Knowledge Organization 2.0
- A Communicative Paradigm?

H. Peter Ohly

GESIS
Social Science Information Center
Lennestr. 30
53113 BONN
Germany
peter.ohly@gesis.org

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What is Knowledge Organization?

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Ingetraut Dahlberg:

… the science of **structuring** and systematically **arranging** of *knowledge units* (concepts) according to their inherent *knowledge elements* (characteristics) and the **application** of concepts and classes of concepts ordered by this way for the assignment of the worthwhile contents of referents (objects/subjects) of all kinds

Subject Area of KO

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Dahlberg:

1. epistemological, mathematical, system-theoretical, cognitive scientific and scientific theoretical premises as well as historical background,
2. elements and structures of systems of concepts,
3. methodology of construction, conservation and revision
4. methodology of classification and indexing,
5. existing universals and
6. special taxonomies and systems
7. influential areas: linguistics, terminology;
8. indexing of all types of documents and subjects
9. **periphery**: workplace, individual centers, societies, countries, international areas, education, economy, user, etc.

„Organization“

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Dahlberg:

> the concept of ‘organization’ … has a **wider range than just ‘order.’** namely ‘planned construction,’ ‘structure,’ ‘forming’, although this does not apply to some other languages where ‘organization’ is only used for collectivities like associations or unions, so that in such cases, ‘organization’ can only be related to people, not to objects

Historical Notes

- … we were looking for a name that did not include 'classification'. So we thought of a translation for '*Wissensordnung*' according to the title of my book of 1974, but that did not sound well in its English translation. So I proposed to use the words from the titles of earlier Bliss publications of the thirties (*Organization of knowledge*) in its reverse order: *Knowledge Organization*...

Ingetraut Dahlberg

- … the concept as indicated by the very similar phrase "organizing knowledge" certainly goes back a long way, at least to the 1960s when it was used in the title of Christopher Needham's book *Organizing knowledge in libraries* (1964)…

Martin van der Walt

- …the term "knowledge organization" goes back to Bliss' work at least (see for instance ‚*The Organization of Knowledge and the System of the Science*‘ from 1929)...

Jens-Erik Mai

- …you make a difference between the phrases “*organization of knowledge*” and “*knowledge organization*” …
  the term appears in the following work from 1910: “*Principles of the Science of Organisation* as applied by the Knowledge Organisation Bureau, Limited, in its Bureau Encyclopedias” (Found in the catalog of the British Library)…

Birger Hjœrland

The Natural Order Paradigm

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480 Sports/games
470 Human needs
460 Education
450 Psychology
445 Behavioural sciences
420 Medicine
410 Biomedical sciences
390 Environment
380 Wildlife exploitation
370 Forestry
366 Animal husbandry
360 Agriculture
359 Applications of life sciences
340 Zoology
330 Botany
320 Microbiology
310 Biological sciences
300 Life sciences
290 Geography
270 Geology
260 Earth sciences
250 Space and earth sciences
230 Chemistry
228 Crystallography
210 Physics
205 Physical sciences
203 Natural sciences
200 Science and technology
188 Metrology
186 Testing and trials
182 Research
166 Standardisation
165 Management
160 Systemology/cybernetics
150 Communication sciences
140 Information sciences
120 Mathematics
118 Logic**

Humanities/social studies 500
History/related sciences 510
Area studies 520
Society 527
Social sciences 530
Sociology 535
Demography 537
Politics 540
Public administration 550
Law 560
Social welfare 570
Economics 580
Enterprise management 588
Technology 600
Production technology 620
Materials handling 625
Packaging/storage 627
Energy technology 631
Materials technology 635
Nuclear technology 640
Electrotechnology 650
Thermal engineering 670
Mechanical engineering 680
Construction technology 710
Environmental technology 730
Transport technology 740
Military sci./technology 760
Mining 780
Process industries 800
Metal technology 860
Wood/pulp/paper technology 871,95
Textiles technology 877
Particular products manf. 890
Language/literature 910
Art 940
Religion/atheism 970
Esoteric practices 992
112 Philosophy

BSO

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Cognitive Paradigm

- inspired by cognitive psychology
- cognitive processes are determined by internal factors in the organism
- psychological study of "human information processing" as model for information storage and retrieval (e.g. AI)
- critique: neglecting social and cultural factors

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Sociology of Knowledge

- Social constructivism / Phänomenology:

  knowledge is constructed and traditioned by interactions in groups

- Structuralism:

  Social field and *personal habitus* determin our behavior

Knowledge Organization as a Counterpart of Society

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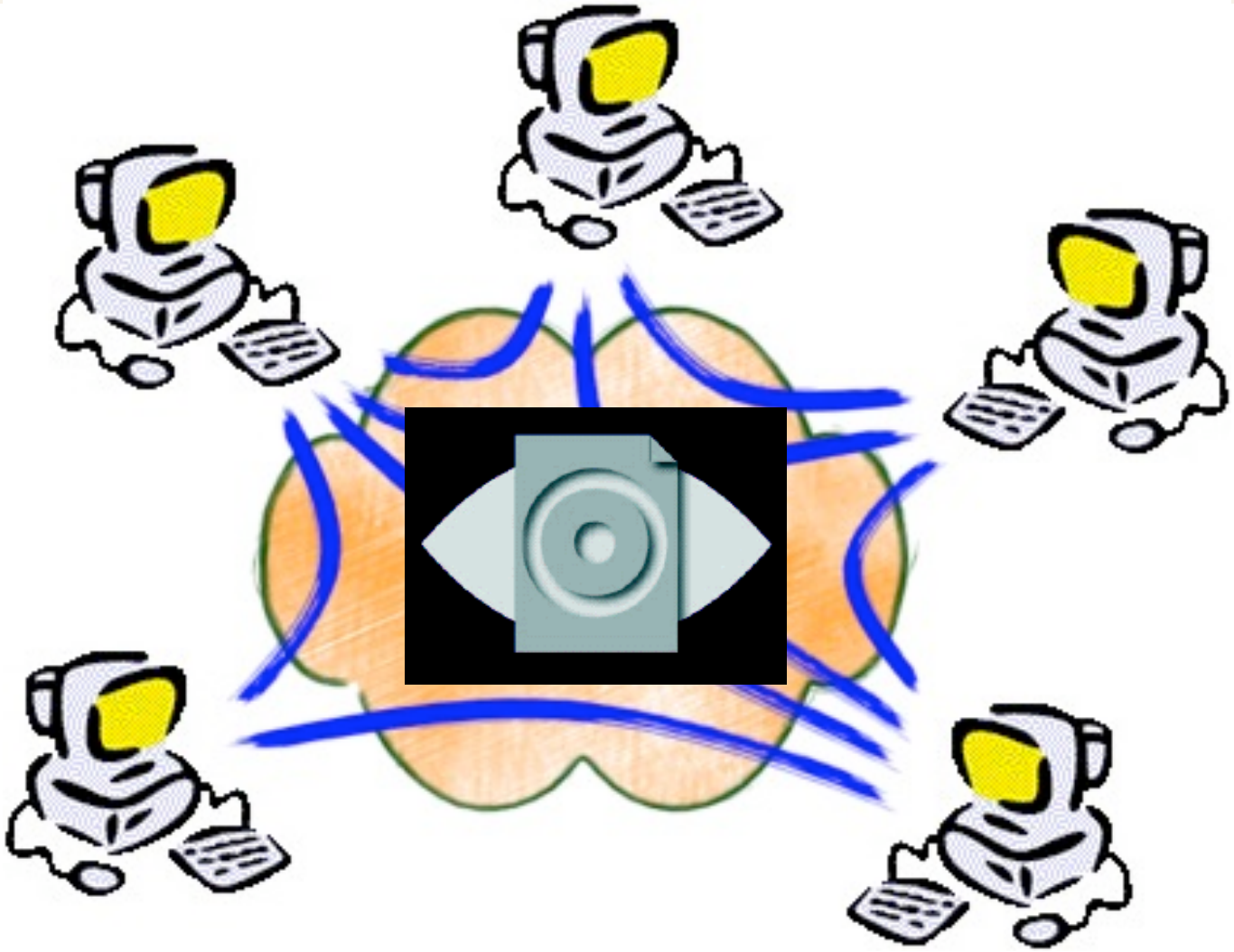
- knowledge used in work: conscious and accessible to ensure survival
- extended genetic code
- differing needs in knowledge and knowledge technology according to work environment
- built on the shoulders of giants
  - phylogenetically (biological)
  - ontogenetically (individual)

Scholarly Discussion Rounds

Peer to Peer



Wikis

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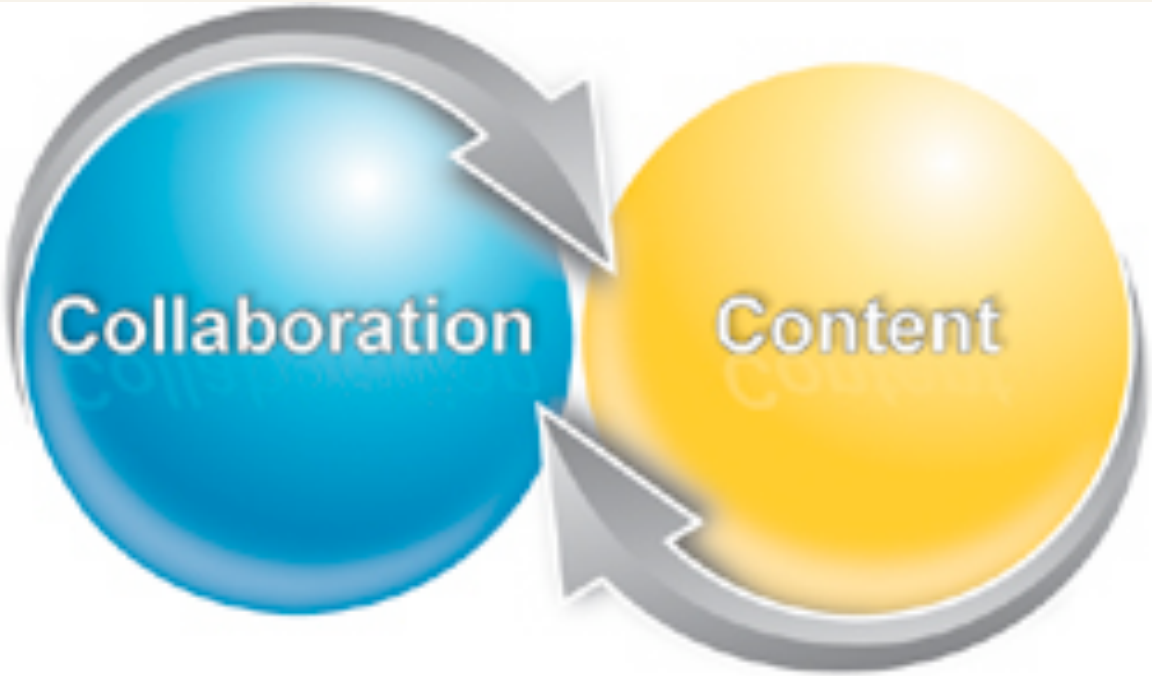
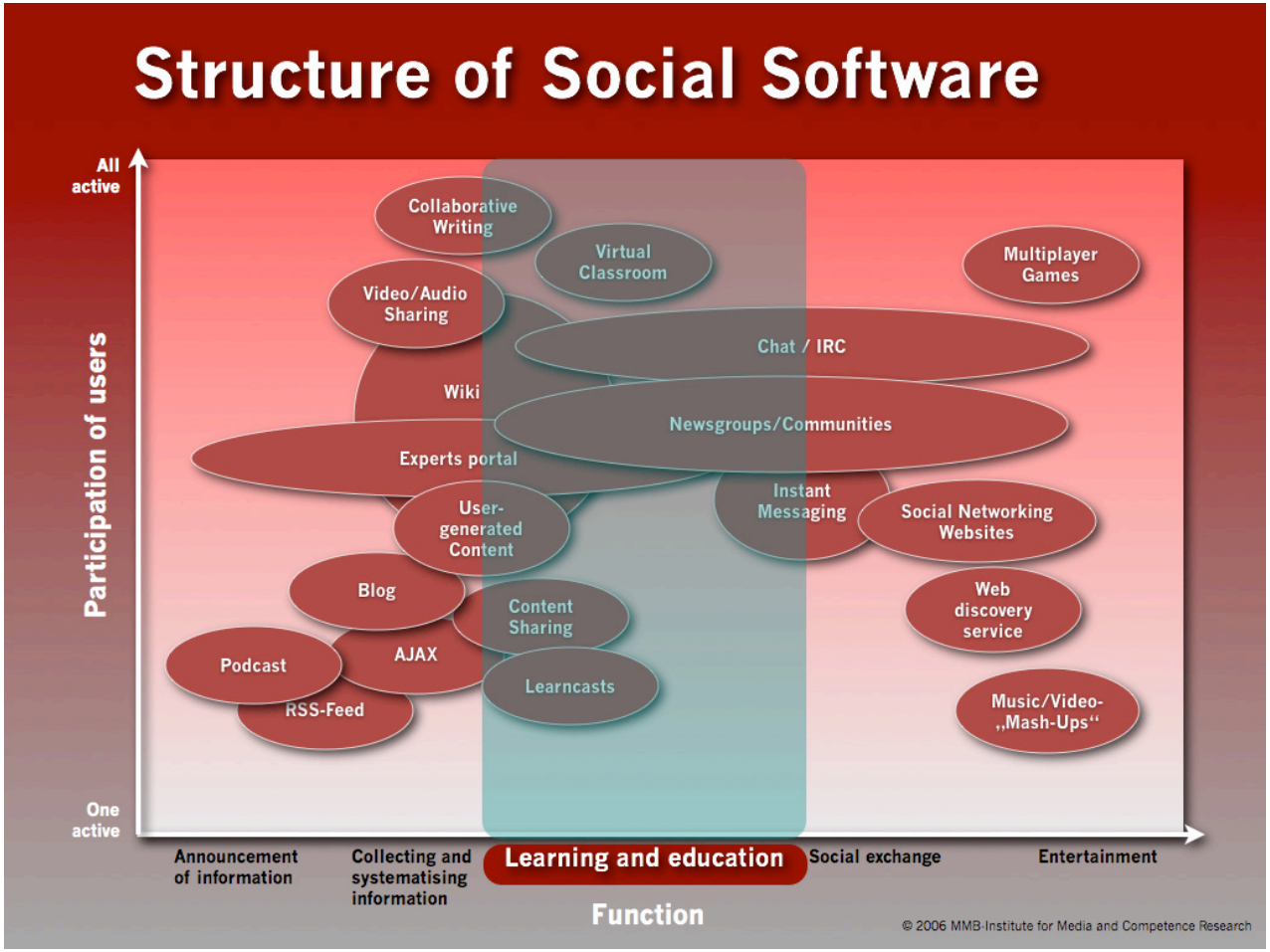


Social Software



Collective Tagging

- Collaborative … Tagging
- Democratic … Indexing
- Ethno…classification
- Folks…onomies

Web…

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- **Web**
- many-to-many
- **Web 2.0**
- Platform for services and communication styles, …
- **Web 3.0** (Semantic web ; "The Data Web")
- Web Ontology Language,
- SKOS: model for expressing the basic structure and content of **concept schemes**

eScience

Controlled vs. uncontrolled

Metadata and (*shared*) ontologies

classes of

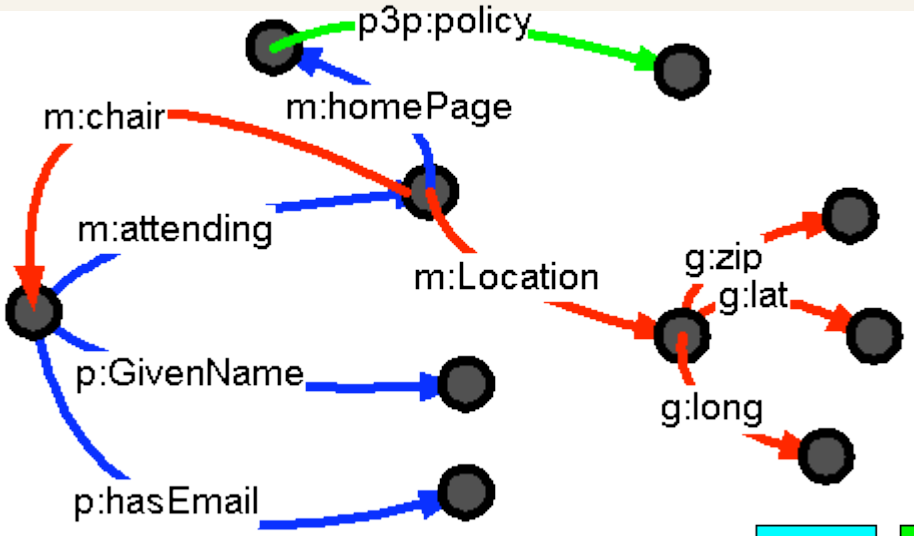
types (e.g. text)

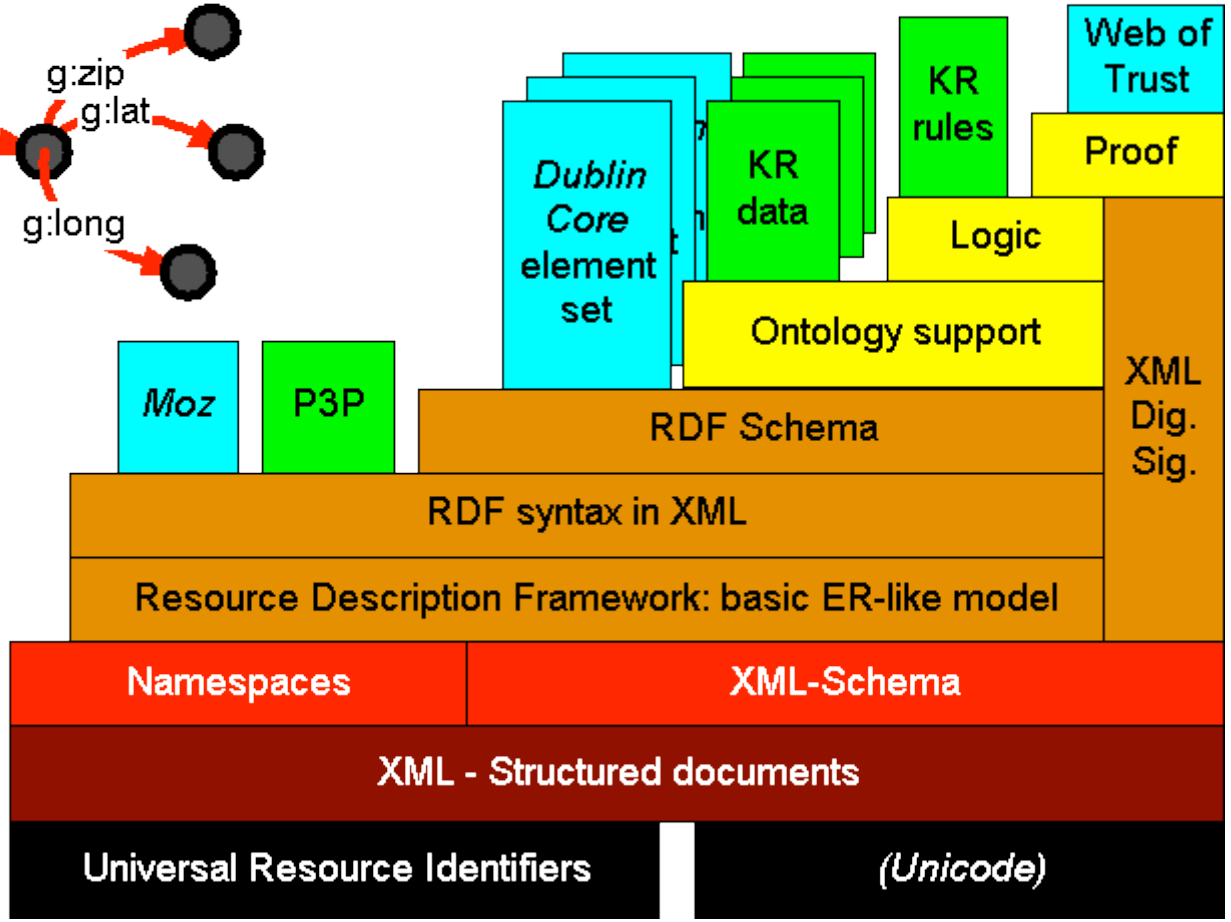
characteristics

relations

flexible with respect to content!

Semantic Web





Interoperability

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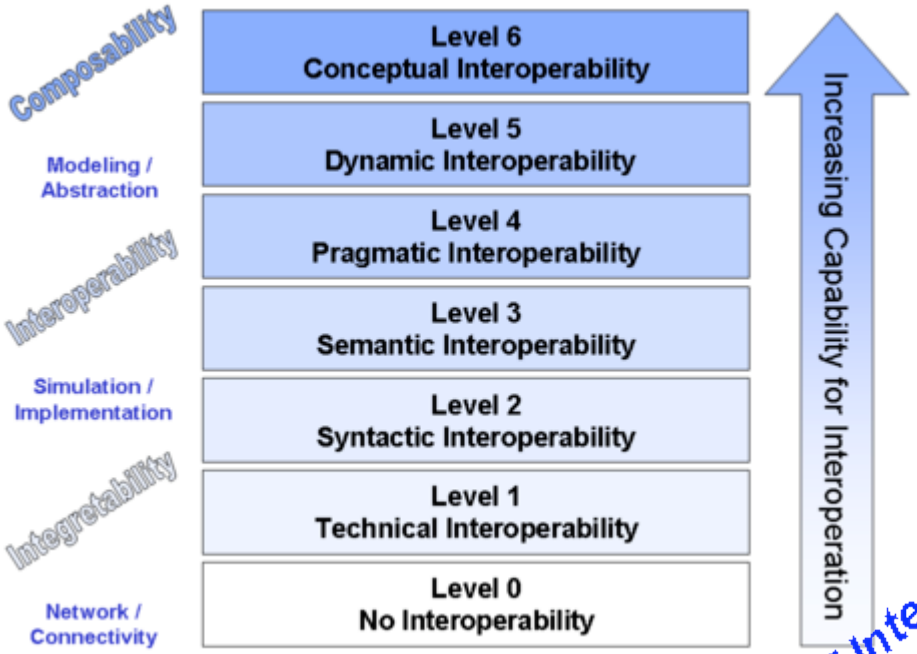

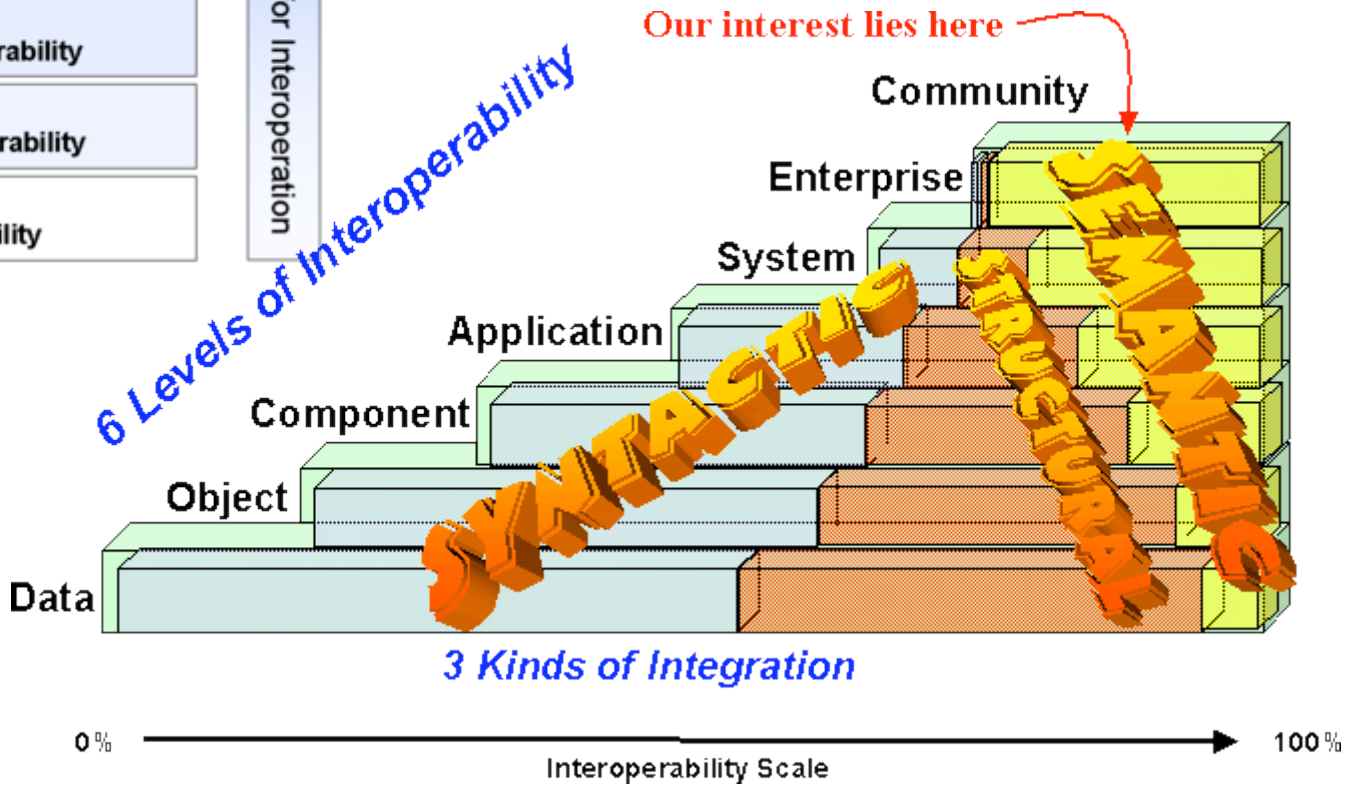

FRBR

Functional Requirements for Bibliographic Records

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- conceptual entity-relationship model developed by IFLA
- retrieval and access in online library catalogues and bibliographic databases from a user's perspective
- provide links to navigate through the hierarchy of relationships
- separate from specific cataloguing standards

Group 1 entities: Work, Expression, Manifestation, Item (products of intellectual or artistic endeavour)

Group 2 entities: person, corporate body (custodianship of intellectual endeavour)

Group 3 entities: concepts, objects, events, places (subjects of intellectual endeavour)

NKOS

Networked Knowledge Organization Systems/Services

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- NKOS is devoted to the discussion of the functional and data model for enabling knowledge organization systems (KOS), such as classification systems, thesauri, gazetteers, and ontologies, as networked interactive information services to support the description and retrieval of diverse information resources through the Internet.

NKOS Listserv

send to: nkos-l@oclc.org

SKOS

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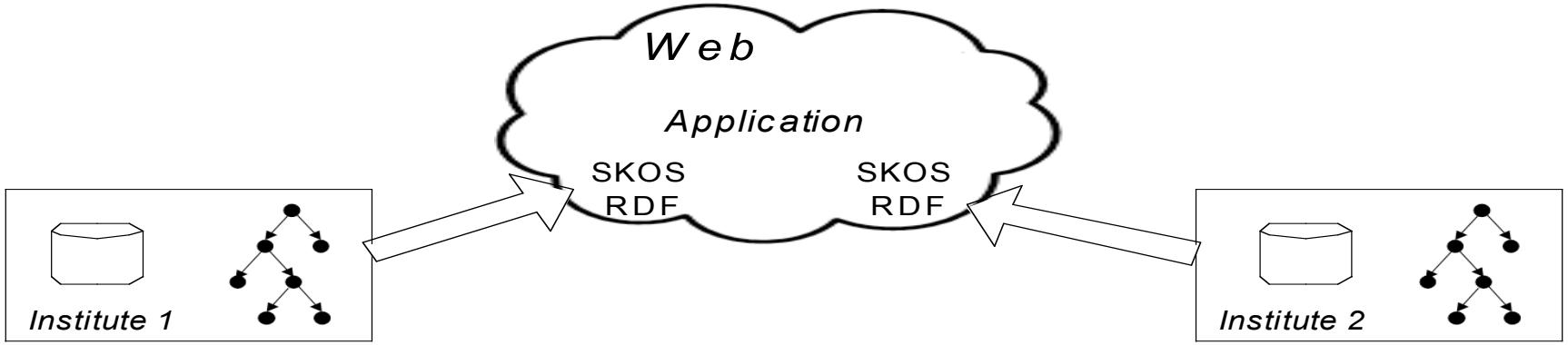
Simple Knowledge Organisation Systems

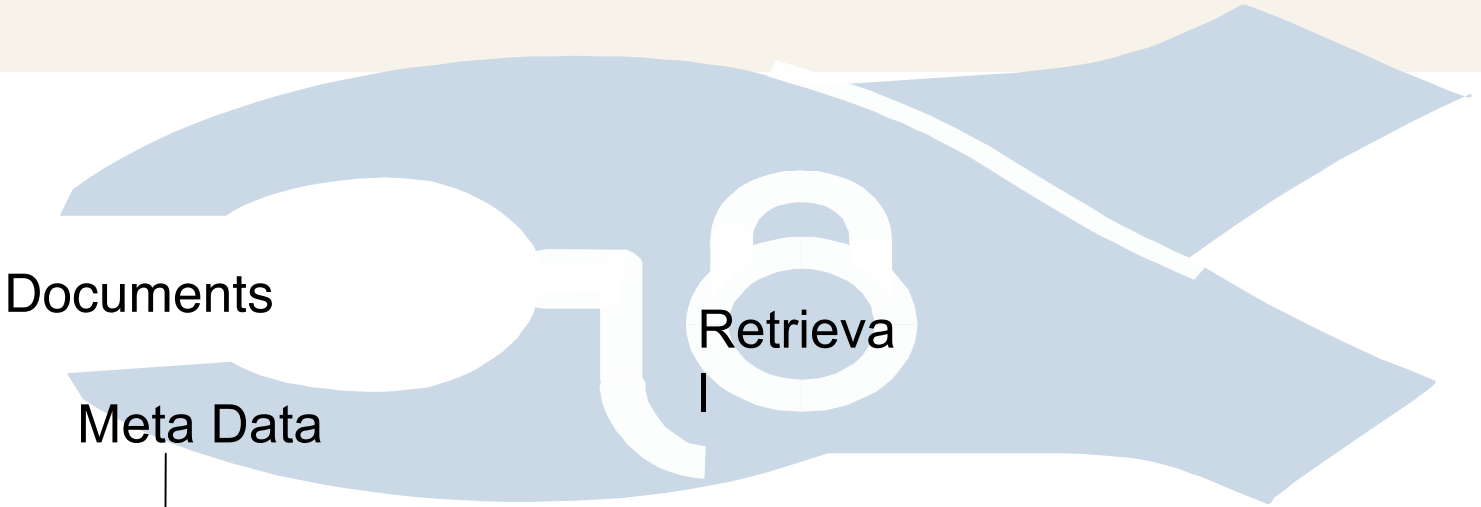
Set of *classes* and *properties* to describe concept schemes

to improve search facilities and reuse:

- Concept-based search instead of text-based search
- Reuse each other's concept definitions
- Search across (institution) boundaries



Heterogeneity



Treatment of Heterogeneity

- Cross concordances
- Quantative statistical procedures
- Deductive procedures

Meta Data Creation
by Algorithmic

Lessons from 'Scientific Communication' 2007 Jülich

- mainstream knowledge vs. ingenious knowledge creation
- carefully select data.
- librarians: document management on a high level
- science of the future: *collaborative communication techniques*
- leading research: *individual efforts*
- in general: diversity of knowledge and communication styles + public *training* in organization tools and communication techniques

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2008+

- many persons
- heterogeneous
- new objects
- multi-disciplinary
- user-oriented
- *knowledge organization literacy*

Lessons from the past

supplementary, not substitution

- detailed vs. general
- recall vs. precision
- input vs. output
- durability vs. flexibility
- profit vs. sustainablility

The End (…is not the end)

Institute for Social-Ecological Research (ISOE) + New Science, Chris Duncan 2003

peter.ohly@gesis.org

http://www.bonn.iz-soz.de/wiss-org/ISKOitaly2008.pps