3rd International OMI Workshop: Modeling Methods in Motion

The
OMiLAB®

Dimitris Karagiannis
Wilfried Grossmann
Elena-Teodora Miron

University of Vienna, Research Group Knowledge Engineering

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Open Models Initiative: The Start
www.openmodels.org

- Initiative to collaboratively develop reference models for everyone to use, modify, copy and distribute in an open and public process

- Aims to build an open modeling community and to initiate an open modeling process with reference to the principles of open source

- Aims to develop software tools for collaborative modeling including facilities for model review, model documentation and more

- Prime Initiators:
  - Prof. Dr. Ulrich Frank, Universität Duisburg - Essen
  - Prof. Dr. Stefan Strecker, FernUniversität Hagen
  - and other professors
OMI: The Austrian Chapter

OMI Feasibility Study

179 Modeling Editors were analyzed

Recommended consideration to:

☑ Establish an Open Models Platform
☑ Provide a suited IT-based modeling environment for distributed and cooperative modeling
☑ Realize an operational structure of the chapter, namely OMILAB

www.openmodels.at

Faculty of Computer Science

o.Univ.-Prof. Dr. Dimitris Karagiannis

DKE
OMiLAB: Provision

Community

Groups of individuals sharing common values and following common goals.

Organized in communities of practice for different domains providing value through i.e. competence, joint activities, shared practices and resources, sustained interaction, experiences, and tools.

Projects

Modeling Environment Projects: creating model content for various domains and/or purposes.

Method Engineering Projects: conceptualization of new or further development of existing methods, development and deployment of IT-based modeling tools.

Foundations

Modeling languages and their algorithms for the processing of models as well as IT-based modeling environments.

Enabler that supports designers to choose the right algorithms for the processing of methods and models.

OMI Platform

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OMiLAB: Focus
The Metaphor...

*Zorba The Greek*

Deutscher Titel: Alexis Sorbas
Originaltitel: Zorba the Greek
Produktionsland: Vereinigte Staaten, Vereinigtes Königreich, Griechenland
Erscheinungsjahr: 1964
Länge: 142 Minuten
Originalsprache: Englisch
Altersfreigabe: FSK 12

**Regie:** Michael Cacoyannis
**Drehbuch:** Michael Cacoyannis (nach dem Roman von Nikos Kazantzakis)
**Produktion:** Michael Cacoyannis, Anthony Quinn
**Musik:** Mikis Theodorakis
**Kamera:** Walter Lassally
**Schnitt:** Michael Cacoyannis

**Besetzung / Cast**
- Anthony Quinn: Alexis Sorbas
- Alan Bates: Basil
- Irene Papas: Witwe
- Lila Kedrova: Madame Hortense
- Sotiris Moustakas: Mimithos
- Yorgo Voyagis: Pavlos
We learned that the method descriptions need typically to be **augmented** with **concepts** that satisfy the expectations of **method engineers**.

We named this process: **The Method Conceptualization process**

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OMI: Focus
...continuing the metaphor

“Book to Movie” Metaphor

Novel (e.g., Zorba the Greek)

Modelling Method
Concepts, Elements, Relations, ...

Modelling Method Development

Abstract Syntax
Concrete Syntax

Model Manipulation (e.g., in terms of dedicated functionality)

Tool-supported Modelling Method

Syntax
Concrete Syntax

Set scenery
Film music
Film dialogs

Light...
OMiLAB: Generic Modelling Method
Specification Framework

OMiLAB: Formalisation

Formalisation Approach

Meta\(^2\) Model
Philosophical Level, Basic Elements

Meta Model
Enabling Multiple Instantiation on Model Level

Model
Conceptual Representation of Instances

Instance
Implementation Level


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FDMM Formalism View on Meta² Models

Meta Models, Models – Simple Example

Set theory, first order logic statements

\[
\mu_{mt}(MT_{pq}) = \{mt_{po1}\}
\]
\[
\nu_{Op}(Business\text{-}transaction, MT_{pq}) = \{BT_p, BT_Q\}
\]
\[
\nu_D(Float) = \{25.00, 55.00, 60.00\}
\]
\[
(BT_p W 25.00) \in \beta(\mu_{mt})
\]

Meta² Model

\[
MT_{pq} = \langle O_{pq}, D_{pq}, A_{pq} \rangle
\]
\[
O_{pq} = \{\text{Business\text{-}transaction}, \text{relates\text{-}business\text{-}transaction}\}
\]
\[
D_{pq} = \{\text{String, Float, Enum}_{\text{view}}\}
\]
\[
A_{pq} = \{ID, W, RE, RL, WE, p, relates\text{-}from, relates\text{-}to, Process, View\}
\]

Model

\[
\text{domain}(W) = \{\text{Business\text{-}transaction}\}
\]
\[
\text{range}(W) = \{\text{Float}\}
\]
\[
\text{card}(\text{Business\text{-}transaction}, W) = \{0, 1\}
\]

World

OMiLAB: Logical Architecture

Data Bases

Open Source

Commercial

MaxDB
Oracle
DB2
SQL Server

Linix, AIX, HP-UX, Solaris, Windows

ADOxx® Platform

Operating System Independence
(System Libraries)

Operating System
(Windows, Linux)

Distribution

Intranet

Internet

Firewall

Communication

Integration

Previous Platform

Interfaces

Intrnaet

Firewall

Communication

Integration

Previous Platform
**ADOxx®: General Definitions**

**Classes**
- A class is a construct that is used as a template to create objects of that class. The objects of a class are alternatively called “instances”. Abstract classes cannot be instantiated!

**Relation Classes**
- A relation class is a construct that is used as a template to create relations between objects. A relation class is defined between classes. A relation is always a directed connection between objects, i.e. each relation has a from-side and a to-side.

**Model Types**
- A model type is a well-defined sub-collection of classes and relation classes of a meta model.
Methods in Implementation
Status per 1.09.2012

Concrete Classes
- BEN
- CIDOC (NEW)
- IMP20
- ISTAR (BARCELONA)
- OKM
- SECURETROPOS
- UML

Relation Classes
- BIM
- EDUWEAVER
- INSEMEMO
- MELCA
- PETRINET
- SEMFIS
- HORUS

Model Types
- CIDOC (OLD)
- EKD
- ISTAR (VIENNA)
- MOSES4EGOV
- PROMOTE
- VLML
Methods in Implementation
Status per 1.09.2012

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OMiLAB: The environment

2008 2009 2012

OMiLAB@Faculty of Computer Science
Währinger Str. 29

OMI Laboratory

✓ Research and experimental space for modeling method development

✓ Technical environment – virtual and physical – for working on modeling related topics

✓ Cross-fertilization space for researchers and practitioners from various disciplines
OMiLAB: Add-Ons

Functionalities
• Publishing Tool
• Meta-Modeling Browser
• Apps

Trainings
• Tutorial on Conceptualization of Modeling Methods
• Tutorial on Deployment of Your Modeling Method in ADOxx®
• Tutorial on Customization and Scripting in ADOxx ® for Your Modeling Method

Events, Publications and Media
• Conferences, Workshops, Summer Schools
• OMI TV and OMI Mobile
• Newsletters
• ….
Individual collaboration with PhD Students

PhD Students are welcome to

- Perform research for their PhD Thesis at OMiLAB
- Further develop existing methods or functionalities
- Use existing methods for their research purposes
- Collaborate with other PhDs
- Use the implementation platform and knowledge resources

Join us @ OMiLAB®!
Collaborate with other Projects @ OMI

The **Open Model Initiative** Workshop Series:

**3rd Workshop focus on:**
**Modelling Methods in Motion**

**2nd Workshop focus on:**
**Conceptualization of Modelling Methods**

**1st Workshop focus on:**
**Methods as Plug-Ins for Meta - Modelling**

EU-Project Collaboration

Details available at: [http://www.openmodels.at](http://www.openmodels.at)
Thank You!

Dimitris Karagiannis  Wilfrid Grossmann  Elena-Teodora Miron

E-Mail  events@openmodels.at
Phone  +43-1-4277-78940