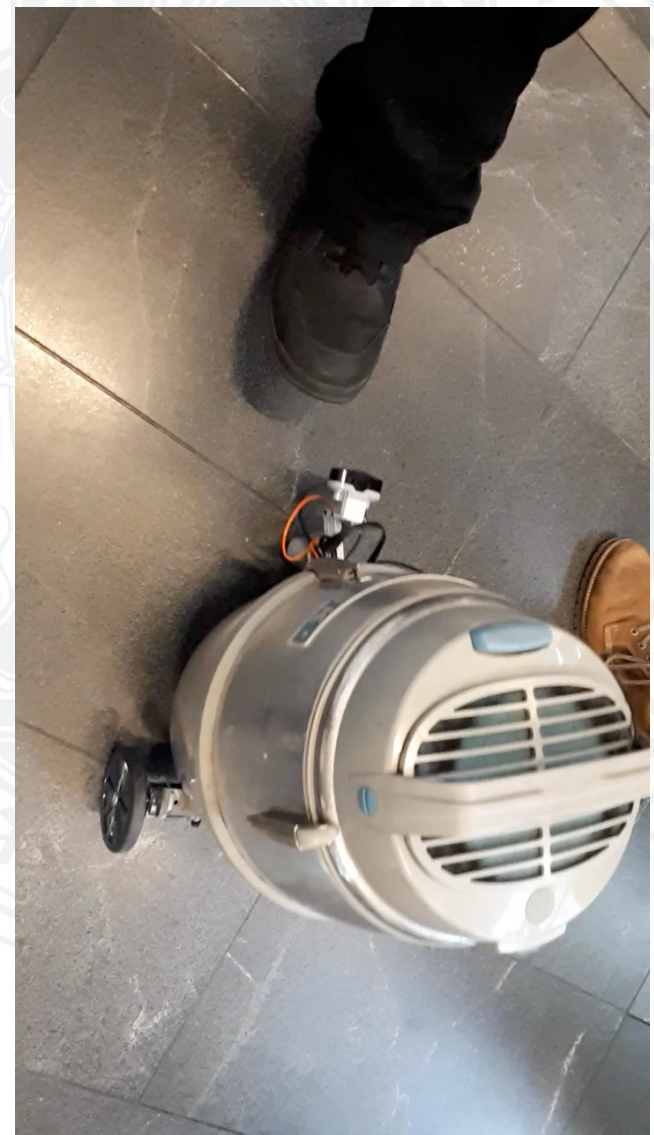
- Human to animal
- Animal to animal
- Animal to plant
- Less symbolic
 - words play a different role
- Intentionality unclear
 - does the dog want to interact with me?
 - the tree?



Robots

- Robots move in the world
 - do not need representations
- Interaction based algorithms
 - robots in the physical world
 - can use affordances
- Robots in interaction with the environment
- The foundation problem is bypassed

Christiansen, H., Hoby, M., & Lindelof, A. M. (2019). „Robot Gestalts in Staged Performances: Poster abstract.” Poster session præsenteret på 4th Digital Humanities in the Nordic Countries, Copenhagen, Danmark.



Tools and animism

- Beyond (behind) AI/robots: „simple” tools
- Auto-movement and animism

“These technical distinctions are fully understood by Nuaulu who have wondrous ways of fixing malfunctioning engines. But the combined features that give them quasi-autonomy also give them the vitality that is more than the combination of their parts, and which crosses a boundary that places them with other biological and quasi-biological entities. Humanly operated machines may have agency, but engines act ‘intentionally’. When Basil Fawltz is thrashing the car he is exacting revenge on an entity that has ‘stalled just once too often’. It has willfully disobeyed its owner and driver. We laugh because we recognize that all of us, while fully accepting the technical reasons for mechanical failure, insist on treating the vehicle as if it were a sentient person who is deliberately contrary.”

Ellen, R. (2016) „Tools, agency and the category of ‘living things’” in Des êtres vivants et des artefacts, Paris („Les actes”).



Animals and tools

- Interaction
 - animal—tool?
 - animal—human?
- Usability
 - for animals
 - for humans
- Intention
 - in humans
 - in animals
 - in the tool?



Communication with the dead

- Religion/mythology
- Literature
 - “Sappho speaks to me”
 - (but do I reply?)
 - model reader → author instance in text
- Talking to fictional persons
- Art
 - falling in love with a painting – or the motive?
- Virtual reality
 - talking to historical persons?



Cyberspace

- „The matrix has its roots in primitive arcade games [...] in early graphics programs and military experimentation with cranial jacks. [...] Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts . . . A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding. . .“
- „She was quite a visionary. She imagined us in a symbiotic relationship with the AI's, our corporate decisions made for us. Our conscious decisions, I should say. Tessier–Ashpool would be immortal, a hive, each of us units of a larger entity.”
- „Wintermute was hive mind, decision maker, effecting change in the world outside. Neuromancer was personality. Neuromancer was immortality. Marie-France must have built something into Wintermute, the compulsion that had driven the thing to free itself, to unite with Neuromancer.”

Gibson, W. (1984). *Neuromancer*. New York, Ace Books.



Swarm intelligence and symbiosis

- Bees
- Micro-organisms in human bodies
 - especially in the digestion system
- Human-horse
 - work
 - control
 - communication
- Human-reindeer
 - pastoralism
 - detailed control
 - general direction
- Ants – aphids
 - communication
 - control
- Intentionality



https://influentialpoints.com/Gallery/Aphis_viburni_viburnum_aphid.htm