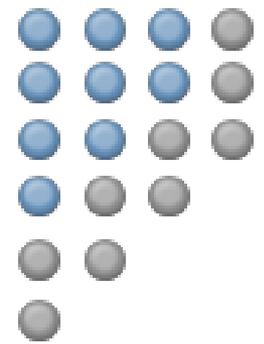


Compass

Improved Findability Through Semantic Search

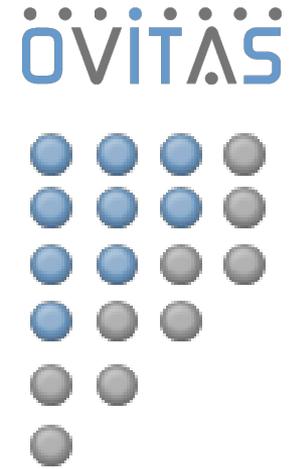




About us

- We are Eszter & Rolf
- Ovitás AS - information management since 1996 involving SGML/XML based technologies
- Engaged in the development of ontology based search and navigation

Searching approaches



- Traditional search is rarely topic centred
 - Full text search engines, e.g. Lucene are getting better, but they don't say anything about how topics are related to each other
 - Yahoo - directory search *
“Directory is an online guide to the World Wide Web. It is catalog of sites created by a **staff of editors** who visit and evaluate web sites, and then organize them into subject-based categories and sub-categories.”
- We were searching for a better approach...

Health in the Yahoo! Directory - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://dir.yahoo.com/Health/

Yahoo! My Yahoo! Mail Welcome, Guest [Sign In] Directory Home Help

YAHOO! HEALTH Directory

Search: the Web | the Directory | this category

Search

Health [Email this page](#) [Suggest a Site](#)
[Advanced Search](#)

Directory > Health [Save to My Web](#)

INSIDE YAHOO!

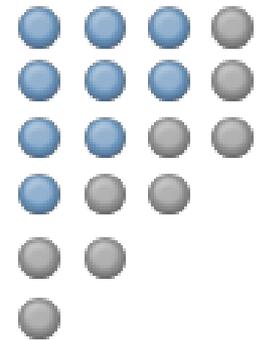
[Latest Health information on Yahoo! Health](#)

CATEGORIES [\(What's This?\)](#)

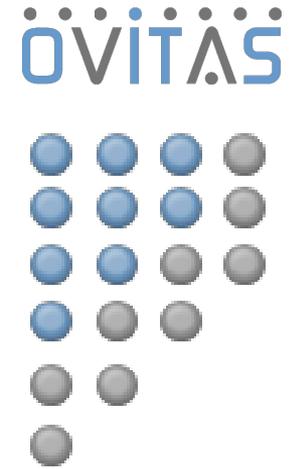
- ♦ [Alternative Medicine](#) (562)
- ♦ [Chats and Forums](#) (44)
- ♦ [Children's Health](#) (216)
- ♦ [Conferences](#) (17)
- ♦ [Consumer Products and Services@](#)
- ♦ [Death and Dying@](#)
- ♦ [Dental Health](#) (77)
- ♦ [Disabilities@](#)
- ♦ [Diseases and Conditions](#) (10944) **NEW!**
- ♦ [Education](#) (52)
- ♦ [Emergency Services](#) (530)
- ♦ [Medical Geography@](#)
- ♦ [Medicine](#) (4757)
- ♦ [Men's Health](#) (55)
- ♦ [Mental Health](#) (802)
- ♦ [Midwifery](#) (44)
- ♦ [News and Media](#) (221)
- ♦ [Nursing](#) (403)
- ♦ [Nutrition](#) (409)
- ♦ [Organizations](#) (22)
- ♦ [Pet Health@](#)
- ♦ [Pharmacy](#) (1855)

Done

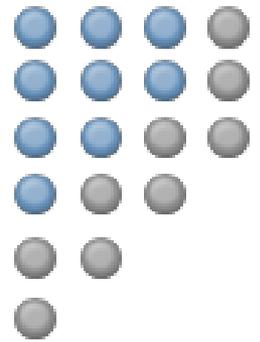
ÖVITÄS



Searching approaches

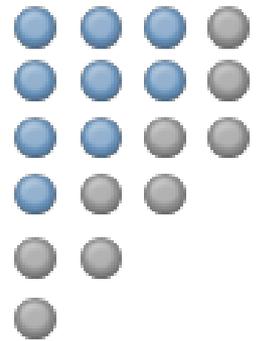


- Traditional search is rarely topic centred
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 - Yahoo - directory search *
“Directory is an online guide to the World Wide Web. It is catalog of sites created by a **staff of editors** who visit and evaluate web sites, and then organize them into subject-based categories and sub-categories.”
- We were searching for a better approach...



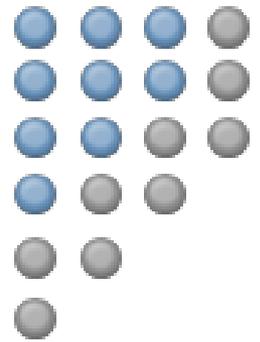
What's not working?

- Too many hits
- Too few hits
- No hits
- Reasonable number of hits, but not the relevant ones
- Difficult to find the right search words
- Hits are not categorized



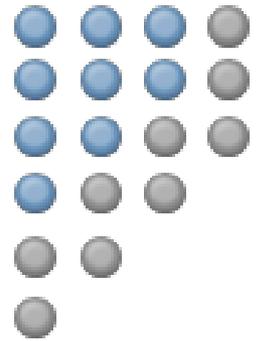
Can we fix the problem?

- No need to reinvent the wheel!
- Existing components:
 - Text analyzing tools
 - Full text search engine
 - Topic Maps engine
- Combine them in a new way...

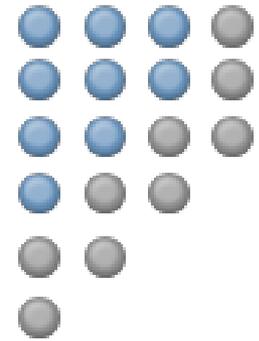


Basic ideas of Compass

- Use a knowledge model (e.g. Topic Maps) to describe your domain
- Assign some numeric value that defines the degree of relevance between the topic types in the model
- Enhance the full text search according to the model, retrieving an expanded set of search terms
- Set a threshold for relevance
- Return weighted search results



What does using a knowledge model really mean?



Known symbols

Land forms

	Terrace
	Spur
	Re-entrant
	Earth bank
	Quarry
	Earth wall
	Erosion gully
	Small erosion gully
	Hill
	Knoll
	Saddle
	Depression
	Small depression
	Pit
	Broken ground
	Ant hill

Rock and boulders

	Cliff, Rock face
	Rock pillar
	Cave
	Boulder
	Boulder field
	Boulder cluster
	Stony ground
	Bare rock
	Narrow passage

Water and marsh

	Lake
	Pond
	Waterhole
	River, Stream, Watercourse
	Minor water channel, Ditch
	Narrow marsh
	Marsh
	Firm ground in marsh
	Well
	Spring
	Water tank, Water trough

Vegetation

	Open land
	Semi-open land
	Forest corner
	Clearing
	Thicket
	Linear thicket
	Vegetation boundary
	Copse
	Distinctive tree
	Tree stump, Root stock

Man-made features

	Road
	Track/Path
	Ride
	Bridge
	Power line
	Power line pylon
	Tunnel
	Stone wall
	Fence
	Crossing point
	Building
	Paved area
	Ruin
	Pipeline
	Tower
	Shooting platform
	Boundary stone, Cairn
	Fodder rack
	Platform
	Monument or Statue
	Building pass through
	Stairway

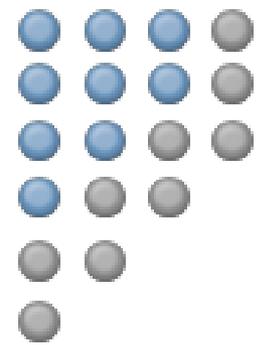
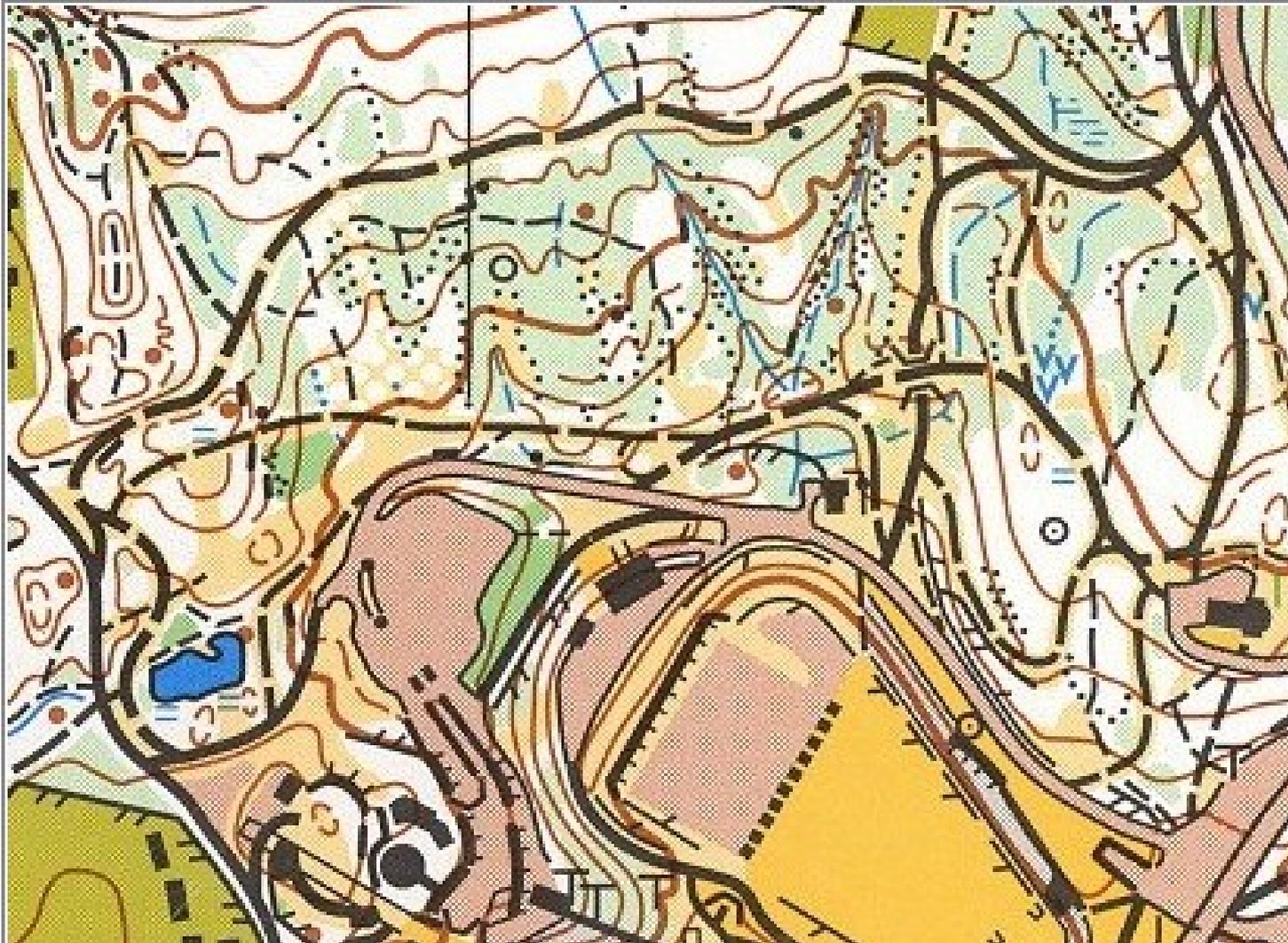
Special features

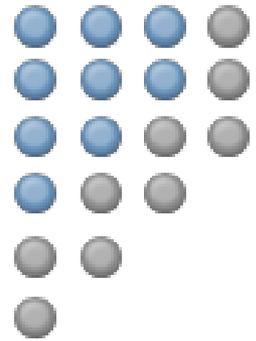
	Special item
	Special item



Known symbols put in relation to each other

ÖVITÄS

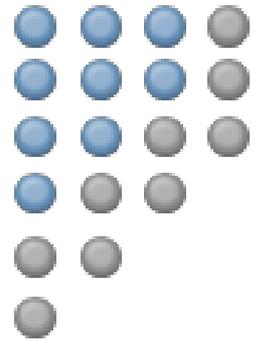




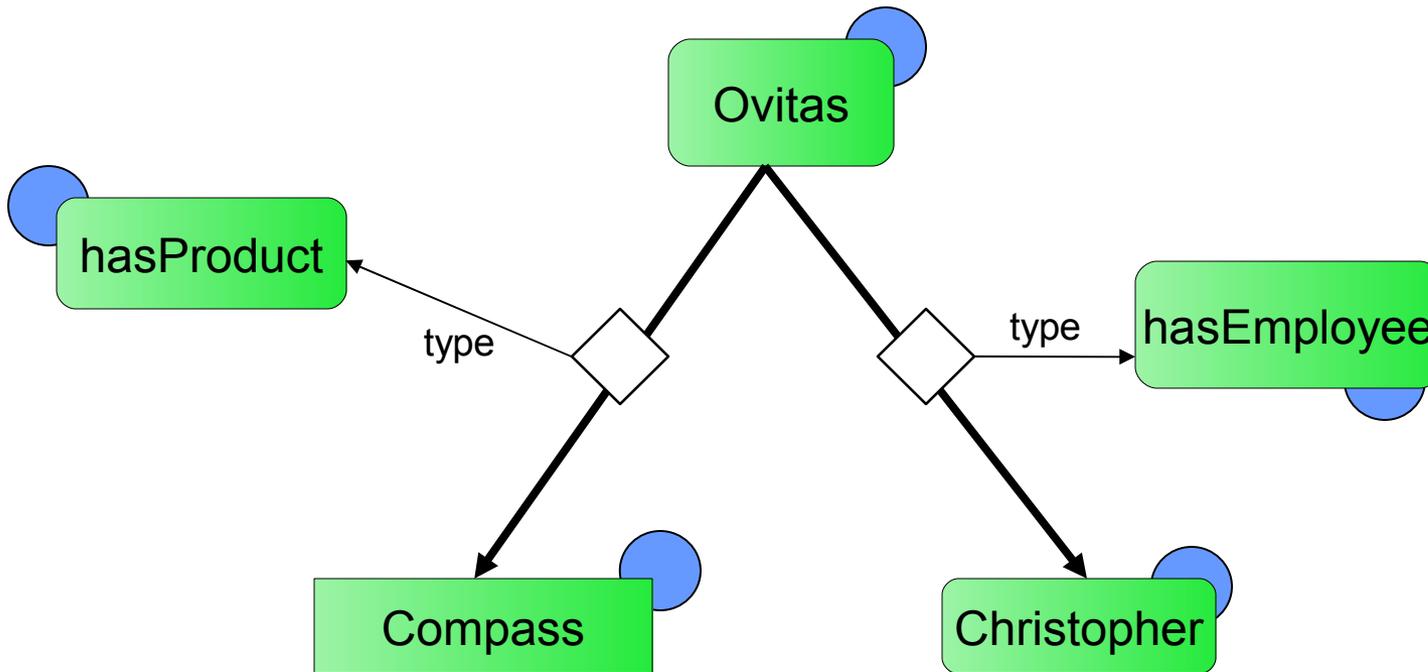
The metaphor

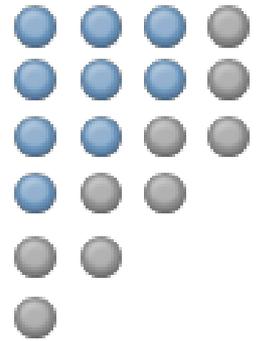
- The map is a drawing of the real life terrain
- The topic map is a "drawing" of the domain we want to talk about
- Maybe old news, but:
We offer you the compass!



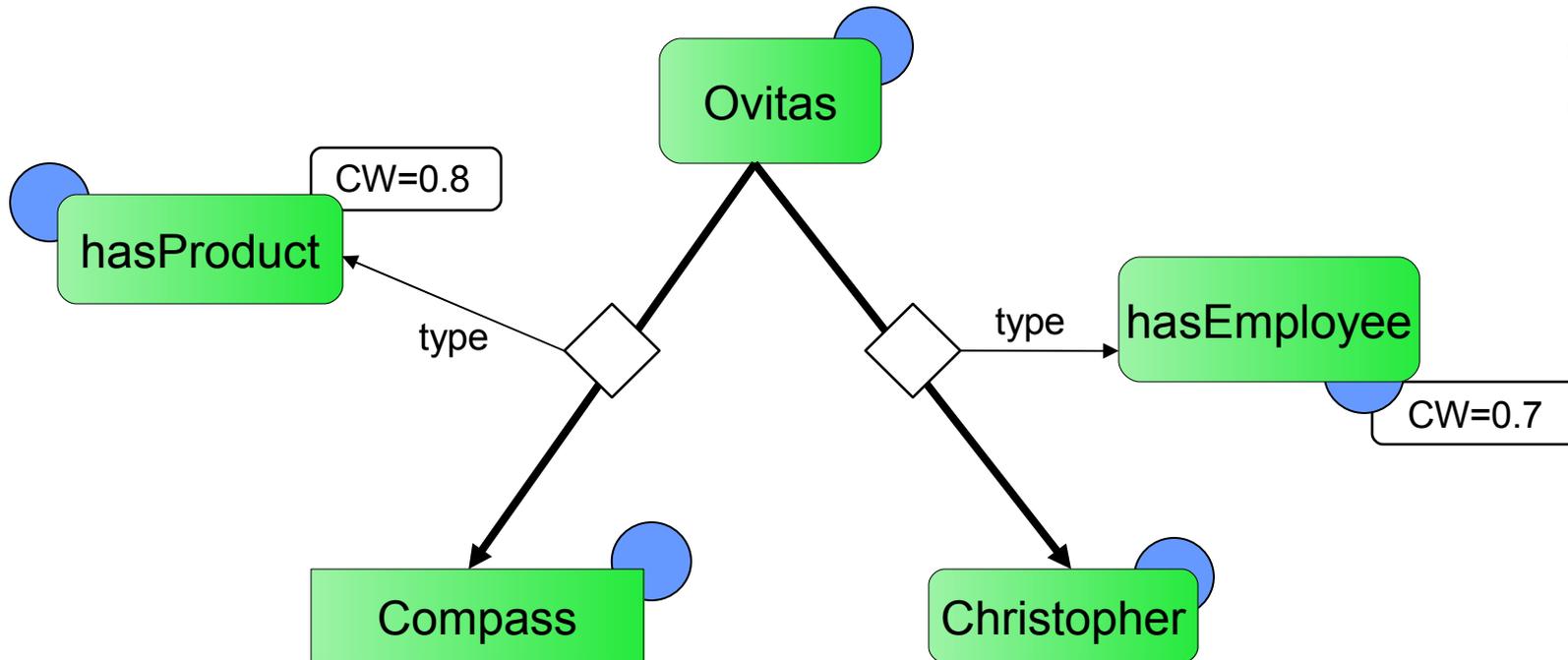


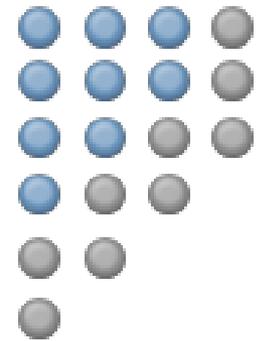
Example topic map





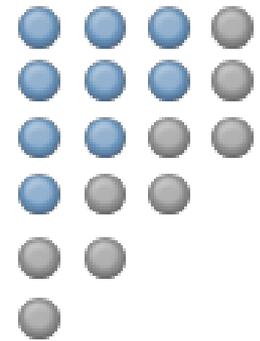
Example topic map



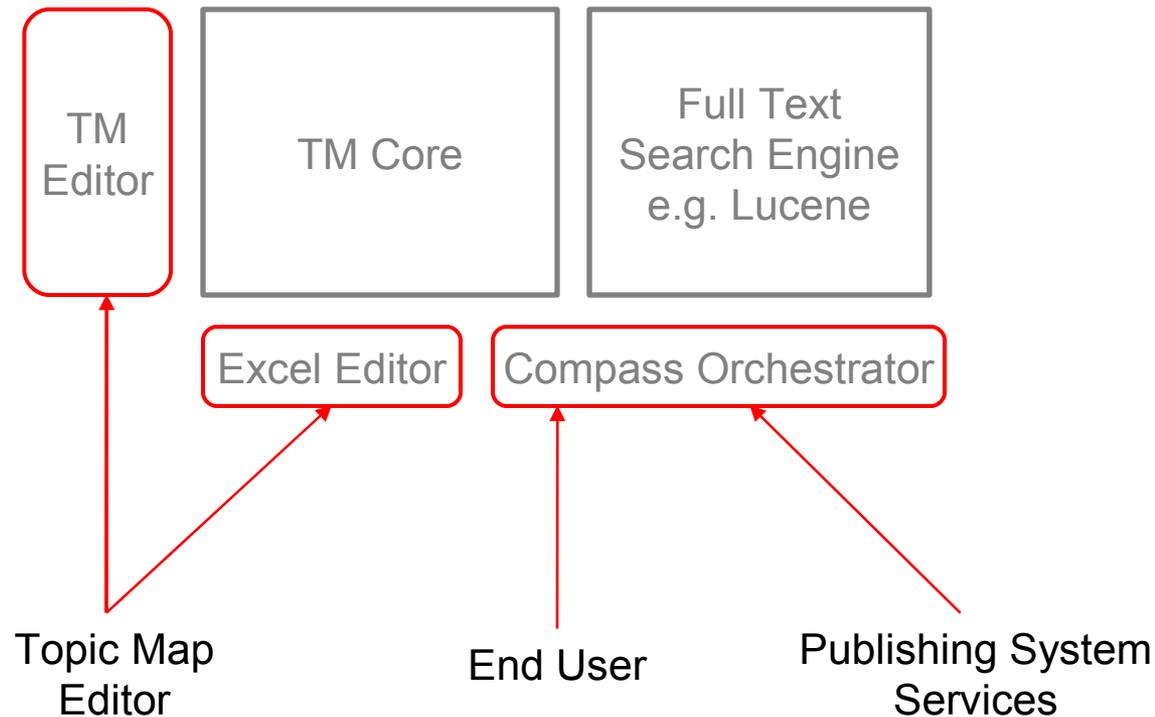


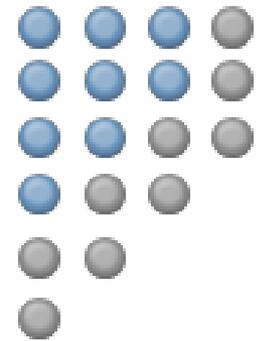
Architecture

- Service oriented architecture
- Web service interface
- Currently on the .NET platform
- Integrated components:
 - *TMCore* Topic Maps engine by *NetworkedPlanet*
 - *Apache Lucene*: full text search engine



Architecture diagram





Compass orchestrator

- Guides the processes of the search:
 - User enters a search term
 - Search for term in the topic map
 - Look in the map for relevant/related topics
 - Send all these terms off to a fulltext search
 - Calculate relevance (based on the combination of CompassWeight and Lucene weights) and prepare the result list as an XML instance
 - Render XML results



Search term

Hits in the fulltext grouped by the related topics

Search Results for:

Compass

Search

Topic Map expansion

You got a total of 55 hits for *Compass*

Grouped hits

- Compass Hits: 6
- Ovitas AS Hits: 33
- Christopher Kolstad Hits: 1
- Eszter Horvati Hits: 1
- Information Retrieval Hits: 3
- C# Hits: 6
- Topic Maps Hits: 31

10 Most relevant hits

Compass.pdf

that combine the right search and navigation methods. COMPASS Intelligent Information Retrieval COMPASS - Information Retrieval Solution Intelligent information retrieval enables you to find ... for information retrieval. Compass can be used in searching through vast amounts of corporate
<http://www.ovitas.no/external/display/Compass.pdf>

Ovitas AS

Horvati er ansatt som informasjonssystemarkitekt. Christopher Kolstad er ansatt som Systemutvikler ...
Ovitas AS Nyheter Nyheter Ovitas lanserer Compass ... konferansen i Oslo den 29. mai ... om Compass her... SAS velger Ovitas løsning
<http://www.ovitas.no/external/news.do>

Related topics

- Company
- Ovitas AS
- Person
- Barnabas Davoti
- Christopher Kolstad
- Eszter Horvati
- Skill
- C#
- Lucene
- Topic Maps
- Solution
- Information Retrieval

Relevant documents ranked by the weighting result



Synonym
search

Search Results for

You got a total of 38 hits for *Topic Maps Emnekart*

Grouped hits

- Topic Maps Hits: 31
- Emnekart Hits: 10
- Christopher Kolstad Hits: 1
- Graham Moore Hits: 4
- Kal Ahmed Hits: 6
- Compass Hits: 6
- TMCore05 Hits: 21
- Eszter Horvati Hits: 1
- Technologies Hits: 2

10 Most relevant hits



Ovitas AS

; **Topic Maps engine (emnekart) TMCore05** fra Networked Planet gir utviklere muligheten til å dra nytte av alle fordelene som **emnekart (topic maps)** gir i sine applikasjoner. Emnekartmotoren inneholder et ... løsning. Semantiske søk basert på **emnekart (Topic Maps)**. Organiser og grupper søkerresultatet i

<http://www.ovitas.no/external/technology.do?id=38>



NetworkedPlanet - Networked Information, Networked Knowledge

Kal Ahmed and Graham Moore of NetworkedPlanet have contributed an article describing **topic maps ...** with **topic maps (DDE Format) Technologies NetworkedPlanet**

Related topics

Person

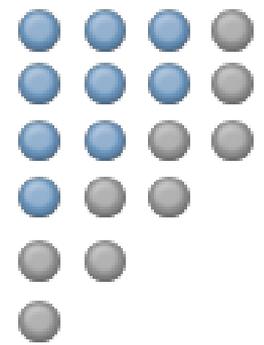
Barnabas Davoti
Christopher Kolstad
Eszter Horvati
Graham Moore
Kal Ahmed

Product

Compass
TMCore05

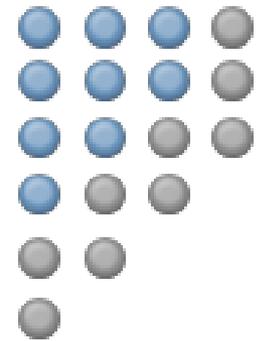
Skill Group

Technologies



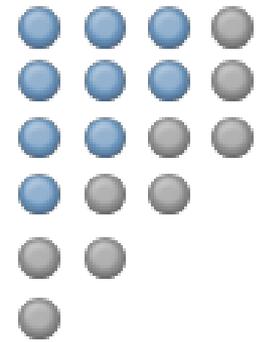
Creating/maintaining the model

- An MS Excel plug-in serves as the topic map editor
- Can be put under version control
- Import the model into the topic map engine: one click only
- In addition: Web service XTM import



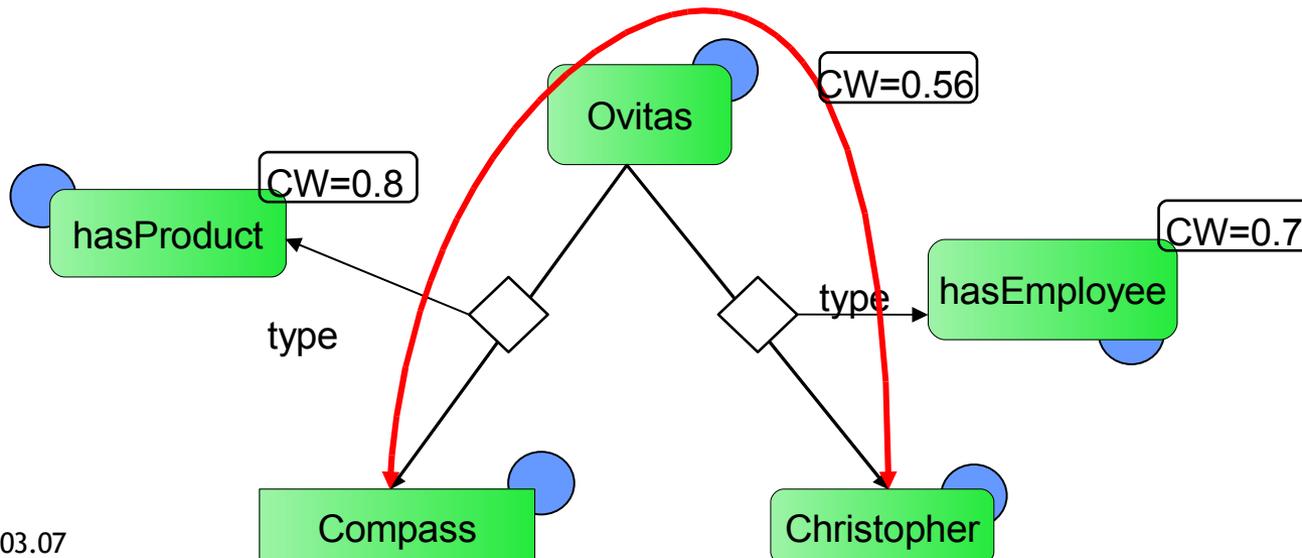
Navigation

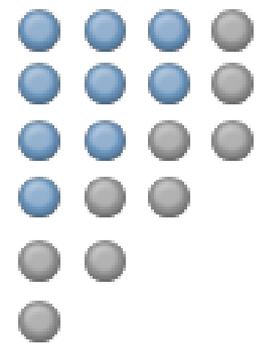
- Navigation through the associations between topics
- Navigation by search



User configurations

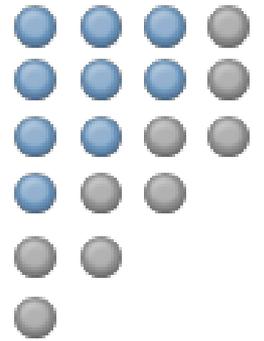
- What pages to index
- What topic map to use
- The number of hops to perform
- The threshold for relevance





Compass works well when...

- We have a web site with a lot of text
- Which is unstructured (no markup, no tags)
- A controlled domain (we know what the domain of discourse is)



Examples

FELLESKATALOGEN®

FELLESKATALOG OVER FARMASØYTISKE SPESIALPREPARATER MARKEDSFØRT I NORGE

- [Felleskatalogtekster](#)
- [ATC-register](#)
- [Preparater](#)
- [Gåtte preparater](#)
- [Ladret navn](#)
- [Apotek»-preparater i ATC](#)
- [Setningsstoffer til legemidler](#)
- [Giftninger](#)
- [Legemiddelinteraksjoner](#)
- [Medikamenters innvirkning på klinisk-ki](#)
- [Opping i idretten](#)
- [Graviditet og amming](#)
- [Profylaksibehandling](#)
- [Formelregister](#)
- [Saksiner](#)
- [Liser på legemidler](#)

Avsnitt Legemiddel Søketekst:

- [Nye Felleskataloger](#)
- [Nye Felleskataloger](#)
- [Endring i refusjon](#)
- [Endringer i forbruk](#)
- [Pakningsvedlegg](#)

- Legemiddel
- ATC-register
- Interaksjoner
- Firma
- Apotek (navn)
- Apotek (sted)
- Formelregister
- Stikkordregister**
- Substansregister
- Varenummer
- Fritekst

Sist oppdatert 19. mars 2007

Felleskatalogtekstene er basert på SPC godkjent av Statens legemiddelverk.

SPC

[Naturlegemidler](#)

[Interaksjoner - DRUID](#)

[Pasientutgave](#)

[Veterinærkatalogen](#)

[Tall og Fakta 2007](#)

[Normaltariffen](#)

Felleskatalogen for PDA/Lomme-PC:
www.sunnsoft.no
www.turnuslegen.no

[Abonner på nyheter](#)

[Bestilling](#)

[Kontakt oss](#)

Redaktør: Cand. pharm. Holger Moe Tørisen

FELLESKATALOGEN®

Avsnitt Compass Søketekst:

Søk på Morfin Ga: 93 treff.

Eksakt treff

- Morfin «Nycomed Pharma» Fra: Preparater
- Morfin Epidural «Nycomed Pharma» Fra: Preparater
- Morfin-Skopolamin «Nycomed Pharma» Fra: Preparater
- N02A A01 Morfin Fra: Interaksjoner

Grupperte treff

- ▼ Preparater (32)
- ▼ ATC-koder (34)
- ▼ Firmaer (7)
- ▼ Antidoter (2)
- ▼ Gifter (1)
- ▼ Formelregister (1)
- ▼ Graviditet og amming (2)
- ▼ Interaksjoner (10)
- ▼ Substans (1)
- ▼ Diverse dokumenter (2)
- ▼ Endrede tekster (1)

Sist oppdatert 30. januar 2007

Felleskatalogtekstene er basert på SPC godkjent av Statens legemiddelverk.
SPC

Naturlegemidler

Interaksjoner - DRUID

Pasientutgave
Veterinærkatalogen

Tall og Fakta 2007
Normaltariffen

Felleskatalogen for PDA/Lomme-PC:
www.sunnssoft.no
www.turnuslegen.no

Abonner på nyheter
Bestilling
Kontakt oss

Relatert informasjon

Firma

Nycomed Pharma (0,4)

Preparat

- Morfin «Nycomed Pharma» (1)
- Dolcontin «Pfizer» (0,7)
- Morfin Epidural «Nycomed Pharma» (0,7)
- Morfin NAF u/konserv. «Apotek» (0,7)
- Morfin-Skopolamin «Nycomed Pharma» (0,7)

Substans



Avsnitt Compass

Søk på Keflex Ga: 10 treff.

Eksakt treff

Keflex «EuroCept» Fra: Preparater

Grupperte treff

- ▼ Preparater (4)
- ▼ ATC-koder (2)
- ▼ Firmaer (1)
- ▼ Endrede tekster(3)

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Pasientutgave
Veterinærkatalogen

Tall og Fakta 2007
Normaltariffen

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www.sunnssoft.no
www.turnuslegen.no

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Kontakt oss

Relatert Informasjon

Firma

EuroCept (0,4)

Preparat

Keflex «EuroCept» (1)
Cefalexin «Merck NM» (0,49)

Substans

J01D B01 Cefaleksin (0,7)



Avsnitt Søketekst:

- Felleskatalogetekster
- ATC-register
- Preparater
- Utgåtte preparater
- Utdret navn
- «apotek»-preparater i ATC
- Setningsstoffer til legemidler
- Urgiftninger
- Legemiddelinteraksjoner
- Legemidlers innvirkning på klinisk-kj
- Utpøping i idretten
- Uaviditet og amming
- Uafylksibehandling
- Uarmelregister
- Uksiner
- Uiser på legemidler
- Uikkord-register

Søk på Keflex Ga: 9 treff.

Eksakt treff

Keflex «EuroCept» Fra: Preparater

Grupperte treff

- ▼ Preparater (3)
- ▼ ATC-koder (2)
- ▼ Firmaer (1)
- ▼ Endrede tekster(3)

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www.sunsoft.no
www.turnuslegen.no

Abonner på nyheter
Bestilling
Kontakt oss

Relatert informasjon

Firma
EuroCept (0,7)

Preparat
Keflex «EuroCept» (1)
Keflin «EuroCept» (0,49)
Nebcina «EuroCept» (0,49)

Substans
J01D B01 Ceraleksin (0,4)



 Avsnitt

Compass



Søketekst: Kvalme

Søk

Felleskatalogtekster

ATC-register

Preparater

Gåtte preparater

Lidret navn

«apotek»-preparater i ATC

Setningsstoffer til legemidler

Giftninger

Legemiddelinteraksjoner

Legemidlers innvirkning på klinisk kj

Sping i idretten

Laviditet og amming

Nafylaksibehandling

Farmelregister

Vaksiner

Liser på legemidler

Likkord-register

Søk på Kvalme Ga: 113 treff.

Grupperte treff

Preparater (87)

- ≡ [Postafen «UCB»](#)
- ≡ [Ondansetron Nycomed «Nycomed Pharma»](#)
- ≡ [Alimta «Lilly»](#)
- ≡ [Antineuralgica «Alpharma»](#)
- ≡ [Marzine «Pfizer»](#)
- ≡ [Zofran «GlaxoSmithKline»](#)
- ≡ [Stemetil «Aventis Pharma»](#)
- ≡ [Sevorane «Abbott»](#)
- ≡ [Morfin Epidural «Nycomed Pharma»](#)
- ≡ [Carboplatin «Mayne»](#)
- ≡ [Phenergan «Aventis Pharma»](#)
- ≡ [Phos-Ex «Vitaline»](#)
- ≡ [Robinul-Neostigmin «Meda»](#)
- ≡ [Kull «Abigo»](#)
- ≡ [Primperan «Sanofi-Synthelabo»](#)
- ≡ [Cefalexin «Merck NM»](#)
- ≡ [Diamox «Goldshield»](#)
- ≡ [Diamox Depot «Goldshield»](#)
- ≡ [Flutamid «Orion»](#)
- ≡ [Ketorax «Pfizer»](#)
- ≡ [Travello «Pfizer»](#)
- ≡ [Trimetoprim «Orion»](#)
- ≡ [Loratadin «Merck NM»](#)
- ≡ [Atarax «UCB»](#)
- ≡ [Fungizone «Bristol-Myers Squibb»](#)
- ≡ [Hexabrix «Guerbet»](#)
- ≡ [Kaleorid «LEO»](#)
- ≡ [Megace «Bristol-Myers Squibb»](#)
- ≡ [Niferex «SCHWARZ PHARMA»](#)
- ≡ [Kodein «Nycomed Pharma»](#)

Sist oppdatert 30. januar 2007

Felleskatalogtekstene er basert på SPC godkjent av Statens legemiddelverk.

SPC

Naturlegemidler

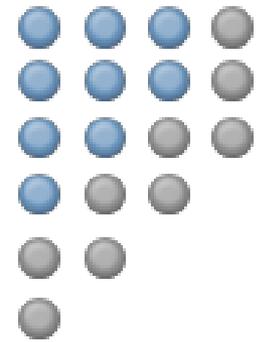
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NormaltariffenFelleskatalogen for PDA/Lomme-PC:
www.sunnssoft.no
www.turnuslegen.noAbonner på nyheter
Bestilling
Kontakt oss

Relatert Informasjon

Substans

A04 Antiemetika (0,7)



Summary

- Semantic search based on Topic Maps
- Get relevant hits within a meaningful context
- Index and search any document formats
- Organize information in a topic-oriented manner
- Link to relevant information without touching the data content
- Tools for maintaining/evolving the model
- Conceptual navigation through search enabled by Topic Maps

