

Do ontologies work?

Barriers and Possibilities to Implement
Ontologies in (Health) Information
Systems

workshop

Currently, there are a large number of biomedical ontology development projects a number of more or less mature medical ontologies available on the Internet.

However, it is extremely difficult to find practical examples of ontologies that are integrated in (health) information systems in daily use.

Rector AL. Clinical terminology: why is it so hard?

Methods Inf Med. 1999;38(4–5):239–52

1. The scale and the multiplicity activities tasks and users.
2. Conflicts between the user requirements and rigorous software development
3. The complexity of clinical pragmatics
4. Separation of language and concept representation
5. Clinical conventions often do not conform to logic and linguistic paradigms.
6. Underestimation of the difficulty of developing description formalism and its use to develop medical ontologies.
7. Due to the lack of clinical consensus terminology must be open ended and allow local tailoring.
8. Idiosyncratic structure of existing classifications
9. Need to be coherent with medical record and messaging models
10. Change must be managed without corrupting information already recorded

Cimino J J *Desiderata for controlled medical vocabularies in the 21th century*
Met Inf Med 1998;37:394-403

Cimino's Desiderata	Rector's Clinical terminology: why is it so hard
Concept Orientation	Separation of language and concepts
Content/Coverage	Scale and diversity of use
Comprehensiveness	Scale and diversity of use
Non-ambiguity	Separation of language and concepts
	Formal Concept Representation
Poly-hierarchy	Multiple views and multiple hierarchies
Formal Definitions	Formal Concept Representation
Multiple consistent views	Multiple views and multiple hierarchies
Multiple granularities	Differences in granularity
Nonsemantic identifiers	Multiple views and multiple hierarchies
Recognise redundancy	Criteria for classifying concepts
	Criteria for determining when two concepts are equivalent
Evolve gracefully	Change Management
Concept permanence	Formal Concept Representation
	Multiple views and multiple hierarchies
	Separation of language and concepts
Reject 'not elsewhere classified'	The legacy of existing classifications and coding systems
Representing Context	Meeting the needs of electronic patient records

Separation from language

"We are analog beings trapped in a digital world... We are compliant, flexible, tolerant. Yet we have constructed a world of machines that requires us to be rigid, fixed, intolerant"
(Donald A Norman)

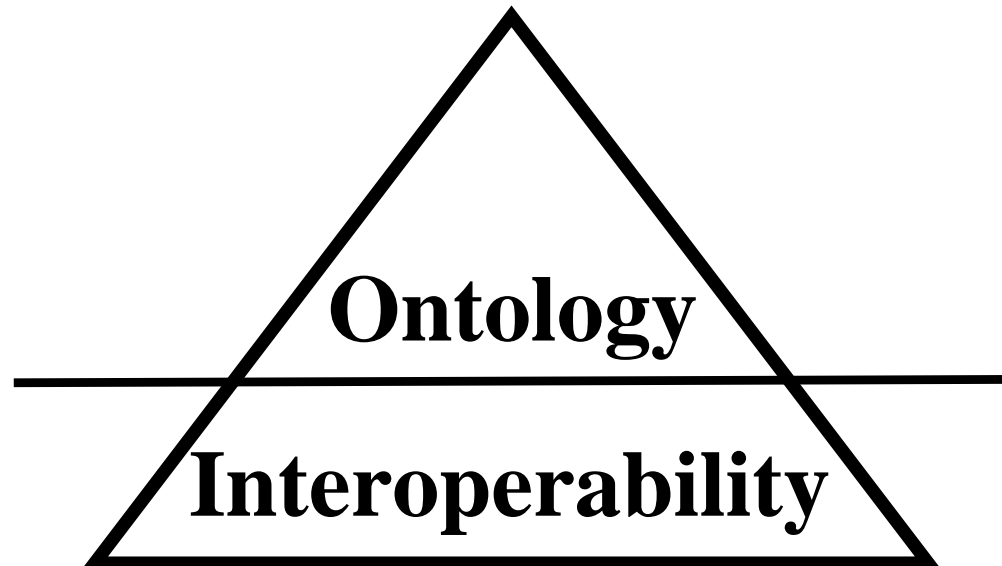
Production of new knowledge in form of free text:
Huge effort to update formal systems

Separation from language

We are seeking for something, that can used better to describe medical facts, than human language.

Umberto Eco: *La ricerca della lingua perfetta nella cultura europea* (Search for a perfect language in the European Culture)

*Theoretical:
Is it possible?*



*Practical:
Is it (financially)
manageable?*

*Organisational:
Is it what we
really need?*