Formal Validation of Data Point Models

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Summary

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Introduction I

The Data Point metamodel consists of:

- Sets of necessary Data Points or facts in the European Supervisory reports.
- Definitions and rules of expert users (Supervisor/Regulators).
- These reports have semantic meaning.

Used terms: Concept, Data Point Model (DPM), Dimension, Domain, Family, item, (Domain) member, Metric, Namespace, Owner, Public elements, Table Group, DateCube, module and Hypercube
Introduction II

Star model of the DPM using a ROLAP tool
Proof of concept III

- The validation is element to element.

Structure of the proof.
Set of validation tests I

Structure of validation in the Relational Model.
Set of validation tests II

- Insert two duplicate concepts
- Insert a domain-member without inserted domain.
- Insert ID Dimension to null.
Set of validation tests III

Domain1 = \{C1, C2, C3, C4, C5, C6\}

Dimension1, Dimension2 ∈ Domain1

Dimension1

Hierarchy1

Hierarchy → Dimension

Dimension2

Hierarchy validation
Set of validation tests IV

- Hierarchy:
  - A son with its hierarchy has a father with the same hierarchy.

- ...

Summary
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Data Point Model: Set of artefacts in UML.
Validation I

- The main objective of this validation is to ensure the ability of the DPM to be used and to accomplish the design objectives.
- The validation of conceptual models at early phases of their development can help correct faults in the design at a point where they may still be corrected with relative ease.
- From the templates in the spreadsheets are obtained: data types, domains, concepts, primary items, dimensions, etc.
- Each element type is inserted in the structural artefacts and validated.
Validation II

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Diagram of validation
Proof of Concept I

• This proof uses the framework release 09/2013 (applicable as of March 2014).

• DPM data base 2.0.

• This version has been chosen, because it is not stable enough.

• From this version, in Access, the constructors are obtained.
Proof of concept II

Part of the EBA DPM
Conclusion and future Work

- It is necessary to validate the rest of constructors as: Tables, Tablegroup, etc.
- The target is to produce well-built metadata for semantic economic/financial reports.
- Structural validation.
- Validation with experts users in order that the validation can be semantically complete.

• Openfiling/Academy.

Questions
Formal Validation of Data Point Models

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