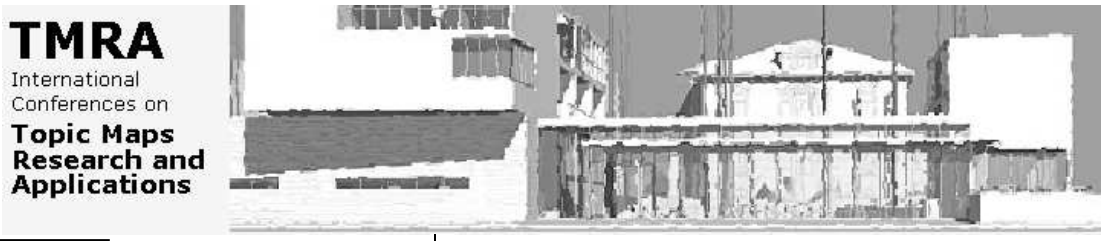
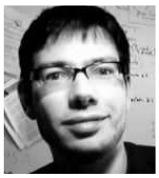
# Topic Maps Research and Applications –TMRA 2005 "Charting the Topic Maps Research and Applications Landscape" Url: http://www.informatik.uni-leipzig.de/~tmra

*By Lutz Maicher, Alexander Sigel, Lars Marius Garshol*




**Lutz Maicher, Germany,** is research assistant at the Department of Information Sciences at University of Leipzig. He has been working with Topic Maps since 2001. His research is focused on the usage of Topic Maps for information and knowledge integration in semantically heterogeneous environments. Lutz founded and chairs the TMRA series.



**Alexander Sigel, Germany,** is research and teaching assistant at the Department of Information Systems and Information Management at University of Cologne. He researches on Semantic Knowledge Networking, has published several articles on knowledge management and Topic Maps, and is co-chairing TMRA.

**Lars Marius Garshol, Norway,** is CTO at Ontopia, the leading Topic Maps software vendor. He has been working with Topic Maps since 1999, and has been active in Topic Maps standardization since 2000. He has created many Topic Maps-related technologies, is a well-known personality in the Topic Maps community, and co-chairs TMRA, too.

*TMRA - the international conference series on Topic Maps Research and Applications - is a scientific and industrial forum whose main objective is connecting the key players in the Topic Maps community. At TMRA you find researchers, users in government and industry, as well as the vendors, the luminaries, and the standards creators gathered for an exchange of ideas in a stimulating setting. TMRA is where new challenges in Topic Maps are identified and open issues tackled.*

*TMRA 2005 was the first TMRA conference, and as indicated by its motto "Charting the Topic Maps Research and Application Landscape" its purpose was to chart the landscape of Topic Maps research. Together the attendees identified the primary open research issues. TMRA 2005 showed who is working on what and brought together researchers and application pioneers. TMRA 2005 stimulated the systematic tackling of such issues, and fostered the exchange of ideas in a non-commercial and challenging setting. Besides the scientific track, the open-space sessions were playgrounds for visionaries. A report on the open space-sessions is included in the proceedings.*

*TMRA 2005 attracted fifty attendees from around the world to meet in Leipzig. In the keynote, Jack Park proposed a fruitful liaison of Topic Maps and Sowa's conceptual graphs. The outcome of TMRA 2005 is documented as volume number 3873 in Springer's LNAI series. The proceedings appeared as post-proceedings edited by Lutz Maicher and Jack Park.*

*TMRA 2006, this year's follow-up event, will take place in Leipzig on October, 11th-12th, and its motto is "Leveraging the Semantics". TMRA is the melting pot where Topic Maps meets adjacent technologies. Researchers and application pioneers from related disciplines are explicitly invited to present their efforts towards the advancement of semantic technologies.*

*Leipzig, Germany, 28.02.2006*

## Table of Contents

## 1. General Information about TMRA

This report is about TMRA, the international conference series on Topic Maps Research and Applications. TMRA is a scientific and industrial forum whose main objective is bringing together the key players in the Topic Maps community. At the conference you find researchers, users in government and industry, as well as the vendors, the luminaries, and the standards creators gathered for an exchange of ideas in a stimulating setting. TMRA is where new challenges in Topic Maps are identified and open issues tackled.

TMRA is also the melting pot where Topic Maps meets adjacent technologies. Researchers and application pioneers from related disciplines are explicitly invited to present their efforts towards the advancement of semantic technologies.

## 2. Theme and Topics covered at TMRA 2005

TMRA 2005 was the first conference in the series, held October, 6th-7th at the Westin hotel in Leipzig, Germany, under the motto "Charting the Topic Maps Research and Applications Landscape". It was organized by the Zentrum für Informations-, Wissens- und Dienstleistungsmanagement in conjunction with the University of Leipzig.

A key feature of Topic Maps is the ability to merge together disconnected pieces of information into a coherent whole, and it is ironic that so far Topic Maps research had been done in a vital but very loosely coupled community. The goal of TMRA 2005 was to bring this community together to form a common vision, and we believe the first conference was a successful effort in this direction. Researchers and application pioneers from all over the world, with backgrounds in academia, business, and government contributing to the development of the emerging Topic Maps technologies joined TMRA 2005.

Topic Maps research addresses a broad spectrum of disciplines. The goal of TMRA 2005 was to bring together researchers from these diverse fields. Some examples, from a remarkably incomplete listing, are: markup languages, data modelling, artificial intelligence, natural language processing, cognitive science, philosophy and software engineering.

The challenges of TMRA 2005 were:

### *Charting the Research Landscape*

The natural goal for the first academic conference on Topic Maps research was to map the current research topics, and contribute to a common understanding of the challenges and opportunities facing the community. The selection of papers demonstrates the breadth and scope of Topic Maps research, and also points out the challenges ahead.

### *Connecting Topic Maps Theory and Practice*

Building the Topic Maps research community means bringing together research from different backgrounds. How can research results developed at universities be transferred to real-life projects? How can results from practice be investigated and reused in academic research? TMRA 2005 was the place where researchers from universities and industry met the vendors and users to start a fruitful discussion about the way ahead.

### *Topic Maps Visions*

The vision of the Topic Maps community has famously been described as "Seamless Knowledge", which implies that topic maps should embody knowledge, allow knowledge from

different sources to be stitched together into a coherent whole, and for web sites to turn from disconnected islands of chaos into a single space of "Seamless Knowledge." The papers extend this vision, and explore ways in which it might be enabled.

***Initiating Projects***

We expect that the result of TMRA 2005 - the research landscape charted during the workshop - will help bringing together people and ideas and thus aid funding of new research projects in which Topic Maps technologies are used. The open space sessions were especially fruitful in this regard.

***Topics of TMRA 2005***

As topics in interest were announced:

*Standard related Topic Maps research*

- Topic Maps standards - state of the art and further developments
- Query, update and constrain Topic Maps
- Topic Maps Applications (TMA) besides the TMDM
- Towards a general theory of scope. The next step.

*Theoretic Topic Maps research*

- Overview of current Topic Maps research efforts
- Coining the phrase "seamless knowledge" in detail
- Semantics in Topic Maps from a philosophical point of view
- Topic Maps and the absence of shared vocabularies
- Recommendations for the publishing of PSIs
- Topic Maps as part of the semantic web
- RDF/OWL, Topic Maps, and other means of knowledge representation
- Creating Topic Maps views of various data sources
- Connecting theories about the knowledge economy and Topic Maps

*Applied Topic Maps research*

- Overview of innovative Topic Maps applications
- Topic Maps driven portals and information environments
- Topic Maps visualization
- Topic Maps and web services
- Automatic generation of Topic Maps
- Topic Maps and business processes
- Knowledge management (distributed, mobile, etc.) and Topic Maps
- Distributed Topic Maps
- Enterprise information integration (EII) with Topic Maps
- Topic Maps and mobile environments

*Open-Space Sessions*

In addition to the presentation track, TMRA 2005 provided slots for open-space sessions, like brainstorming for research and business projects. A report on this very exciting part of TMRA 2005 is included in the proceedings.

## 3. Submissions and Papers Presented

We invited the submission of full papers and work-in-progress reports to be published in the proceedings and received more than 35 submissions. After a blind review process we accepted 22 submissions (17 full papers and 5 work-in-progress-reports). Additionally, the proceedings consist of two papers: one covering the keynote and one reporting on the open space sessions.

The post-proceedings were published in February 2006 in Springer's LNAI series as volume number 3873 (ISBN 3540325271), edited by Lutz Maicher and Jack Park. Publishing post-proceedings required a second editorial loop after the workshop, done by the editors. This process enhanced quality by allowing authors to put the latest insights from the conference into their papers. The proceedings consist of the following papers:

***Keynote***

Jack Park :

Topic Mapping - a view of the road ahead

This talk offered one view, among many possible views, of the road ahead for topic mapping. Jack proposed that the indexical and relational properties of topic maps offer opportunities well beyond the organization and presentation of information resources. Tenets of evolutionary epistemology suggest a particular area of inspiration, the potential marriage of topic maps with other knowledge technologies. The talk was intended to inspire further discussion and research in this area, and animated the discussion with a sketch of a candidate composition between topic maps and conceptual graphs.

*Jack Park, the keynote presenter, is currently employed as a research software developer at SRI International, in Menlo Park, California. Jack edited, produced, and co-authored the book XML Topic Maps: Creating and Using Topic Maps for the Web, published in 2002 by Addison-Wesley.*

***Frameworks and Engines***

José Carlos Ramalho, Giovani Rubert Librelotto, Pedro Rangel Henriques:

Metamorphis - a Topic Maps based Environment to Handle Heterogeneous Information Resources

Jakub Strychowski :

Concept Glossary Manager - Topic Maps Engine and Navigator

Motomu Naito, Frederic Andres:

Application Framework based on Topic Maps

***Topic Maps Exchange***

Lars Marius Garshol:

TMRAP - Topic Maps Remote Access Protocol

Thomas Schwotzer, Agnes Cebulla :

Replication of Published Subject Indicators as thesaurus by means of LDAP

Lutz Maicher:

Topic Maps Exchange in the Absence of Shared Vocabularies

***Modeling and Creating Topic Maps***

Are D. Gulbrandsen:
Conceptual Modeling of Topic Maps with ORM Versus UML

Martin Leuenberger, Silke Grossmann, Niklaus Stettler, Josef Herget:
Using Topic Maps for Image Collections

Karsten Böhm, Lutz Maicher:
Real-time Generation of Topic Maps from Speech Streams

Rolf Guescini, Dino Karabeg, Tommy Nordeng:
A case for polyscopic structuring of information

Gabriel Hopmans, Peter-Paul Kruijsen, Roger Dols:
Subject Centric IT in Local Government

***Topic Maps Driven Interfaces***

Jack Park, Adam Cheyer:
Just For Me: Topic Maps and Ontologies

Kamila Olsevicova:
Rebuilding Virtual Study Environments Using Topic Maps

Markus Ueberall, Oswald Drobnik:
Collaborative Software Development and Topic Maps

Gabriel Hopmans, Peter-Paul Kruijsen, Leon Oud, Jelte Verhoeff, et al.:
Topic Maps for European Administrative Nomenclature

***Standards Related Research***

Lars Marius Garshol:
tolog - a topic maps query language

Robert Barta, Lars Heuer:
A TMDM Disclosure Using T+

Lars Marius Garshol, Dmitry Bogachev:
TM/XML - Topic Maps fragments in XML

***Topic Maps in Library and Cultural Heritage Science***

Salvatore Vassallo:
Navigating through archives, libraries and museums: topic maps as a harmonizing instrument

Hyun-Sil Lee, Yang-Seung Jeon, Sung-Kook Han:
MARCXTM: Topic Maps Modeling of MARC Bibliographic Information

Ralf Schweiger, Joachim Dudeck:
Improving information retrieval using XML and Topic Maps

Lynne C. Howarth, Thea Miller:
Visualizing Search Results from Metadata-Enabled Repositories in Cultural Domains

***Open Space Sessions***

Alexander Sigel:

Report on the Open Space Sessions

## 4. TMRA 2006 – "Leveraging the Semantics"

TMRA 2006 will take place in Leipzig on October, 11th-12th 2006. The motto of TMRA 2006 is "Leveraging the Semantics". Topic Maps has a rich semantic model that is well designed to support information retrieval in general, but also can be used for an almost unlimited range of other applications. How can the semantics of this model best be leveraged in practice? What are the main open issues for the use of Topic Maps? Where is the place of Topic Maps in the muddle of semantic technologies? Finding answers to these questions will be the challenge of TMRA 2006; you are invited to contribute your best efforts.

The TMRA conferences are the melting pot where Topic Maps meets adjacent technologies. Researchers and application pioneers from adjoining disciplines are explicitly invited to present their efforts in the advancement of semantic technologies. Some examples, from a remarkably incomplete listing, are: markup languages, data modeling, artificial intelligence, natural language processing, cognitive science, philosophy and software engineering. Mutual discussions of current efforts support to leverage the semantics in Topic Maps technologies.

In the Call for Papers, there is an impressive list of topics of interest, assigned to the following categories: Leveraging the Semantics, Standard related Topic Maps research, Theoretic Topic Maps research, and Applied Topic Maps research.

We invite original, high quality papers with substantial contributions. The proceedings of TMRA are foreseen to be published by Springer in the LNCS/LNAI series as post-proceedings. For the scientific track, we invite the submission of full papers to be published in the proceedings. For the industrial track, we invite the submission of short papers to be published in the proceedings or presentation proposals. In addition, posters and demonstrations can be submitted. The conference language is English. Submission deadline is June, 2nd 2006.

In addition to the presentation track, TMRA 2006 provides slots and locations for open-space sessions, like brainstorming for research and business projects.

The Call for paper is available at: *http://www.informatik.uni-leipzig.de/~tmra/2006/cfp.html*