3rd International Workshop on Metamodels, Schemas, Grammars and Ontologies

Jean-Marie Favre[1], Dragan Gasevic[2], Ralf Lämmel[3], and Andreas Winter[4]

[1] University of Grenoble, France
www-adele.imag.fr/~jmfavre
[2] Simon Fraser University, Surrey, Canada
http://www.sfu.ca/~dgasevic/
[3] Microsoft Corp., Redmond, USA
http://homepages.cwi.nl/~ralf/
[4] Johannes Gutenberg-Universität Mainz, Germany
http://www.gupro.de/~winter/

ateM-Workshop Series

In 2003 the ateM workshop series was established to discuss the use of *Schemas and Metaschemas* in reverse engineering (ateM is Meta reverse). ateM 2003, which was part of the 10th International Conference on Reverse Engineering held in Victoria, Canada, already dealt with *model driven approaches* to support program analysis and comprehension. Since models in reverse engineering mostly deal with documents written in certain programming or modeling languages, the extension of ateM towards grammars was a consistent step. Thus, ateM 2004, held at the 11th International Conference on Reverse Engineering, Delft, The Netherlands, viewed *Metamodels, Schemas and Grammars*. Nowadays model driven approaches are common in software engineering and furthermore, ontologies complement modeling technologies used today. So, the third ateM-workshop, which was part of the 9th International Conference on Model Driven Engineering, Languages and Systems in Genova, Italy, dealt with *Metamodels, Schemas, Grammars and Ontologies*.

The objective of ateM is to bring together researchers from *different communities* to study and compare the use of modeling approaches residing in different *technical spaces*. ateM 2006 is specifically focused on the meta technologies in a generalized sense of discussing the use of *language engineering* by Metamodels, Schemas, Grammars and Ontologies.

This view is generally consistent with model driven engineering (MDE) and modern software reengineering. It is specifically aligned with approaches for language engineering, grammarware engineering, domain specific language engineering, software factories and others. While plain MDE tends to assume that language descriptions are defined from scratch, ateM pays attention to the fact that language descriptions are often buried in software components, e. g. in grammarware such as transformation tools, documentation generators, or front-ends. Accordingly, it is important to better understand all means to continuously recover and describe language descriptions from arbitrary software artifacts.

T. Kühne (Ed.): MoDELS 2006 Workshops, LNCS 4364, pp. 52–55, 2007.

ateM 2006: Metamodels, Schemas, Grammars and Ontologies

The language engineering approaches discussed at ateM 2006 addressed the grammar-based technical space (or grammarware, cf. [3]), the model and metamo-del-based technical spaces [1], and the ontology-based technical space [4]. According techniques include the definition and description of progamming- and modeling languages, the recovery of language descriptions as they are ingrained in existing software artifacts, the reuse, integration and transformation of language descriptions, as well as the use of language descriptions in a software reverse engineering and evolution context.

From 30 submitted papers, nine papers were accepted to be presented in Genova. All accepted papers showed important approaches and applications of language engineering by various techniques and led to interesting and fruitfull discussions during the workshop. The papers, not summarized in this proceedings, include:

- **Migrating a Domain-Specific Modeling Infrastructure to MDA Technology** by *Duncan Doyle, Hans Geers, Bas Graaf, and Arie van Deursen* explains experiences from migrating proprietary application models in domain specific languages (DSL) into MOF-compliant models.
- **Models for the Reverse Engineering of Java/Swing Applications** by *Joao Carlos Silva, Joao Saraiva, and José Creissac Campos* presents a modelbased approach to evaluate interactive applications.
- **Domain specific modeling, An approach for recovering business critical information** by *Carsten Bock and Detlef Zühlke* presents an approach to integrate software engineering tools in a model driven tool chain.
- **A metamodel independent framework for model transformation: Towards generic model management patterns in reverse engineering** by *Zinovy Diskin and Jürgen Dingel* presents an algebraic framework toward model transformation based on category theory.
- **A Unified Meta-Model for Concept-Based Reverse Engineering** by *Florian Deissenböck and Daniel Ratiu* combines technologies from metamodeling and ontologies to bridge legacy software artefacts to real-world concepts.
- **Foundations for Defining Software Metrics** by *Rüdiger Lincke and Welf Löwe* shows an generalized approach to define software metrics based on the Dagstuhl-Middle Metamodel (DMM).

The workshop proceedings of the *ACM/IEEE 9th International Conference on Model Driven Engineering, Languages and Systems (MODELS 2006)* contain two extended versions of papers presented at the 3rd International Workshop on Metamodels, Schemas, Grammars and Ontologies:

- *Jürgen Rilling, Yonggang Zhang, Wen Jun Meng, René Witte, Volker Haarslev, and Philippe Charland* show in **A Unified Ontology-Based**

Process Model for Software Maintenance and Comprehension how reasoning techniques based in description logics are applied to analyse various software artefacts.
- *Miguel Garcia* presents in **Formalizing the well-formedness rules of EJB3QL in UML + OCL** experiences on applying class diagrams annotated by OCL constraints to define a metamodel for EJB3QL.

All papers presented at ateM 2006, are published in [2]. The proceedings are online available at `http://planetmde.org/atem2006/atem06Proceedings.pdf`.

The final discussions at ateM 2006 on the different approaches to define, analyse, and use languages in software (reverse) engineering concluded that currently the technical spaces *Grammarware*, *(Meta-)modeling*, and *Ontologies* are beneficially applied to various areas. Only little effort has been made to compare and combine these approaches. A general and systematic approach to defining mappings between grammar-based, (meta)model-based, and ontology-based technical spaces is still missing. Further reseach should investigate bridges between these spaces to provide space-spanning modeling techniques in model-driven engineering.

Acknowledgment

We, the organizers, thank the program committee and their coworkers who reviewed the submissions and provided useful feedback to the authors within a very short period of time:

- Jean Bézivin, University of Nantes, France
- Arturo Boronat, Polytechnic University of Valencia, Spain
- Ian Bull, University of Victoria, Canada
- Massimiliano Di Penta, University of Sannio, Italy
- Stéphane Ducasse, University of Berne, Switzerland
- Harald Gall, University of Zurich, Swizerland
- Mike Godfrey, University of Waterloo, Canada
- Jeff Gray, University of Alabama at Birmingham, USA
- Reiko Heckel, University of Leicster, UK
- Jürgen Ebert, University of Koblenz-Landau, Germany
- Elisa Kendall, Sandpiper Software, USA
- Nenad Krdzavac, University of Belgrade, Serbia
- Christoph Ringelstein, University of Koblenz-Landau, Germany
- Steffen Staab, University of Koblenz-Landau, Germany
- York Sure, University of Karlsruhe, Germany
- Jean Vanderdonckt, Université Catholique de Louvain, Belgium
- Arie van Deursen, Delft University of Technology, The Netherlands
- Daniel Varro, Budapest University, Hungary
- Chris Verhoef, Vrije University Amsterdam, The Netherlands

We also thank our authors for their papers and interesting talks, and our participants for intensive and valuable discussions. Our thanks also go to the organizers of MODELS 2006 for accepting ateM 2006 as part of their conference program. Furthermore, we thank our supporters, who helped in advertising and organizing ateM 2006:

- EVOL, the Software Evolution Working Group of ERCIM (European Research Consortium for Informatics and Mathematics)
- planetmde.org, the community web portal on Model Driven Engineering
- SRE, the German GI special interest group on software reengineering
- RIMEL, the French special interest group on Reverse Engineering, Maintenance and Software Evolution.

References

1. J. Bézivin, *On the Unification Power of Models, Software and System Modeling*, 4(2), 171-188, 2005.
2. J.-M. Favre, D. Gasevic, R. Lämmel, A. Winter: *3rd International Workshop on Metamodels, Schemas, Grammars, and Ontologies (ateM 2006) for Reverse Engineering*, Technical Report, Informatik Bericht 1/2006, Johannes Gutenberg-Universität Mainz, October 2006 `http://www.informatik.uni-mainz.de/370.php`.
3. P. Klint, R. Lämmel, C. Verhoef, *Toward an engineering discipline for grammarware*, ACM Transactions on Software Engineering Methodology, 14(3), 331-380, 2005.
4. S. Staab, R. Studer, *Handbook on Ontologies*. Springer:Berlin, 2003.