

A methodology for mapping educational domain ontologies using top level ontologies

Tatyana Ivanova

Technical University of Sofia, Bulgaria

tiv72@abv.bg

Our main research goals:

- To discuss the role of ontologies and thesauruses as background knowledge for ontology mapping in e-learning domain
- To classify ontologies, useful as background knowledge in ontology mapping in e-learning domain.
- To propose a methodology for educational ontology mapping using semantics-based background knowledge.

Difficulties related to explicitly represented knowledge:

- Teachers and knowledge experts need to work hardly and have specific competencies for building and explicitly evolving knowledge - based (ontological) models.
- Working of the knowledge – based systems require usage of reasoning or other intelligent methods that should be implemented in complex software components (as agents, inference engines, or rule-based modules).
- Ontology learning and ontology napping techniques are needed, but these techniques are not mature yet.

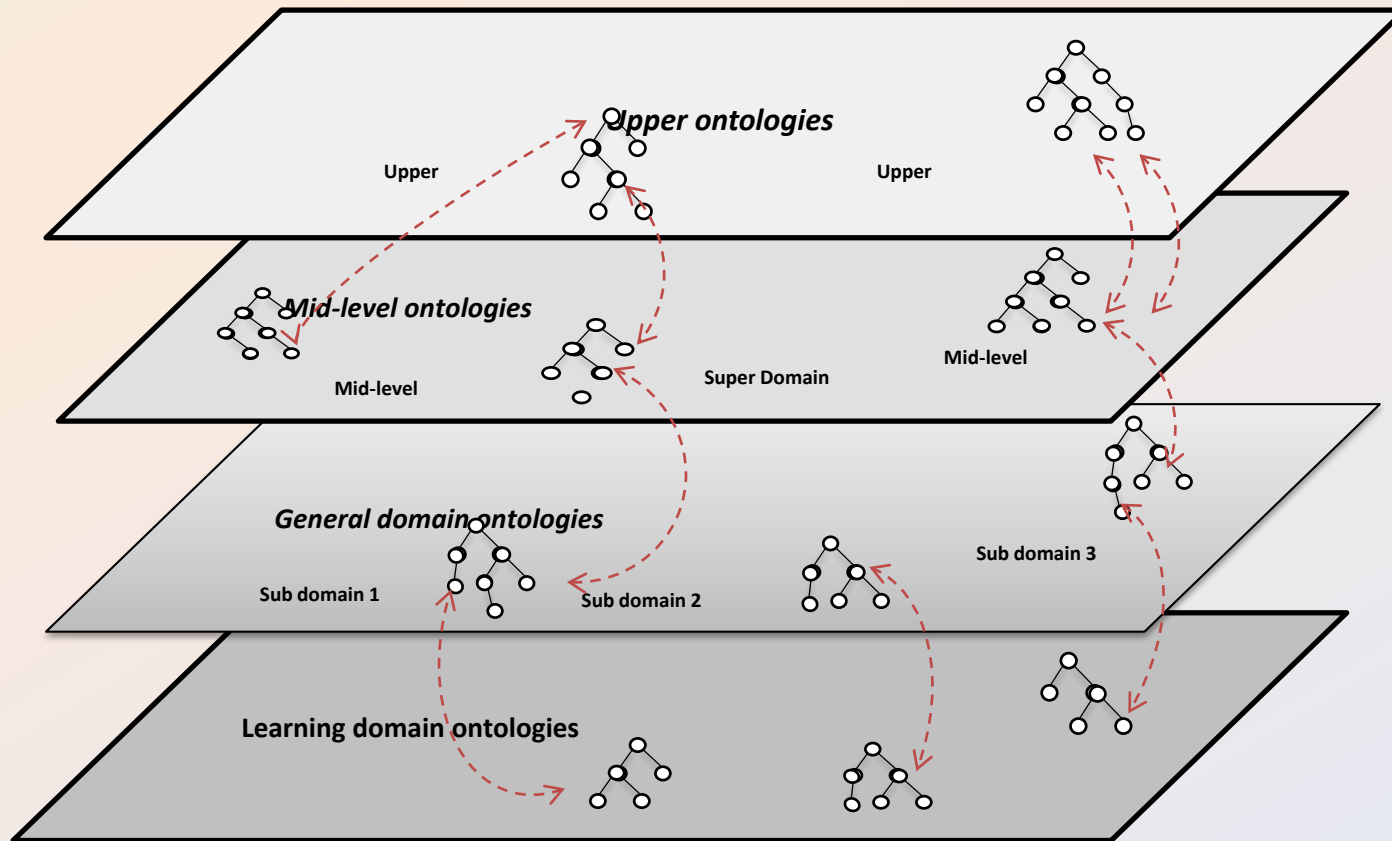
Types of ontologies, useful as a source of external knowledge during mapping in e-learning domain

Three types of ontologies according to the generality are useful during mapping of learning domain ontologies:

- Upper ontologies;
- Mid-level ontologies
- General domain ontologies.

Terminological ontologies and thesauruses (including multilingual ones) are mostly useful.

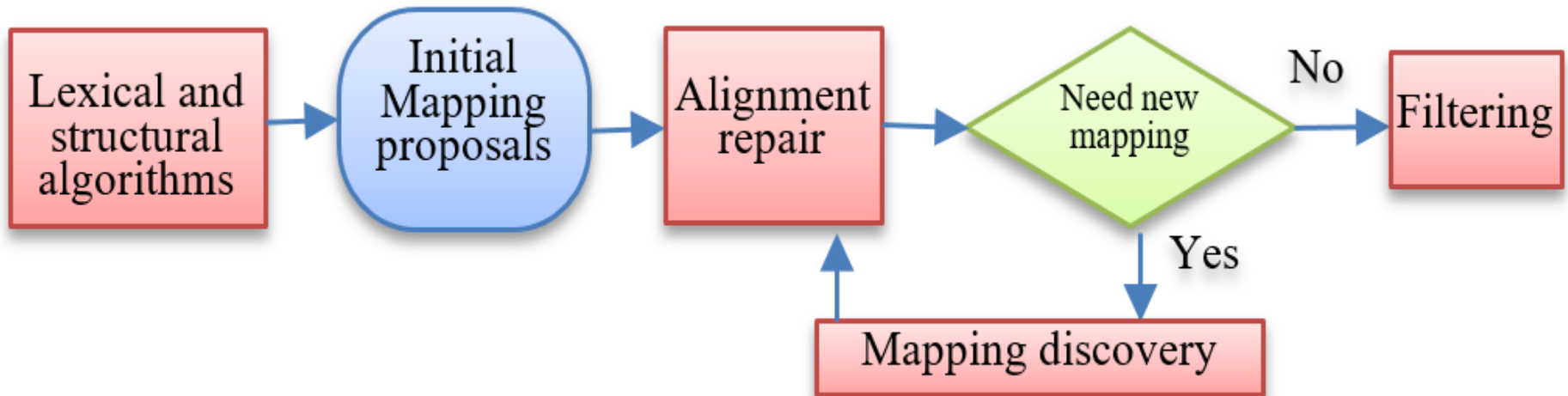
A model of the system of mapped ontologies that can be useful in mapping process as external knowledge



Our methodology for mapping educational domain ontologies, using upper, top, linguistic or mid-level ontologies

- 1. Selection, adapting and structuring of the needed additional sources**
- 2. Finding and Selection of mapping tools or methods**
- 3. Generation of mapping proposals**
- 4. Filtering mapping proposals**
- 5. Evaluation**
- 6. Go to 1, if necessary**

THE MAPPING PROCESS



CONCLUSION

- The proposed methodology shows how external ontologies can be used both for ontology mapping and supporting learning in the e-learning domain and what problems arise during performing the automatic mapping process.
- Mapping algorithms, using ontologies as background knowledge are highly specific according to the used ontologies and mapping requirements. So, new such algorithms are needed for such ontology mapping in educational context.
- Our future work is to develop extensions of mapping tools, as LogMap, implementing algorithms for semi-automatic flexible interactive educational ontology mapping, using external knowledge.

Questions?

Tatyana Ivanova

Technical University of Sofia,
Bulgaria

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