

The Topic Map Market

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Agenda

- **Introduction**
- **Topic Map Applications vs. Topic Map Toolkits**
- **A Note on Standards**
- **Tools on the market**
- **Applications on the market**

Introduction

- **Selection Criteria**
- **Build or buy**
 - Application or Toolkit

Selection and Presentation Criteria

- **Selection**

- Must import/export at least one standard interchange syntax
- Based on a web-based review of the market
- Only covers products available now

- **Presentation**

- Tools are presented in alphabetical order.
- Only publicly available information presented here.
- Categorisation is difficult
 - Primary facet: Market addressed
- *If you want my (real) opinions, buy me a beer :-)*

Build or Buy

- **Basic division in topic map products**
 - TOOLKITS
 - Allow you (or your consultants) to develop an application
 - APPLICATIONS
 - Focus on a specific market or function
 - Content management system with topic maps
 - Knowledge management / intranet portal
 - Usually configurable
 - BEWARE: May require lots of vendor time!

Choosing Build or Buy

- **Build**

- Get what you want
- Takes time
 - Developer time and management time
 - Even if development is out-sourced
- You have to know what you want in detail
- Risk

- **Buy**

- Get a complete package with simpler support
- Have to work with what is available
- Can have hidden integration costs

Applications vs. Toolkits

- **Toolkits**

- Componentised and (usually) sold as a collection of components
- Used in the “build” approach

- **Applications**

- Unified and (usually) sold with all features included.
- Used in the “buy” approach
- Again, beware of custom integration requirements!

Applications vs. Toolkits

- **Toolkit Features**

- API

- Access and manipulate the topic map from a programming language.
 - Requires experienced coder and some training

- Query language

- More user-oriented approach to customisation
 - Can make ongoing customisation much easier
 - Less training required
 - Still a “power-user” option

Applications vs. Toolkits

- **Toolkit Features (cont.)**

- Persistent storage

- Manage topic map data between usage
 - Ensure that updates are applied and stored correctly
 - Typically makes use of some form of database
 - Generally XTM files are not enough

Applications vs. Toolkits

- **Toolkit Features (cont.)**

- Import/Export

- Exchange topic maps between applications
 - MUST support a standard interchange syntax for interoperability
 - XTM is the syntax with widest support

- Integration tools

- Connect your topic maps to other data systems
 - Links to a content management system
 - Extract data from a database system
 - Email users when a topic is changed

Applications vs. Toolkits

- **Typical Application Features**

- Content Management

- Manage the data indexed by the topic map
- Version control, meta-data control, text indexing

- Content Classification

- Manually / automatically assign content to topics

- Vocabulary Management

- Develop topic map as a thesaurus or keyword list
- More natural for Information Architects / Librarians
- Can enable the application to improve performance of content searches.

Applications vs. Toolkits

- **Application Features (cont.)**

- Access Control

- Support multiple users
- Ensure users do not overwrite each others changes
- Enforce security policies

- Publishing Workflow Control

- Support “work-in-progress” changes to a topic map and a process for moving them to a “live” site.

- Plus most features of a Toolkit

- e.g. Integration with other information systems

Applications vs. Toolkits

- **Distinction is not always clear**
- **Over time, a toolkit tends towards an application**
 - More features added
 - More integration tools
 - More repeatable solutions

A Note On Standards

- **XTM**

- Principle interchange syntax
 - Move data between systems
 - Enable on tool to use data from another tool

- **TMAPI**

- <http://tmapi.org/>
- A common programming interface
- Goal is to allow code written for one tool to be used with another tool.
- e.g. Take code written for TM4J and run on OKS
- TMAPI 1.0 was released October 2004

A Note On Standards

- **BUT!**

- No standard query language (yet!)
- No standard “schema” language (yet!)

- **Result**

- Data is portable, but applications may not be
- Can be another form of vendor lock-in
- No easy way around this
- Look for commitment to ISO TMQL and TMCL
- Build loosely coupled architectures with clear boundaries between systems

What is really needed...

- **...is a systematic listing of tools and features**

What is really needed...

- **...is a systematic listing of tools and features**

- **Unfortunately this isn't it!**

Toolkits

Multi-function Toolkits

- **Swiss army knife of topic mapping**

- API
- Query language
- Persistent storage
- Import/Export
- Integration tools

- Examples

- Ontopia Knowledge Suite, TM4J

Ontopia Knowledge Suite

- **Provenance:**
 - Ontopia AS, Oslo
 - <http://www.ontopia.net/>
- **Licensing: Commercial**
- **Language : Java**

OKS Features 1 / 1

□ API

- Full Java API
- Support for TMAPI coming soon

□ Query language

- Proprietary prolog-like query language

□ Persistent storage

- RDBMS

□ Import/Export

- XTM, RDF
- LTM (proprietary text notation) import only

OKS Features 2/2

- Integration tools

- JSP library for topic map rendering and editing

- Additional Features

- On-the-fly merging of multiple topic maps
- Supports topic map constraints using proprietary schema language

TM4J

- **Provenance:**
 - TM4J Project (International)
 - <http://tm4j.org/>
- **License: Open-source (Apache License)**
- **Language: Java**

TM4J Features

- API
 - Full Java API
 - Supports TMAPI 1.0
- Query language
 - Implements Ontopia's tolog query language
- Persistent storage
 - RDBMS or Ozone OODBMS
- Import/Export
 - XTM import/export, LTM import only

TM4J Features 2/2

▫ Integration tools

- TM4Web subproject integrates with Velocity and Cocoon rendering engines for producing static or dynamic websites.
- TMHarvest subproject provides a command-line based tool for extracting topic map data from a variety of data sources

• Other Features

- On-the-fly merging of multiple topic maps
- “Dynamic” merging model which allows topics to become “unmerged” when modified.

Topic Map Engines

- **Topic Map Engines**

- Less functional than a full toolkit

- **API**

- ? **Query language**

- ? **Persistent storage**

- **Import/Export**

- **Integration tools**

- Examples

- Perl XTM, tmproc, tinyTIM

Perl XTM

- **Provenance**

- Robert Barta, Bond University, Australia
- <http://search.cpan.org/dist/XTM/>

- **License: Open-Source (Perl Artistic License)**

- **Language : Perl**

- **Features:**

- **API**

- **Import/Export**

- XTM, LTM and AsTMa= Syntax import

- ? **Query**

- Xpath-like query and construction language

tinyTIM

- **Provenance:**

- Stefan Lischke
- <http://tinytim.sourceforge.net/>

- **License: Open Source**

- **Features:**

- **API**

- Supports TMAPI 1.0

- **Import/Export**

- XTM import/export
- RDF import only

TM4JScript

- **Provenance:**

- Alexander Johannesen, Tom Passin
- <http://tm4jscript.sourceforge.net/>

- **License: Open-Source**

- **Language: Javascript**

- **Features:**

- **API**

- ? **Import/Export**

- Import/Export proprietary file format.
- Import XTM by transforming to proprietary format using XSLT.
- XTM export is supported.

tmproc

- **Provenance:**

- Geir Ove Grønmo, Ontopia AS
- <http://www.ontopia.net/software/tmproc/>

- **License: Free for commercial and non-commercial use. Non-redistributable.**

- **Language: Python**

- **Features:**

- **API**

- **Import/Export**

- Import/Export XML version of original ISO syntax.

Applications

Types Of Application

- **Editors**
- **Generators**
- **Publishing Frameworks**
- **Graphical Browsers**
- **Knowledge Management Suites**

Editors

- **Allow human topic map creation / update**
- **Usually form-based and configurable**
 - Easier and more consistent data-entry
 - Allows specification of ontology-level or business-level constraints
- **Many editing tools are part of larger toolkits / applications**

L4 Modeller

- **Provenance:**

- Moresophy
- <http://www.moresophy.com/>

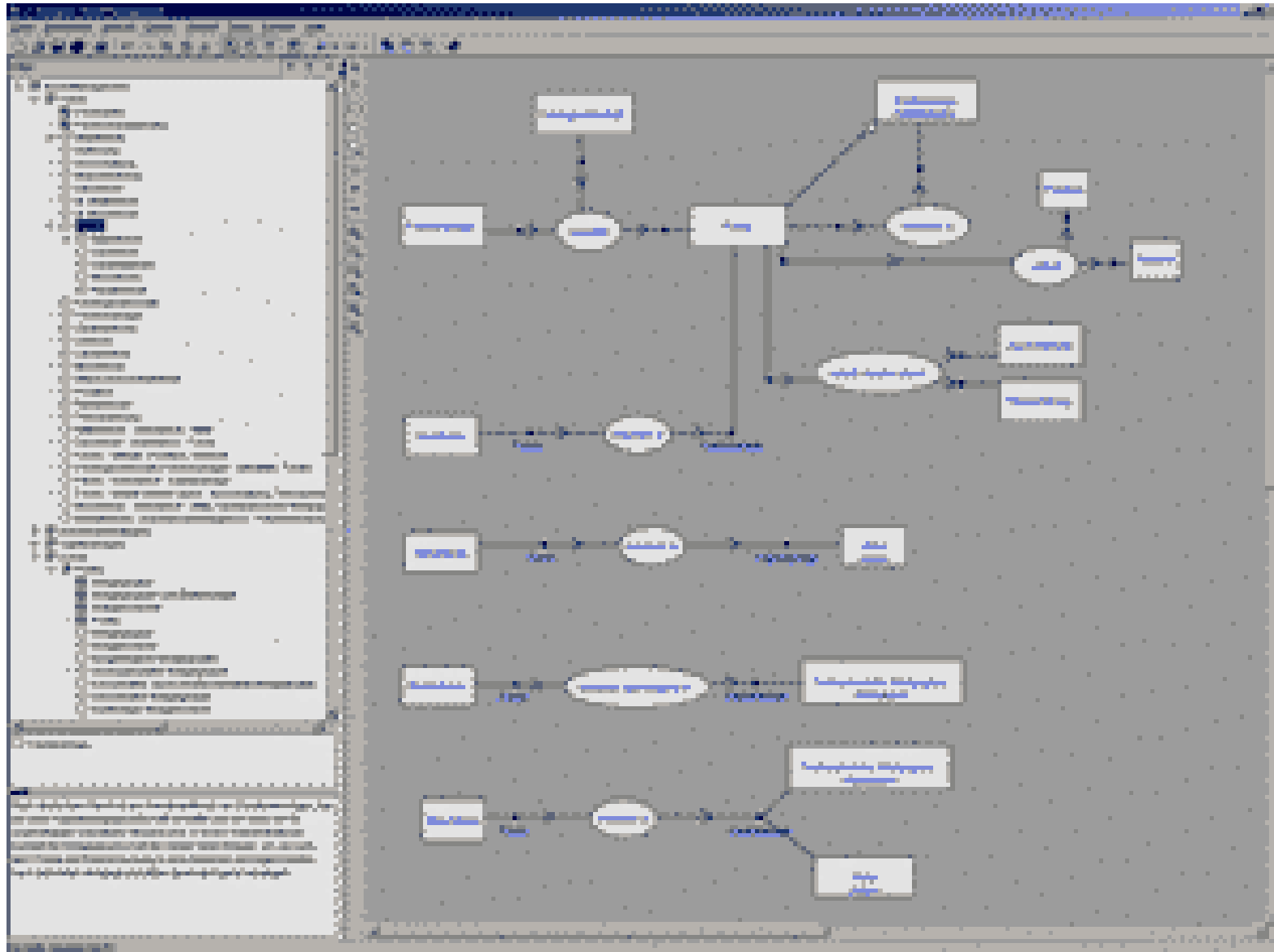
- **Graphical tool for modelling semantic networks**

- **Basic concepts are very similar to Topic Maps**

- **Features:**

- Drag-and-drop graph-view
- XTM import and export
- Ability to integrate other data sources

L4 Modeller



TMTab

- **Provenance:**

- Techquila, UK
- <http://www.techquila.com/tmtab/>

- **Standalone editor**

- **Based on the Protégé ontology editor**

- **Features**

- Form-based, ontology driven editing
- Supports all of the constructs of XTM
- Does not roundtrip XTM or other standard topic map formats
- Suitable for small-to-medium hand-made topic maps

TMTab

The screenshot shows the Protege 2.1.2 interface with the TMTab plugin. The main window is titled "rock-groups-sample" and shows a class hierarchy on the left, a list of direct instances in the center, and a detailed view of a selected instance on the right. A "Select Instances" dialog is open in the foreground, showing a list of names for the "PERSON" class.

Classes:

- :THING A
- :SYSTEM-CLASS A
- TOPIC (17)
 - OCCURRENCE (3)
 - MEMBER
 - ASSOCIATION
 - NAME (49)
 - VARIANT-NAME
 - GROUP (3)
 - LINE-UP (8)
 - ALBUM (2)
 - TRACK
 - PERSON (17)
- TMTAB-EXPORT-CONFIGURATION

Display Slot: Model Name

Direct Instances:

- flowers-of-romance-76
- pil-4.78-80
- pil-80-83
- the-clash-01.77
- the-clash-12.76
- the-clash-4.76-9.76
- the-clash-9.76-12.76
- the-damned-1.76-7.77

Instance Details (the-clash-01.77):

- Model Name: the-clash-01.77
- Names: The Clash (01/77)
- Subject: [Empty]
- Subject Indicators: [Empty]
- Occurrences: [Empty]
- HasMembers: joe-strummer, mick-jones, paul-simonon, terry-chimes

Select Instances Dialog:

- Allowed Classes: PERSON (17)
- Direct Instances: brian-james, dave-vanlian, jah-wobble, jim-walker, joe-strummer, john-lydon, keith-levene, mark-atkins, mick-jones, palm-olive, paul-simonon, rat-scabies, ray-burns, rob-harper, sid-vicious, terry-chimes

Generators

- **Automatic creation / update of topic map data**
- **Typical process:**
 - Extract data from one or more data sources
 - Transform and normalise data
 - Map to one or more topic map constructs
 - Export directly to application or to standard interchange syntax

Cogitech XSLT Toolkit

- **Provenance:**

- Cogitech, USA
- <http://www.cogx.com/>

- **Used in consulting engagements. Not currently a separate product.**

- **Features:**

- XSLT-centred processing model
- Support for a variety of data sources including RDF, databases and spreadsheet software
- XSLT also used as the topic map processing and display engine.

OKS Autogeneration Toolkit

- **Provenance:**

- Ontopia AS, Norway
- <http://www.ontopia.net/>

- **Used in consulting engagements. Not currently a separate product.**

- **Features:**

- Command-line application using XML configuration files.
- Supported source formats: JDBC, CSV, XML, RDF, email, news messages, directory structure, GEDCOM files
- Output either to XTM syntax or directly into the OKS persistent store

TMHarvest

- **Provenance:**

- The TM4J Project
- <http://tm4j.org/>, <http://sourceforge.net/projects/tm4j>

- **License: Open-source (Apache License)**

- **Features:**

- Command-line application using XML configuration files.
- Supported source formats: XML, CSV, JDBC, PDF, MS Office document meta-data
- Generates XTM syntax output or can be connected directly to a TM4J persistent store.

Topic Map Loom

- **Provenance:**

- Coolheads consulting

- <http://www.infloom.com/>, <http://www.coolheads.com/>

- **Used in Coolheads consulting engagements.
Not marketed as a separate application.**

- **Features:**

- Process data from ASCII, XML, HTML, CSV, MS-Word

- Generates hyperlinked output based on the extracted topic map information.

Publishing Frameworks

- **Publish topic map data as (hyper-)text and/or graphical representation**
- **May be integrated with content management features**
- **Typically highly customisable layout**
- **Most publish as HTML pages**
 - Some may support other output formats too

Omnigator

- **Provenance:**

- Ontopia AS, Norway
- <http://www.ontopia.net/>

- **License: Free download**

- **Reference implementation using the OKS toolkit**

- **Features:**

- Runs in standard Java servlet container (ships with Tomcat)
- Supports XTM and LTM syntax topic maps
- On-the-fly merging
- Full-text index and Tolog query interface

TMBrowse

- **Provenence:**

- The TM4J Project

- <http://tm4j.org/>, <http://sourceforge.net/projects/tm4j/>

- **License: Open Source (Apache License)**

- **Reference implementation of TM4Web toolkit**

- **Features:**

- Runs in a standard servlet container

- Supports XTM and LTM files and direct connection to a TM4J persistent store.

- Fully customisable output.

- Tolog query interface.

xSiteable

- **Provenance:**

- Alexander Johansson

- <http://xsiteable.org/>

- **License: Open-Source (BSD License)**

- **A combined topic map/CMS for small to medium sites**

- **Features:**

- Simple XML-based syntax for site structure.

- Text-based syntax for site content.

- XSLT transformation to navigable HTML, XTM and RDF.

- PHP-based “administration” tool for creating/modifying site structure.

ZTM

- **Provenance:**

- Bouvet

- <http://www.bouvet.no>, <http://sourceforge.net/projects/ztm/>

- **License: Open-Source (GPL)**

- **Built on the Zope Content Management Framework (CMF)**

- **Features:**

- Customisable display *and editing* interfaces

- Integrated content management, version control and workflow

- Topic map is stored as part of the Zope database.

Knowledge Management Suites

- **Several complete KM offerings use topic maps**
- **Features vary widely but typically include:**
 - Vocabulary management tools
 - Content management and workflow integration
 - Integration of other data sources
 - User-interface for browsing and editing knowledge structures

Empolis Knowledge Management Suite

- **Provenance:**

- Empolis, Germany
- <http://www.empolis.com/>

- **Part of an integrated suite of tools including asset management, content management and workflow**

- **Features:**

- Integrated XML content management.
- Support for standard and custom ontologies.
- Portal-style interface with user management features.
- Supports ontologies in both topic maps and RDF formats.
- Connects to Orange tool for automated document classification and enhanced queries.

Mondeca ITM

- **Provenance:**

- Mondeca, France
- <http://www.mondeca.com/>

- **Ontology-based document classification and organisation**

- **Features:**

- Graphical and HTML based navigation.
- UI for ontology creation and modification.
- Multi-user environment.
- Supports ontologies in both topic maps and RDF.
- Integrates with commercial search engines, CMSs and text mining tools.

Intelligent Views K-Infinity

- **Provenance:**

- Intelligent Views, Germany

- <http://www.i-views.de/>

- **Portal tools for creating and publishing semantics networks.**

- **Features**

- Interface for manual document classification and indexing.

- Add-on tools for automated document classification.

- Customisable interface for navigating the network

- Web services interface for integrating other information systems.

Moresophy L4

- **Provenance:**

- Moresophy, Germany
- <http://www.moresophy.com/>

- **Tools for creating and publishing knowledge networks**

- **Features**

- Centralised full-text indexing of content.
- Automatic and manual content classification.
- User interface for creating semantic network.
- Web services interfaces for integration.
- XTM syntax import and export.

Cool Stuff

Visualisation

- **TMNav**

- Part of the TM4J project
- Desktop application with interactive graphical navigation
- Support browsing and tolog querying
- Extensible, open-source app.

- **Hypergraph**

- <http://hypergraph.sourceforge.net/>
- Java applet providing graphical navigation
- Uses tinyTIM for topic map support
- Integrates with xSiteable

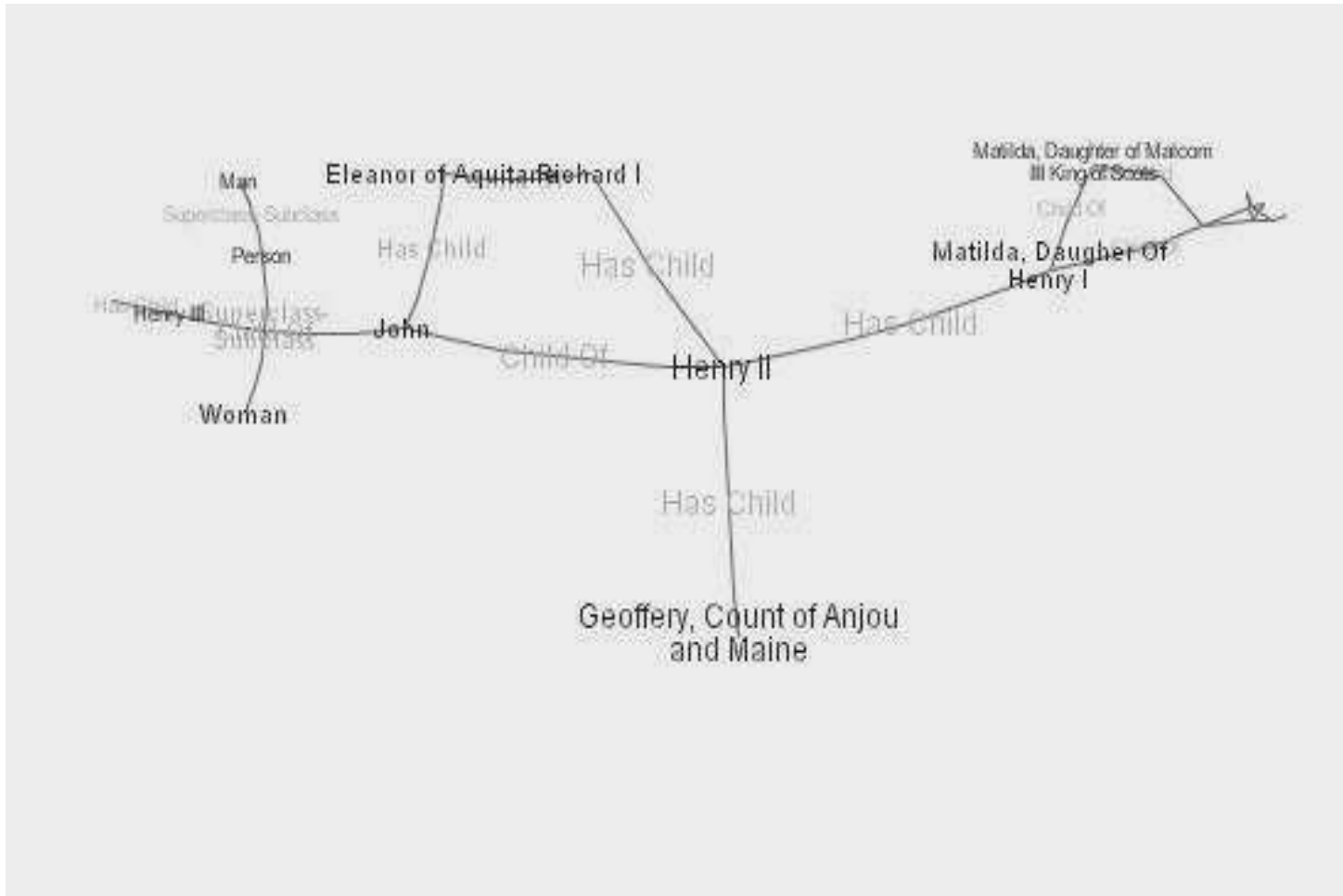
TMNav

The image displays the TMNav application interface, which is split into two main panels: a Tree-View on the left and a Hypergraph-View on the right.

Tree-View: This panel shows a hierarchical tree structure of the TM4J project. The root node is 'TM4J' (Topic Map). It branches into several sub-nodes: 'Topic Map Engine', 'Specification', 'File Format', 'creator', 'user', 'Home Page', 'SourceForge Page', 'Binary Files', and 'Source Files'. Each sub-node further branches into more specific items, such as 'XML Topic Maps 1.0', 'XTM Interchange Syn', 'The TM4J Project', 'TMTab', and various URLs. The 'The TM4J Project' node is currently selected and highlighted in blue.

Hypergraph-View: This panel displays a hypergraph representation of the selected 'The TM4J Project' node. The central node is 'The TM4J Project' (Topic Map), which is highlighted in yellow. It is connected to several other nodes: 'The TM4J project' (Topic Map), 'The goal of the TM4J project' (Topic Map), 'Abstract Description' (Goal), 'Home Page' (Goal), 'http://tm4j.org/' (Goal), 'TM4J' (Page), and 'Consortium' (Topic Map). The connections are represented by lines of different colors (orange, blue, black).

Hypergraph



Thank you