Metadata? Taxonomies? Folksonomies? Topic Maps!
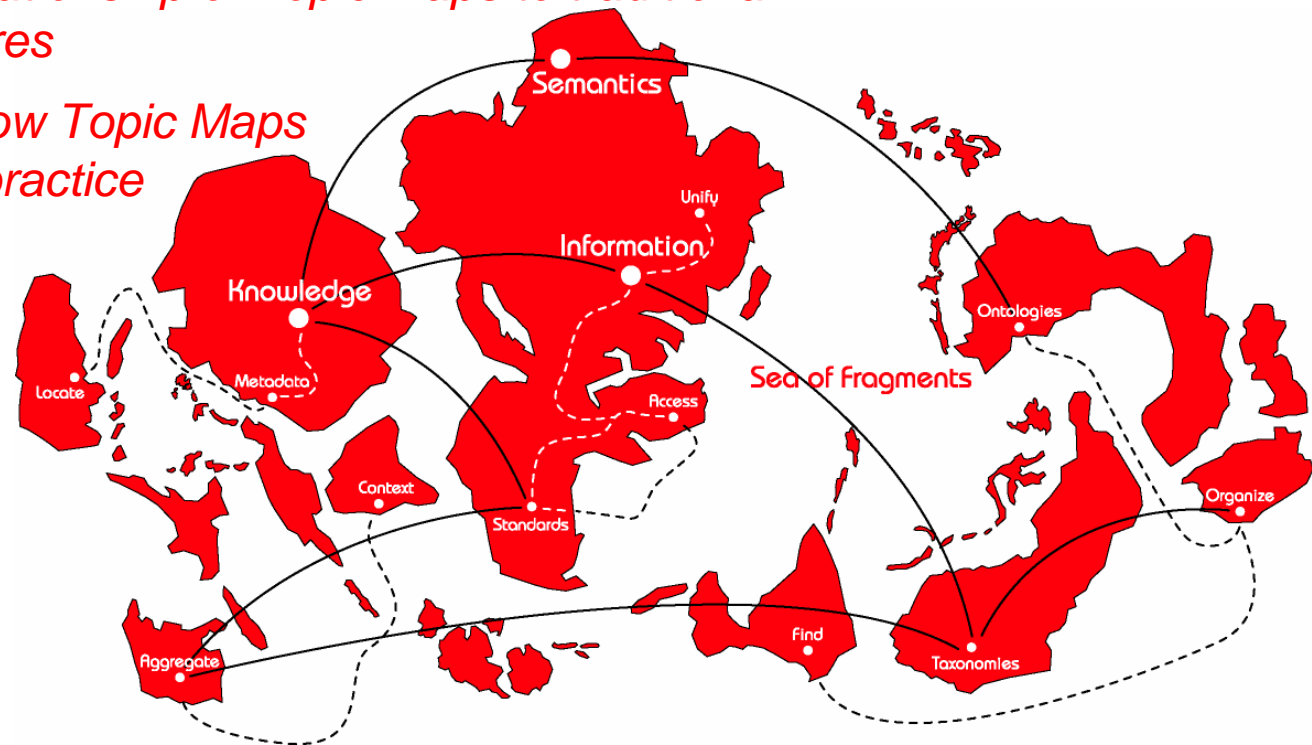
Topic Maps Concepts, Model, Applications

GOALS:

Understand the concepts of Topic Maps

Understand the relationship of Topic Maps to traditional knowledge structures

Gain insight into how Topic Maps can be applied in practice

Written by:
Lars Marius Garshol
CTO, Ontopia
larsga@ontopia.net
Presented by:
Pam Gennusa
CEO, Ontopia
pam@ontopia.net

Ontopia – The Topic Maps Company

- **Our mission:**
  - To provide Topic Maps technology and services for information and knowledge management

- **Background:**
  - Established April 2000 out of STEP Infotek
  - Headquarters in Oslo, Norway; branch in Cambridge, UK
  - Partners in 14 countries around the world
  - Recognized leaders of the Topic Maps community

- **Products:**
  - The Ontopia Knowledge Suite^{TM}
  - Training
  - Consultancy and application development through partners

On'topia, 1999.[f. Gr. 'onto-' (being) + Gr. 'topos' (place); see -IA.]
I. An imaginary world in which knowledge is well organized.
II. A company that provides tools to help you realize your own Ontopia.

Plan of action

- **Basic concepts: The TAO of Topic Maps (demo)**

- **Metadata? taxonomies? folksonomies? Topic Maps!**

- **Applications of topic maps**

- **Knowledge aggregation – tomorrow is here … today**

ontopia

What is Topic Maps?

- **An International Standard for knowledge integration**

- *More importantly…*

- **What is Topic Maps used for?**

- (What are topic maps used for?)

  Organizing large bodies of information
  - + Capturing organizational memory
  - + Representing complex rules and processes
  - + Supporting concept-based eLearning
  - + Managing distributed knowledge and information
  - + Aggregating information and knowledge
  - + etc…

  = **Seamless Knowledge**

Perspectives on Topic Maps

- **The information management perspective**
  - A new paradigm for organizing, retrieving, and navigating information resources

- **The knowledge management perspective**
  - A knowledge representation formalism optimized for use in information management

- **The library science perspective**
  - A way to collocate all knowledge about a subject – in particular its relationship to other subjects and to information resources
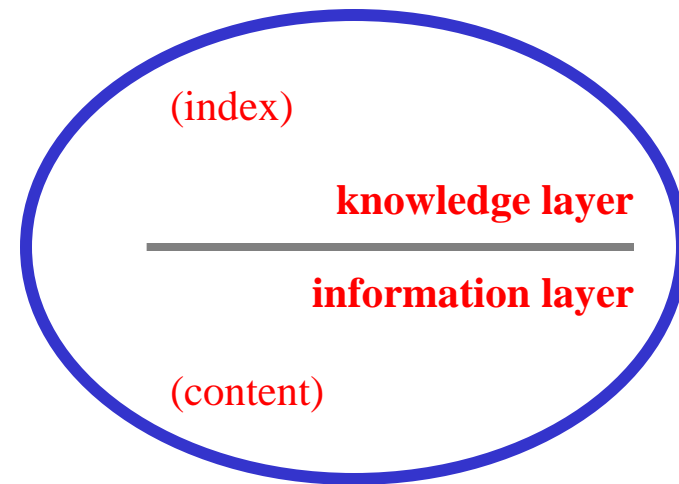
The TAO of Topic Maps

Topics

Associations

*Occurrences*

The core Topic Maps model

- **The core concepts of Topic Maps are based on those of the back-of-book index**

- **The same basic concepts have been extended and generalized for use with digital information**

- **Envisage a 2-layer data model consisting of**
  - a set of information resources (below), and
  - a "knowledge map" (above)

- **This is like the division of a book into content and index**

(index)

knowledge layer
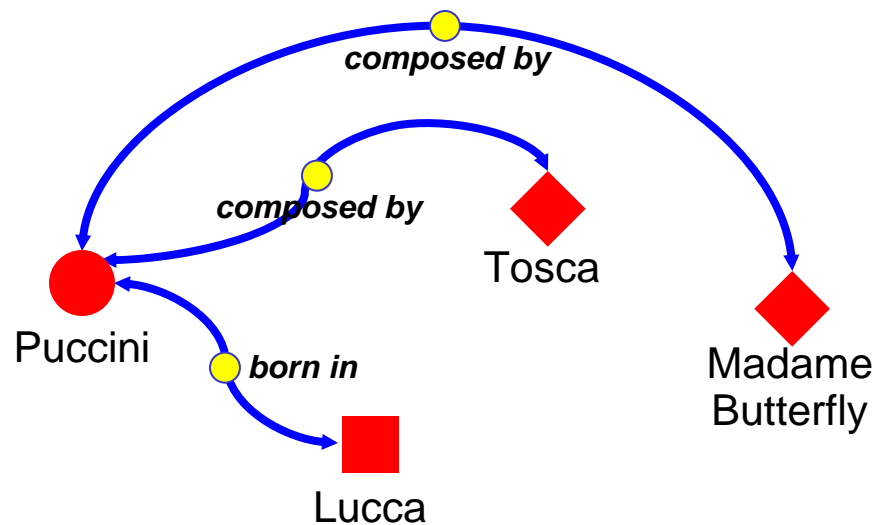
information layer

(content)

(1) The information layer

- **The lower layer contains the content**
  - usually digital, but need not be
  - can be in any format or notation
  - can be text, graphics, video, audio, etc.

- **This is like the content of the book to which the back-of-book index belongs**
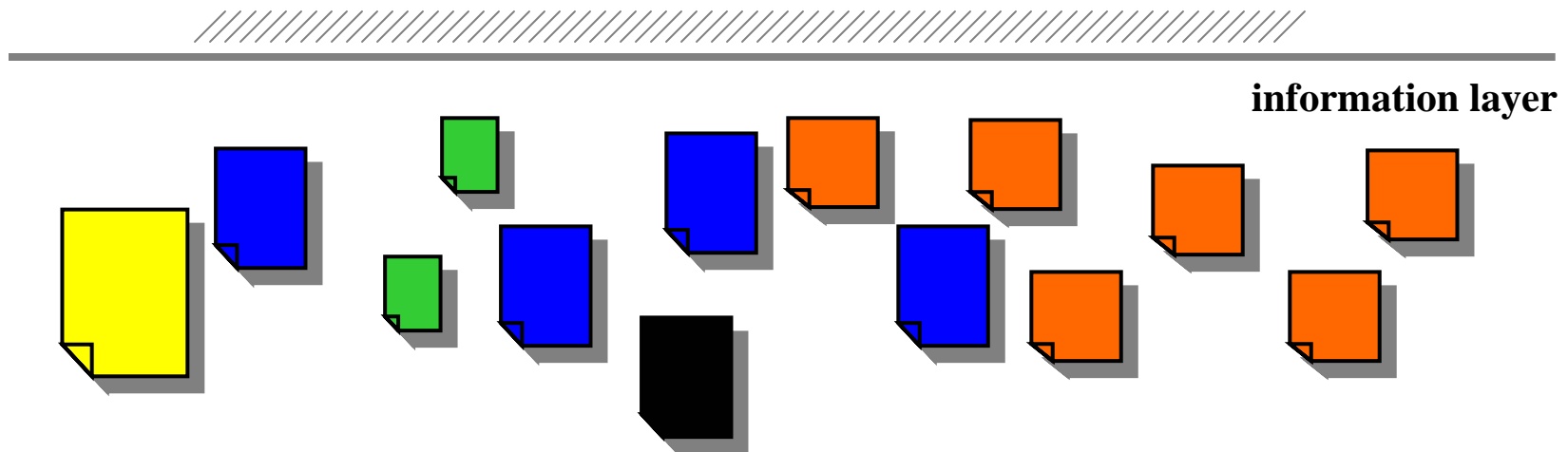
information layer
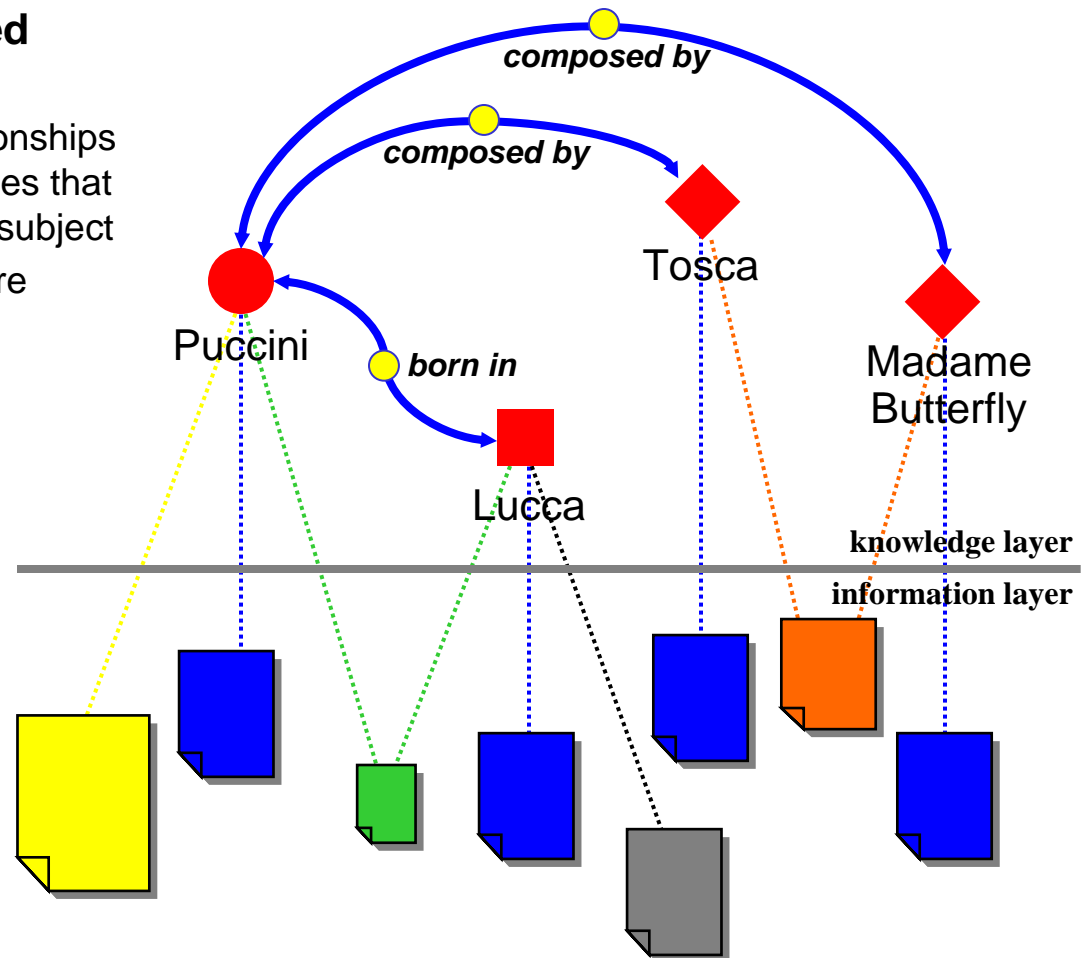
(2) The knowledge layer

- **The upper layer consists of topics and associations**
  - **Topics** represent the subjects that the information is about
    - Like the list of topics that forms a back-of-book index
  - **Associations** represent relationships between those subjects
    - Like "see also" relationships in a back-of-book index

knowledge layer

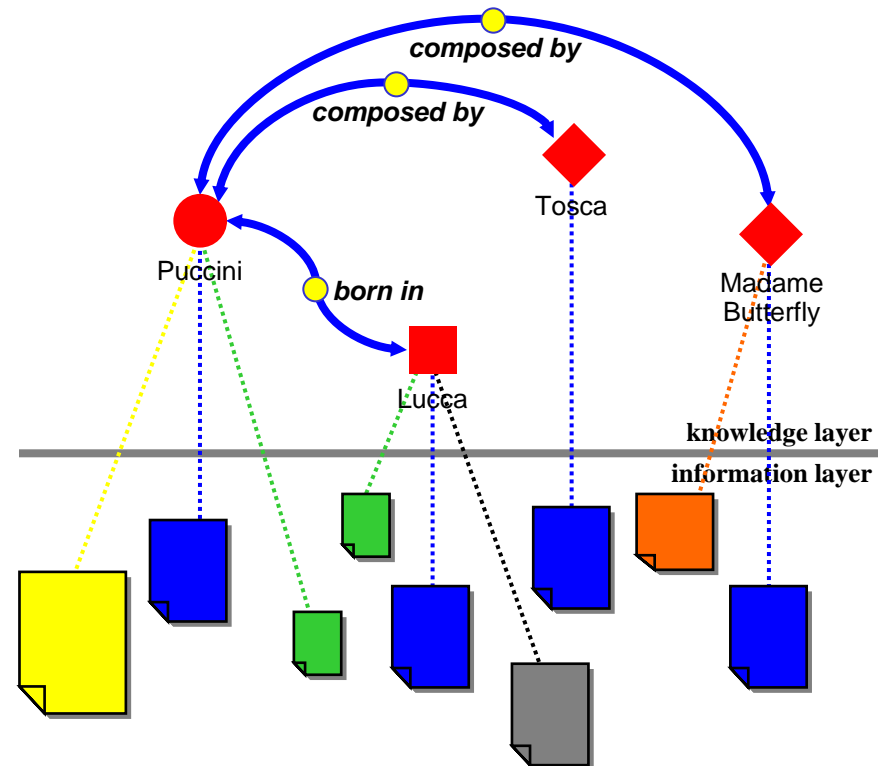# Linking the layers through occurrences

- **The two layers are linked together**
  - **Occurrences** are relationships with information resources that are pertinent to a given subject
  - The links (or locators) are like page numbers in a back-of-book index

composed by

composed by

Tosca

Puccini

born in

Madame Butterfly

Lucca

knowledge layer

information layer

http://www.ontopia.net/

Summary of core concepts

- **A pool of information or data**
  - any type or format

- **A knowledge layer, consisting of:**

- **Topics**
  - a set of knowledge topics for the domain in question

- **Associations**
  - expressing relationships between knowledge topics

- **Occurrences**
  - information that is relevant in some way to a given knowledge topic

- **= The TAO of Topic Maps**

composed by

composed by

Tosca

Puccini

born in

Madame Butterfly

Lucca

knowledge layer

information layer

Topic Maps and ontologies

- **The basic building blocks are**
  - Topics: e.g. "Puccini", "Lucca", "Tosca"
  - Associations: e.g. "Puccini was born in Lucca"
  - Occurrences: e.g. "*http://www.opera.net/puccini/bio.html* is a biography of Puccini"

- **Each of these constructs can be typed**
  - Topic types: "composer", "city", "opera"
  - Association types: "born in", "composed by"
  - Occurrence types: "biography", "street map", "synopsis"

- **All such types are also topics (within the same topic map)**
  - "Puccini" is a topic of type "composer" … and "composer" is also a topic

- **A topic map thus contains its own ontology**
  - Our definition of "ontology":
    - *The types and subtypes of concepts and relations that exist in some domain…*
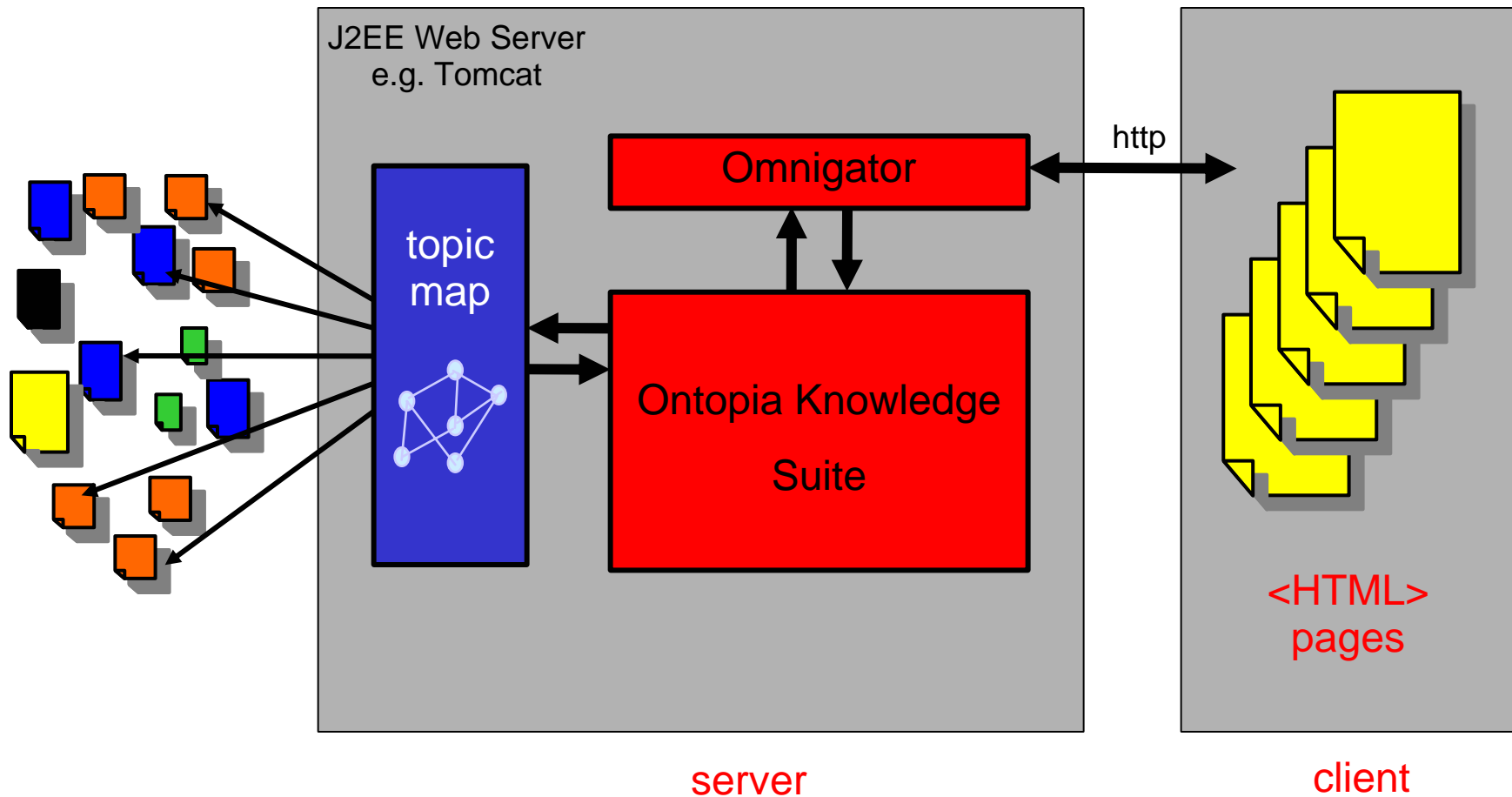
12

With this simple but flexible model you can

- **Make knowledge explicit, by**
  - Identifying the *subjects* that your information is about
  - Expressing the *relationships* between those subjects

- **Bridge the domains of knowledge and information, by**
  - Describing where to find *information* about the knowledge topics
  - Linking information about a common topic across multiple repositories

- **Transcend simple categories, hierarchies, and taxonomies, by**
  - Applying rich associative structures that capture the complexity of knowledge

- **Enable implicit knowledge to be made explicit, by**
  - Providing clearly identifiable hooks for attaching implicit knowledge

Demo of the *Omnigator*
A free browser for topic maps

The Omnigator

- **Free**
  - Download it as part of OKS Samplers: http://www.ontopia.net
  - Or view it online: http://www.ontopia.net/omnigator

- **Generic**
  - Omnivorous (Eats anything that can be _viewed as_ a topic map, including RDF)
  - Supports absolutely any ontology (including your own)
  - Simply add your own TM to the Omnigator directory and away you go!
  - Makes "reasonable sense" out of any "reasonably sensible" topic map…

- **Full-featured**
  - Built using Ontopia's flagship product, the Ontopia Knowledge Suite (OKS)
  - Supports every aspect of the TM standard, including
    - querying
    - merging
    - scope filtering
    - reification
    - etc.

How the Omnigator works

ontopia

J2EE Web Server
e.g. Tomcat

topic map

Omnigator

http

Ontopia Knowledge Suite

<HTML> pages

server

client

a

[Omnigator] Puccini, Giacomo - Opera

File   Edit   View   Navigation   Bookmarks   Mail   Window   Help

http://localhost:8080/omnigator/models/topic_complete.jsp?tm=opera.hytm&id=puccini   Go   Google search   100%

omnigator 007

The free topic map navigator from **Ontopia**. Powered by the **Ontopia Knowledge Suite**.

Welcome | Opera TM | Manage | Customise | Filter | Export | Merge | Statistics | Reload | Query | [   ] **| Validate**

Puccini, Giacomo
current topic

(multiple) types   Type(s): Composer

Names (3)
multiple names
- **Puccini, Giacomo**
- **Giacomo Puccini** - Scope: *Normal form*
- **Puccini** - Scope: *Short name*

Internal Occurrences (2)
- **Date of birth**
  - 1858 (22 Dec)
- **Date of death**
  - 1924 (29 Nov)

multiple typed occurrences

Associations (17)
multiple typed associations
- **Born in**
  - Lucca
- **Composed**
  - La Bohème
  - Edgar
  - La fanciulla del West
  - Gianni Schicchi
  - Madame Butterfly
  - Manon Lescaut
  - La rondine
  - Suor Angelica
  - Il Tabarro
  - Tosca
  - Il Trittico

External Occurrences (9)
- **Article**
  - file:/C|/topicmaps/opera/occurs/snl/puccini.htm
  - http://www.ontopia.net/topicmaps/examples/opera/occurs/snl/puccini.htm
- **Gallery**
  - file:/C|/topicmaps/opera/occurs/puccini-gallery.htm
- **Home page**
  - file:/C|/topicmaps/opera/occurs/hnh-puccini.htm
  - http://www.naxos.com/composer/btm.asp?fullname=Puccini, Giacomo
  - http://www.r-ds.com/opera/pucciniana/gallery.htm
- **Illustration**
  - file:/C:/oks-demo/jakarta-tomcat/webapps/omnigator/WEB-INF/topicmaps/occurs/composer/puccini.gif

[Omnigator] Puccini, Gi...   OperaMap: Tosca

Merging topic maps

- **Topic Maps can be merged automatically**
  - You can always and in any situation take any two arbitrary topic maps and merge them to a single topic map
  - This cannot be done with databases or XML documents

- **The merge capability enables many advanced applications**
  - Information integration across repositories
  - Knowledge sharing across organizations
  - Spontaneous knowledge aggregation
  - Distributed knowledge management
  - Reuse of knowledge across applications
  - Organically growing an application – no need for a big bang

- **The concept that makes merging possible is subject identity**
  - This is the reason for using published subject indicators (PSIs)

Principles of merging in Topic Maps

- **In Topic Maps, every topic represents some subject**

- **The collocation objective requires exactly one topic per subject**
  - When two topic maps are merged, topics that represent the same subject should be merged to a <u>single topic</u>
  - When two topics are merged, the resulting topic has the <u>union of the characteristics</u> of the two original topics

occurrence

occurrence

name

T

name

association role

name

association role
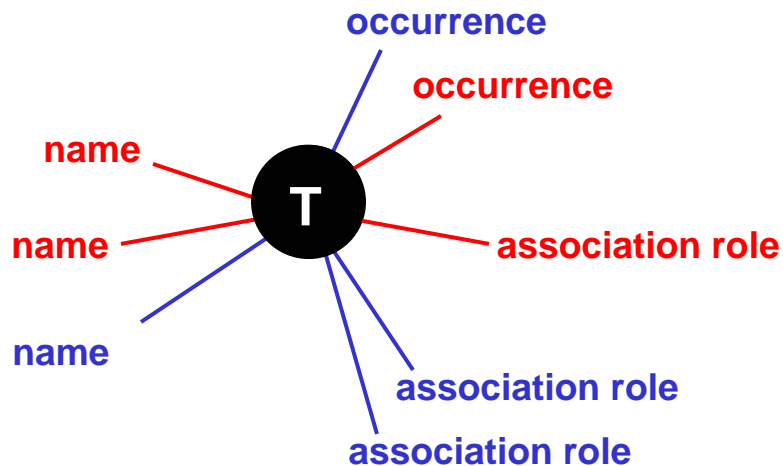
association role

...and the resulting topic has the union of the original characteristics

How Topic Maps improves access to information

- **Intuitive navigational interfaces for humans**
    - The topic/association layer mirrors the way people think

- **Powerful semantic queries for applications**
    - A formal underlying data structure

- **Customized views based on individual requirements**
    - Personalization based on scope

- **Information aggregation across systems and organizations**
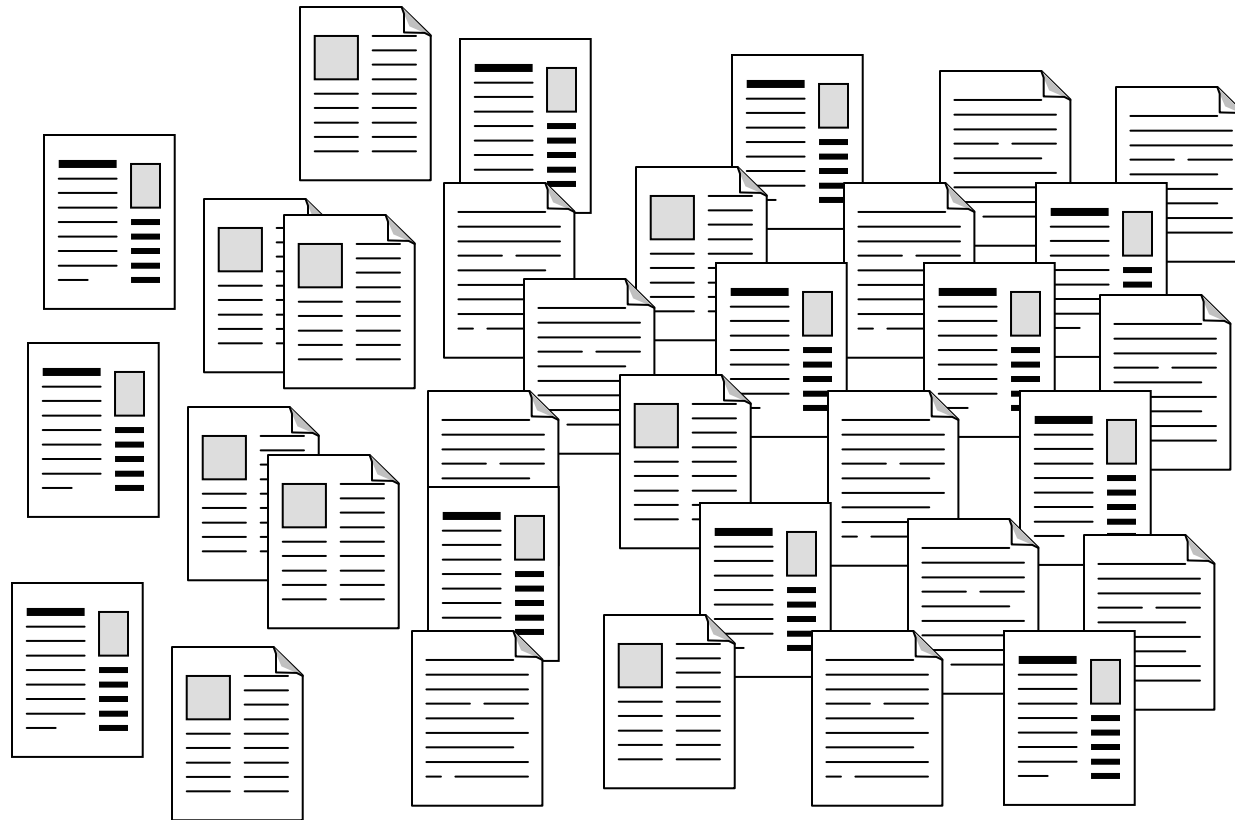   - Topic Maps can be merged automatically…

Metadata? Taxonomies? Folksonomies? Topic Maps!

Metadata and classification

Topic maps and metadata
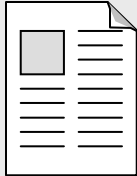
Topic maps and classification

Problem: finding the needle in the haystack

Metadata

- **The obvious solution to the problem is to describe the documents**
  - that is, to attach *metadata* to the documents
  - metadata in this context is "information about a document"

- **So how does this help?**
  - it's useful for managing the content
  - it provides a better starting point for search
  - it means better search results can be displayed
  - it helps the user determine whether or not a search hit is interesting

- **But is it what the user is looking for?**
  - the user starts out wanting to know more about *subject*
  - traditional metadata, however, focuses on the *document*
  - if aboutness is provided at all, it gets squeezed into a single field

Title:	Recurrent Herpes Simplex Sciatica and its Treatment with Amantadine Hydro...
Author:	D.A. Fisher
Date:	1982-05
Format:	text/html
Keywords:	sciatic neuralgia, aman...

What's wrong with keywords?

- **The main problem is that their use is uncontrolled**

- **This leads to problems like**
  - authors misspelling keywords,
  - authors using different keywords for the same thing, and
  - authors using keywords that make no sense

- **A secondary problem is that short of guessing, there is no way for the user to find out what keywords have been used**
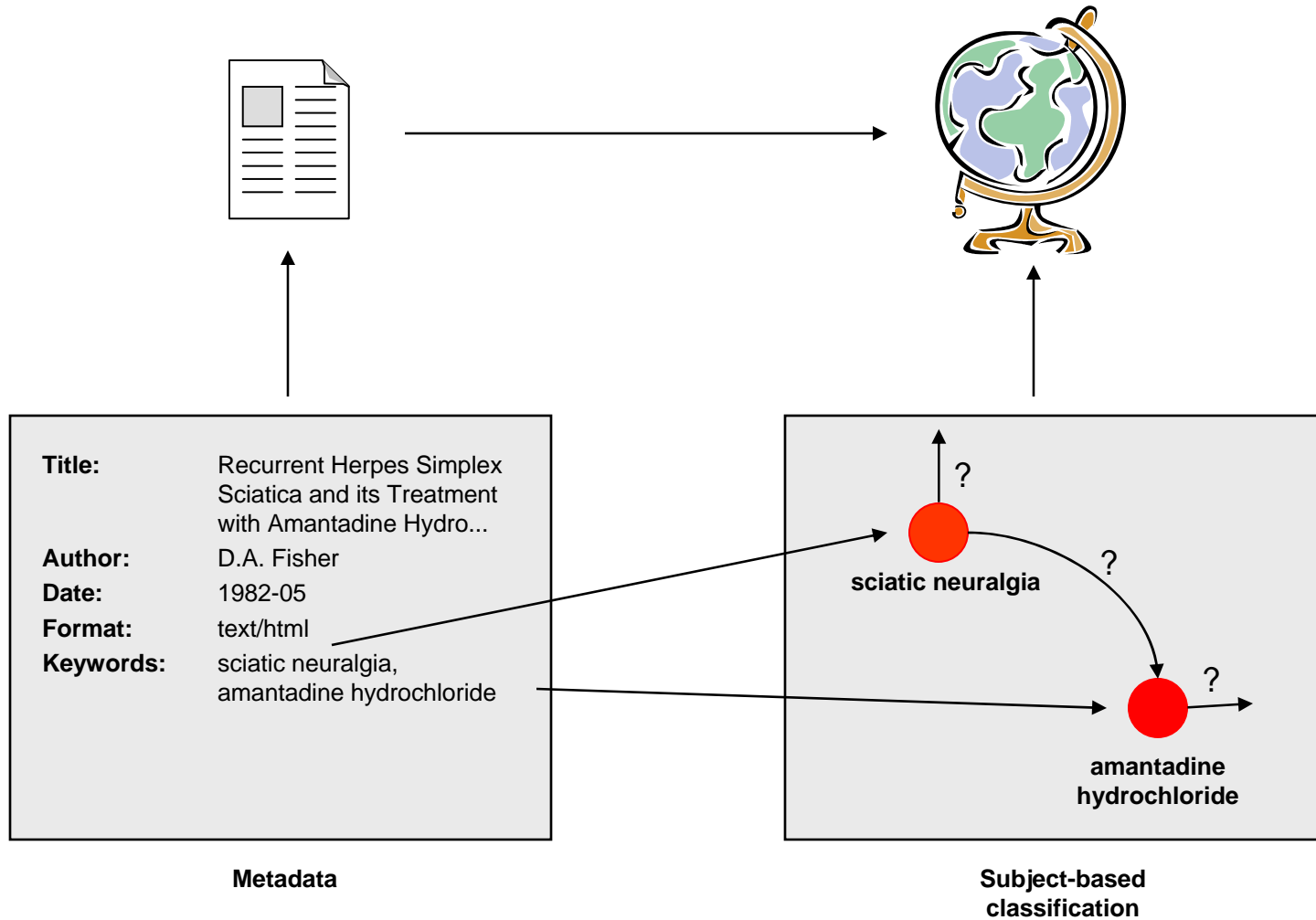
- **The main benefit is that it's cheap and simple**

                                       http://www.ontopia.net/

Taking control over the vocabulary

- **The obvious solution is to create a list of legal keywords**
  - this is what's known as a *controlled vocabulary*
  - in a controlled vocabulary keywords are called *terms*
  - this requires somewhere to keep the list, and a process for adding new terms

- **Benefits**
  - gets rid of the misspelling problem
  - gets rid of the problem with authors using different terms for the same thing

- **Disadvantages**
  - introduces some overhead
  - a flat list is difficult to manage
  - users can still search using the wrong terms
  - users will still have difficulty finding terms if the list is long
  - authors will have the same problem

Organizing the terms

- **The solution is clearly to organize the terms somehow**

- **In one sense we're now back to the problem we had originally with documents**
  - the solution is also the same: we need to describe the terms somehow
  - the difficulty is: what can you say about terms?

- **The good news is that there are many traditional and well-known ways to approach this**

Two worlds

Metadata

Title:	Recurrent Herpes Simplex Sciatica and its Treatment with Amantadine Hydro...
Author:	D.A. Fisher
Date:	1982-05
Format:	text/html
Keywords:	sciatic neuralgia, amantadine hydrochloride

Subject-based classification

sciatic neuralgia

amantadine hydrochloride

Classification approaches

Describing the terms

Tags

Taxonomies

Thesauri

Folksonomies and tags

- **Tags have recently become popular on the web**
  - used by web 2.0 sites like Flickr, Technorati, del.icio.us, ...
  - also much used in blogs to categorize the posts

- **Tags are effectively a controlled vocabulary of keywords**
  - except the control is often extremely lax

- **The same benefits and problems**
  - del.icio.us for example has tags like xtm, topic_maps, topicmaps, topic_map, and topicmap

Oslo S

http://beerblog.motime.com
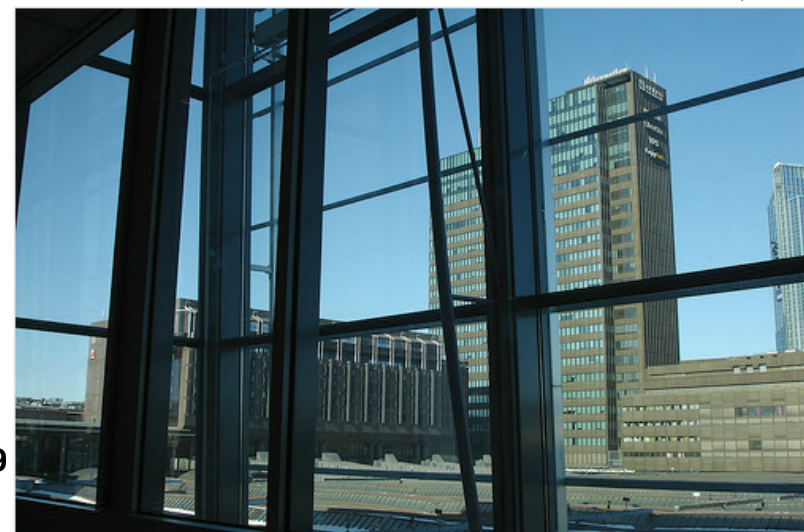
Tags
- oslo
- norway
- oslos
- tower
- posten
- window
- architecture
- station

Taxonomies

- **Organizes the keywords into a tree**
  - the most general at the top, more specific as you go down
  - common structure used by Yahoo!, LivsIT, ...

- **Requires relationships between terms**
  - the relationships state that one term is more specific than another
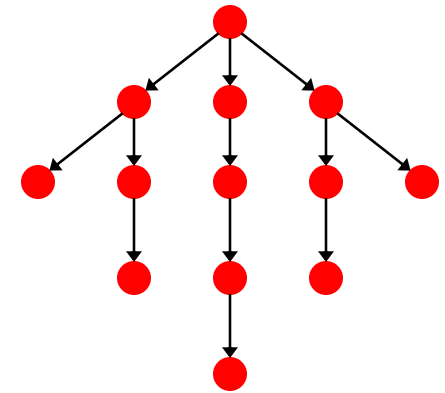
Arts
Movies, Television, Music...

Business
Jobs, Real Estate, Investing...

Computers
Internet, Software, Hardware...

Games
Video Games, RPGs, Gambling...

Health
Fitness, Medicine, Alternative...

Home
Family, Consumers, Cooking...

Kids and Teens
Arts, School Time, Teen Life...

News
Media, Newspapers, Weather...

Recreation
Travel, Food, Outdoors, Humor...

Reference
Maps, Education, Libraries...

Regional
US, Canada, UK, Europe...

Science
Biology, Psychology, Physics...

Shopping
Autos, Clothing, Gifts...

Society
People, Religion, Issues...

Sports
Baseball, Soccer, Basketball...

http://www.dmoz.org

BT

http://www.ontopia.net/

A taxonomy example

● Nervous system disease

　　● Autonomous nervous system disease

　　● Peripheral nervous system disease

　　　● Cauda equina syndrome

　　　● Diabetic neuropathy

　　　● Sciatic neuralgia
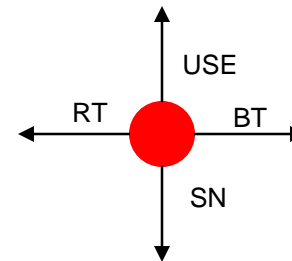
　　　　　　　　　　　　　　　　　　　　　　　　http://www.ontopia.net/
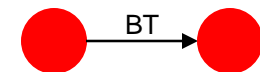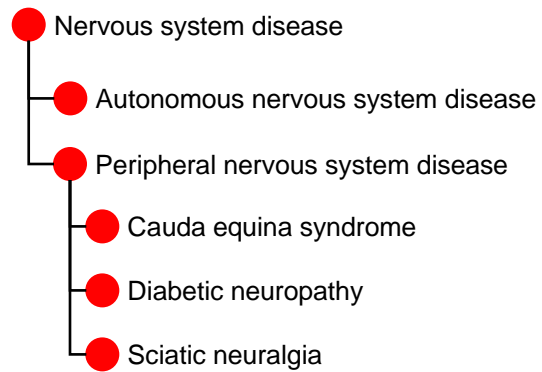
Thesauri

- **An extension of taxonomies**
  - come from the library world; much used in publishing
  - the main extension is that thesauri add more relationships

- **What thesauri contain:**
  - **BT** the same relationship as in taxonomies
  - **RT** related term, which goes across the hierarchy
  - **USE** refers to a term that should be used instead of the current one
  - **SN** scope note, a definition of the term

Taxonomy

Thesaurus

A thesaurus example

Nervous system disease
- Autonomous nervous system disease
- Peripheral nervous system disease ← USE ← Peripheral neuropathy
  - Cauda equina syndrome
  - Diabetic neuropathy ← RT → Diabetic complications
  - Sciatic neuralgia
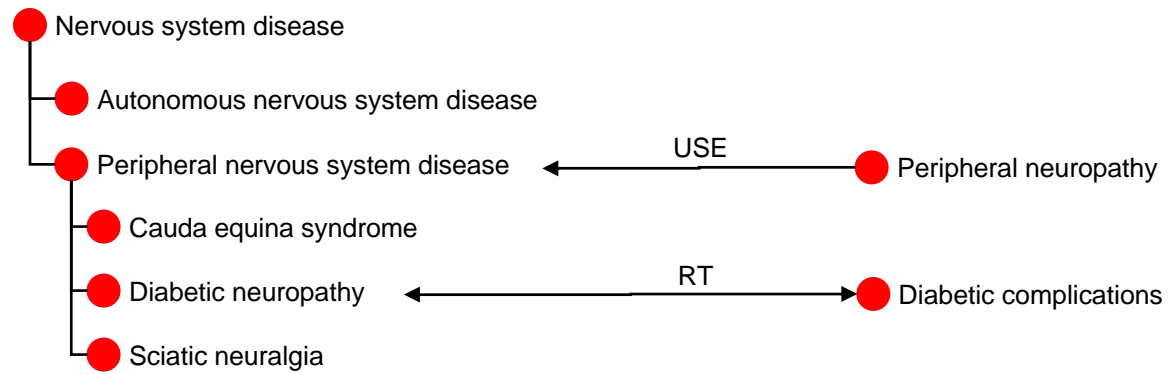
Traditional subject-based classifications

- **All of these have one thing in common**
  - they don't describe the subjects much
  - they just arrange them in one or more hierarchies

- **The result is that**
  - only documents can contain useful information
  - the classifications have no other uses than allowing documents to be classified against them
  - traversing a hierarchical classification does not offer a compelling user experience

Topic Maps

Ontologies

The TAO Model

Metadata and classifications

Ontologies

- **In computer science: a model of some part of the world**
  - uses entity types, relationship types, and property types
  - some ontologies are meant to be used for logical reasoning

- **Topic Maps is an ontology technology**
  - emphasis is on information retrieval, not logical reasoning
  - note: it is a *technology*, not a methodology
  - there is a formally defined data model defined in ISO 13250

Ontology in Topic Maps

- **A Topic Maps model of some specific aspect of the world**
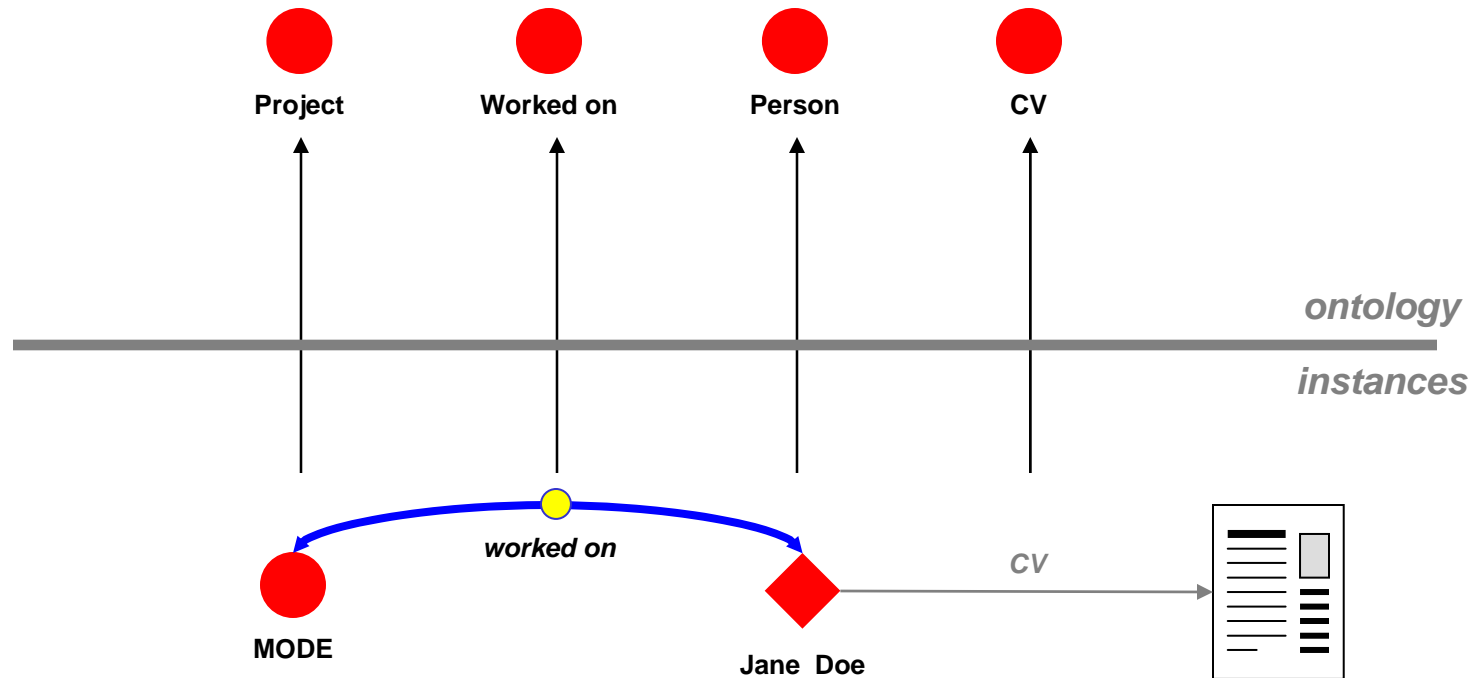
Taxonomies and thesauri revisited

- **From the Topic Maps perspective taxonomies are an ontology**
  - terms become topics (of type "term" or "concept")
  - relations become associations (of various types)
  - scope notes become occurrences

- **However, in Topic Maps it's possible to be more precise**
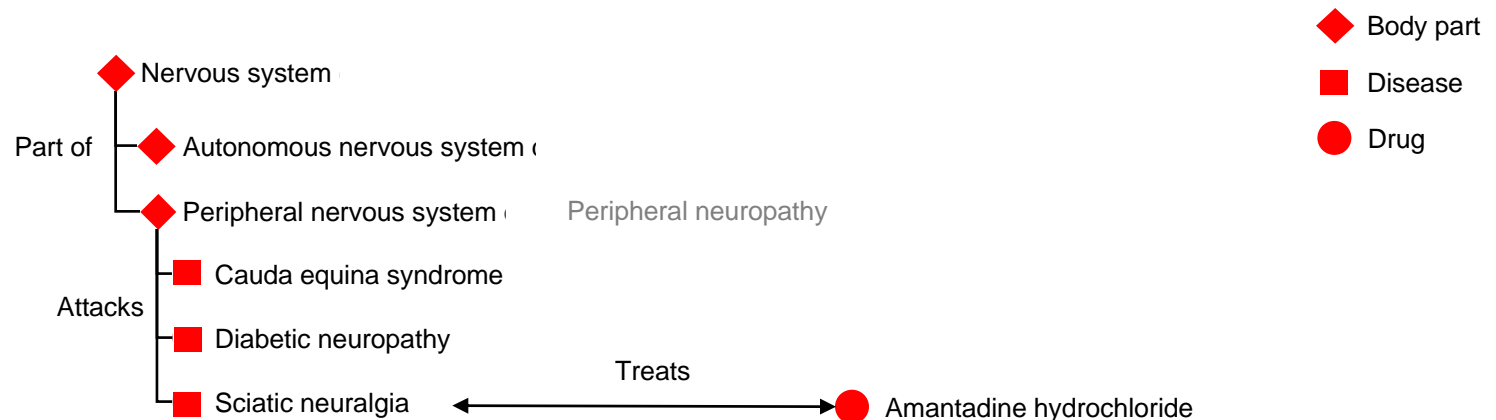
Expressivity progression

Expressivity (y-axis)

Topic Maps

Taxonomies, thesauri

Flat list, tags

No model **Closed model** **Open model**
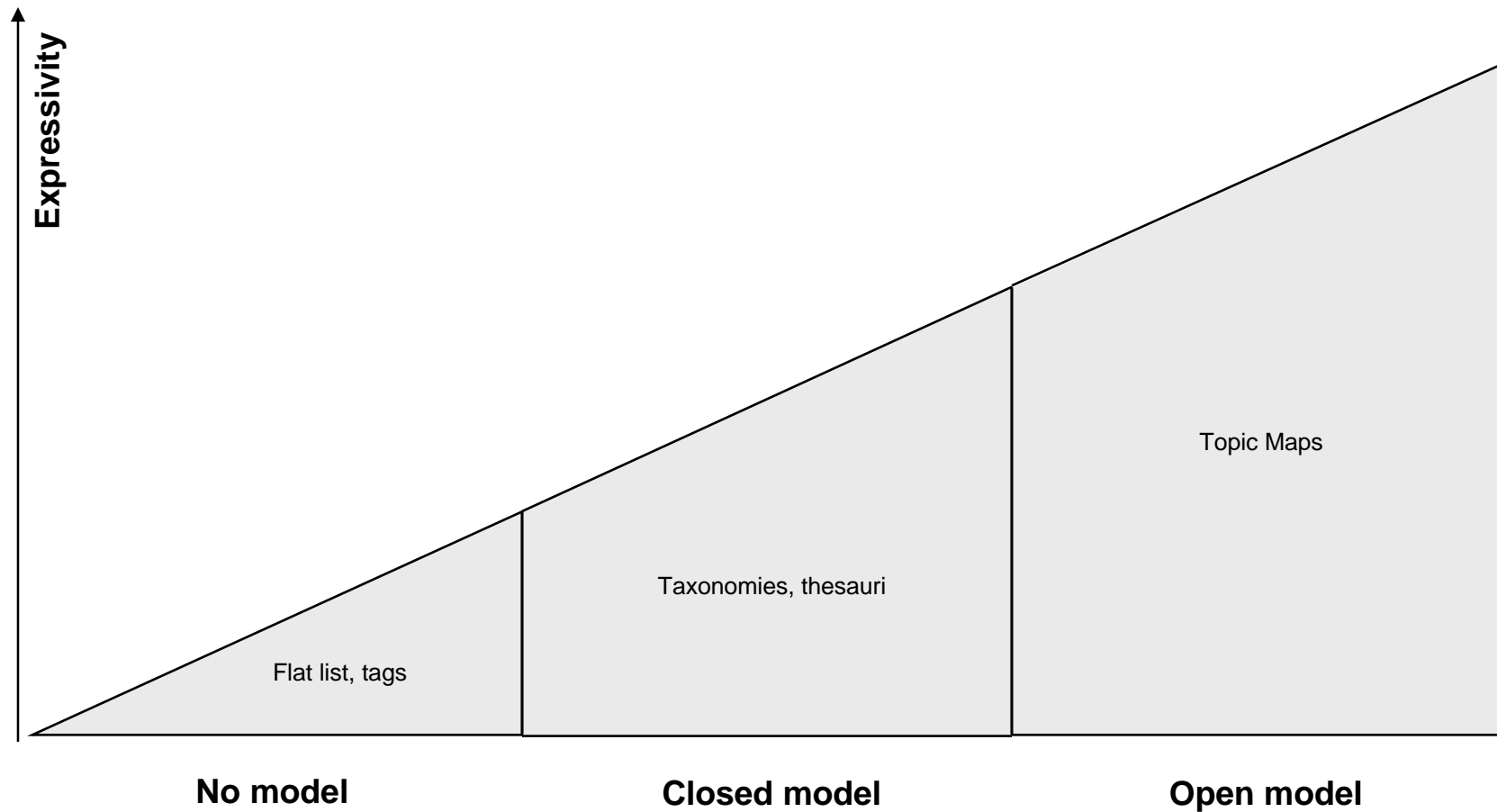
Metadata revisited

- **Metadata can also be represented in Topic Maps**
    - create topics for the documents
    - map fields to names, occurrences, or associations

Sciatic neuralgia

about

attacks

Peripheral nervous system

Recurrent Herpes Simplex and its...

author of

treated by

Date: 1982-05
Format: text/html

D.A. Fisher

Amantadine hydrochlorine

This part is untrue!

works for   *produced by*

Big pharma

http://www.ontopia.net/
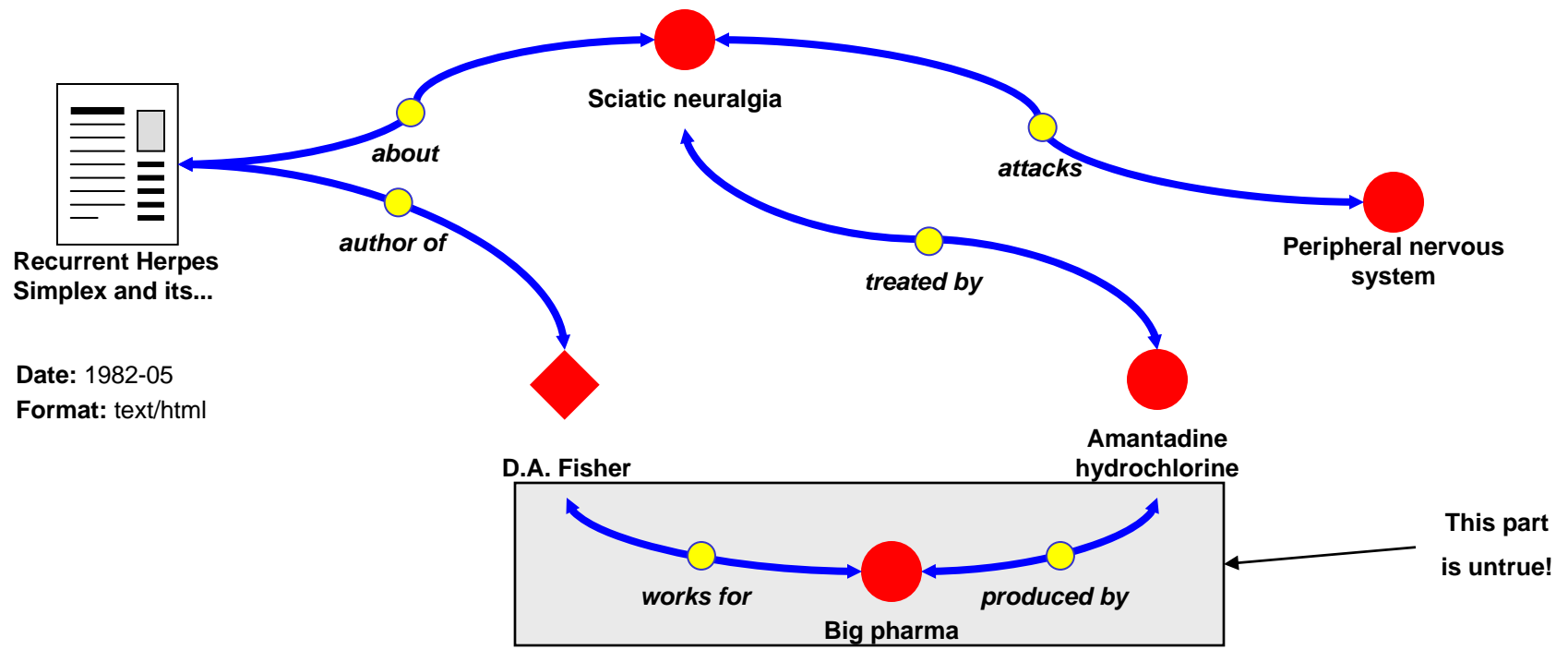
Benefits of Topic Maps

- **Richer, more expressive model**
  - multiple paths to the information you seek
  - typed associations provide "signposts" along the path

- **Improved support for search**
  - search for concepts, rather than just documents
  - associations can be used for filtering

- **Merges classification and metadata into a single model**
  - greater expressivity (again)
  - simpler architecture: just one system to relate to
  - can be used to harmonize 2 or more taxonomies/thesauri/etc.

- **Maps directly to web portals**
  - easy to build and maintain web portal based on the topic map

Conclusion

- **Traditional findability solutions**
  - metadata: describes documents
  - classifications: gather and loosely organize keywords/terms

- **Traditional solutions focus on documents**

- **Users focus on subjects**

- **Topic Maps**
  - open model for describing anything
  - focus on subjects
  - easily supports both metadata and existing classifications

Applications of Topic Maps

Semantic Portals

eLearning

Business Process Modelling

Product Configuration

Information Integration

Metadata Management

Business Rules Management

IT Asset Management

Asset Management (Manufacturing)

![ontopia](ontopia logo)

Semantic portals

- **One of many applications of Topic Maps**
  - Topic Maps is an ideal model for portals and other forms of web-based information delivery

- **The basic concept is to have the topic map _drive_ the portal**
  - _Not_ just a navigational layer on top of something else
  - The _very structure_ of the portal is a topic map
  - All content is organized around _topics_ ("subject-centric organization")

- **Each page represents a topic (we call this a "Topic Page")**
  - Topics act as points of _collocation_
  - They provide a "one-stop shop" for everything that is known about a particular subject

- **Navigating the portal == Navigating the topic map**
  - Associations provide very _intuitive navigation_ ("As we may think")

a

[Omnigator] Puccini, Giacomo - Opera

File   Edit   View   Navigation   Bookmarks   Mail   Window   Help

http://localhost:8080/omnigator/models/topic_complete.jsp?tm=opera.hytm&id=puccini   Go   Google search   100%

omnigator 007

The free topic map navigator from **Ontopia**. Powered by the **Ontopia Knowledge Suite**.

Welcome | Opera TM | Manage | Customise | Filter | Export | Merge | Statistics | Reload | Query | | Validate

Puccini, Giacomo   the current topic   (multiple) types   Type(s): Composer

Names (3)   multiple names
- **Puccini, Giacomo**
- **Giacomo Puccini** - Scope: *Normal form*
- **Puccini** - Scope: *Short name*

Internal Occurrences (2)
- **Date of birth**
  - 1858 (22 Dec)
- **Date of death**
  - 1924 (29 Nov)

multiple typed occurrences

Associations (17)
- **Born in**
  - Lucca
- **Composed**
  - La Bohème
  - Edgar
  - La fanciulla del West
  - Gianni Schicchi
  - Madame Butterfly
  - Manon Lescaut
  - La rondine
  - Suor Angelica
  - Il Tabarro
  - Tosca

multiple typed associations

External Occurrences (9)
- **Article**
  - file:/C|/topicmaps/opera/occurs/snl/puccini.htm
  - http://www.ontopia.net/topicmaps/examples/opera/occurs/snl/puccini.htm
- **Gallery**
  - file:/C|/topicmaps/opera/occurs/puccini-gallery.htm
- **Home page**
  - file:/C|/topicmaps/opera/occurs/hnh-puccini.htm
  - http://www.naxos.com/composer/btm.asp?fullname=Puccini, Giacomo
  - http://www.r-ds.com/opera/pucciniana/gallery.htm
- **Illustration**
  - file:/C:/oks-demo/jakarta-tomcat/webapps/omnigator/WEB-INF/topicmaps/occurs/composer/puccini.gif

[Omnigator] Puccini, Gi...   OperaMap: Tosca

OperaMap: Puccini, Giacomo - Opera

http://localhost:8080/operamap/composer.jsp?id=puccini

The Italian Opera Topic Map

- Operas
- Composers
- Librettists
- Writers
- Theatres
- Cities and Regions
- Countries

current topic

Giacomo Puccini

Italian composer.

Born 1858 (22 Dec) in Lucca. Died 1924 (29 Nov) in Brussels.

occurrences

associations

search

Operas:

La Bohème - 1896 (1 Feb)
Edgar - 1889 (21 Apr)
La fanciulla del West - 1910 (10 Dec)
Gianni Schicchi - 1918 (14 Dec)
Madame Butterfly - 1904 (17 Feb)
Manon Lescaut - 1893 (1 Feb)
La rondine - 1917 (27 Mar)
Suor Angelica - 1918 (14 Dec)
Il Tabarro - 1918 (14 Dec)
Tosca - 1900 (14 Jan)

About

forskning.no

- **Norwegian government portal to popular science and research information**
  - basically an online popular science journal
  - owned by the Norwegian Research Council

- **Purpose:**
  - To present science and research information to young adults
  - Intended to raise interest and recruitment

48

Content of forskning.no

- **The main content is articles about science and research subjects**

- **There is also a classification system used as a navigational structure**

- **The site is entirely topic map-driven**
    - Navigation structure is a topic map
    - Articles are represented as topics
    - Even images are topics...

The Dual Classification
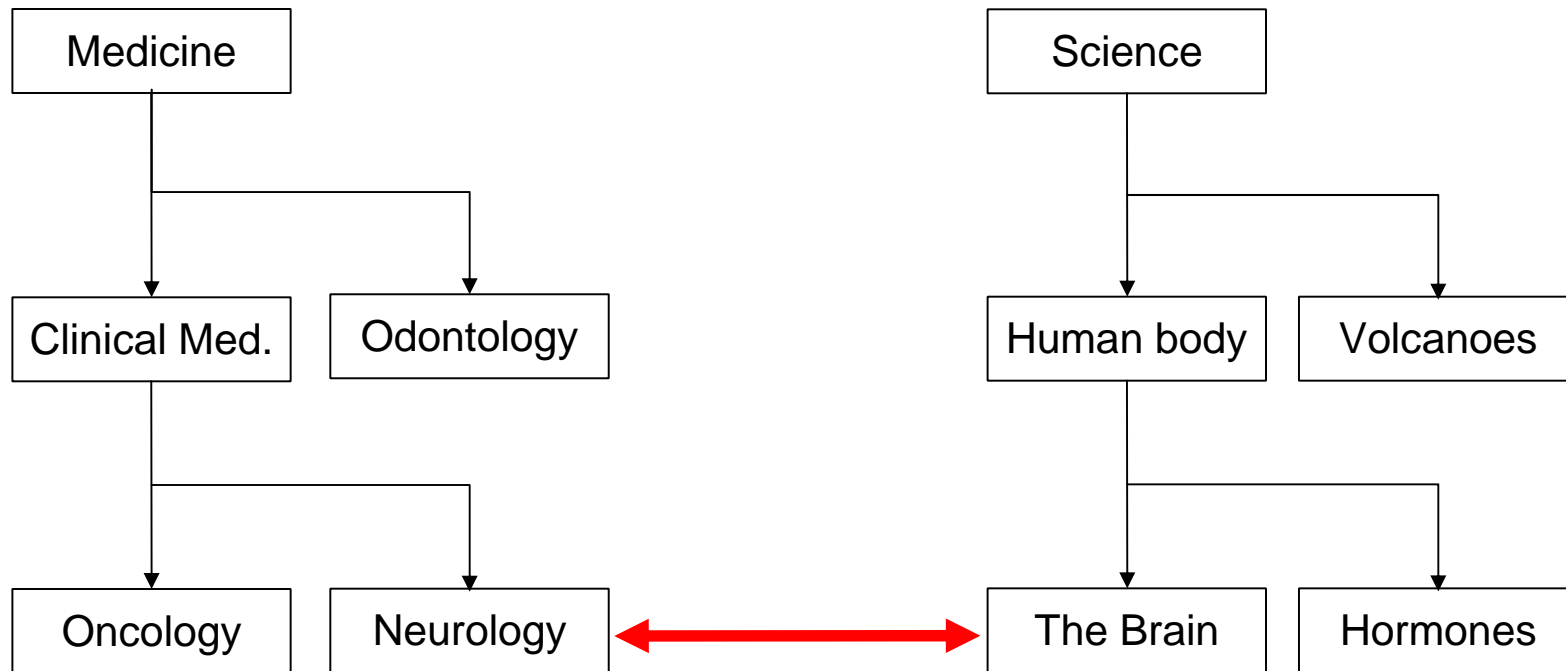
A Subject

The subject

Subjects
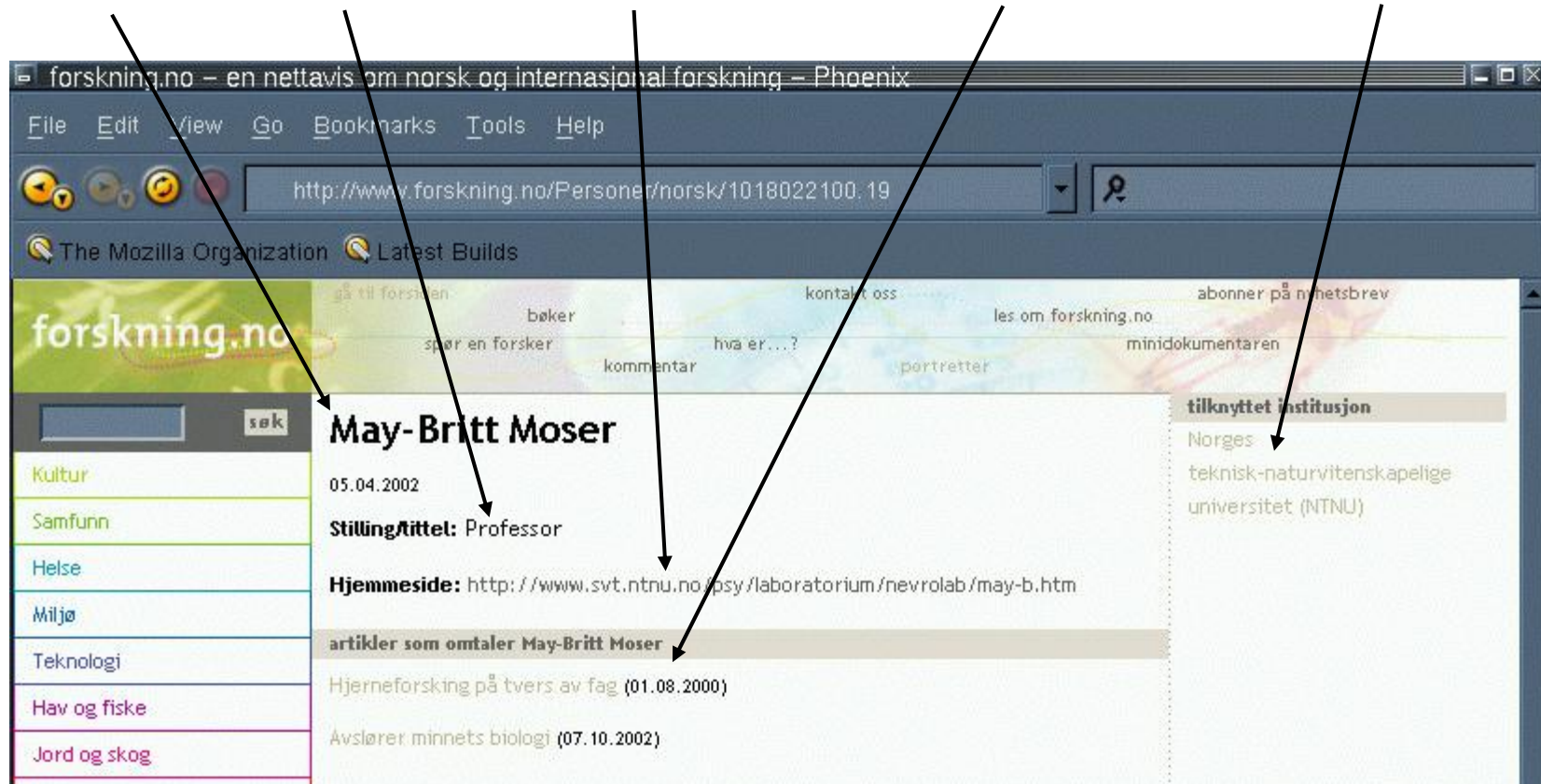
Fields

People

Articles

An Article

Article

Subjects

Fields

Next article

People

A Person

Person   Title   Home page   Mentioned in   Employer

The Project

- **Wide ontology; research covers *everything***

- **Ontology was created by reusing an existing thesaurus, automatically converted**

- **A series of 4-5 workshops established the basic principles**

- **Finally, the publishing application was built by a consulting company**

Maintenance

- **Maintained by central editorial staff in Oslo**

- **Articles written by distributed network of authors**

- **Authors write and submit articles online**

- **Articles enter workflow and are added by editors**

- **Editors also add connections to topic map**

forskning.no Today

- **The site is now in production**
  - authors and editors constantly publish articles
  - they also modify the topic map to suit themselves

- **The authors/editors are very enthusiastic**

- **The site has also been a success with the users**

- **The TM layer, while simple, does simplify navigation and makes the content "sticky"**

Similar Projects in Norway

- itu.no   **IT in education**

- forbrukerportalen.no   **Consumer information**

- matportalen.no   **Food information**

- avhending.no   **Real estate sales**

- hoyre.no   **Political party**

- *many others already launched or on the way…*

- *…not least, **kulturnett.no** v3*

Semantic portals

- **Topic Maps as Information Architecture for web delivery applications**
  - Web sites, portals, corporate intranets, etc.

- **Site structure is defined as a topic map**
  - Each page represents a topic (subject-centric)
  - User-friendly navigation paths defined by associations
  - Topics used to classify content
  - High potential for portal connectivity using TMRAP
  - Permits evolution towards Knowledge Management solutions

- **The OKS has been used to create portals, e.g.**
  - Kulturnett.no (Norwegian public sector portal to cultural information): www.kulturnett.no
  - Apollon (University of Oslo research magazine): www.apollon.uio.no

How it works

- **The basis of Kulturnett.no is a topic map**
  - nearly all the information on the site is stored in the topic map
  - the topic map effectively structures the site

- **The core of the information is**
  - museums, archives, and libraries in Norway
  - Norwegian artists (in any genre) and their works
  - cultural events in Norway
  - cultural artifacts (like statues and monuments)

- **The information comes from many sources**
  - the archive and library information comes from government databases
  - the museum information is entered by the museum owners themselves
  - the artist/work information comes from government databases
  - the events are entered by people who wish to promote the events

Searching for "Ibsen"

SØKERESULTAT

Fant du ikke det du lette etter? Forsøk avansert søk.

Søkeresultat
Treff 1-20 av totalt 77.

Ibsen, Pia - (Forfatter) → Author (wrong person)

Ibsens Venstøp - (Museum) → Museum

Ibsen, Tancred - (Regissør) → Director (great-grandson)

Ibsens Italia. - (Bok av Atle Næss) → Book

Ibsen-museet - (Museum i Oslo kommune) → Museum in Oslo

Teater Ibsen - (Institusjonsteater i Skien kommune) → Theatre in Skien

Ibsen-festivalen - (Festival, ansvarlig: Nationaltheatret) GÅ DIT ↗ → Festival (by nat. theatre)

Ibsen, Henrik (Johan) - (Forfatter) → **Finally!**

Senter for Ibsen-studier - (Hjemmeside om Henrik (Johan) Ibsen) GÅ DIT ↗ → External page about him

ibsen thorsrud, ulrik - (Komponist, Musiker)

Henrik Ibsen : Samlede værker - (Tekstsamling om Henrik (Johan) Ibsen) GÅ DIT ↗

Ibsen i russisk åndsliv. - (Bok av Martin Nag)

Ibsens røde lykt. - (Bok av Toril Brekke)

Ibsens røde lykt - (Bok av Toril Brekke)

Henrik Ibsens \Brand\"" - (Kunstverk av William Hanson)

Henrik Ibsens hånd - (Database om Henrik (Johan) Ibsen) GÅ DIT ↗

Ibsen, Henrik: Rosmersholm - (Tekstsamling om Henrik (Johan) Ibsen) GÅ DIT ↗

Nyheter fra Teater Ibsen - (Diskusjonsforum, ansvarlig: Teater Ibsen) GÅ DIT ↗

Biografien om Henrik Ibsen. - (Bok av Stein Erik Lunde)

Den internasjonale Ibsen-bibliografien - (Andre tjenester, ansvarlig: Nasjonalbiblioteket, Fjernlån / Utlån) GÅ DIT ↗

Neste ⇛

©

http://www.ontopia.net/

Finding architecture exhibitions in Oslo

AVANSERT SØK

Datagrunnlaget vår inneholder forskjellige typer ressurser med beskrivelser, og blir vedlikeholdt av Kulturnettet og våre samarbeidspartnere.

Søk i følgende kategorier

Velg emne
Dokument, Kulturminne, Nettressurs, Besøksverdig organisasjon, Øvrig organisasjon, Person, Utøvergruppe, Verk

Velg kulturtema
Arkeologi, Arkitektur, Bildekunst, Dans, Design og formgivning, Film, Flerkultur og minoriteter, Fotografi, Historie, Kultur og samfunn, Litteratur, Media, Musikk, Natur, teknikk og næring, Sport og friluftsliv, Språkhistorie, Teater, Tegneserier

Velg geografisk område
Akershus, Aust-Agder, Buskerud, Finnmark, Hedmark, Hordaland, Jan Mayen, Møre og Romsdal, Nord-Trøndelag, Nordland, Oppland, Oslo, Rogaland, Sogn og Fjordane, Svalbard , Sør-Trøndelag, Telemark, Troms, Vest-Agder, Vestfold, Østfold

Søk med ordene [ ] **SØK**

Rensk søket

- **We spot "architecture" under "cultural themes", and decide to click it**

Getting closer to the exhibitions

- **We get 449 hits, which is too much (the first two in other places)**

- **We see "Oslo" under "Geographic area" and decide to click it**

62

And closer

AVANSERT SØK

Datagrunnlaget vår inneholder forskjellige typer ressurser med beskrivelser, og blir vedlikeholdt av Kulturnettet og våre samarbeidspartnere.

Søk i følgende kategorier

Velg emne
Dokument, Kulturminne, Nettressurs, Besøksverdig organisasjon, Øvrig organisasjon, Person, Utøvergruppe, Verk

Velg kulturtema
Arkitektur og bygningshistorie, By- og områdeplanlegging, Interiørarkitektur

Velg geografisk område
Oslo

Søk med ordene [   ] SØK

Rensk søket

Valgte kategorier:
> Kulturtema > Arkitektur
> Geografisk område > Oslo

Søkeresultat
19 treff.
Norsk Folkemuseum - (Museum i Oslo kommune)
Norsk Arkitekturmuseum - (Museum i Oslo kommune)

- **Better (19 hits), but still some junk (like interest organisations)**

- **We spot "Organisation worth visiting" under "Subject"**

Finally!

Valgte kategorier:
> Emne > Besøksverdig organisasjon
> Kulturtema > Arkitektur
> Geografisk område > Oslo

Søkeresultat
8 treff.

Norsk Folkemuseum - (Museum i Oslo kommune)

Norsk Arkitekturmuseum - (Museum i Oslo kommune)

Villa Stenersen - (Besøksverdig organisasjon i Oslo kommune)

Oscarshall Slott / Eiendomsavd. - (Museum i Oslo kommune)

Akershus festnings informasjonssenter - (Museum i Oslo kommune)

Linderud gård - (Museum i Oslo kommune)

Akershus Slott - (Museum i Oslo kommune)

Kunstverket - (Privat galleri/kunsthandler i Oslo kommune)

E-learning

- **Topic maps are associative knowledge structures**
  - They reflect how people acquire and retain knowledge
- **BrainBank is used by students to describe what they have learned**
  - Initial users are 11-13 year olds who have no idea what a topic map is…
- **They capture the key concepts, name them, describe them, and associate them with others**
- **This helps them**
  - Capture the essence,
  - Describe what they have learned,
  - Keep track of their knowledge, and
  - Lets the teacher help them
- **BrainBank was built using the OKS**
  - An application of the Web Editor Framework
  - Demonstrates user-friendliness of TM editing

Business process modelling

- **A *multinational petrochemical company* uses the OKS for managing business process models**
  - The flexibility of the Topic Maps model allows arbitrary relationships to be captured easily

- **Processes are modelled in terms of**
  - The steps involved, their preconditions, their successors, etc

- **Processes can be related through**
  - Composition (one process is part of another),
  - Sequencing (one process is followed by another),
  - Specialization (one process is a special case of a more general process)
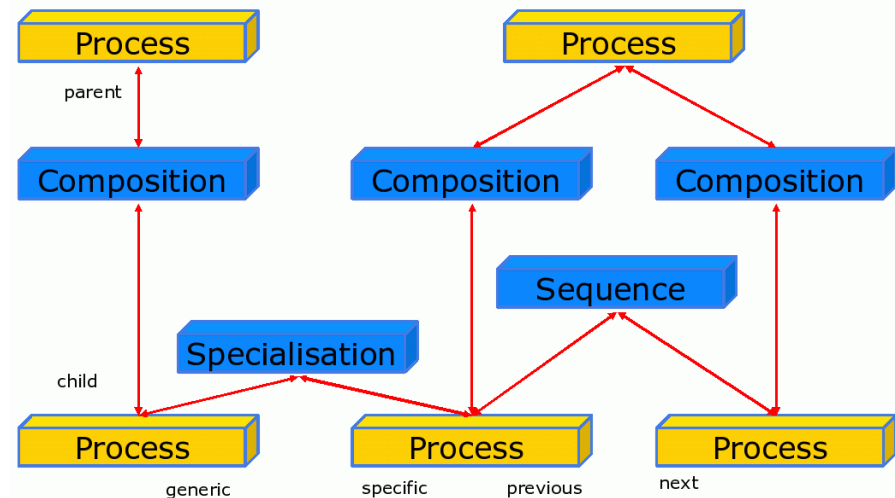
Product configuration

- **A *Scandinavian telecom company* uses the OKS to manage product configuration**
    - Products belong to families
    - Features belong to either products or product families
    - Features are grouped in feature sets
    - There are dependencies between features
    - Different features apply in different regions
    - etc.

- **The network of dependencies is already quite complex**
    - Now throw versioning into the mix!
    - Managing all this data is not easy

- **The system models dependencies in a topic map**
    - Product configuration engineers use this to configure products using a very user-friendly interface

- **The system is driven by inference rules**
    - These work on the topic map
    - Easily capture complex logic
    - Also integrates with product documentation
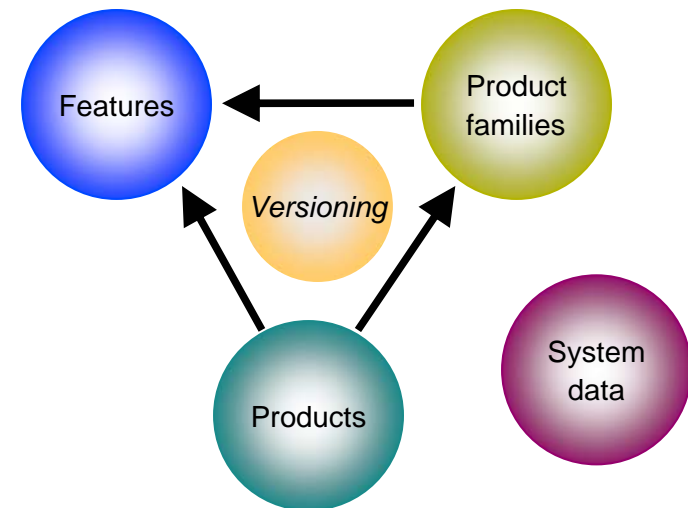
Enterprise information integration: Theory

- **Topic Maps are designed for ease of merging**
  - Generate topic maps from structured data
  - (Or create topic map views of that data)
  - Classify content according to a taxonomy topic map
  - Merge the topic maps to provide a unified view of the whole

- **Topic maps are easy to filter**
  - Create personalized views of the unified information model
  - Typing topics and scope provide built-in criteria for filtering

- **Advantages:**
  - Consolidated access to all related information
  - Does not require migration of existing content
  - Standards-based
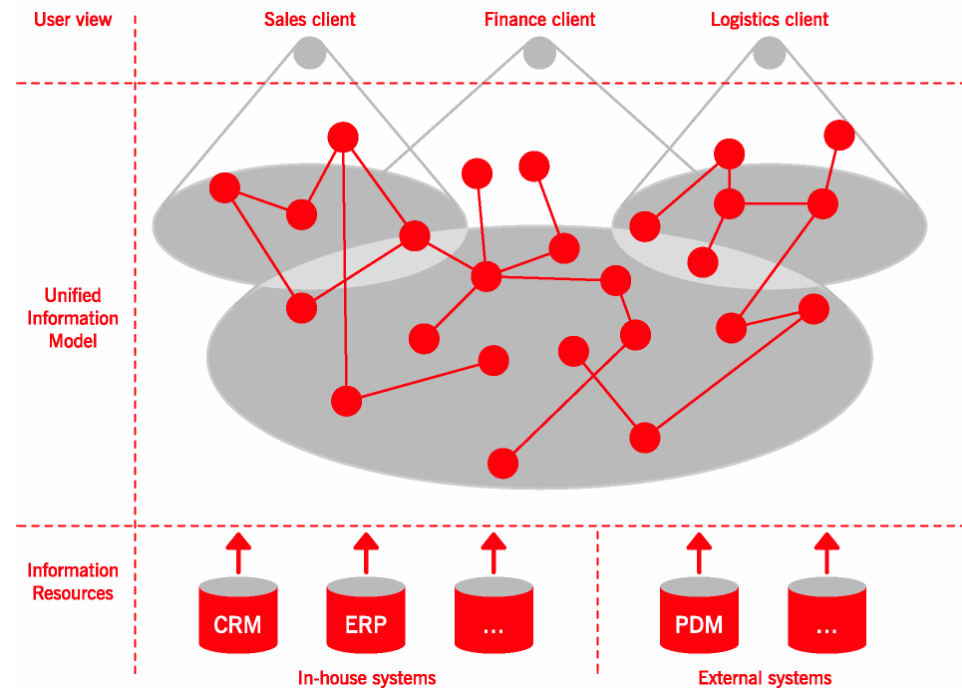
Enterprise information integration: Practice

- *Starbase* **is using the OKS in an internal project called Elmer**
  - This project is building an integration server for software information

- **Multiple disparate applications hold related data**
  - Building a unified topic map layer on top makes it possible to search across repositories
  - Provides data integration without changing the underlying applications

- **Access to information provided through a portal**
  - Straightforward navigation interface
  - Querying, both full-text and structured

- **Topic maps drives integration with MS Office Smarttags**
  - Terms known from Elmer are highlighted
  - (Names of topics used as a vocabulary)
  - Appear as links back into the portal

Elmer

C++ class   *caused by*   Bug   *breaks*   Requirement

Source repository   Bug database   Requirements DB
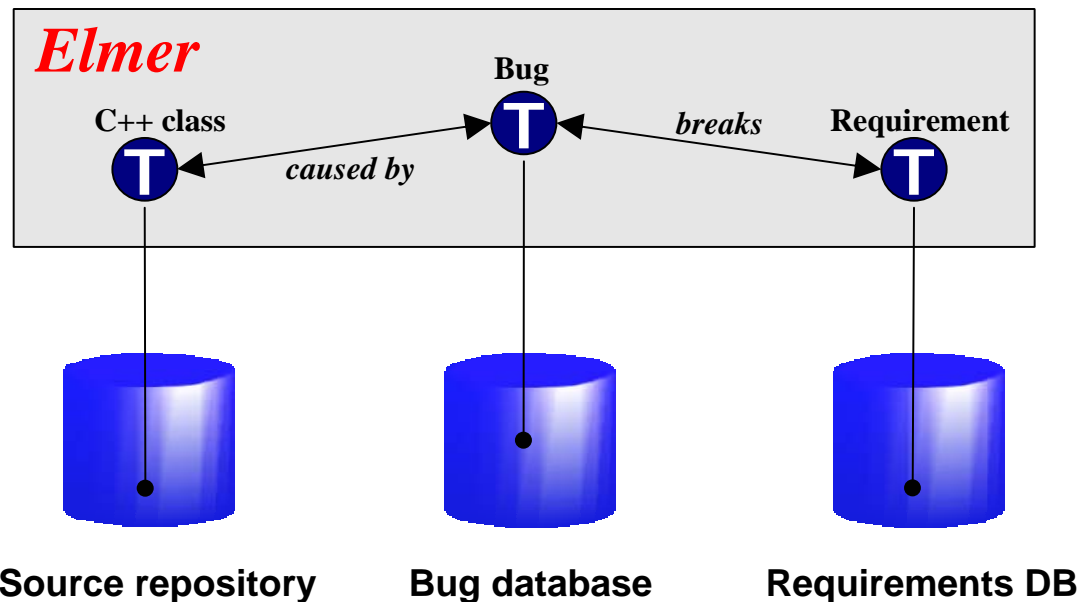
Metadata management

- **On behalf of the *Norwegian Government Administration Services* Lava Group is building a metadata server**
    - Metadata for government publications will be managed using the OKS
    - Will be used in the central public information portal (ODIN)
    - (System currently under development)

- **The system provides**
    - Authoring system used by the editors
    - Vocabulary Editor for adjusting the metadata vocabulary used
    - Metadata Export to various systems
    - Web services based on the metadata
    - Unique identifiers for documents
    - Unparallelled future flexibility

FAST Search engine

Indexes
ODIN
Meta-data
...
Engine

ODIN

Metadata server (OKS)

Logistics

Exported subjects

ASCII-export

MUP

Lovdata
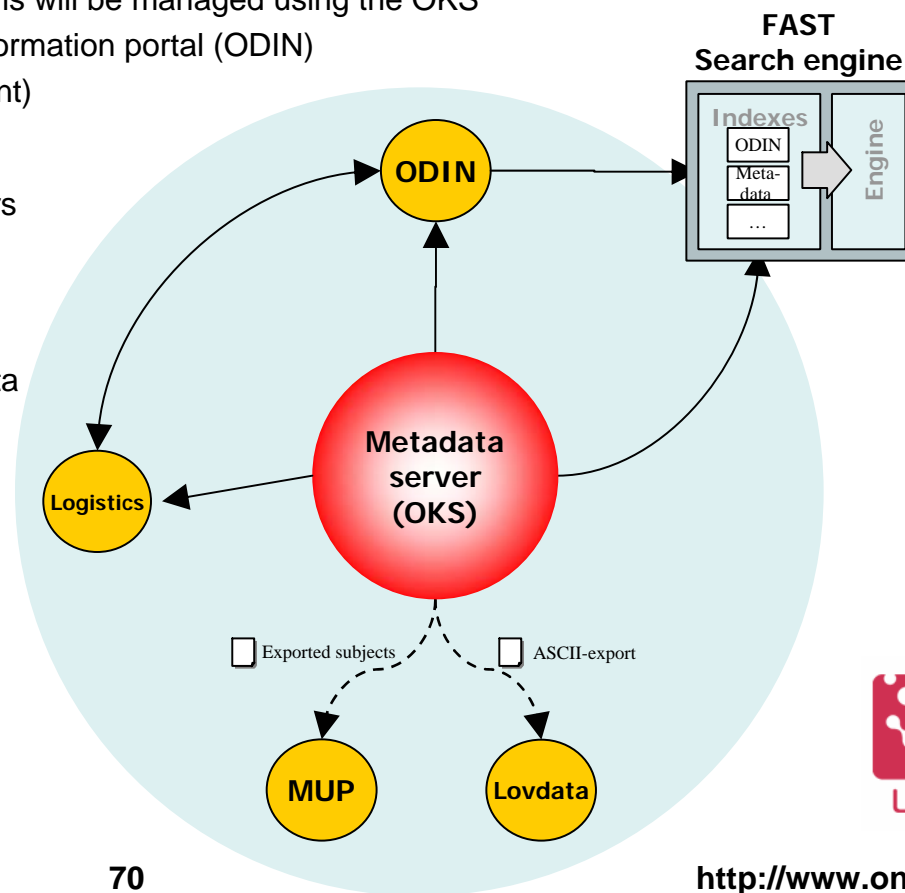
Business rules management

- **The *US Department of Energy* has used the OKS to manage guidance rules for security classification**
  - Information about the production of nuclear weapons is subject to thousands of rules
  - Rules are published in 100s of documents
  - Most documents are derived from more general documents

- **Guidance topics form a complex web of relationships that is captured in a topic map**
  - Concepts are connected to if-then-else rules
  - This constitutes a knowledge base (KB)

- **KB used with an inference engine to automatically**
  - classify information (documents, emails, ...), and
  - redact information (PDF, email, ...)

- **Benefits:**
  - Model expressive enough to capture the complexity of the rules
  - Status as ISO standard ensures stability and longevity
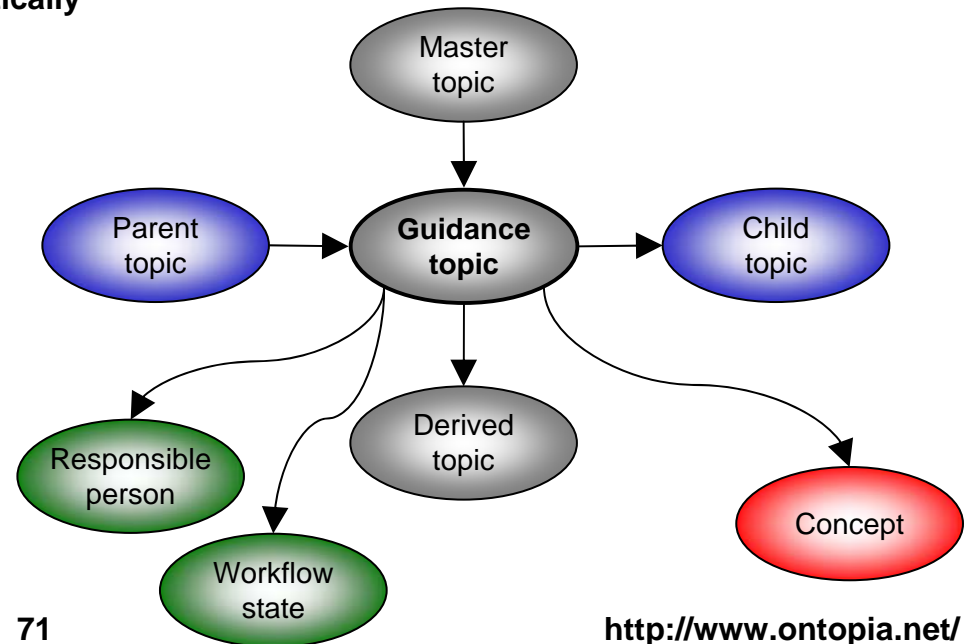
IT asset management

- **The University of Oslo is using the OKS to manage IT assets**

- **Servers, clusters, databases, etc are described in a TM**

- **This is used to answer questions like**
  - Service X is down, who do I call?
  - If I take Y down, what else goes?
  - If operating system Z is upgraded, what apps are affected?

- **System driven by composite topic map**
  - Partly autogenerated
  - Partly handcoded

- **Two applications provide access to the knowledge base**
  - Whitney: online
  - Houson: offline (for use in emergencies)

Houdini   Whitney

- Syntax control
- OKS schema validation
- Versioning with CVS

UIOTM FW
OKS API

Navigator framework

OKS Engine

XTM

RDBMS backend

usit.ltm
(handcoded)

oracle.ltm
(generated)

CVS
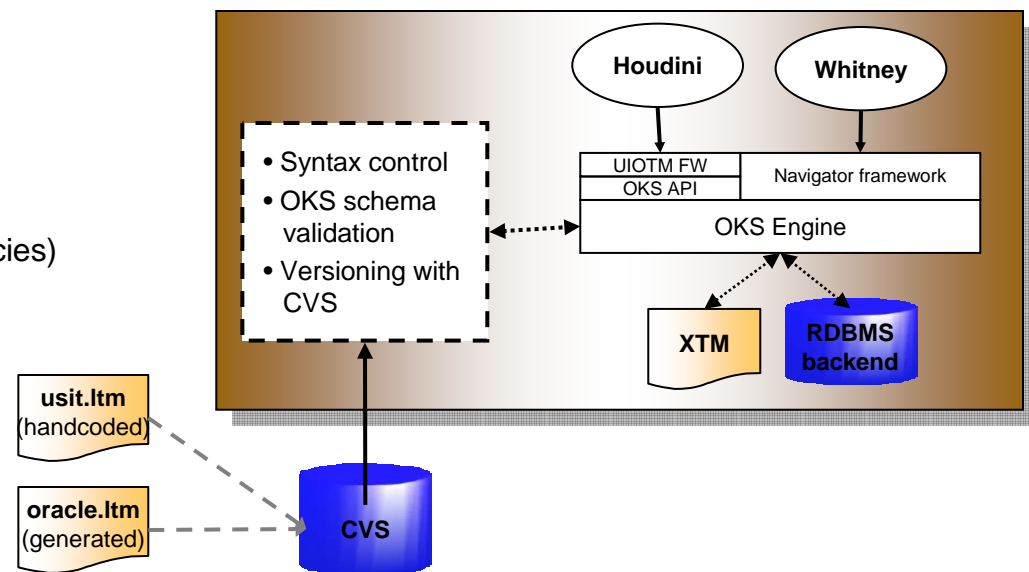
Asset management: Manufacturing

- **The Y-12 plant at DoE is using the OKS to map its plant**

- **The purpose is to get an overview of**
  - equipment,
  - processes,
  - materials required,
  - parts already built,
  - etc.

| Papers by Author | Papers by Title | Papers by Keyword |

Extreme Markup Languages 2004®: Proceedings

A Conference of IDEAlliance
Extreme Markup 2004 Languages®

View Abstract/Table of Contents (in its own window)

PDF via XSL | <xml> source | on site materials

Navigating the Production Maze: The Topic Mapped Enterprise

Thomas M. Insalaco [Y-12 National Security Complex]

James David Mason [Y-12 National Security Complex]

The Problem: Understanding Complexity

Since its establishment over 60 years ago under the Manhattan Project, The Y-12 National Security Complex (Y-12, formerly known as the Oak Ridge Y-12 Plant) has been devoted to their manufacture of highly specialized weapons components. Although it is a large facility, Y-12 is not so large as, for example, an automobile assembly plant, nor does it produce such a large volume of products. Nonetheless, it is a microcosm of complex manufacturing. Y-12 has foundries, forges, a rolling mill, and numerous chemical-production lines. The output of the basic production facilities is processed by many machine shops, inspected by sophisticated instruments, and finally assembled into finished products that must be certified before delivery to the Department of Defense, our primary customer. The analysis that we are developing for Y-12, while specific to our plant and products, could be extended by analogy to any manufacturing problem.
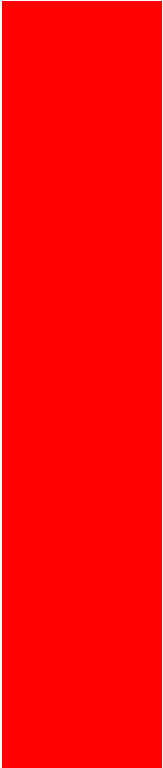
Tomorrow is here … today

Spontaneous Knowledge Aggregation

An Application of Seamless Knowledge

Automatic Portal Integration

Topic Maps Remote Access Protocol

The rise and rise of semantic portals

- **In Norway, this concept has been put into practice on a scale that is verging on the industrial…**
  - There are over a dozen topic map-driven portals in production
  - More are on the way…

- **And while the rest of the world is asking questions like**
  - "Metadata?" "Taxonomies?" "Ontologies?"
  - …in Norway, users are saying "Topic Maps!"

- **At present there are over a dozen, with more on the way**

76

Some semantic portals in Norway

- **In production**

- http://www.itu.no
  http://www.luna.itu.no
  (Ministry of Education)

- http://www.forskning.no
  http://www.nysgjerrigper.no
  (Research Council of Norway)

- http://forbrukerportalen.no
  (Consumers Association)

- http://www.skifte.no
  (Norwegian Defence)

- http://www.hoyre.no
  (Norwegian Conservative Party)

- http://matportalen.no
  (Ministry of Agriculture)

- http://www.udi.no
  (Ministry of Justice)

- http://www.kulturnett.no
  (Ministry of Culture)

- **Under development**

- Skatteetaten
  (Tax Office)

- Statsministerens kontor
  (Office of the Prime Minister)

- Statistisk Sentralbyrå
  (Central Bureau of Statistics)

- IFE/Halden
  (Nuclear Reactor Project)

- *etc.*

- *etc.*

Towards seamless knowledge

- **As the number of portals multiplies, the amount of overlap increases…**

- **Take these three portals as an example:**

- **forskning.no** (Research Council web site aimed at young adults)

- **forbrukerportalen.no** (Public site of the Norwegian Consumer Association)

- **matportalen.no** (Biosecurity portal of the Department of Agriculture)

http://www.ontopia.net/

gå til forsiden   kontakt oss   abonner på nyhetsbrev

forskning.no   bøker   les om forskning.no

spør en forsker   hva er...?   minidokumentaren

kommentar   portretter

søk

Genmodifisert mat

les mer om

hører til under
Bioteknologi
Mat fra havet
Mat fra landbruket
Mat

kultur

samfunn

15.03.2004

Sykdomsutbrudd av genmodifisert mais?

Professor Terje Traavik ved Genøk har gått ut med foreløpige
funn som antyder at et sykdomsutbrudd i en filippinsk landsby
kanskje kan kobles til genmodifisert mais. Saken har skapt
furore verden over.

mer →

beslektede fag
Bioteknologi
Akvakultur
Medisinsk bioteknologi
Jordbruksproduksjon
Husdyrproduksjon

helse

miljø

teknologi

hav og fiske

jord og skog

10.03.2004

Britene sier ja til genmodifisert mais

Storbritannia har gitt grønt lys for å dyrke genmodifisert mais
på britisk jord. Dette er en historisk avgjørelse, selv om
britene stiller en rekke betingelser til dyrkingen.

mer →

flere ressurser

personer
Odd Arne Olsen
Terje Traavik
institusjoner
Norsk Institutt for genøkologi
(Genøk)

naturvitenskap

i fokus

08.03.2004

Advarer mot genmanipulerte organismer

Et panel av amerikanske forskere mener vi vet for lite om
konsekvensene når vi slipper genmanipulerte organismer ut i
naturen. Nå oppfordrer de til større forsiktighet.

mer →

Forskningsåret 2003
Det er ikke sunt å pynte seg -
og annen god lærdom fra
biologien
Det meste av det
menneskelige er oss fremmed
Frankenfood, nazister og
knokler på vidvanke
Noen kommer, noen går
Norge - moralens høyborg
Penger, privatisering og
allmenn paranoia
Sorte hull, mørk energi og
universets undergang
Været 2003 - mot normalt?

25.02.2004

Ja eller nei til genmodifisert mat?

"To be or not to be?" er ikke det heteste spørsmålet i
Storbritannia for tiden. Det er snarere ja eller nei til
genmodifisert mat. Etter lekkasje fra en regjeringskomité har
spekulasjonene tatt av i pressen.

File   Edit   View   Navigation   Bookmarks   Mail   Window   Help

http://forbrukerportalen.no/Forbrukerportalen/Emner/genmodifisert_mat   Go   100%

kart over nettstedet :: om forbrukerrådet :: ledig stilling :: nyhetsbrev :: in english ::

FORBRUKERRÅDET

søk i
alt innhold
etter

søk

sentrale emner ::

Barn, ungdom
Bil
Bolig
Båt
flere...

Forbruker-rapporten
Slik klager du
Clearing house
Lover, regelverk
Forbrukerundervisning

sentralt innhold

Tester
Kontrakt/skjema
Ofte stilte spørsmål
Klageveilederen

kontakt oss ::

Tlf 815 58 200 (0,39 pr min)
(kl. 09.00 - 15.00)
Kontakt
Forbrukerrådet
Tips Forbruker-rapporten

her er du ::

Til forsiden
Landbruk
Forbrukerundervisning
Genteknologi
Mat

→ Genmodifisert m...

Genmodifisert mat ::

✉ tips en venn   🖨 utskriftsformat

Forbrukerrådet vil bidra til økt bevissthet knyttet til fordeler og ulemper med genmodifisert mat hos allmennheten, næringsaktørene, politikere og myndigheter i inn- og utland. Vi arbeider også for å etablere forbrukervennlige merkeregler av genmodifisert mat.

EU forbyr fortsatt gen-mat
18.12.2003

EU har foreløpig avvist en søknad om import av et genmodifisert matvareprodukt.

❯ mer

Internasjonal motstand mot USAs GMO-rettssak
25.07.2003

Forbrukerorganisasjonene i EU og USA har nylig gått ut med en sterk samlet oppfordring til den amerikanske regjeringen om å trekke saken mot EU om genmodifiserte organismer (GMO).

❯ mer

Rapport fra Roma:

Codex alimentarius

FN setter regler for gen-mat
02.07.2003

I Roma er eksperter på matsikkerhet fra verdens land nettopp blitt enige om retningslinjer for godkjenning av genmodifisert mat. Det er også vedtatt krav til overvåking og merking av slik mat.

❯ mer

- Kan ikke garantere ren øko-mat
27.06.2003

File   Edit   View   Navigation   Bookmarks   Mail   Window   Help

http://matportalen.no/Matportalen/Emner/gmo   Go   Google search   100%

Forsiden   Kart over nettstedet   Om matportalen   Kontakt oss   English   Nyhetsbrev

Matportalen
Fra jord og fjord til bord

Genmodifiserte matvarer

Utskriftsvennlig versjon

Søk i Matportalen

søk

Sentrale emner

- Kjøtt
- Fisk og sjømat
- Frukt og grønt
- Melk og meieriprodukter
- Egg
- Korn og brød
- Annen mat
- Drikke

Finn innhold

- Trygg mat
- Syk av maten?
- Genmodifiserte matvarer
- Kostholdsråd
- Landbruk
- Fiskeri og havbruk
- Næringsmiddelindustri
- Økologisk mat
- Fremmedstoffer
- Tilsetningsstoffer
- Mat internasjonalt
- Tilsyn og kontroll
- Biologiske gifter/biotoksiner

Redaksjonen
E-post til redaksjonen

Denne tjenesten er
designet og utviklet av
CREUNA

Det kan være vanskelig nok å velge en flaske ketchup i butikken. Flaskene er forskjellige når det gjelder form, pris, mengde og innhold. Hva gjør du den dagen du i tillegg kan velge mellom ketchup laget av vanlige tomater og ketchup laget av genmodifiserte tomater?

Det er satt strenge krav til godkjenning og merking av genmodifiserte produkter i Norge, og hittil har ingen genmodifiserte produkter blitt godkjent som matvare eller som ingrediens i matvarer. Norge importerer imidlertid mat fra land som har godkjent bruk av genmodifiserte matvarer. Det er derfor stor sannsynlighet for at de kan havne i butikkhyllene.

Den enkelte forbruker har rett til å velge om han eller hun vil kjøpe og spise genmodifisert mat. For å kunne gjøre slike valg, er det nyttig å vite litt om hva genteknologi og genmodifisert mat er: Hvorfor genmodifiseres planter, dyr og bakterier? Hvilke fordeler, ulemper eller farer er det med genmodifisering? Kan det være farlig å spise genmodifisert mat?

- Hva er genmodifisert mat?
- Gener og genteknologi
- Genmodifisering - nye muligheter?
- Genmodifisering - på ville veier?
- Kan genmodifisert mat være farlig?
- Genmodifisering - norske lover og internasjonale avtaler
- Genmodifisering - forskning og etikk

Les mer om genmodifisering:

Bioteknologinemda
Miljøverndepartementet Genteknologi
Forbrukerportalen.no Genmodifisert mat
Direktoratet for naturforvaltning Genmodifiserte organismer
Grønn hverdag Gennytt

I FOKUS

Genmodifisert mat - gjeldende norsk regelverk
Artikkel, 18.09.2003
Merkekrav til genmodifisert mat er gitt i Statens næringsmiddeltilsyns rundskriv 4039 : Rundskriv til forskrift om merking mv av næringsmidler - midlertidige retningslinjer vedrørende merking av genmodifiserte og næringsmiddelingredienser, se også Presisering av rundskriv om merking av genmodifisert mat.
Les mer

Genmodifisert mais like trygg

Du er her :

Forsiden
Genmodifiserte matvarer

Fokuserer på:
Artikkel
Ingen GMO-overskridingar i fôr i 2002
Genmodifiserte plantesorter er forbudt å dyrke i Norge
Hvete neste store genmodifiserte såvare på markedet
Godkjenning av første genmodifiserte avlinger utsatt
Kraftig reduksjon i feltforsøk med genmodifiserte vekster i EU.
Bred debatt om genmodifisert mat
Genmodifisert mat - gjeldende norsk regelverk
Høring trace and label
Monsanto trapper ned i Europa
Genmodifisert mais like trygg
Hva er genmodifisert mat?
Gener og genteknologi
Genteknologi - nye muligheter?
Genmodifisering - på ville veier?
Kan genmodifisert mat være farlig?
Genmodifisering - norske lover og internasjonale avtaler
Genmodifisering - forskning og etikk
Økning i økologisk landbruksareal i fjor
Gir klartegn for genmodifisert mais
Vil ha genmodifisert mat i Storbritannia
Bra GMO-merking i Sverige
Danmark klar med GMO-strategi
Genmodifisert mat på fremmarsj
EU-kommisjonen slår tilbake om GMO
Støtter EU i striden om genmat
Funn av GMO i økologisk fjørefôr
Brudd i samtalene om GMO
GMO-merking kan gi mindre valgfrihet
Lite genmodifisert materiale i norsk fôr
Funn av genmodifisert materiale i økologisk fôr
Skjerpede GMO-regler i EU
Genmodifisert mat
Genmat øker bruk av sprøytemidler
EU opphever ikke forbud mot genmat

Three semantic portals – One common subject

➔ one "virtual portal"
with seamless navigation in all directions

Achieving seamless knowledge

- **Very little is required for these portals to achieve a simple but effective form of Seamless Knowledge**

- **They have already achieved *subject-centric organization* of their content**
  - Without this, Seamless Knowledge is beyond reach
  - Without this, Seamless Knowledge is beyond reach

- **From a technical perspective, only two additional pieces are required to complete the puzzle:**

- **#1 An *identity mechanism***
  - To make it possible to know when their *subjects* are the same
  - Published subjects solve this problem

- **#2 An *exchange protocol***
  - To enable information to be requested and exchanged automatically
  - Ontopia has developed Topic Maps Remote Access Protocol

Topic Maps Remote Access Protocol (TMRAP)

Hi! Do you know the subject "genetically modified food"?*

* The actual question was:
Is the subject
http://psi.forskning.no/food/gm-food
known in your system?

http://matportalen.no/Matportalen/Emner/gmo

Portal A: forskning.no

Sure. My URL is:
http://matportalen.no/Mat
portalen/Emner/gmo

This scenario (called VISIT) is supported by Topic Maps Remote Access Protocol (TMRAP)

Portal B: Matportalen
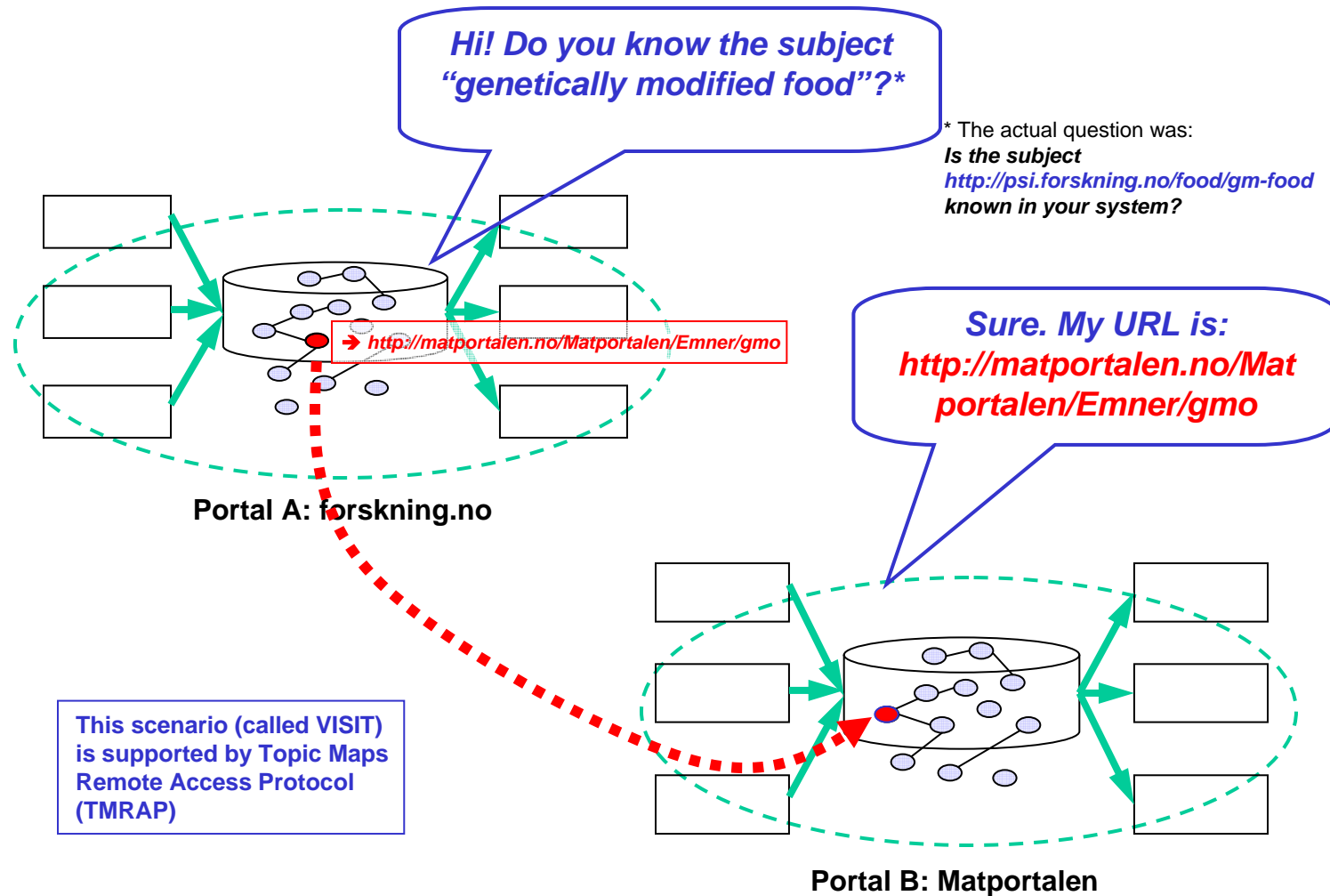
The Omnigator Rap demo (Part 1: VISIT)

- **Two Omnigators are running on this machine**
  - Different browsers (*Opera* and *Internet Explorer*)
  - Different skins (*Ontopia National Colours* and *Vive Québec*)
  - Different names

pepper

poivre

  - Different TMs (*Italian Opera* and *Various Geographical TMs*)

- **They are aware of each other's existence**

- **Their support for TMRAP is turned on**

http://www.ontopia.net/

1. View Topic Page for Japan in @pepper

2. Go to Manage page in @poivre and load Scripts and Languages

3. Reload Topic Page in @pepper

4. Links to Remote Topic Page automatically inserted

5. Click on VISIT and navigate to the Topic Page in @poivre

6. Go to Manage Page, load CIA World Factbook, go back to Japan Topic Page in @poivre, VISIT @pepper, note new Remote Topic Link…

7. etc.

VISIT: Some considerations

- **The functionality is deceptively simple, yet potential very powerful**
  - From the user's point of view the VISIT links might have been hand-coded (there is no visible difference)
  - The cool thing is that they are generated entirely automatically
  - *This is spontaneous knowledge aggregation in practice!!*

- **Think about it a bit:**
  - Having multiple Omnigators rapping together is already fairly cool
  - In fact, *any application* built with the Ontopia Knowledge Suite can now join in the fun
  - *And more importantly:*
  - So can *any application at all – whether or not it is based on Topic Maps*
  - The only prerequisites are:
    - Subject-centric organization (essentially, some concept of Topic Pages)
    - Use of Published Subjects (for the purpose of subject identification)
    - Support for TMRAP (in order to send and respond to requests)

VISIT: Further considerations

- **How useful is it really?**

- **Isn't it a little simple-minded?**

- **Actually, for many of our customers it is sufficient as a first step**
  - The Norwegian Research Council and the Norwegian Consumers' Association *want* to be able to link to each other in this way
  - The VISIT paradigm enables them to retain their own branding
  - At the same time, they offer their users an extremely valuable service

- **And remember:**
  - This game can be played by *any* application that uses some kind of subject-centric organization and PSIs

The Omnigator Rap demo (Part 2: GET)

- **But we can go a step further with relatively little effort**

- **Remember: Topic Maps are designed for *merging* …**
  - … so we can exchange not only Topic Page URLs,
  - but also *fragments* of content in topic map form

- **We are calling those fragments *topic maplets***

- **TMRAP also supports exchanging maplets**

http://www.ontopia.net/

TMRAP "GET" scenario using topic maplets

Hi! What do you know about "genetically modified food"?*

* The actual question was:
What information do have about
http://psi.forskning.no/food/gm-food
in your system?

Portal A: forskning.no

Oh, this and that. Here you are. Be my guest!

This scenario (called GET) provides another level of knowledge aggregation

Portal B: Matportalen
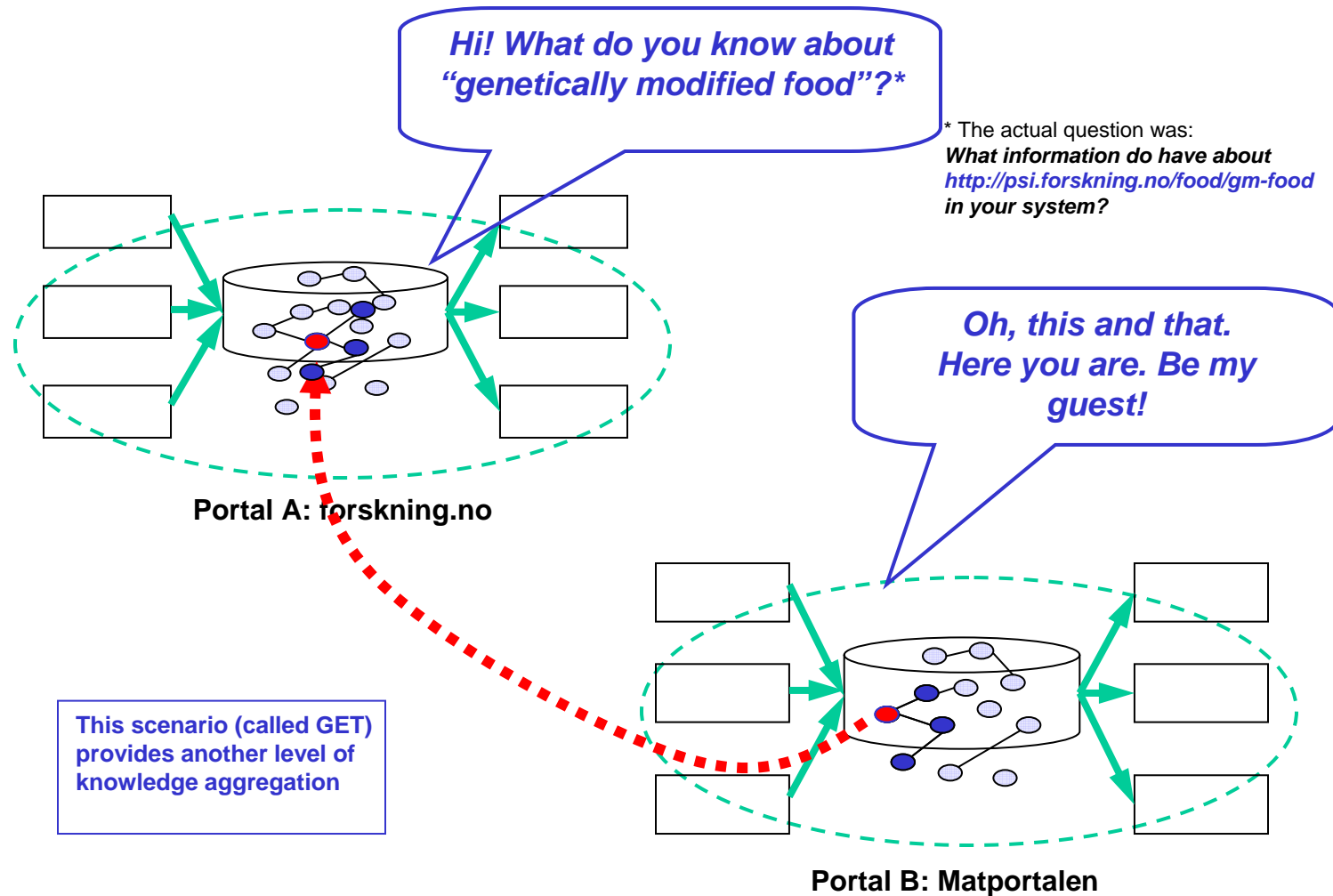
[Omnigator] Japan - Opera

File   Edit   View   Navigation   Bookmarks   Mail   Chat   Tools   Window   Help

http://169.254.96.75:8080/omnigato   ▼   Google search   ▼   100%   ▼

omnigator 007 @pepper

The Seamless Knowledge Navigator from **Ontopia**. Powered by the **Ontopia Knowledge Suite.**

Welcome | Opera TM | Manage | Customise | Export | Merge | Query | Reload | [   ] **| No schema**

Japan

Type(s): Country

Names (3)

- **Japan**
- **JA** - Scope: *Data code*
- **Japan** - Scope: *Conventional short form*

Subject Identifiers (1)

- http://www.topicmaps.org/xtm/1.0/country.xtm#JP

Containment Hierarchy

- Japan
  - ...

Associations (9)

- **Contains**
  - Nagasaki
- **Defines standards for**
  - Japanese Industrial Standards Committee
- **has national religion**
  - observe both Shinto and Buddhist
  - other
- **has natural resource**
  - fish
  - negligible mineral resources
- **Setting for**
  - Iris

External Occurrences (4)

- **Flag**
  - http://www.cia.gov/cia/publications/factbook/flags/ja-flag.jpg
- **Main page**
  - http://www.cia.gov/cia/publications/factbook/geos/ja.html
- **Map reference**
  - http://www.cia.gov/cia/publications/factbook/maps/ja-map.jpg
- **Site about**
  - http://www.csse.monash.edu.au/~jwb/japanese.html

Simulation of GET demo

1. View Topic Page for Japan in @pepper

2. Go to Manage page in @poivre and load both *Scripts and Languages* and *CIA World Factbook*

3. Reload Topic Page in @pepper

4. Links to Remote Topic Pages automatically inserted

5. Click on GET for each one and see the set of information be augmented by the addition of names, associations and occurrences from the remote topic maps.

GET: Some considerations

- **The functionality is even more powerful…**
  - The seamlessness factor is much greater

    (In fact we have "dumbed it down" in this Omnigator implementation in order to be able to show what is going on: The GET functionality could of course be activated automatically)

- **Application areas are slightly different:**
  - Useful when seamlessness is more important and branding issues less important
    - E.g., within a corporate environment
  - Opens up the possibility of totally individualized "portals"

The building blocks of seamless knowledge

- **Topic Maps – or rather…**
  - Subject-centric data that can be "viewed as topic maps"
    - Without this, Seamless Knowledge is beyond reach
  - *Already here*

- **Published Subjects**
  - The "Semantic Superhighway"
  - Globally unique identifiers for arbitrary subjects
  - *Already here*

- **Topic Maps Remote Access Protocol (TMRAP)**
  - Protocol for requesting and delivering Topic Page URIs and Topic Maplets
  - *Already here*

Subject-centricity!
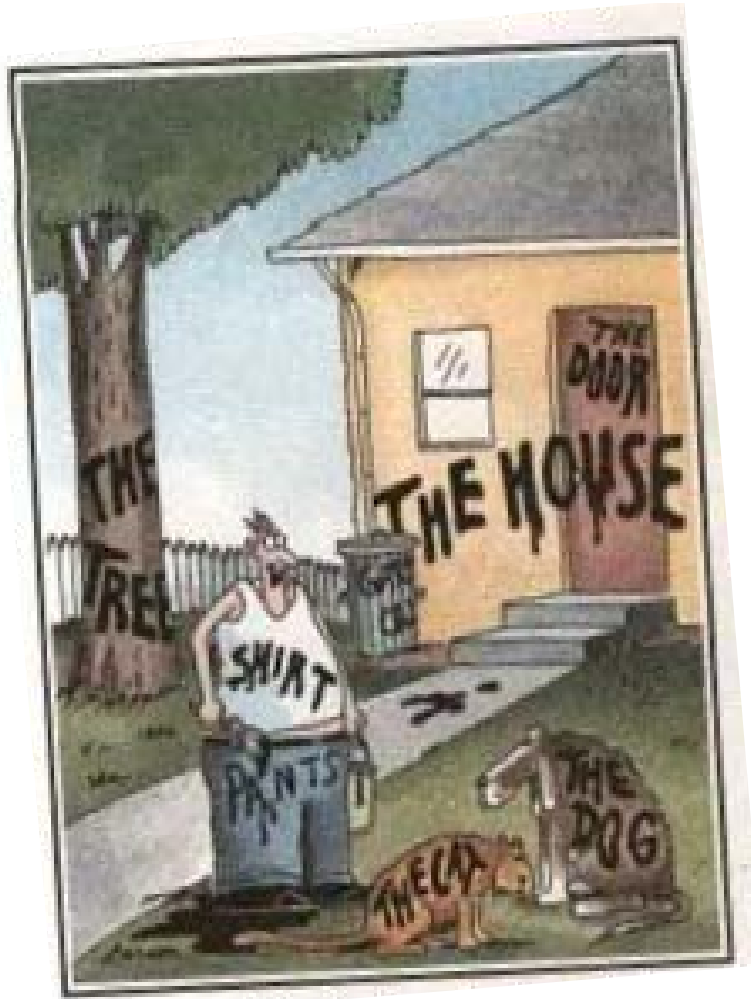
"Now! …. That should clear up few things around here!"

Where we've been today

- ☑ **Basic concepts: The TAO of Topic Maps (demo)**

- ☑ **Metadata? taxonomies? folksonomies? Topic Maps!**

- ☑ **Applications of topic maps**

- ☑ **Knowledge aggregation – tomorrow is here … today**

Thank you!

Any questions?