

The background of the slide is a photograph of a grand, ornate library interior. It features high ceilings with intricate architectural details, multiple levels of curved wooden bookshelves filled with books, and several tall, dark wood columns. The lighting is warm and focused, highlighting the architectural details and the vastness of the book collection.

Dynamic Knowledge Spaces in Dental Medicine

E-LEADER

Kuala Lumpur, Jan 5-7, 2009

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Hannover Medical School, Germany

~ 1.400 clinic beds, ~ 7.500 employees,
~ 4.000 students of Medicine, ~ 500 students of Dental Medicine,
+ students of Public Health, Biomedicine, ... → <http://www.mh-hannover.de>



The cultural heritage - Libraries of the World

The Great Library of Alexandria,
Greece, 295 B.C.

Vaticane,
Rome, 4 AD

National Library of Russia,
St. Petersburg, 18 AD

Melk,
Austria, 18 AD

Library of Congress,
Washington, 18 AD

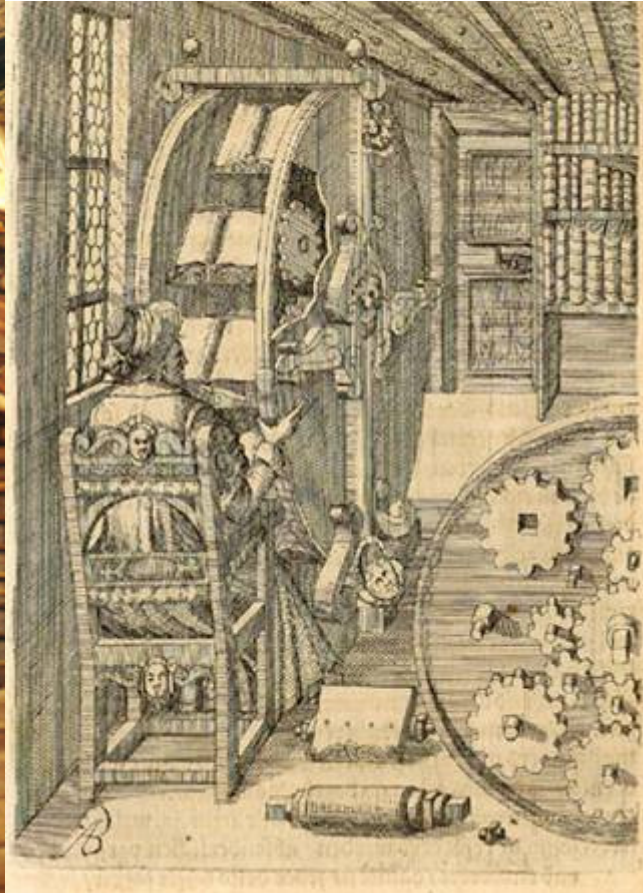
Alexandria,
Greece, 2002

Knowing where
knowledge has been

Knowing where
knowledge is now

„Internet Browser“ in ~1550

Library change cycle
1550 - Agostino Ramelli

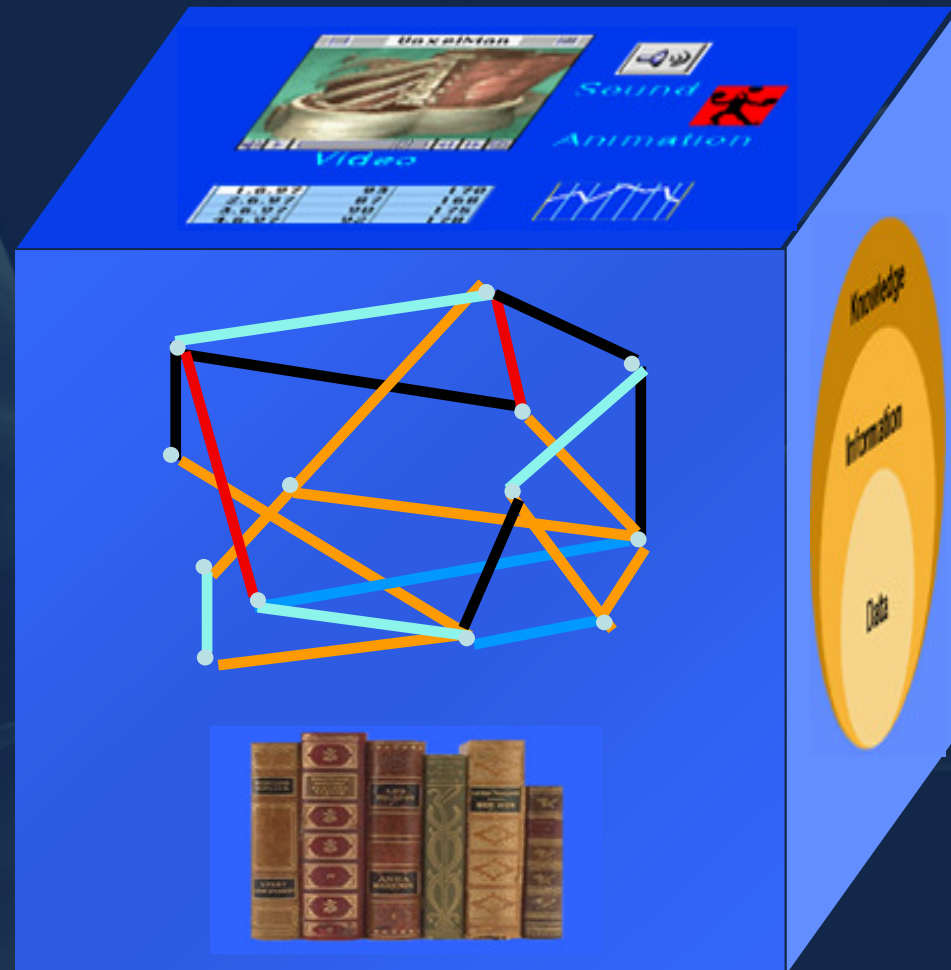


„The creation of methods to memorize is a must to handle the knowledge which is propagated in an inflationary way in university libraries“ (Conrad Gesner, 1545)

Paradigm Change: Linear vs. Non-Linear Data Management

Hyperspace

Linear Data Management



How much information ?

2000: 532.000.000.000.000.000 Bytes

(532 Peta Bytes, 1 PB ~125.000 DVD's)

Transfer of 1 PB from New York to Lulea (Sweden, 9000 km
SPRINT: 12 hrs)

2030:
1.079.000.000.000.000.000.000.000 Bytes

(1.079 Yotta- or 1,079 Quadrillions Bytes = 7.984.000 x Library of Congress)

Source : University of California, 2003



Journal Citation Reports (JCR) in 2007

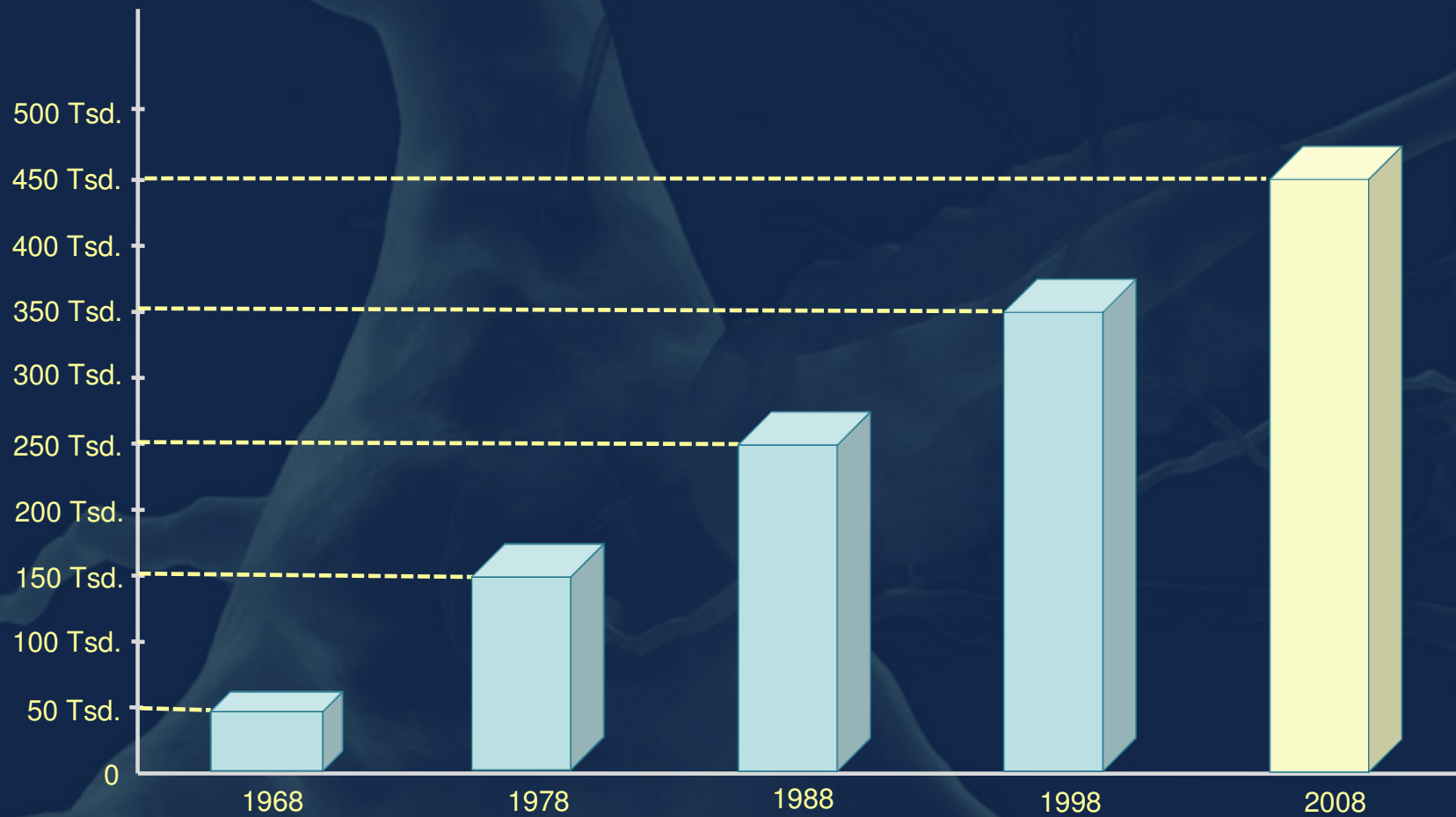
7.528 Scientific journals

1.397 Section – Clinical Medicine (with an impact factor)

51 Section – Dental Medicine (with an impact factor)



Dental Papers



Source : Medline (PubMed) – Dental Journals

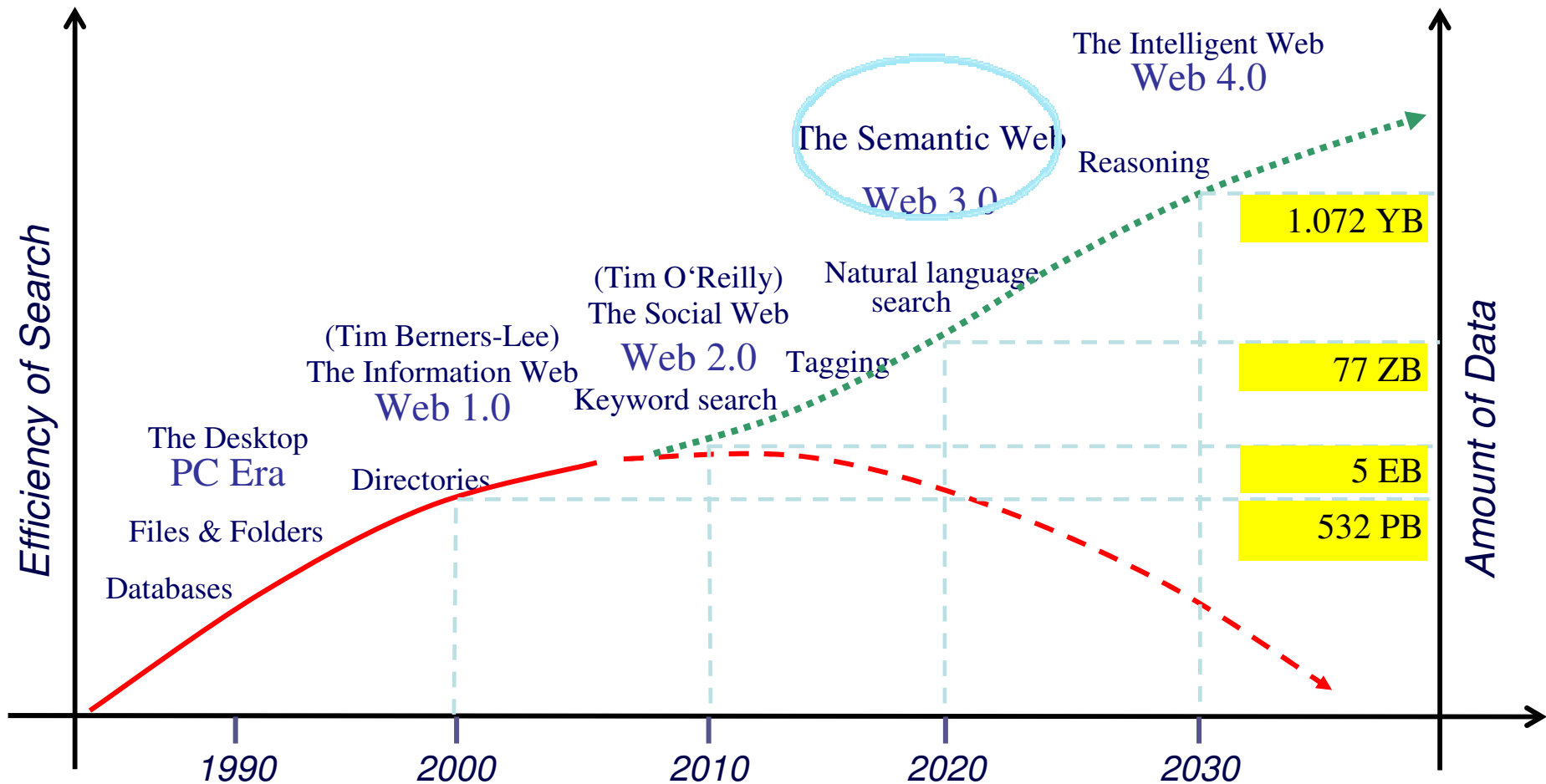
Knowledge Management

Knowledge Management stands for the entire process of identifying the implicitly and explicitly available knowledge,

- *knowledge acquisition,*
- *knowledge structuring,*
- *knowledge modelling,*
- *knowledge preparation,*
- *dynamic knowledge storage and*
- *knowledge utilisation.*



From the PC to the intelligent Web



1 PB (Petabyte = 10^{15} Byte), 1 EB (Exabyte = 10^{18} Byte), 1 ZB (Zettabyte = 10^{21} Byte), 1 YB (Yottabyte = 10^{24} Byte)

Source: University of Berkeley (2003), Radar Networks (2008), Quintessenz (2008)

Web 2.0 Generation – Virtual Communities



digg™



flickr™



SECOND LIFE



YouTube
Broadcast Yourself™



STUDI VZ
DAS STUDIVERZEICHNIS



myspace®
a place for friends



Publish in a peer-reviewed
open-access journal



PLOS
PUBLIC LIBRARY
of SCIENCE

Wikipedia

>150 mill. Users

<Larry Sanger>



The cultural heritage "Knowledge"
defines itself newly

Web 3.0 Generation – Semantic Web

Alexandria
Wissensmodell
– Lycos –

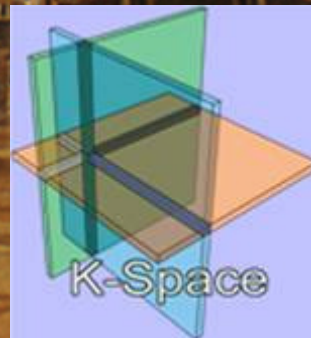
Texo
Software
– SAP, DFK –

Medico
med. Bilddaten
– Siemens –

Ordo
Analysesystem
– Empolis, FG –

Contentus
digitale Archive
– DNB, FG –

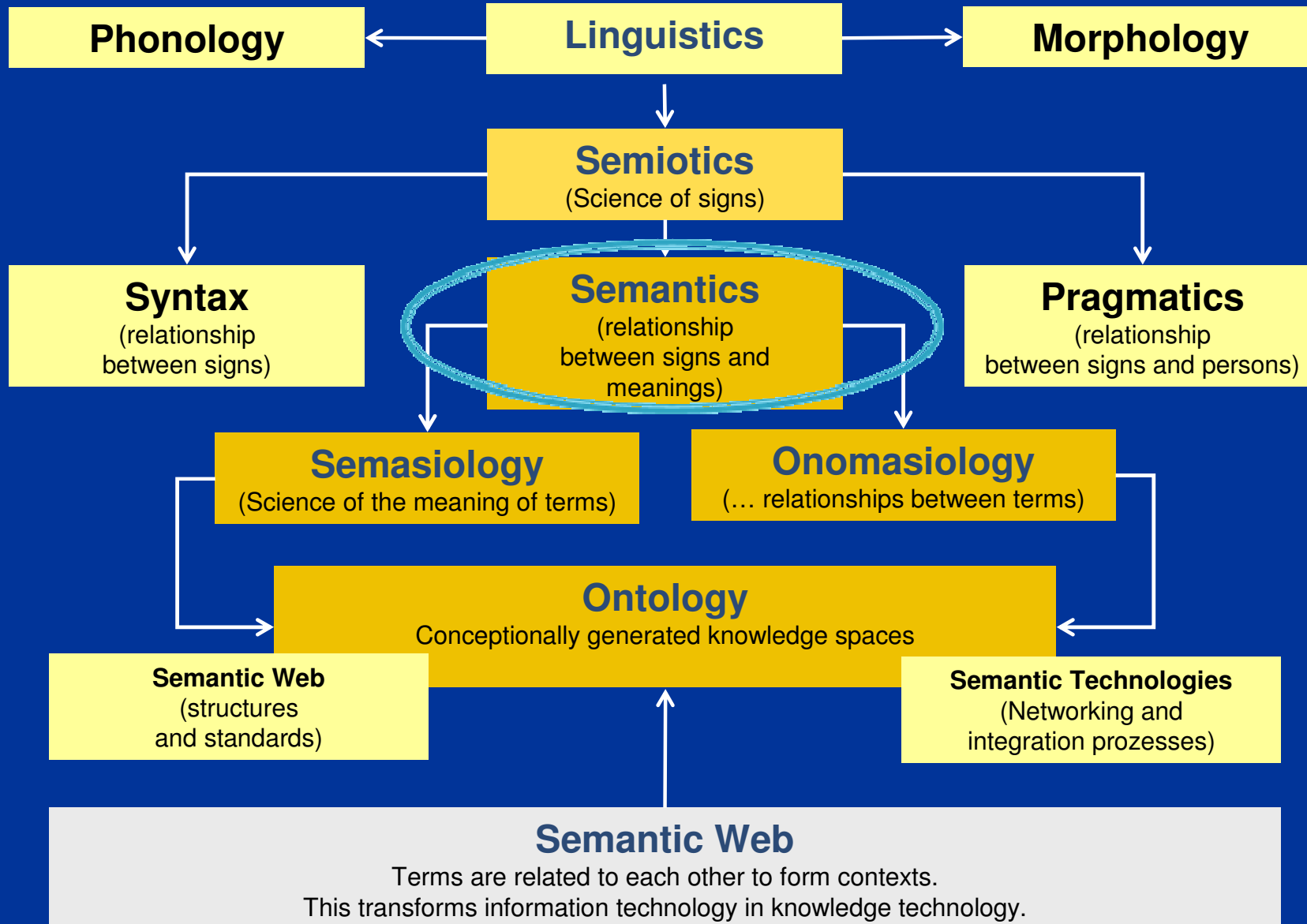
Prozessus
Geschäftsprozesse
– Empolis, VDMA –



Knowledge Space of Semantic
Inference for Automatic Annotation
and Retrieval of Multimedia Content



Semantic Web



Semantic relationships

Homonyms

Ambiguity without functional relationships for example: (river or money) bank

Polysems

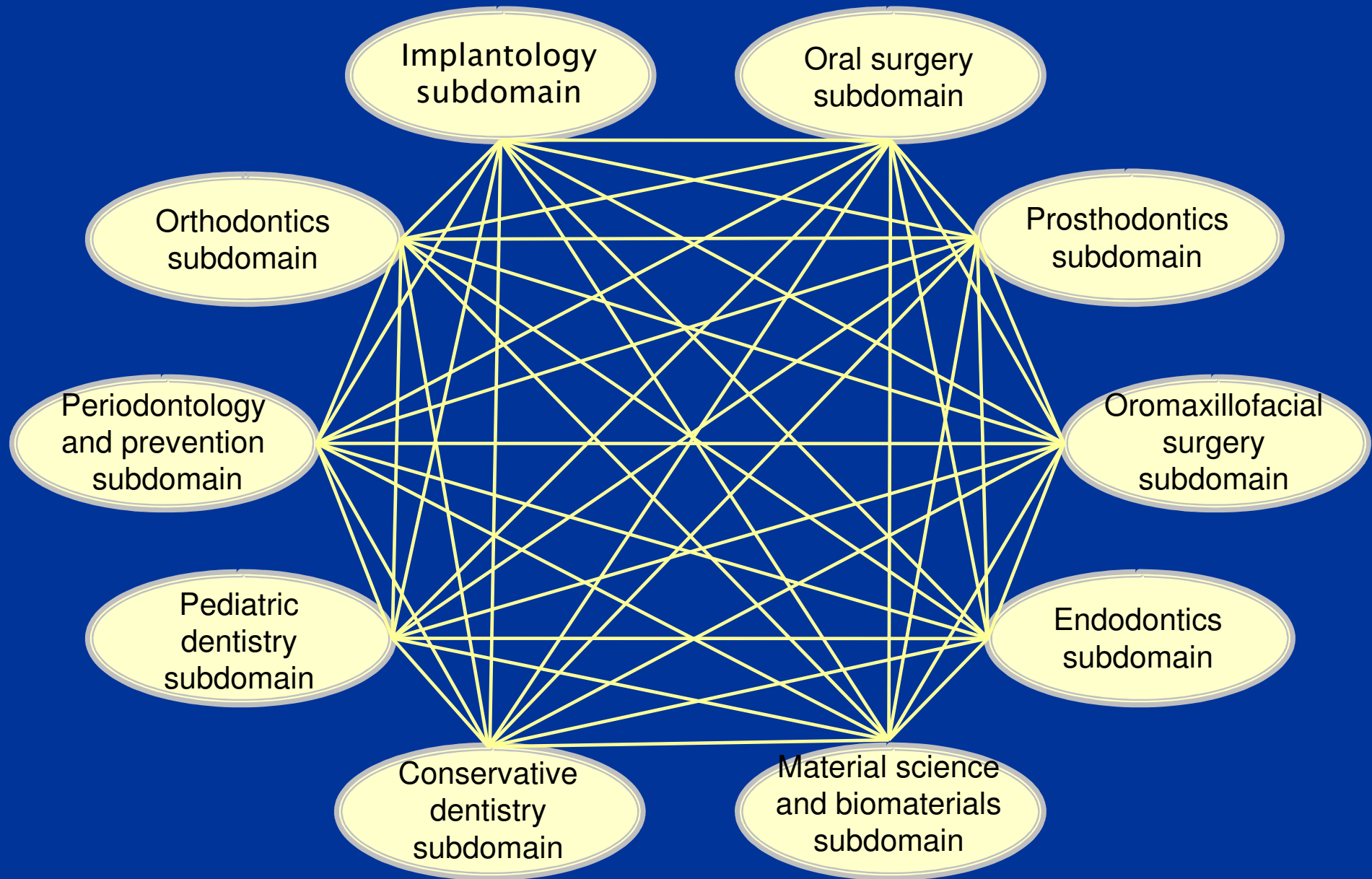
Ambiguity with functional relationships for example: (dental or architectural) bridge

Synonyms

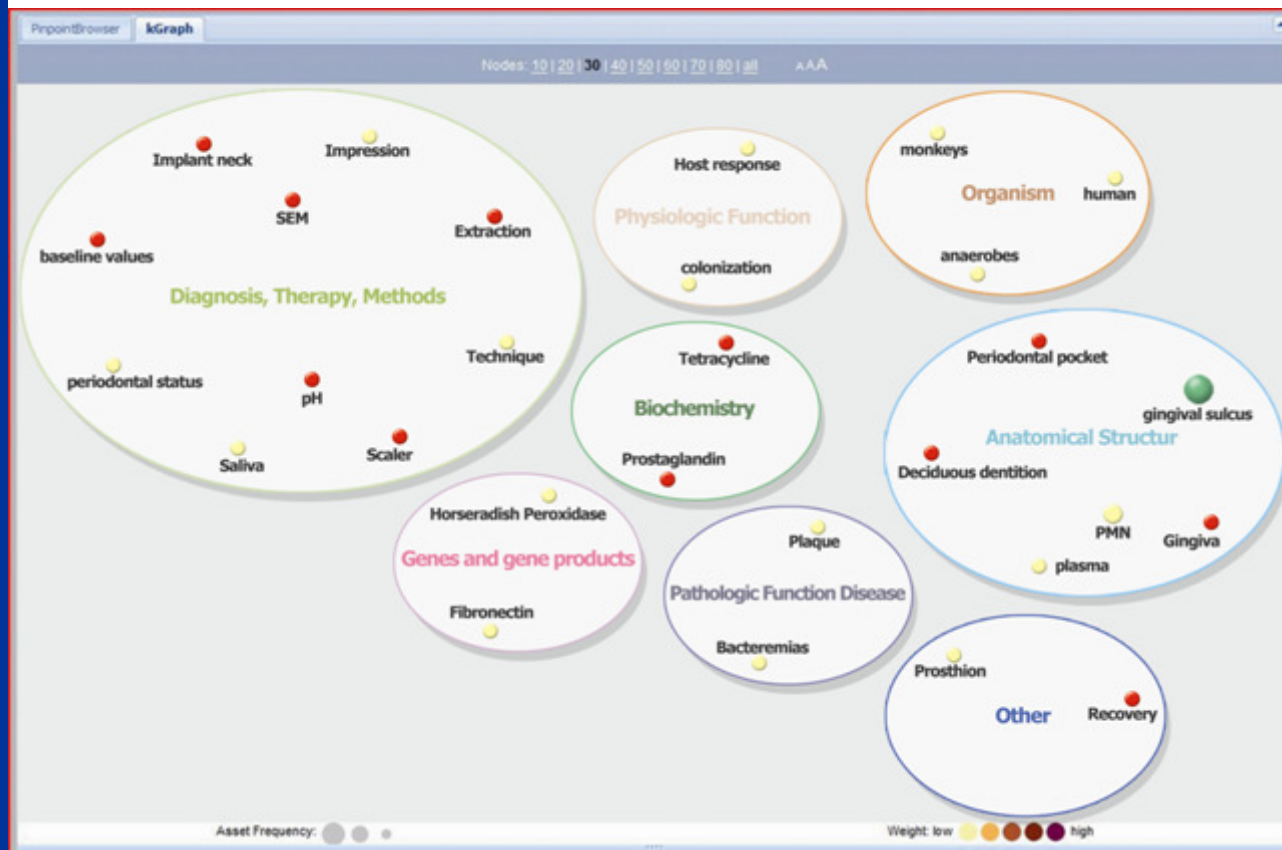
Unambiguity with conceptual terms for example: Sinus list and sinus elevation



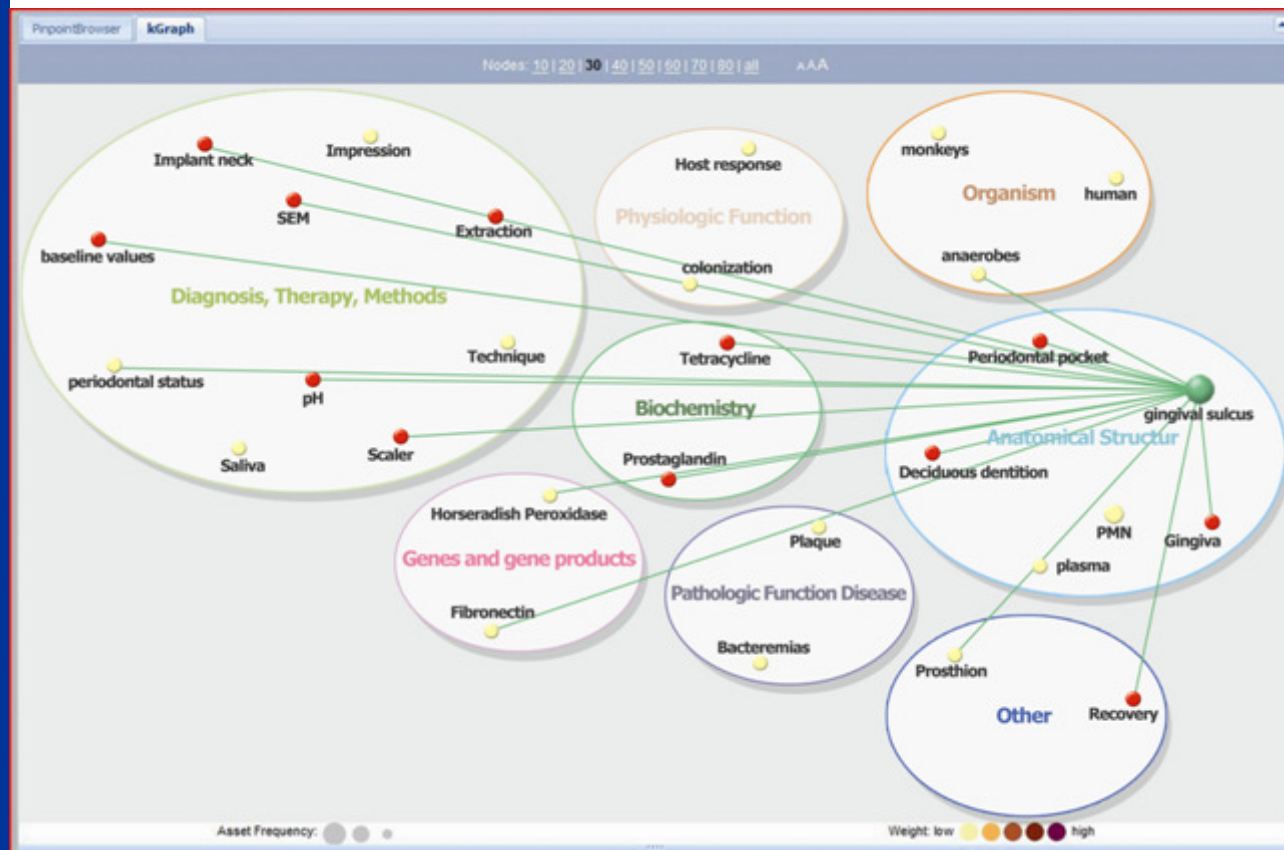
Simplified overview of the “dentistry” macro domain with subdomains



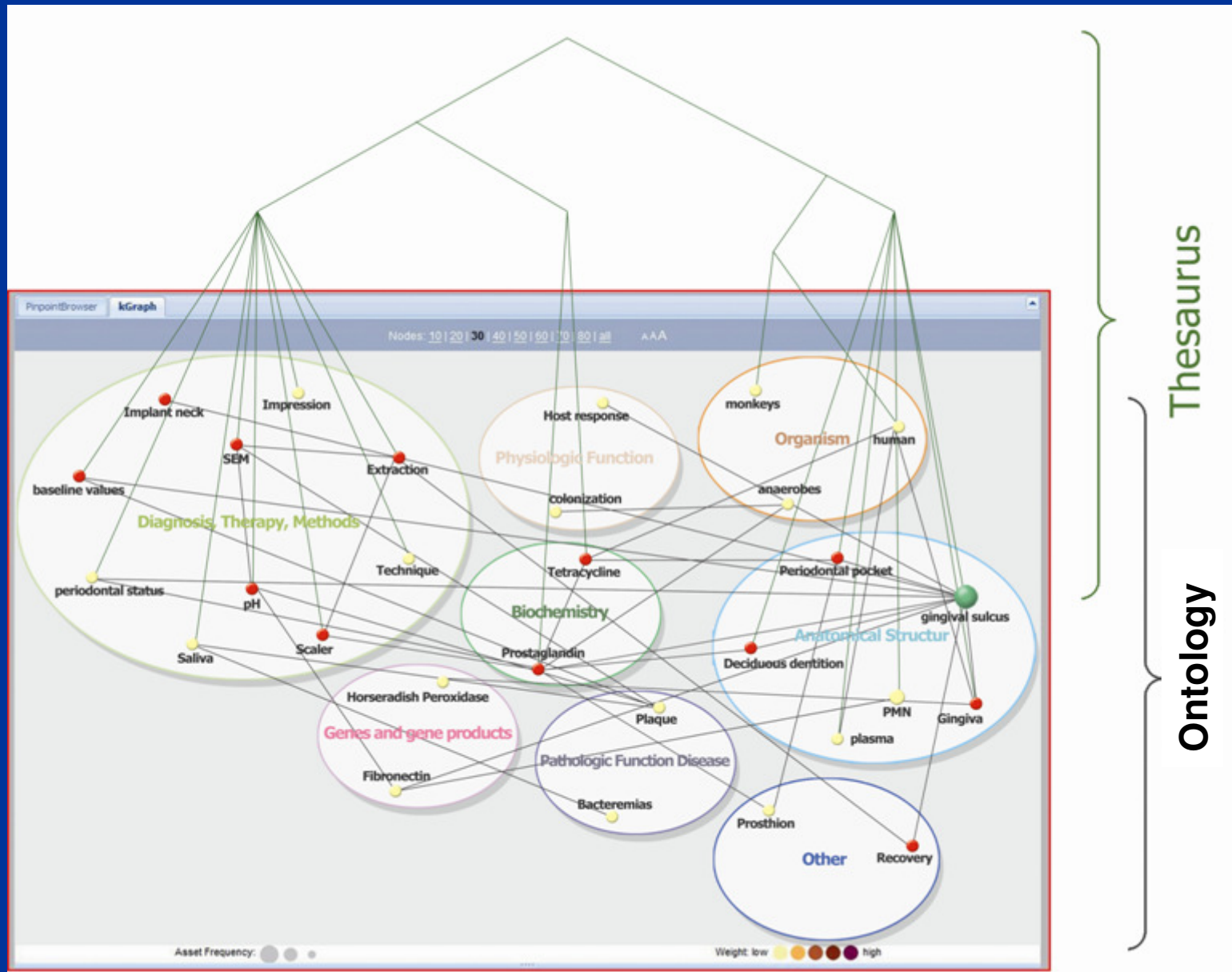
A thesaurus as a metastructure of domains with ontologically interconnected elements



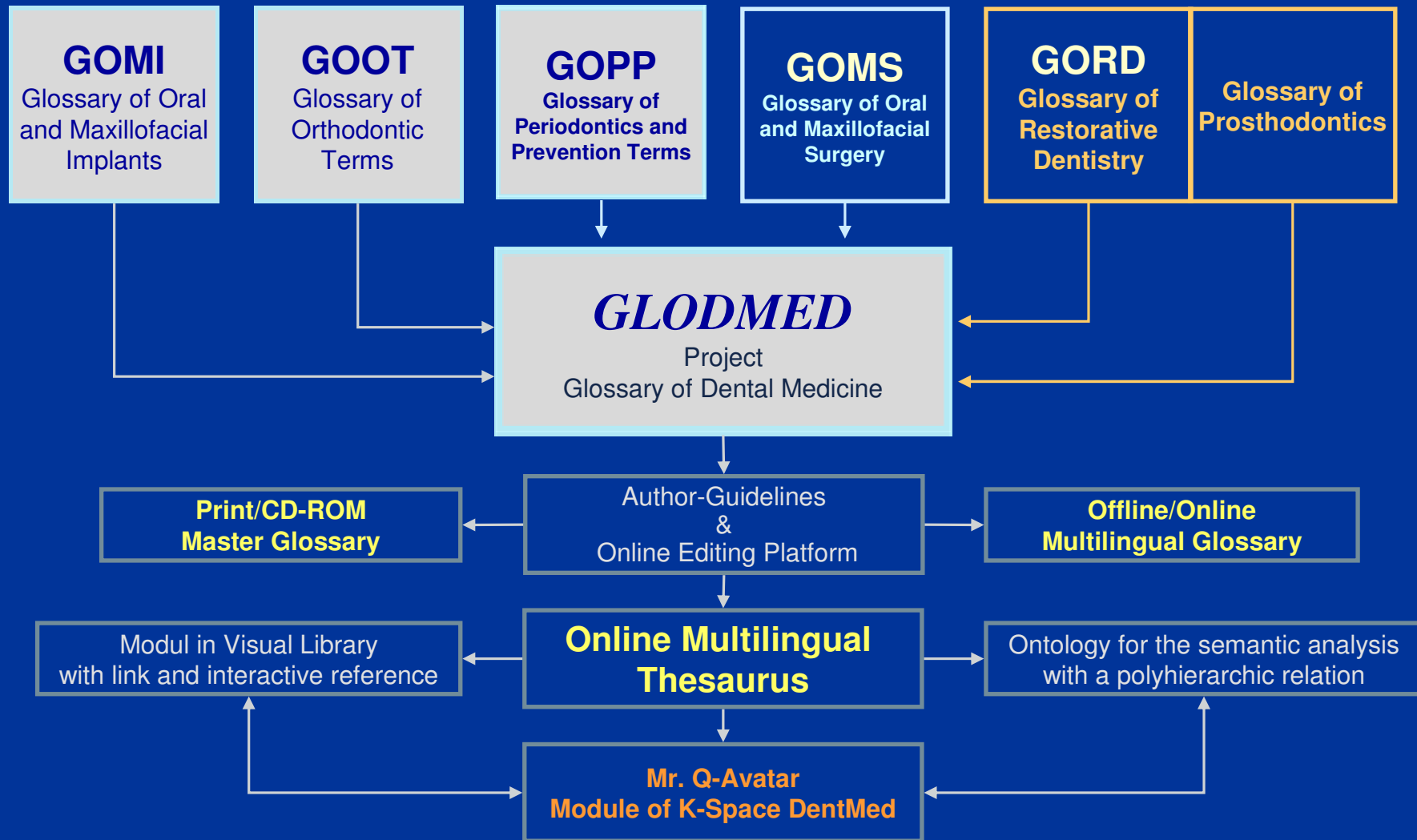
A thesaurus as a metastructure of domains with ontologically interconnected elements



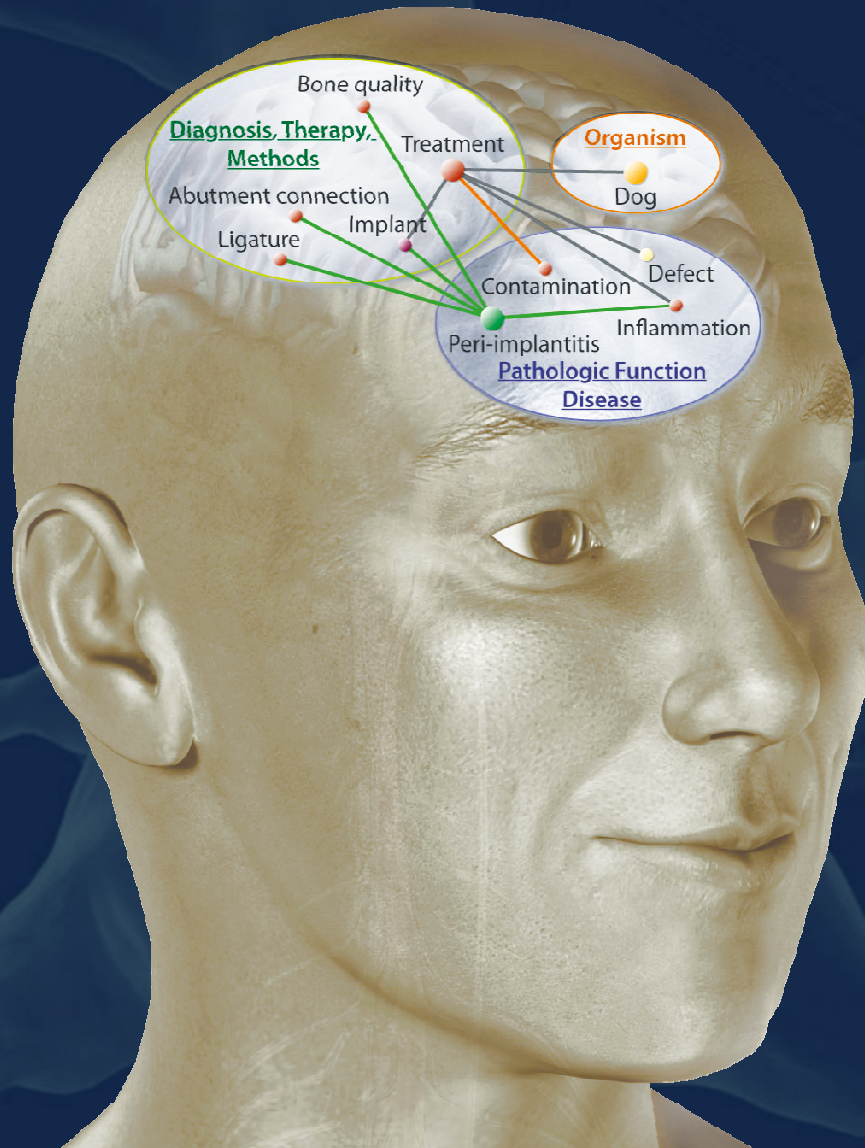
A thesaurus as a metastructure of domains with ontologically interconnected elements



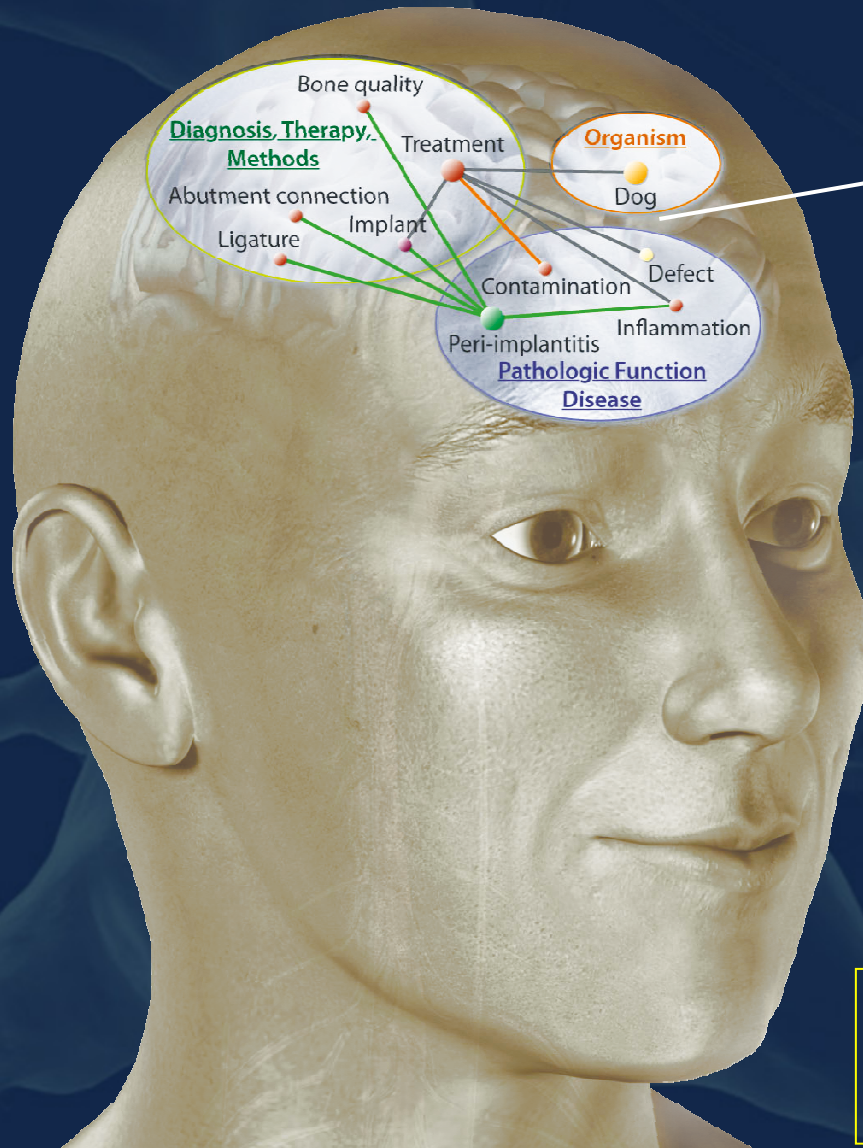
Thesaurus GLODMED



Mr. Q - your personal Web assistant



The Dental Medicine in the Web 3.0 Generation

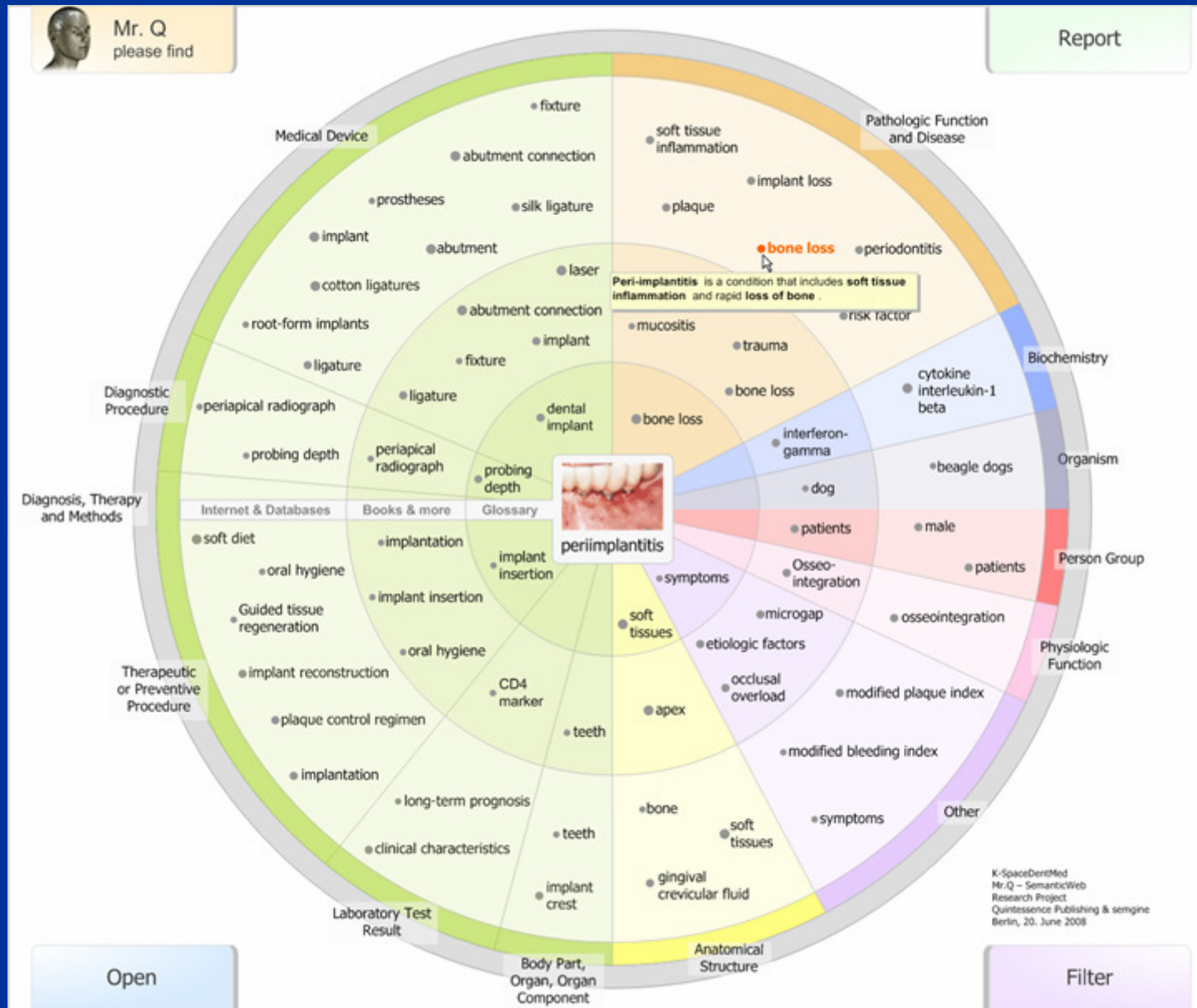


The brain of Mr. Q:
Networked knowledge spaces of the mental lexicon

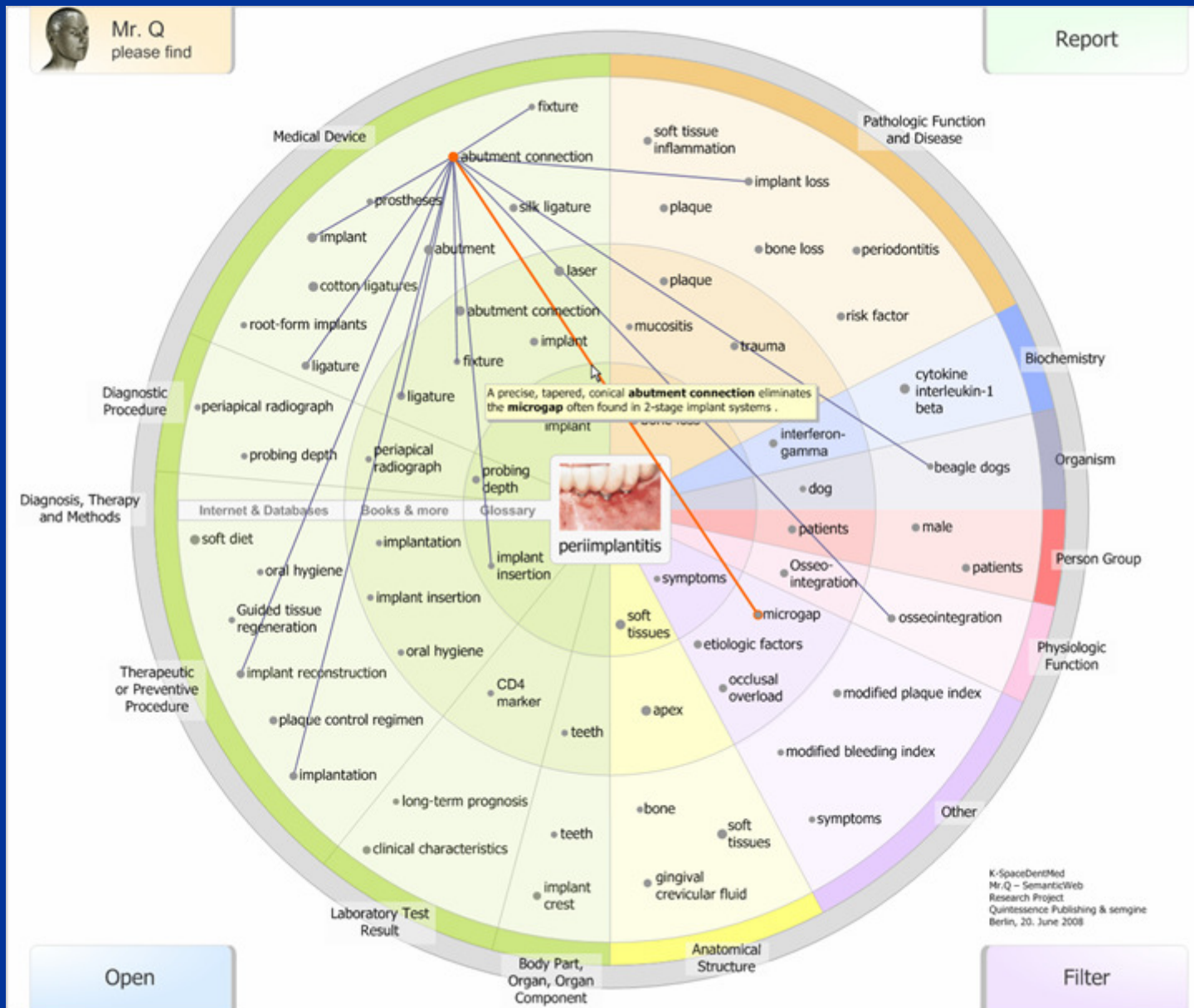
Mr. Q - your personal
Web assistant



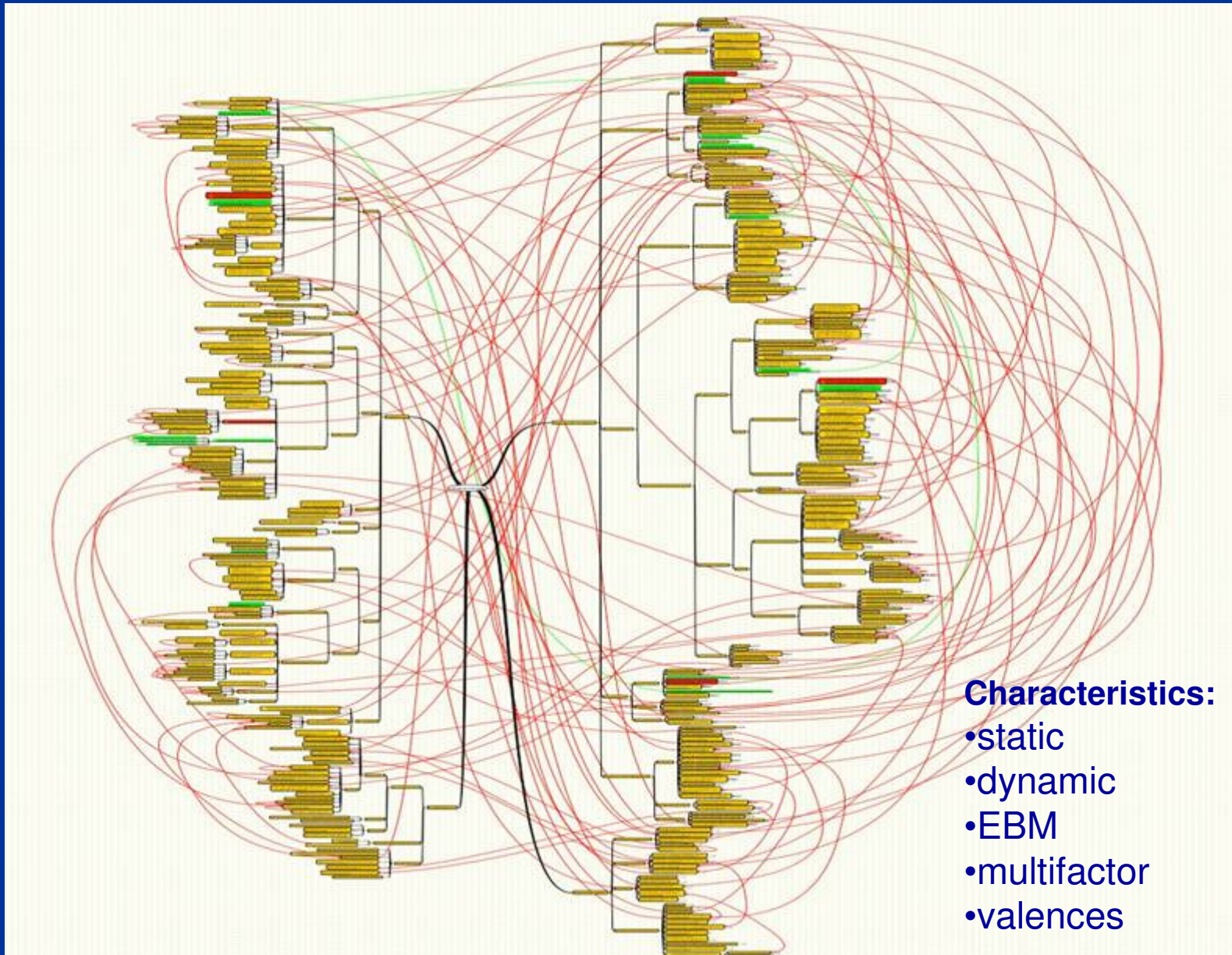
Mr. Q and the Semantic K-Graph



Mr. Q and the Semantic K-Graph



Ontology of Implant Surgery Knowledge Elements



KM / VL – Structure of Knowledge Space



KM / VL – Structure of Knowledge Space

Q-VL IMPLANTOLOGIE LIVE

Navigation Hilfe

ED
PE
F
R
M
L
EL
MR
Q

Lokalanästhesie
Ultracain D-S forte 1:100000, Aventis Pharma Deutschland, Frankfurt, www.sanofi-aventis.com

Incision
Swann-Morton 15c, Sheffield, England, www.swann-morton.com

Weichgewebspräparation
TioSet Basisinstrumentarium, Tiolox Implants, Ispringen, www.tiolox.com
Instrumente Dentalchirurgie, Zepf Medizintechnik, Seitingen/Tuttlingen, www.zepf-dental.com
HKI instruments austria, Salzburg, www.hkinstrumentsaustria.com

Knochenersatzmaterial:
Bio-Oss, Spongiosa granules 1mm-2mm, Geistlich Biomaterials Baden-Baden, www.geistlich.de

Fixationssystem
minero by Octomed Corporation, TopMed, Schauenburg Hoop

OPTION
1 2
4 3
Chirurgische Techniken
Knochenpräparation
insuffizientes Knochenangebot
Zweizeitige Verfahren
additiv
vertikale Auflagerungsplastik
Blocktransplantat

FILMCLIPS
Blocktransplantat: Kieferkammchnitt
Blocktransplantat: Verzögerte Implantation
Blocktransplantat: Tunnelpräparation



KM / VL – Exploring Knowledge Space

Q-VL Implantologie Live

Navigation Hilfe

Q-VL IMPLANTOLOGIE LIVE

OPTION

FILMCLIPS

ED

PE

▶

F

R


M

L

◀

MRP

🌐



Chirurgische Techniken
Knochenpräparation
insuffizientes Knochenangebot
Zweizeitige Verfahren
additiv
vertikale Auflagerungsplastik
Blocktransplantat

- Surgery
- Biomedicine
- Periodontics
- Prosthodontics
- Components
- Biometry
- Biomechanics

Blocktransplantat: Kieferkammchnitt

Blocktransplantat: Verzögerte Implantation

Blocktransplantat: Tunnelpräparation



5 x Q Exploring Knowledge Space

Q-VL Implantologie Live

Navigation Hilfe

Q-VL IMPLANTOLOGIE LIVE

OPTION FILMCLIPS

ED PE

▶

F R M L EL

◀

MR Q

⌚

AVATAR

My name is Mr. Q ...
... your personal assistant
for knowledge management.

1 2
4 3

⚡

⚡

Chirurgische Techniken
Knochenpräparation
insuffizientes Knochenangebot
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Blocktransplantat

Blocktransplantat: Kieferkammschnitt

Blocktransplantat: Verzögerte Implantation

Blocktransplantat: Tunnelpräparation

**Question
Quantity
Quality
Quintessence
007 / J.Bond**



K-Space DentMed • Visual Library: The Dynamic World of Knowledge in Dental Medicine



- Education Clips
- Courses & Training
- Guidelines

- Case Reports
- Video Clips
- Clinical Documentation

- Restorative Dentistry
- Periodontics
- Implant Dentistry
- Prosthodontics
- Oral Medicine
- Oral Surgery
- Dental Technology
- Orthodontics



Universities and Practice Network of Competence „K-Space Agent“



multilingual



DentalExplorer in 11 languages

DentalExplorer 2.1 - Chairside Communication - Microsoft Internet Explorer

Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Zurück Suchen Favoriten

Adresse http://www.dentalexplorer.de/funktionen_en.php Wechseln zu Links



View:
Display of findings with the help of high-resolution digital images of excellent original dental processing.

Planning:
A total of 64 treatments that can be combined freely. Individual processing and storing of alternate plans possible.

Alternative views:
A total of 5,000 photographic images of occlusal-, lateral- and frontal views.

Video player:
Videos on 28 topics in 11 languages to support patient communication and information.

Internet

