

Temporal Schema Versioning for OODBs

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The problem of supporting temporal schema versioning has been extensively studied in the context of the relational model. In the object-oriented environment, previous works were devoted to the study of the different aspects of schema evolution or (non-temporal) versioning in branching models, due to the traditional origination of the object-oriented model from CAD/CAM and CIM. Nowadays, the common adoption of the object-oriented model for a wide class of applications, extends temporal versioning requirements and expectations also to this model.

We propose a formal model for the management of temporal schema versioning in object-oriented databases. Its definition is partially based on the ODMG Release 2.0 Object Model and partially introduces new concepts. The proposed model supports all the schema changes which are usually considered in the OODB literature for which the full semantics and correctness proofs are provided. Semantic issues arising from the introduction of temporal schema versioning (like different notions of consistency and referential integrity) are also addressed on a formal basis.

We are currently considering the integration of the branching approach in the temporal schema versioning framework. To this end, we are working on an extension of our model to also accommodate parallel versions.