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Relational Databases Digital Preservation
Work Progress Report
Significant Properties in the Preservation of Relational Databases

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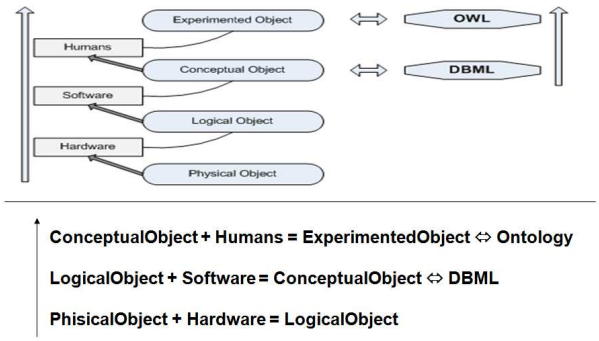
ABSTRACT

Relational Databases are the most frequent type of databases used by organizations worldwide and are the base of several information systems. As in all digital objects, and concerning the digital preservation of them, the significant properties (significant characteristics) must be defined so that adopted strategies are appropriate. In previous work a neutral format (hardware and software independent) --- DBML --- was adopted to achieve a standard format used in the digital preservation of the relational databases data and structure. Currently, in this PhD project we walk further in the definition of the significant properties by considering the database semantics as an important characteristic that should also be preserved. For the representation of this higher level of abstraction we are going to use an ontology based approach. We will extract the entity-relationship model from the DBML representation and we will represent it as an ontology.

PRESERVATION POLICY – CURRENT WORK

In order to walk further on the main topic of our PhD Project – *"Digital Preservation of Relational Databases"*, we intend to also walk further on the determination of the significant properties for this class of digital objects.
After characterizing the relational databases digital objects and establish a division between two levels of abstraction, we need to materialize those ideas into packages of information. These packages are to be used as in the OAIS reference model.
By focusing our strategy/policy on two levels of abstraction we intend to preserve the two correspondent levels of abstraction present on the chain of relationships of digital objects.
The database **Data** and **Structure**, which we identified as significant properties of the database, correspond to conceptual level of this family of digital object. The migration to DBML covers these properties and ensures that its representation becomes neutral.
At the top of the chain of relationships present in digital objects we have the Experimented Object (interpreted by humans). At this level there is an inherent **Knowledge** associated to the database semantics. We intend to captured the experimented object (knowledge) through an ontology based approach.



The ontology approach is adopted to formalize the knowledge present at the experimented object level and also a methodology to create an abstract representation of it.
The research work brought us to a point where we seek to preserve the combination of these levels of abstraction. The main strategy in our approach continues to be Migration which is carried in order to transform the original database into the new format -- DBML + Ontology.

CONCLUSION

At present time, in this PhD project, we address the problem of relational databases digital preservation by pointing at the significant properties of this class of digital objects. A combined strategy is being adopted to integrate as significant properties both conceptual and experimented levels of the digital object. By doing so we intend to provide a neutral (DBML) and abstract (ontology) representation of relational databases.

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