

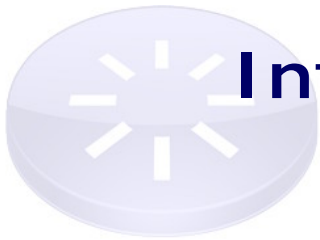
# Web 3.0 – Wie sehen Inhalte im nächsten Jahrzehnt aus?



Dr. Michael Granitzer  
Know-Center Graz

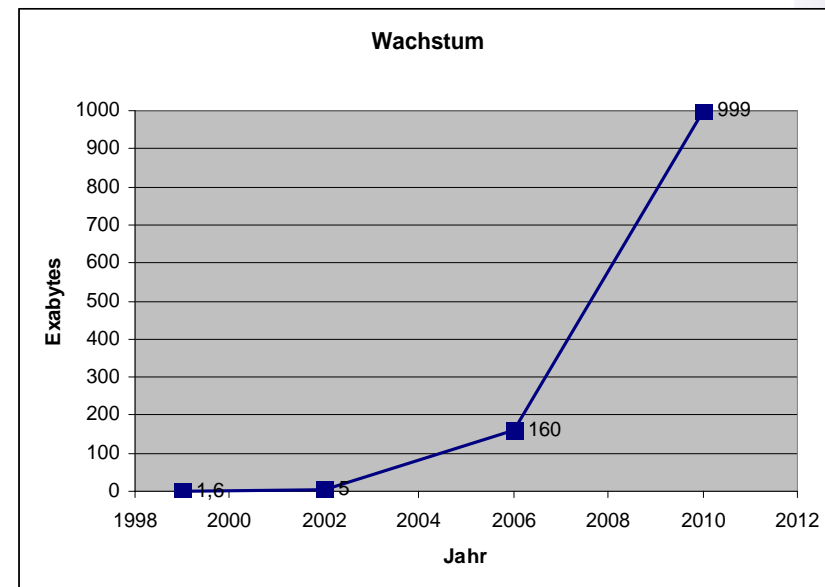
<http://www.know-center.at>

---

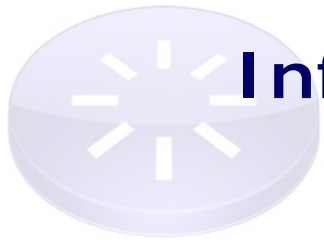


# Informationsmenge

- 2002: 5 Exabytes
- 2006: 161 Exabytes an digitaler Information
  - 6 Tonnen an Bücher pro Einwohner der Erde
  - Videos und Bilder
  - Primärquelle Internet
- 2010: 1 Zetabyte



Quelle: The Diverse and Exploding Digital Universe, International Data Corporation  
[http://www.emc.com/digital\\_universe](http://www.emc.com/digital_universe)

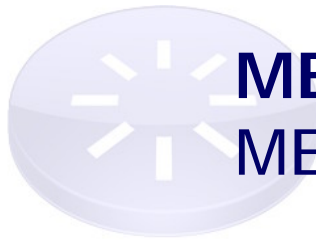


# Informationsmenge

Informationsqualität?

Bewältigbarkeit?

Nutzbarmachung?



# MEMory EXtender

## MEMEX – As we may think

*A memex is a device in which an individual stores all his books records and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility.*

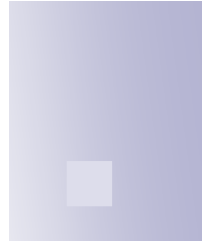
*If the user inserted 5000 pages of material a day it would take him hundreds of years to fill the repository*

[Vannevar Bush; July 1945]



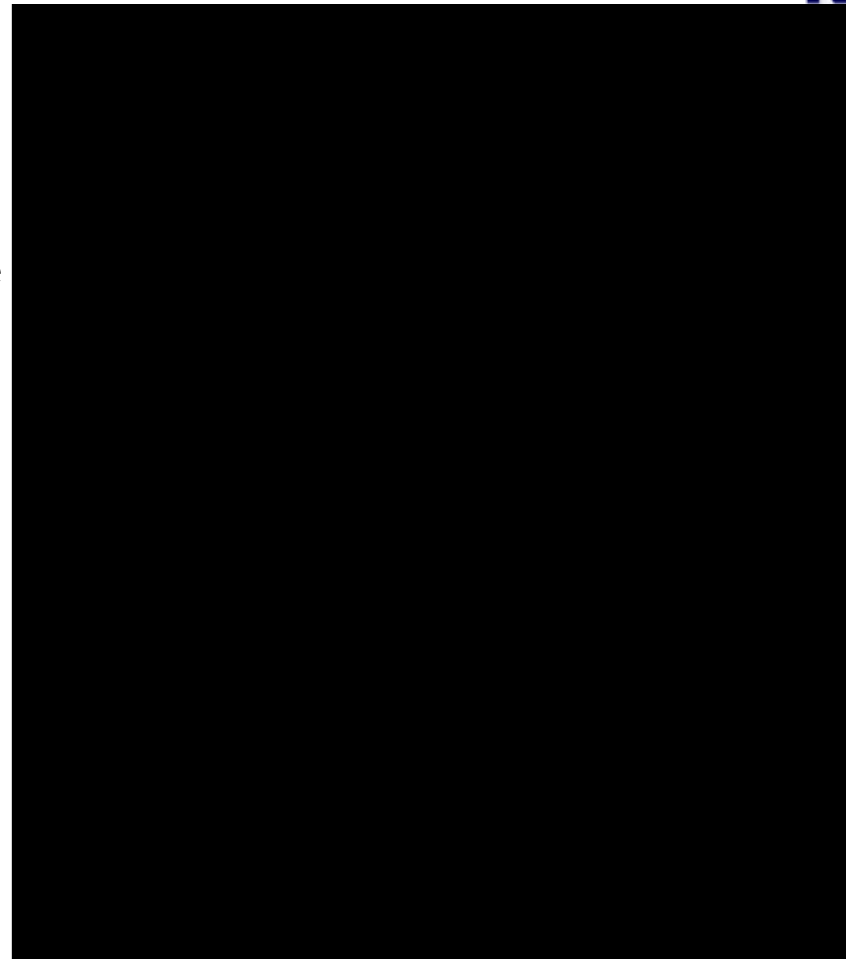


# Wie hat die Memex funktioniert?



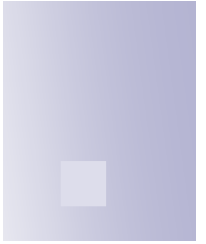
Services

People

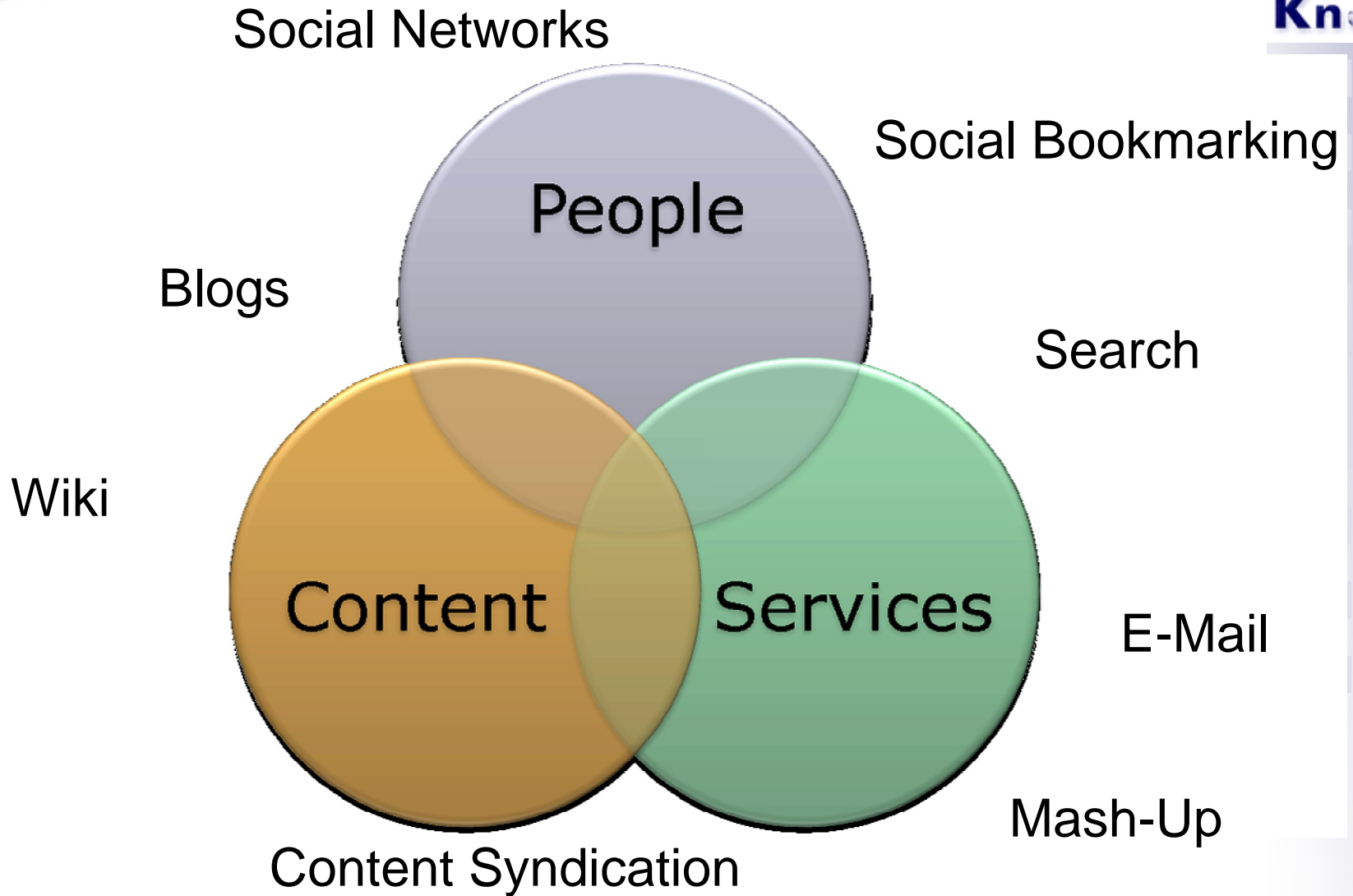




# Das Web als MEMEX?



center . graz  
**Know**





Web als MEMEX?

# Gedächtniserweiterung Web



center . graz  
**Know**

## Situation

- 🌐 Riesige Informationsmenge, jedoch geringe Informationsqualität ( $10^{10}$  Webseiten)
- 🌐 Steigende Anzahl an Benutzern ( $10^9$ )
- 🌐 Steigende Anzahl an Diensten ( $\sim 10^7$ )  
<http://swi.sti-innsbruck.at/projects.php>
- 🌐 Steigende Anzahl an Geräteplattformen ( $10^2$ )
- 🌐  $10^{28}$  Möglichkeiten!

## Lösungsmöglichkeit

Semantik als intelligentes *Bindeglied* zwischen *Nutzern*,  
*Diensten und Inhalten*

7

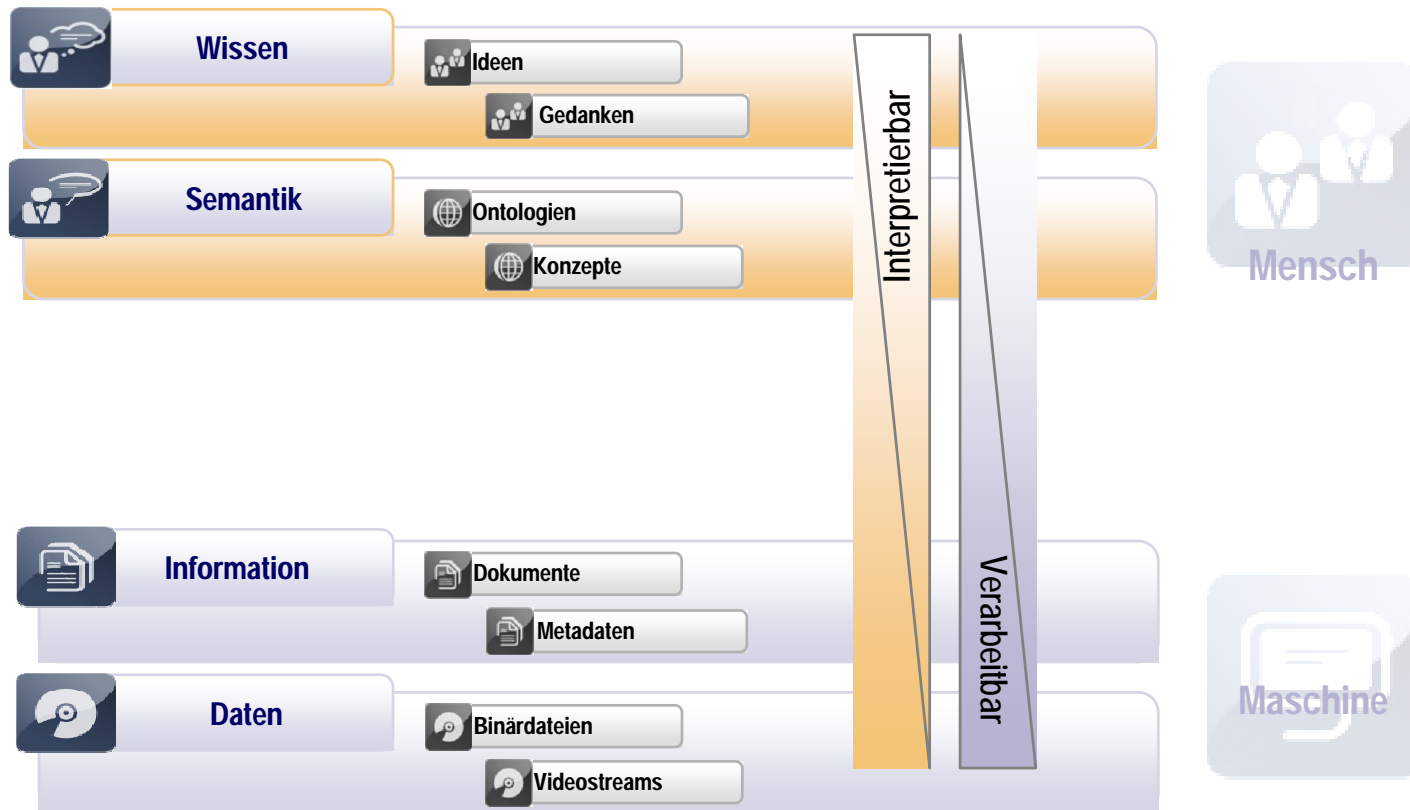


# Was bedeutet Semantik?

## Semantische Lücke



center . graz  
**Know**





# Was bedeutet Semantik?

## Semantische Lücke



center . graz  
**Know**



**WIKIPEDIA**  
The Free Encyclopedia

### navigation

- [Main page](#)
- [Contents](#)
- [Featured content](#)
- [Current events](#)
- [Random article](#)

### search




### interaction

- [About Wikipedia](#)
- [Community portal](#)
- [Recent changes](#)
- [Contact Wikipedia](#)
- [Donate to Wikipedia](#)
- [Help](#)

### toolbox

- [What links here](#)
- [Related changes](#)
- [Upload file](#)

Help us provide free content to the world by [donating today!](#)

- [page](#)
- [discussion](#)
- [edit this page](#)
- [history](#)

[Log in / create account](#)

## Paul McCartney

From Wikipedia, the free encyclopedia  
(Redirected from [Paul mccartney](#))

**Sir James Paul McCartney**, MBE (born 18 June 1942) is an English rock singer, [bass guitarist](#), songwriter, [composer](#), multi-instrumentalist, entrepreneur, [record producer](#), film producer and [animal-rights activist](#). He gained worldwide fame as a member of [The Beatles](#), with [John Lennon](#), [George Harrison](#), and [Ringo Starr](#). McCartney and Lennon formed one of the most influential and successful [songwriting partnerships](#) and "wrote some of the most popular music in rock and roll history".<sup>[1]</sup> After leaving The Beatles, McCartney launched a successful solo career and formed the band [Wings](#) with his first wife, [Linda Eastman McCartney](#), and singer-songwriter [Denny Laine](#). He has worked on film scores, classical music, and ambient/electronic music; released a large catalogue of songs as a solo artist; and taken part in projects to help international [charities](#).

McCartney is listed in *[Guinness World Records](#)* as the most successful musician and composer in [popular music](#) history, with 60 [gold discs](#) and sales of 100 million [singles](#).<sup>[2]</sup> His song "[Yesterday](#)" is listed as the most [covered](#) song in history - by over 3,700 artists so far - and has been played more than 7,000,000 times on American television and radio. Wings' 1977 single "[Mull of Kintyre](#)" became the first single to sell more than two million copies in the UK, and remains the UK's top selling non-charity single.<sup>[3]</sup> (Three charity singles have since surpassed it in sales; the first to do so—in 1984—was [Band Aid's "Do They Know It's Christmas?"](#), whose participants included McCartney.)

His company [MPL Communications](#) owns the copyrights to more than 3,000 songs,<sup>[4]</sup> including all of the songs written by [Buddy Holly](#), along with the publishing rights to such musicals as *[Guys and Dolls](#)*, *[A Chorus Line](#)*, and *[Grease](#)*. McCartney is also an advocate for [animal rights](#), [vegetarianism](#), and [music education](#); he is active in campaigns against [landmines](#), [seal hunting](#), and [Third World debt](#).

### Contents [hide]

- [Early years: 1942-1957](#)
- [1957-1960: The Quarrymen and the Silver Beetles](#)
- [1960-1970: The Beatles](#)

### Paul McCartney



McCartney performing in [Prague](#), 6 June 2004

### Background information

<b>Birth name</b>	James Paul McCartney
<b>Born</b>	18 June 1942 (age 66) Liverpool, England



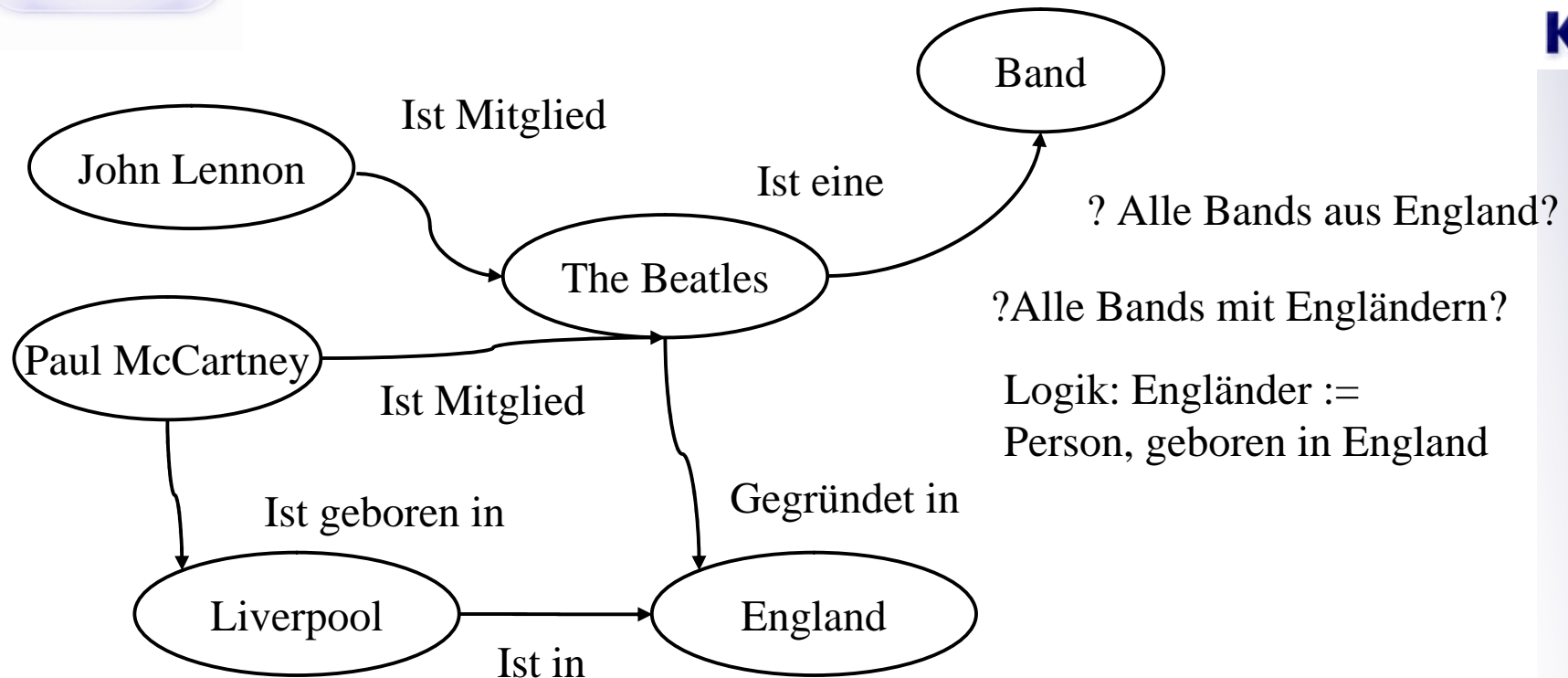


Was bedeutet Semantik?

## Konzepte + Beziehungen



center . graz  
**Know**



Repräsentiert über Semantic Web Sprachen wie RDF, RDFS, OWL



Was ist Semantik?

# Repräsentationssprachen



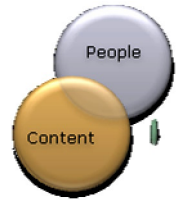
center . graz  
**Know**

- Resource Description Framework (RDF)
  
- Web Ontology Language (OWL)
  - u *OWL Lite*
  - u *OWL DL*
  - u *OWL Full*
  
- Unterschied in Ausdrucksstärke



People & Content

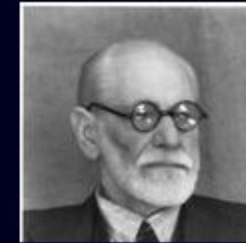
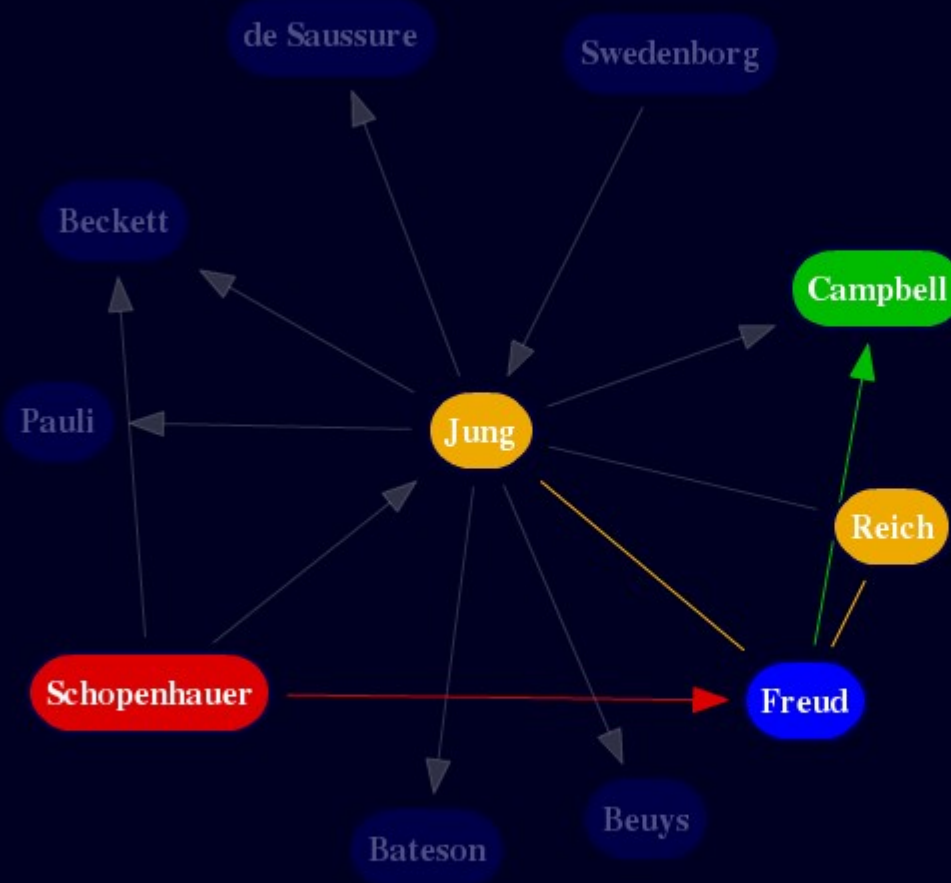
## Semantisch angereicherte Inhalte



center . graz  
**Know**

- Erfassen von Semantik über den Benutzer
- Grundlage für intelligente Verarbeitung
  
- ➔ Semantic Blogging
- ➔ Semantic Wiki's
- ➔ Automatisierte semantische Anreicherung
- ➔ Linked Open Data (e.g. DBPedia, Freebase)

# People & Content



## Sigmund Freud

Sigmund Freud, born Sigismund Schlomo Freud (May 6 1856 – September 23 1939), was a Czech Austria neurologist and psychiatrist who founded the psychoanalytic school of psychology. Freud is best known...

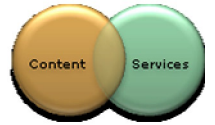
[edit / read more](#)

Influence Viewer: <http://goosebumps4all.net/goi/>



## Content & Services

# Automatisierte Dienste



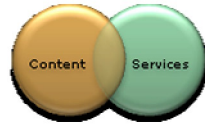
center . graz  
**Know**

- Semantische Integration heterogener, dynamischer Datenquellen
  - Automatische Service Komposition durch semantische Beschreibung
- 
- ➔ Intelligente (Multimedia) Content Adaptation
  - ➔ Semantic Web Service Composition
  - ➔ Datenquellen Integration



# Content & Services

## Automatisierte Dienste



- Mehrwertgenerierung durch Kombination von Blogs und Presseartikel in einem Service

<http://www.apa.at/labs>

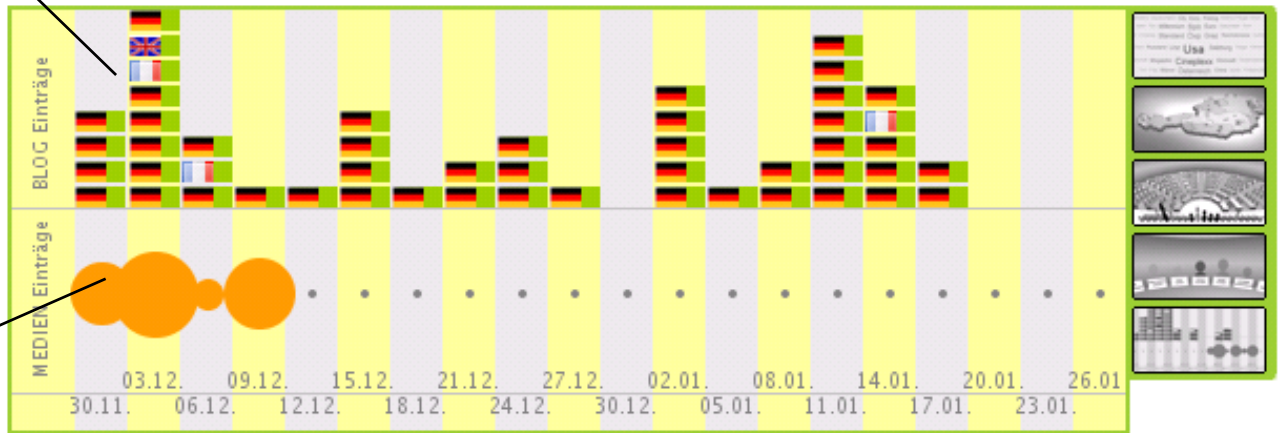
**DEFAC TO-SUCHMASCHINE / LABS SUCHE**

gas GO >>>

Blogs

Suchbegriff: 'gas' 100 Treffer ( 1 bis 10 )  
 Gelistet nach: Zeit | von 28.11.08 bis 28.01.09  
 Suche in 7 Quellen (OTS, WWN, KLEINE, KTZ, KURIER, TT, NOEN, )

TREFFERANALYSE Seite 1 von 10



APA content

Klicken Sie auf ein Bildelement um die Resultatliste einzuschränken!



Services & People

# Intelligente Inhaltsbereitstellung

- 🌐 Intelligente, „lernende“ Assistenten
  - 🌐 Mapping von Benutzer Zielen auf Services
  - 🌐 Web of Application, Web of Services
- 
- ➔ Semantic (enhanced) Search
  - ➔ Semantic Agents
  - ➔ Semantic Mashups



center . graz  
**Know**



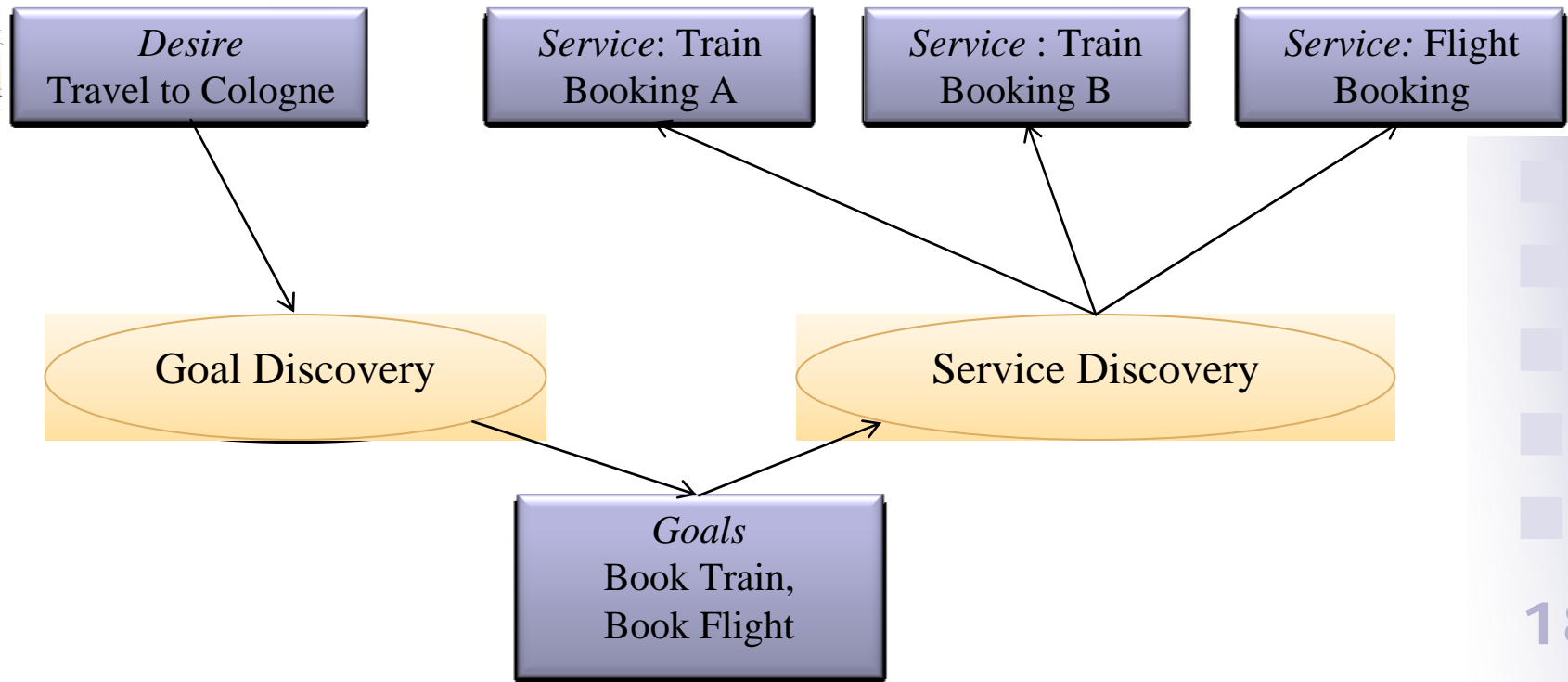
Services & People

# Intelligente Inhaltsbereitstellung



center . graz  
**Know**

## Web Service Modelling Ontology Beispiel Virtual Travel Agent





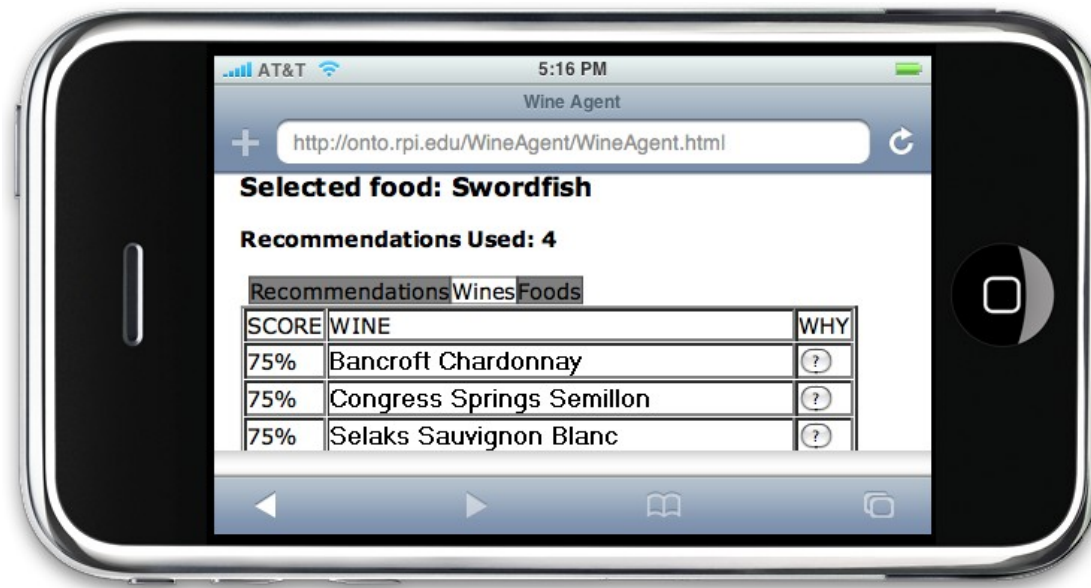
Services & People

# Intelligente Inhaltsbereitstellung



center . graz  
**Know**

## Semantik Web & Web 2.0 Beispiel Wein Agent



[http://onto.rpi.edu/wiki/wine/index.php/Main\\_Page](http://onto.rpi.edu/wiki/wine/index.php/Main_Page)



## Wie sehen nun die Inhalte im Web 3.0 aus?

Um Semantik erweiterte Inhalte, verfügbar in intelligenten und verteilten Applikationen für unterschiedliche Endgeräte.

*Im Sinne von Vannevar Bush's MEMory Extender*

*Das Web ohne Semantik ist wie ein perfektes Gedächtnis  
ohne Verständnis*

mgrani@know-center.at

**Dr. Michael Granitzer**  
Bereichsleiter Knowledge Relationship Discovery  
Know-Center Graz  
Inffeldgasse 21a, 2. Stock  
8010 Graz

+43 316 873 9263  
mgrani@know-center.at



Warum Semantik?

## Notwendigkeit und Trend

- **Semantic Wave Report.**  
([http://www.readwriteweb.com/archives/semantic\\_wave\\_2008\\_free\\_report.php](http://www.readwriteweb.com/archives/semantic_wave_2008_free_report.php))
- **Wein Agent**  
[http://onto.rpi.edu/wiki/wine/index.php/Main\\_Page](http://onto.rpi.edu/wiki/wine/index.php/Main_Page)
- **WSMO Web Service Modeling Ontology**  
<http://www.wsmo.org/2004/d3/d3.3/v0.1/>
- **APA Labs**  
<http://www.apa.at/labs>
- **Influence Viewer**  
<http://goosebumps4all.net/goi>
- **Freebase**  
[freebase.org](http://freebase.org)
- **DBPedia**  
[dbpedia.org](http://dbpedia.org)