



[Home](#) > [Archives](#) > [Vol. 35 No. 3 \(2006\)](#) > [Articles](#)

TRANSFORMING ONTOLOGY REPRESENTATION FROM OWL TO RELATIONAL DATABASE

Ernestas Vysniauskas

Kaunas University of Technology

Lina Nemuraite

Kaunas University of Technology

DOI: <https://doi.org/10.5755/j01.itc.35.3.11779>

Abstract

The current work has arisen with respect to the growing importance of ontology modelling in Information Systems development. Due to emerging technologies of Semantic Web, it is desirable to use for this purpose the Web Ontology Language OWL. From the other side, the relational database technology has ensured the best facilities for storing, updating and manipulating the information of problem domain. The algorithms for transformation of domain ontology, described in OWL, to relational database are proposed. The methodology is illustrated with an example.

 PDF

Published

2006-09-29

Issue

[Vol. 35 No. 3 \(2006\)](#)

Section

Articles

License

Copyright terms are indicated in the Republic of Lithuania Law on Copyright and Related Rights, Articles 4-37.

Impact factor 0.905 (2019)



Information

For Readers

For Authors

For Librarians



ALL SUBMISSIONS SCREENED BY:



WANT TO PRE-CHECK YOUR WORK? >>

Print ISSN: 1392-124X
Online ISSN: 2335-884X

Platform &
workflow by
OJS / PKP

Keywords—Ontologies, relational databases, SQL, and OWL. T I. INTRODUCTION HERE are two basic techniques for storing ontologies [1]. The first technique is to use file systems for storing ontologies in flat files. The main problem with this technique is that file systems do not provide scalability, sharability, or any query facility. III. TRANSFORMATION PROBLEMS Transformation of ontologies to relational databases should handle the following problems: • Loss of data: The result of the transformation should adequately describe the original data. • Structure loss: In some cases, the transformation is not really lossless in the sense that not all constructs in an ontology can be mapped to a relational database. The algorithm not only transforms ontology structure (TBox) into database schema, ontology instances (ABox) into RDB instances, but also automatically creates user interface for database content access and exploration. The Authors tested and applied algorithm to convert FSTPPDO (the model representing knowledge concerning physiological models of mass transport phenomenon) into Transport Model Coefficients, a database containing the results of peritoneal dialyze research. Keywords. OWL transforming OWL Ontology Relational Database. Vysniauskas, E., Nemuraite, L.: Transforming ontology representation from owl to relational database. Information Technology and Control 35(3A), 333–343 (2006)Google Scholar. 16. domain ontology, described in OWL, to relational database are proposed. The methodology is illustrated with an. example. If syntax of the file. matches OWL notation, transformation tool executes. steps of transforming ontology to relational database. At first, system transforms ontology classes, the next. steps are transformations of object and data type pro @inproceedings{PodsiadlyMarczykowska2014RuleBasedAT, title={Rule-Based Algorithm Transforming OWL Ontology Into Relational Database}, author={Teresa Podsiadly-Marczykowska and Tomasz Gambin and Rafal Zawislak}, booktitle={BDAS}, year={2014} }. It is a tempting idea to model domain knowledge using ontology and then use relational database to provide persistent information storage, search and retrieval utilizing transaction management,

security and integrity control. For this it is necessary... CONTINUE READING. Metadata in relational databases can be used to extract ontology from database in a special domain. According to solve the problem of sharing and reusing of data, approaches based on transforming relational database to ontology are proposed. In this paper we propose a method for automatic ontology construction based on relational database. Mining and obtaining further components from relational database leads to obtain knowledge with high semantic power and more expressiveness. Triggers are one of the database components which could be transformed to the ontology model and increase the amount