ONTOLOGIES AS TOOLS FOR HISTORIANS

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Ontologies have been proven invaluable tools in areas like the semantic web and personal information management. They model concepts and relationships in a high level of abstraction, providing rich semantics for humans to work with and the required formalism for computers to perform mechanical processing and reasoning. There have been many research efforts to create ontologies and supporting tools for Natural Sciences and Biology in particular (e.g. the GO (http://www.geneontology.org/) ontology and supporting tools). However, the domain of History, the science of studying, recording and organizing the knowledge of the past, has yet to benefit from adopting ontologies. In the context of a PhD scholarship programme supported in part by the Greek Secretariat for Research and Development under the PENED 2003 framework we have investigated issues related to ontologies in the context of history, and more specifically:

Ontology modeling. We have investigated the creation of ontologies modeling the history of organizations [3]. An ontology modeling historical information has a very important characteristic: Concepts and instances involved most probably have evolved during the time-span in question.

Ontology visualization. We have concluded and extensive study of existing ontology visualizations and evaluated with an experiment their suitability for end users [1]. Based on these findings we have created TimeViz [2], a visualization tool for ontologies that have evolved in the passage of time.

Insight and experience gained during this research effort will be applied in two new research directions: The first is the creation of a website presenting the History of the National and Capodistrian University of Athens, in the context of a national project. The basis for this web site will be an ontology of important concepts for the history of the organization, which will be populated with a number of instances. Both concepts and instances of this ontology will be linked with related exhibits of the History Museum and the Historical Archive of the University, the information repositories of which are mostly taxonomy-based. The establishment of semi-automatic linkage from the ontology to the taxonomies, the effective visualization of the ontology and the navigation within the ontology structure highlighting important dimensions, such as the University timeline, events and persons that played an important role in the University's evolution, and the semi-automatic evaluation of the exhibits for proposing new entries to the ontology are the major research challenges in this direction.

The second is the Papyrus project (http://www.ict-papyrus.eu), an EU funded project, aiming at the creation of a multi-disciplinary digital library coupling the domain of History and the domain of News. End-users will be able to browse and query the history ontology and through it access related news items from the news archives of several European news agencies.

Both these research directions will allow us to evaluate our research results so far on ontologies for modeling historical knowledge and ontology browsing through appropriate visualizations for the end users, as well as research appropriate search and query methods again for users non-expert with ontologies. Ontology mapping and alignment issues, as well as the development of heuristics for reasoning with ontologies in the specific domains will be also investigated.

REFERENCES

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