

A System for the Evaluation of Interactive Information Retrieval

Norbert Fuhr
University of Duisburg-Essen, Germany

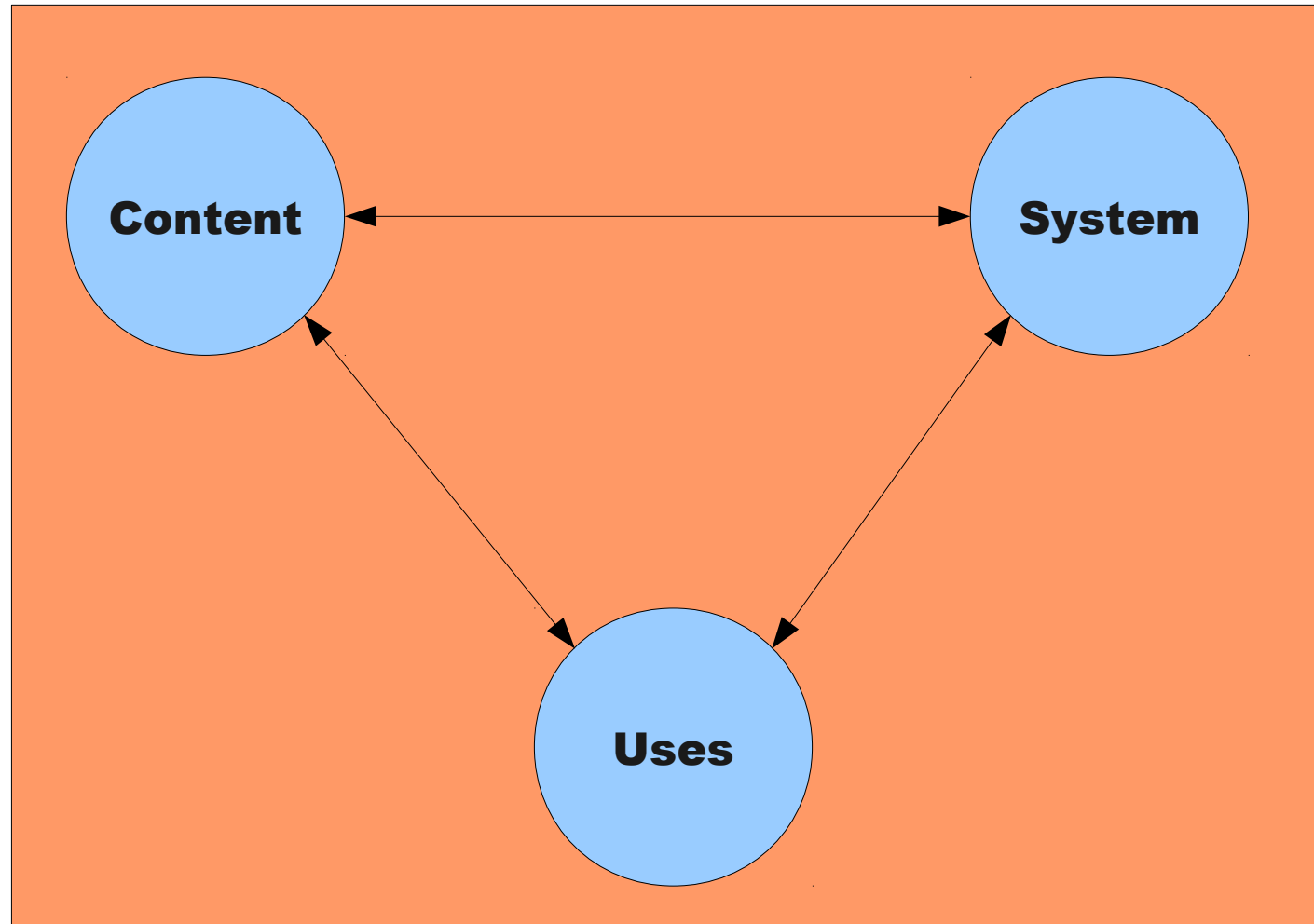
Talk structure

- Digital library systems
- Architecture levels of information retrieval / digital library systems
- Levels of experimentation
- The ezDL system
- ezDL experimentation
- Conclusion

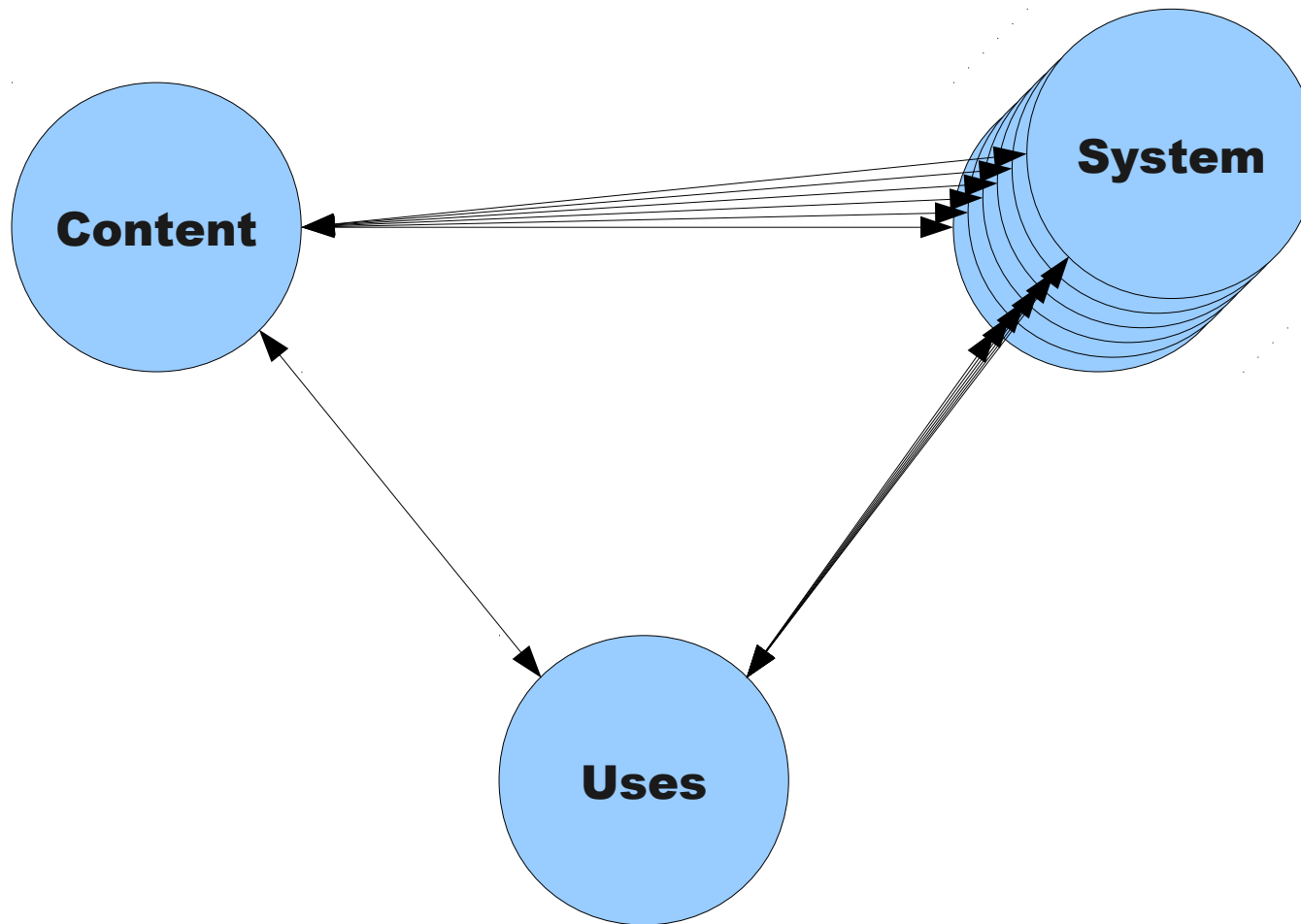


Digital library systems

Digital Library Model

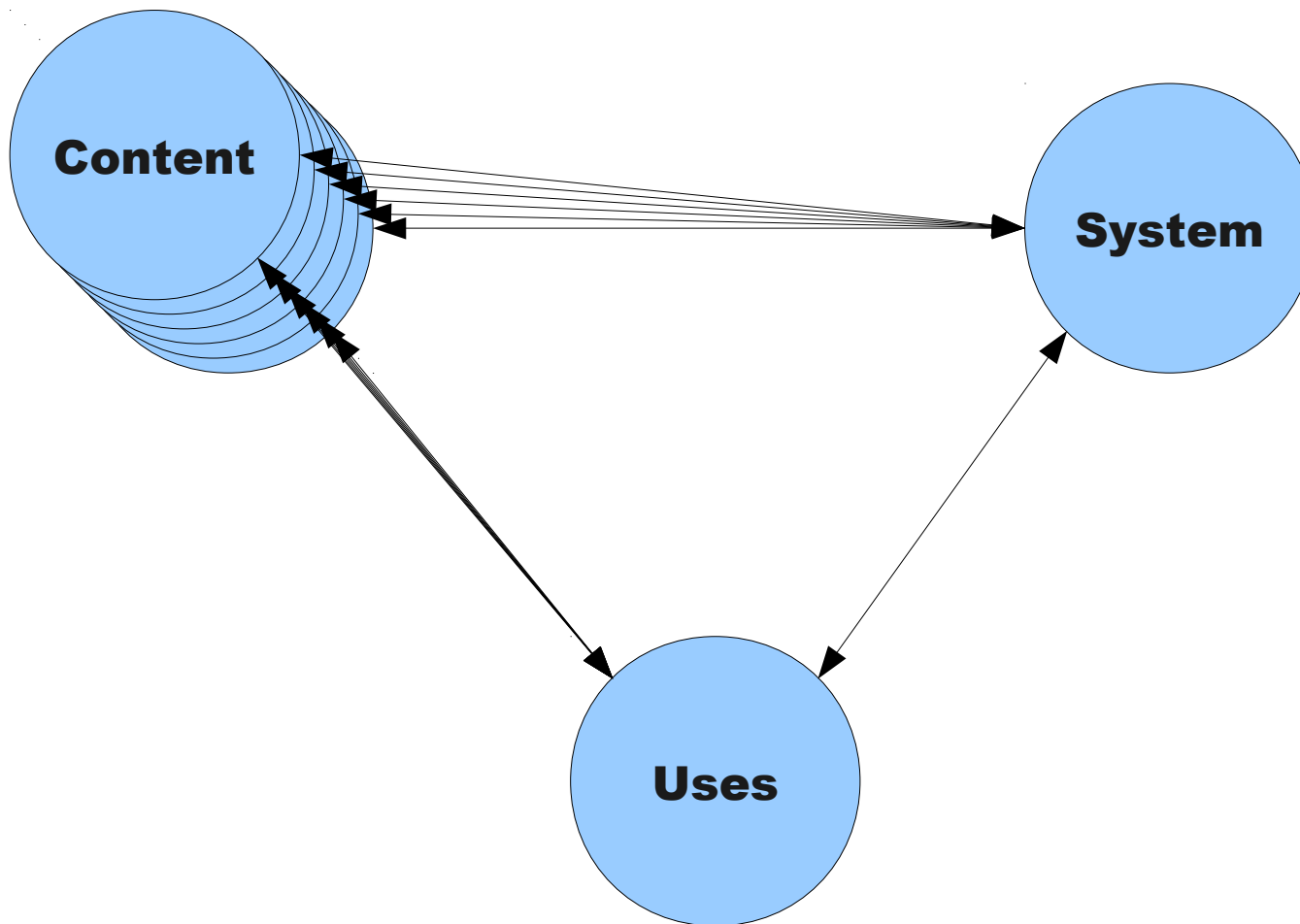


Experimentation: Variation of Systems



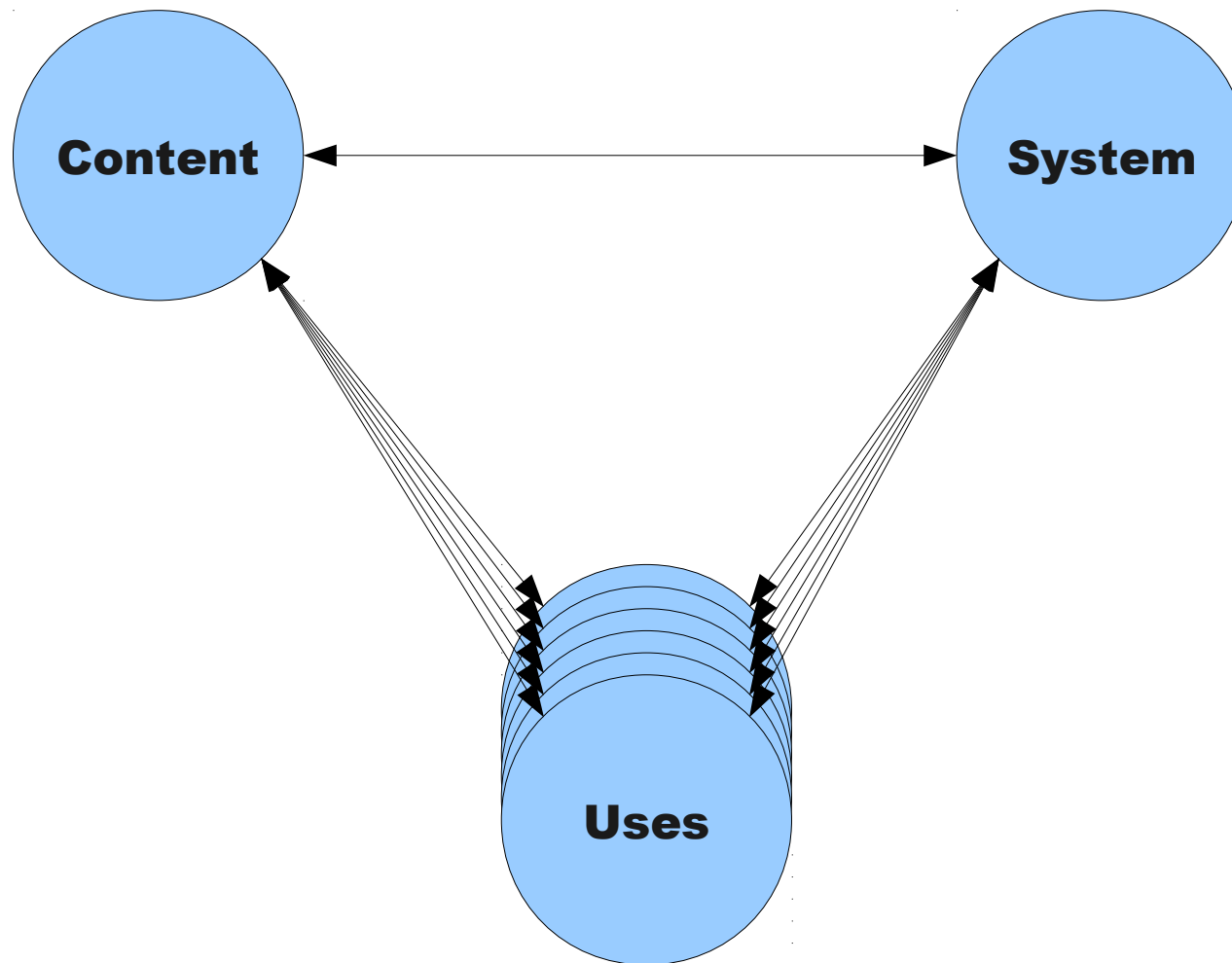
Classic
Evaluation
campaign

Experimentation: Variation of Content



Tests on different
collections

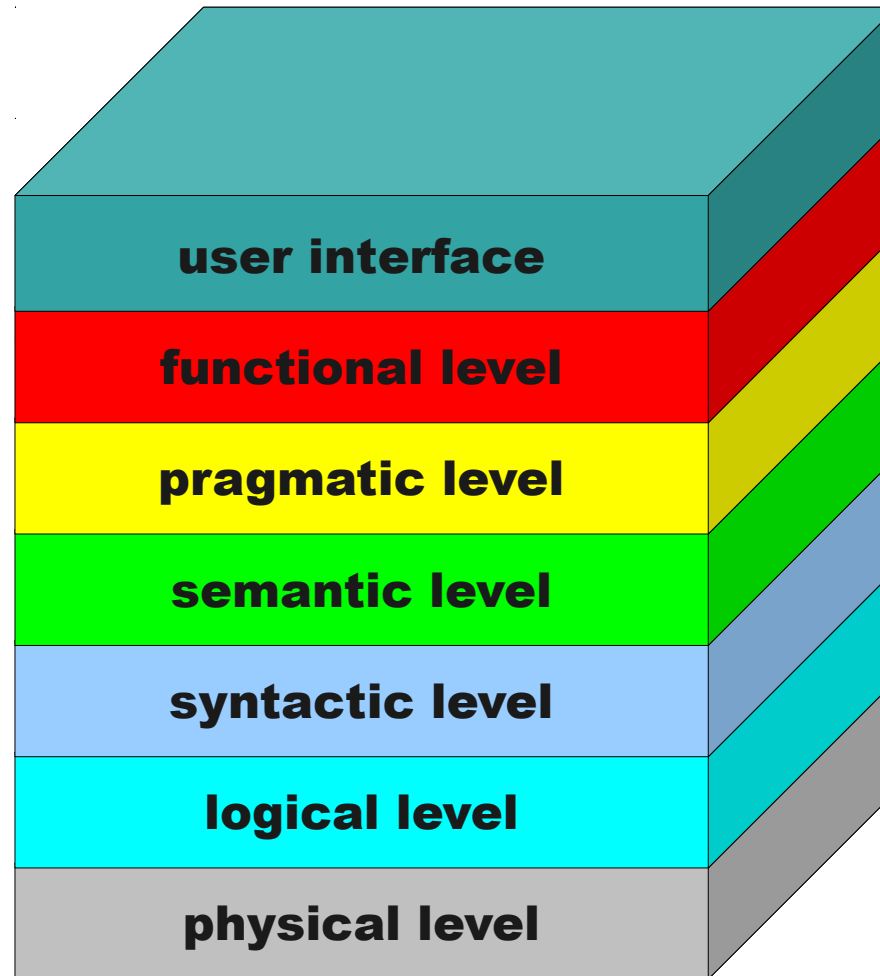
Experimentation: Variation of Uses



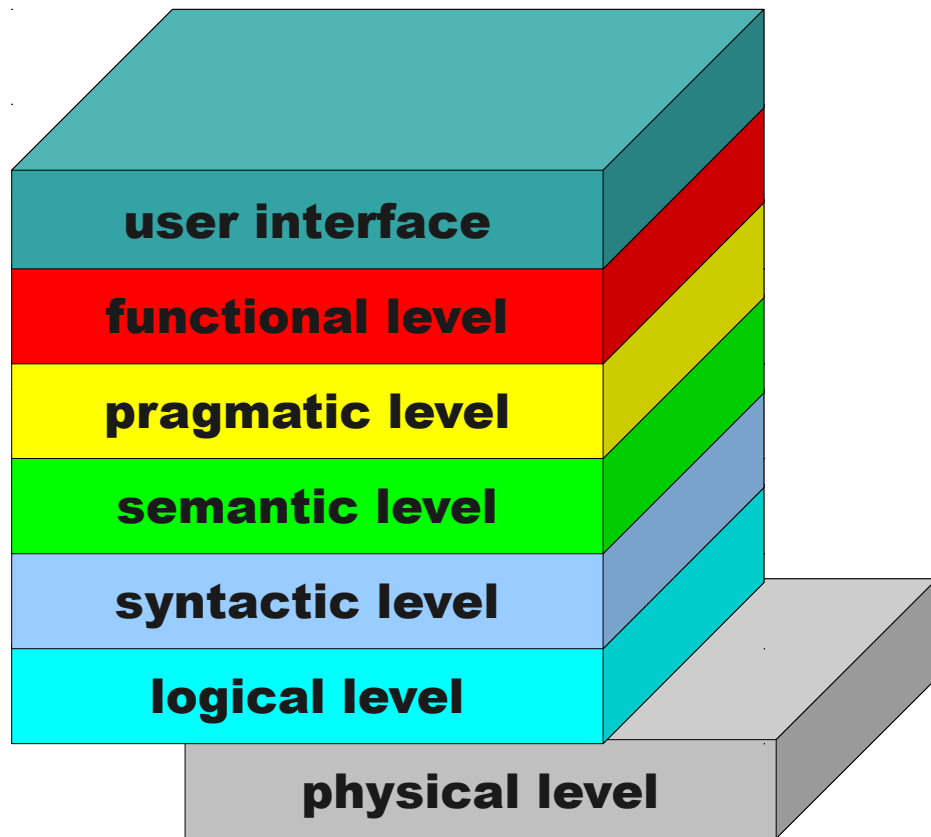
- Topic types
- Task types
- User groups

Architecture levels of information retrieval / digital library systems

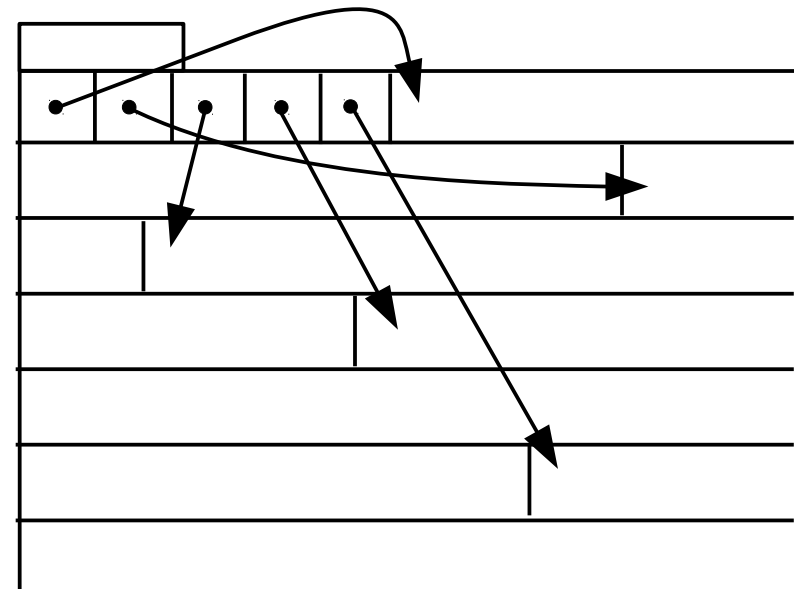
Architecture Levels of IR Systems



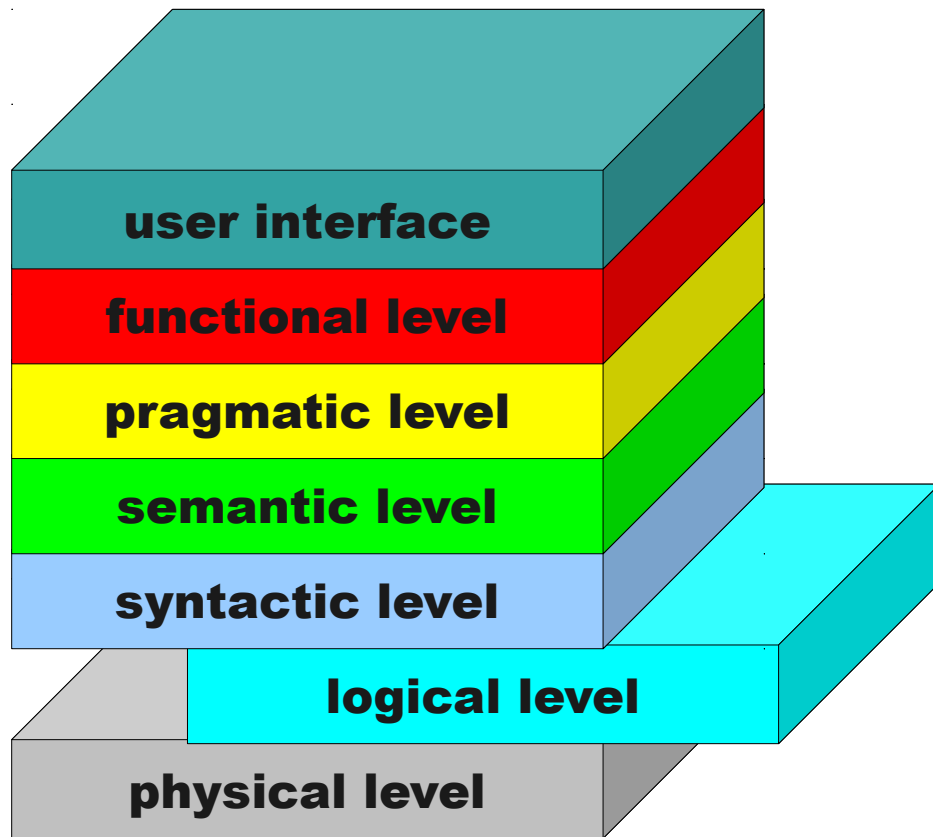
Physical level



t_1	d_2	d_{15}	d_{23}	d_{89}	...
t_2	d_5	d_{15}	d_{89}	...	



Logical level



Vector space

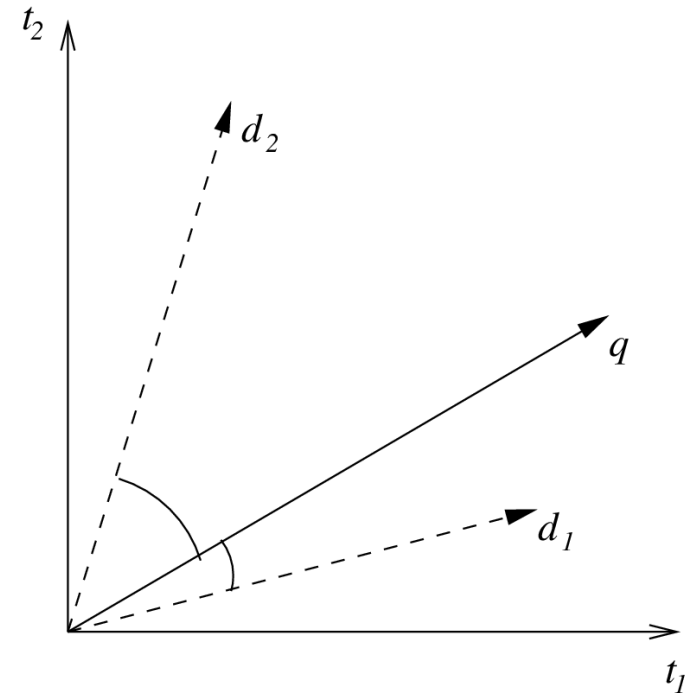
Boolean

Fuzzy

Probabilistic

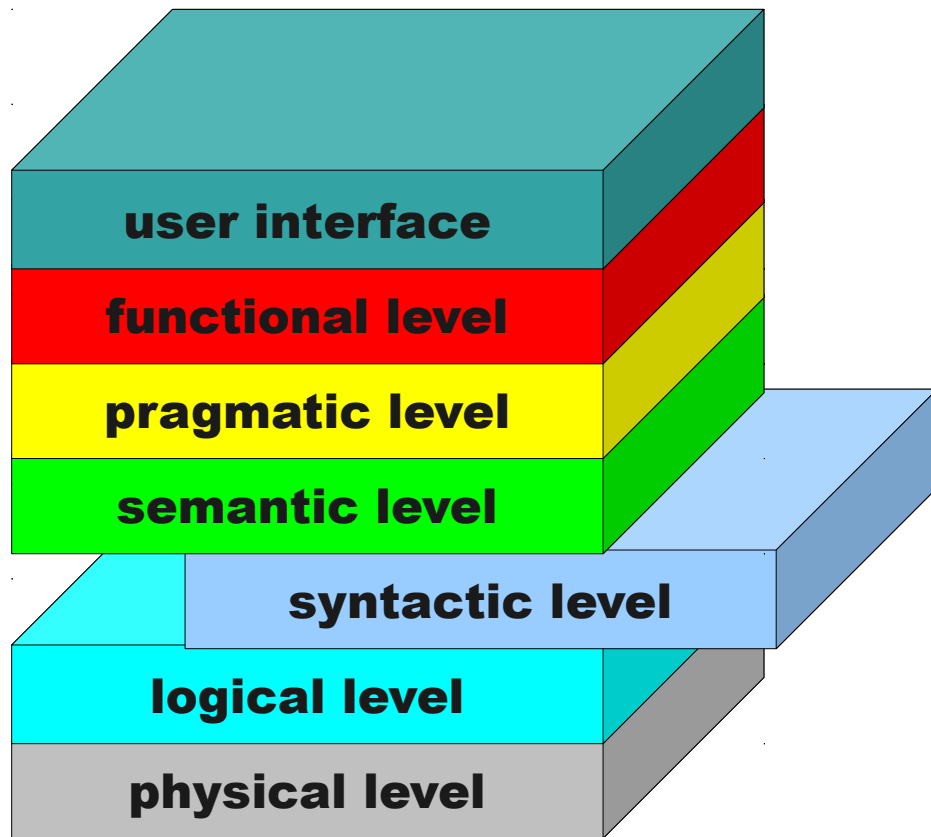
Language model

Learning to rank

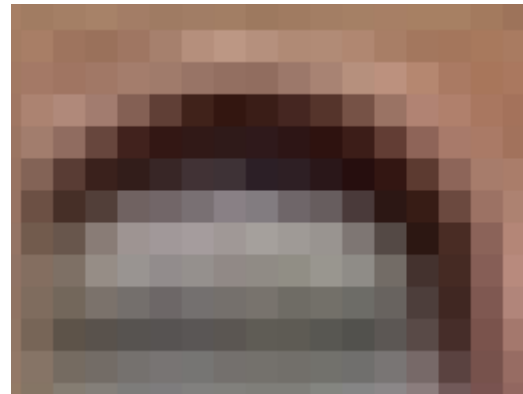


$$P(R|q, d) \propto \prod \lambda * P(w|d) + (1 - \lambda) * P(w|C)$$

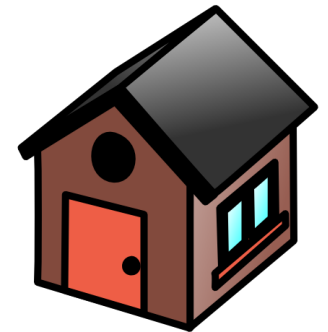
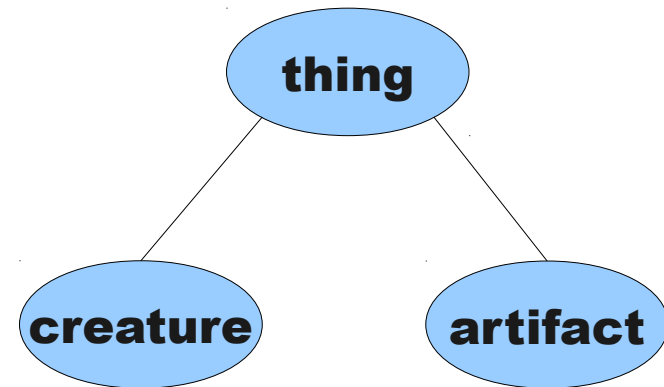
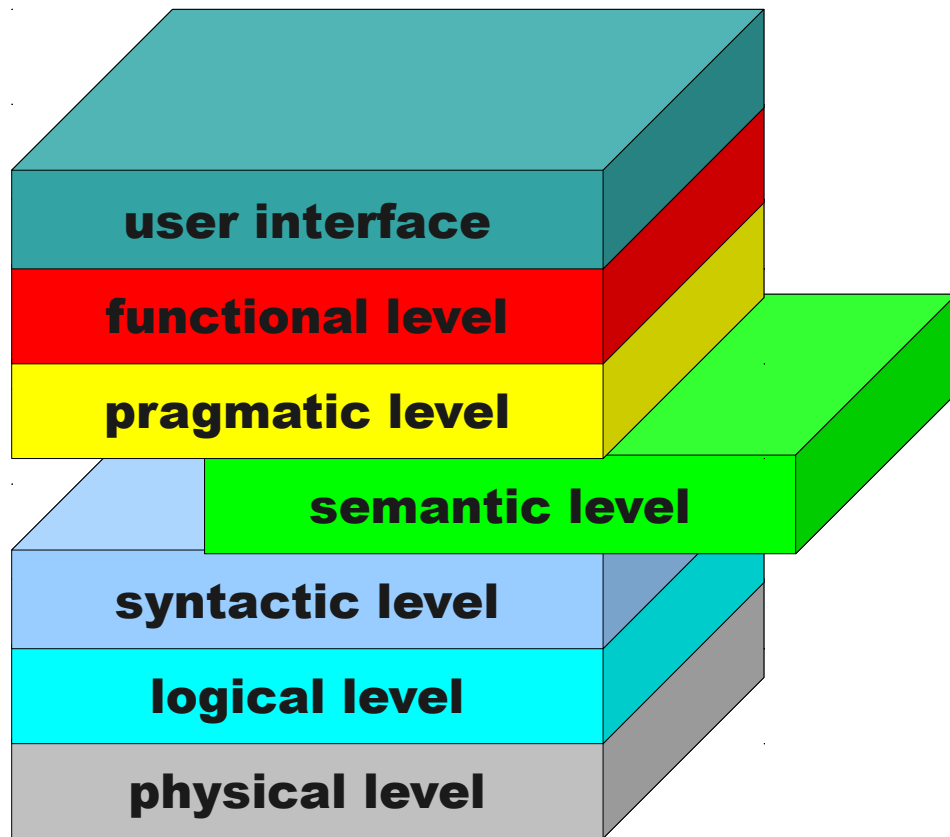
Syntactic level



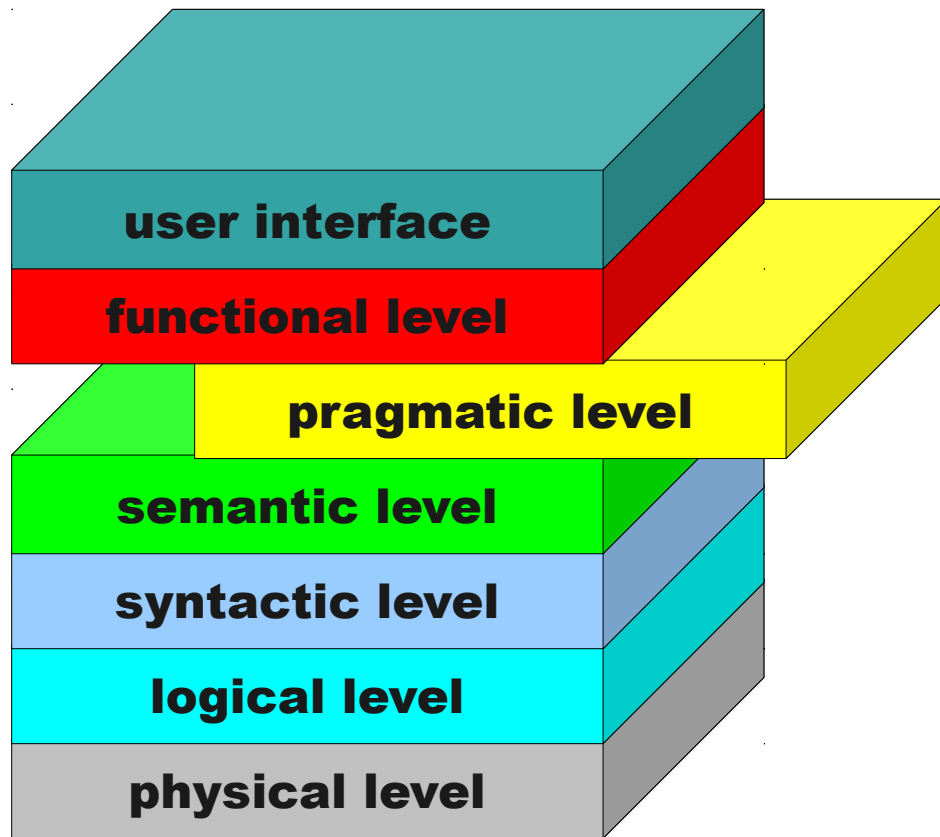
```
informat.* retrie[f|v].*
```



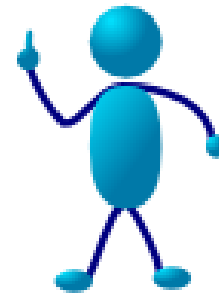
Semantic level



Pragmatic level

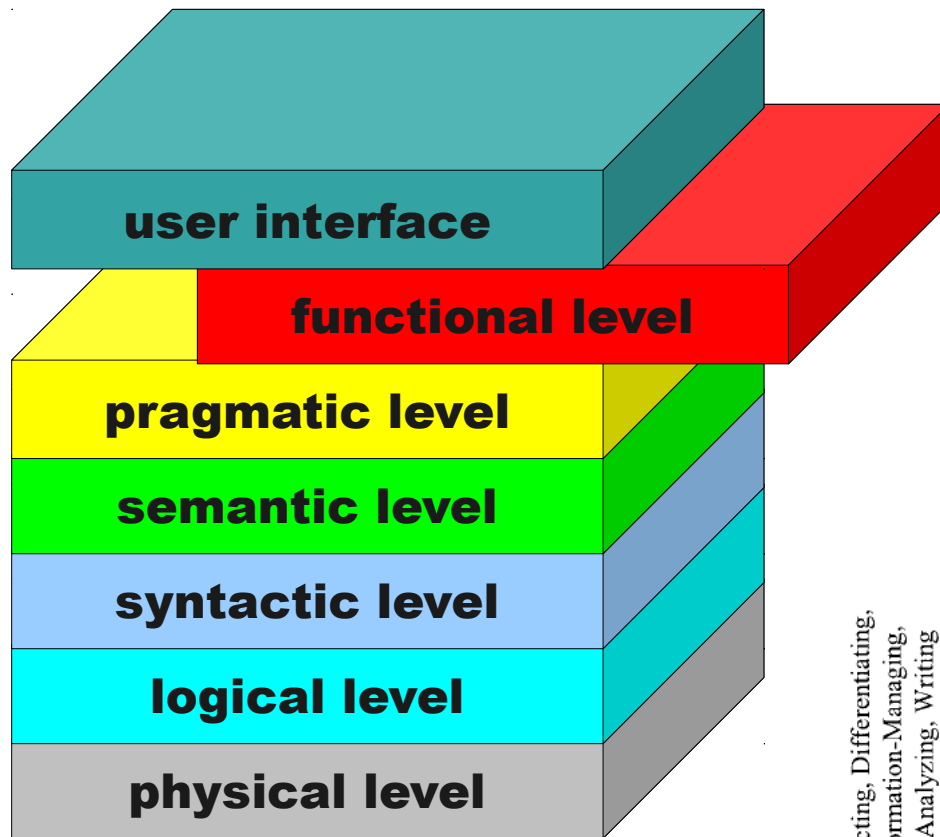


Problem



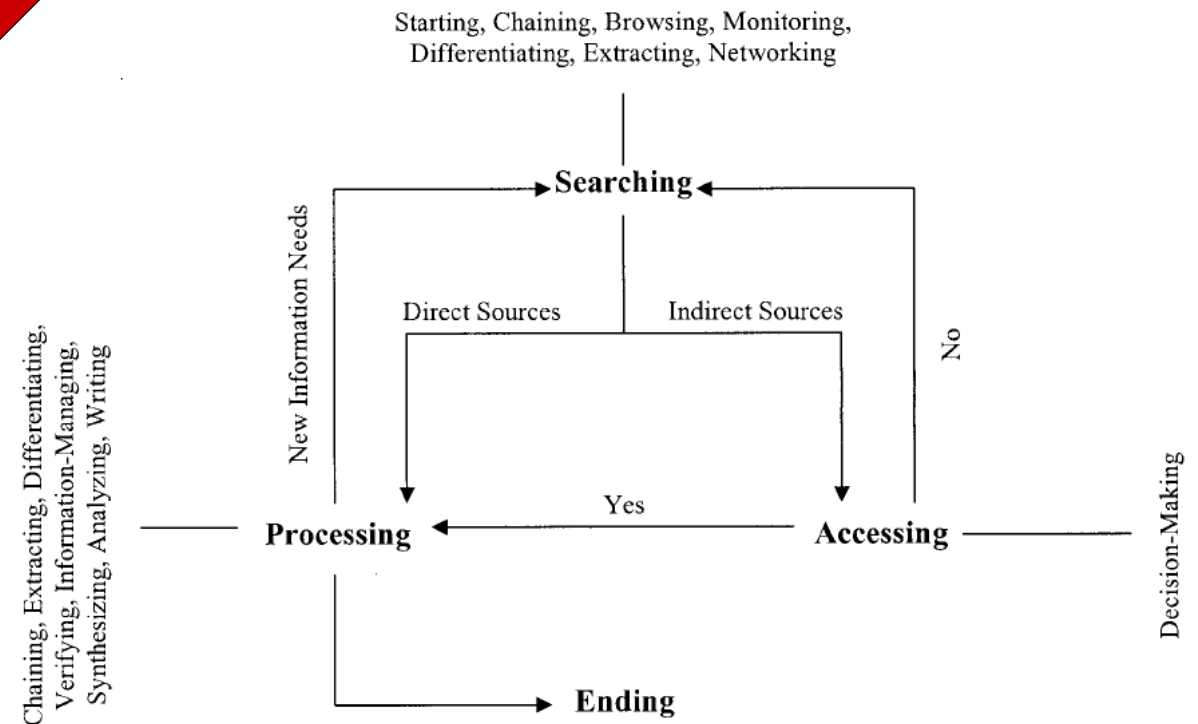
Work task

Functional level



API

SELECT ... WHERE ...



User Interface

user interface

functional level

pragmatic level

semantic level

syntactic level

logical level

physical level

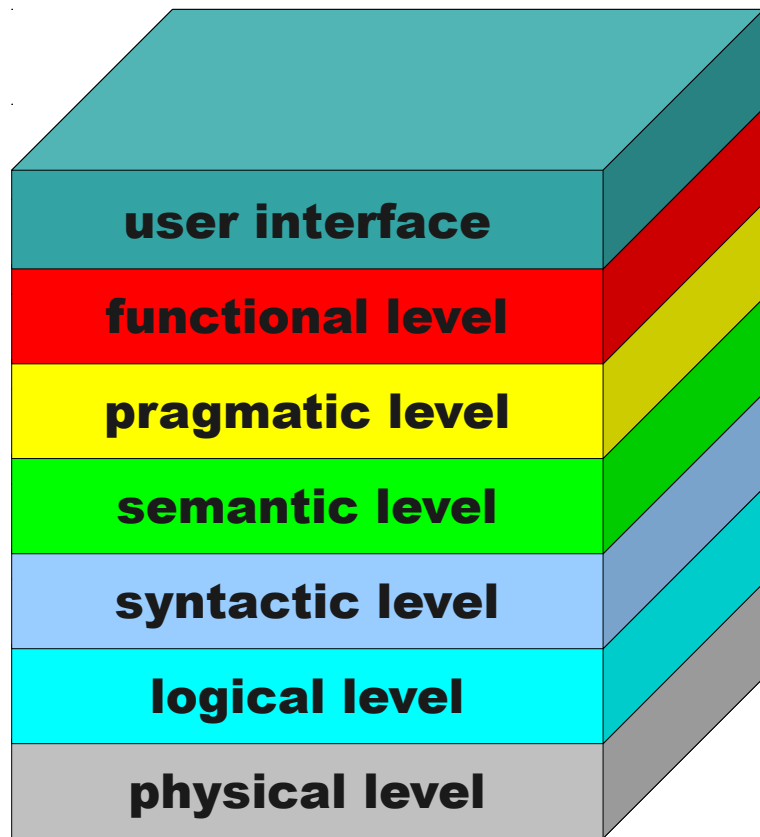
The screenshot displays the HyperGrid web application interface. At the top, there's a search bar with the text "Results: 20". Below the search bar, there are tabs for "Relevance", "Select View: Default", "Reset View", "Undo", and "Redo". The main content area is divided into four columns: "Thumbnail", "Bibliographic", "Content", and "Reviews". The "Thumbnail" column shows book covers. The "Bibliographic" column lists book details such as Title, Author, Year, Publisher, Awards, Edition, Subjects, Pages, Blurbers, and Dedications. The "Content" column provides a brief description of the book, including its reading level, people, places, and tags. The "Reviews" column shows the average rating and number of reviews for each book. The books listed are primarily Java-related, including "Java Internationalization", "Java Cryptography", "The Java Class Libraries", "The Java(TM) Class Libraries", "Core Java Edition", "Inside Java Workshop", "Inside Java", "Just Java and Beyond 1.1", "Wireless Java", and "Java Virtual Machine".

Thumbnail	Bibliographic	Content	Reviews
	Title: Java, Java, Java: Object-Oriented Problem Solving Title: Java Internationalization (Java Series) Author: Andy Deitsch Creators: Year: 2001 Publisher: O'Reilly Media, Inc. Awards: Unknown Edition: 1st Subjects: 1726-1783 Series: Unknown Dewey: 005.13 Pages: 445 Blurbers: Unknown Dedications: Unknown	Reading Level: Unknown People: Unknown Places: Unknown Tags: @work: O'Reilly Technical buyrme fonts i18n internationalization java locales programming resource bundles resources text unicode Abstract: For any Java programmer or manager creating software for global markets, Java Internationalization is an essential guide to the dos and don'ts of writing software that's usable all around the world. Besides being a general guide to internationalization (and its flip side, localization), this book provides in-depth coverage of support for globalized software on the Java platform.	Average rating: ★★★★★ Number of reviews: 12 Reviews: Excellent explanation of Unicode, multi-lingual challenges ★★★★★ Definitely dated ★★★★★ Good overview, but wished for more depth ★★★★★ Thorough and comprehensive ★★★★★ The "bible" on this topic ★★★★★ A good overview of internationalization ★★★★★
	Title: Java Cryptography (Java Series)	Reading Level: Unknown	Average rating: ★★★★★
	Title: Java 2	Reading Level: Unknown	Average rating: ★★★★★
	Title: The Java Class Libraries, Volume 1: java.io, java.lang, java.util, java.beans (2nd Edition) (Java Series) Author: Rosanna Lee Creators: Year: 1997 Publisher: Prentice Hall PTR	Reading Level: Unknown People: Unknown Places: Unknown Tags: Computer programming Removed SW dev java non-fiction natrick chan programming languages rosanna	Average rating: ★★★★★ Number of reviews: 49 Reviews: Perfect! ★★★★★ With this book, you can be easily the Java programmer. ★★★★★
	Title: Core Java Edition (Java Series)	Reading Level: Unknown	Average rating: ★★★★★
	Title: Inside Java Workshop (Java Series)	Reading Level: Unknown	Average rating: ★★★★★
	Title: Inside Java (Addison-Wesley)	Reading Level: Unknown	Average rating: ★★★★★
	Title: Just Java and Beyond 1.1 (Java Series)	Reading Level: Unknown	Average rating: ★★★★★
	Title: Wireless Java : Developing with Java 2, Micro Edition	Reading Level: Unknown	Average rating: ★★★★★
	Title: Java Virtual Machine (Java Series)	Reading Level: Unknown	Average rating: ★★★★★
	Title: Learning Java (The Java Series)	Reading Level: Unknown	Average rating: ★★★★★

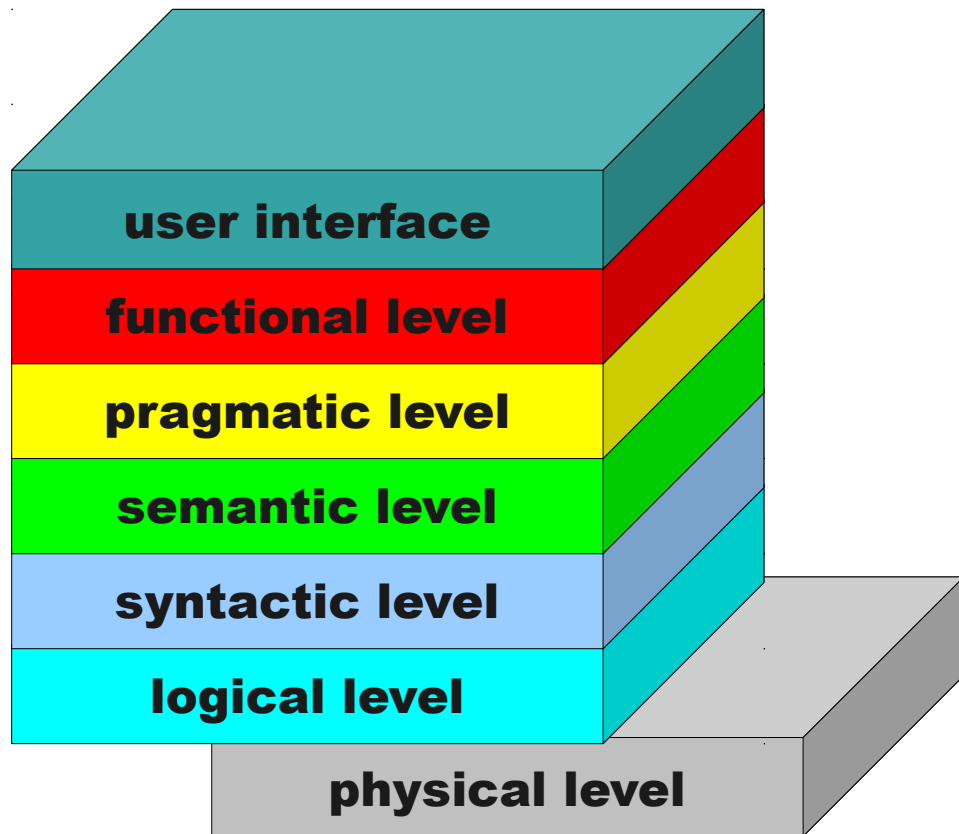


Levels of experimentation

Levels of Experimentation



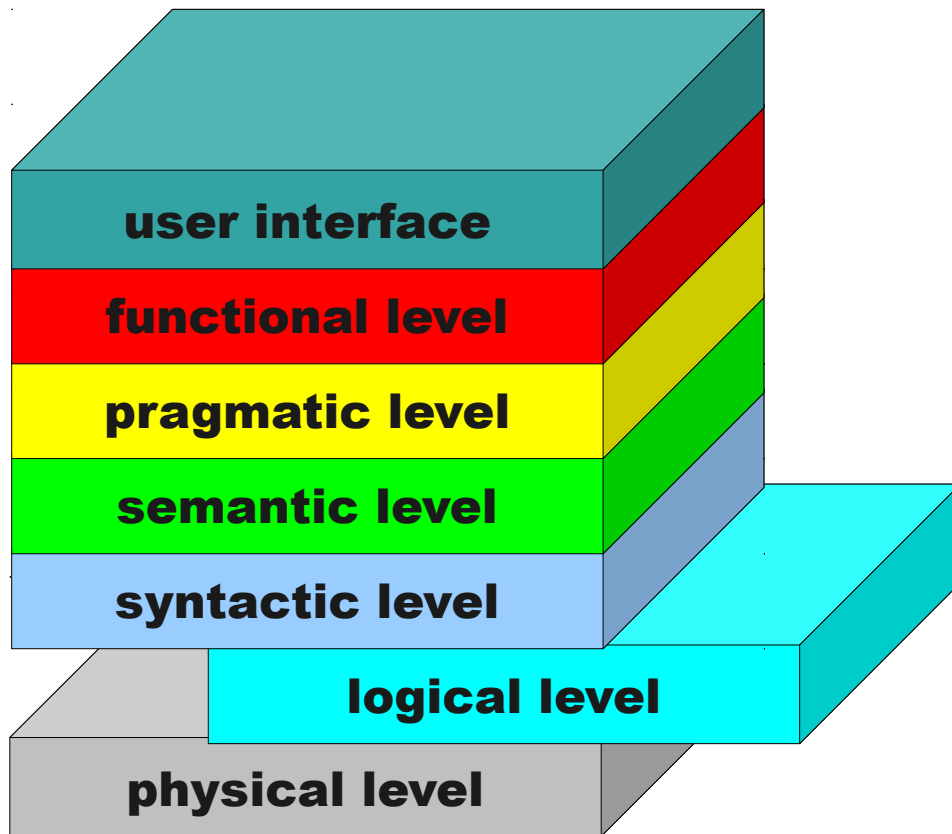
Levels of Experimentation: Physical



Performance experiments:

- Efficiency of data structures & algorithms
- Efficiency vs. effectiveness

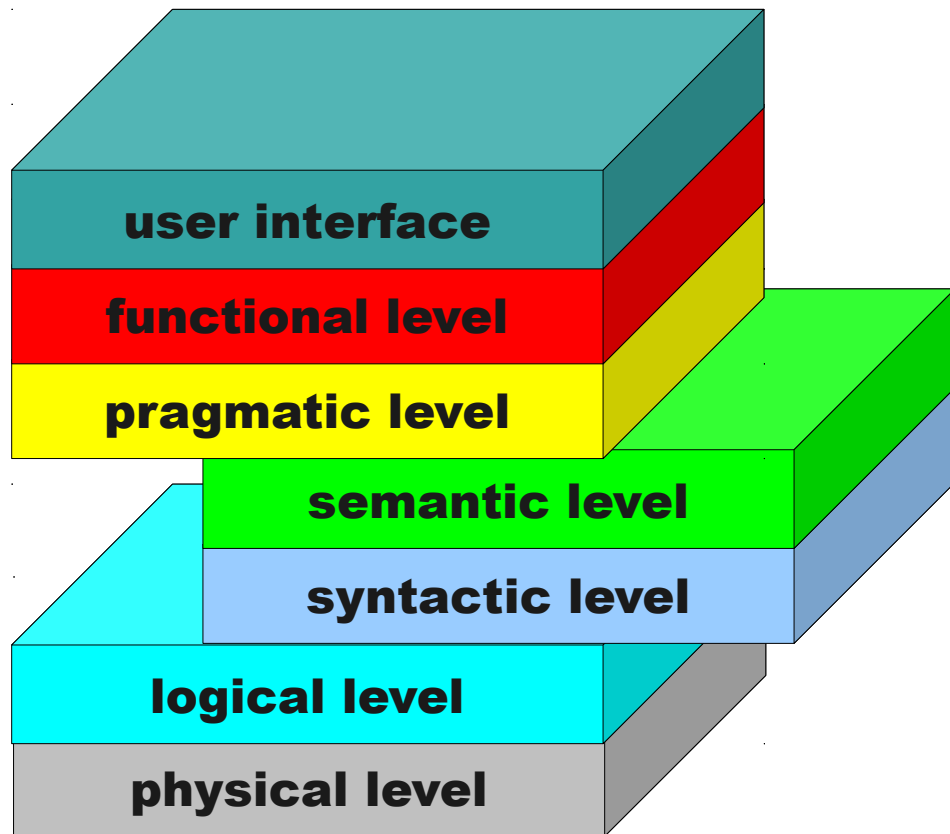
Levels of Experimentation: Logical



Test of IR models

- Focus on effectiveness

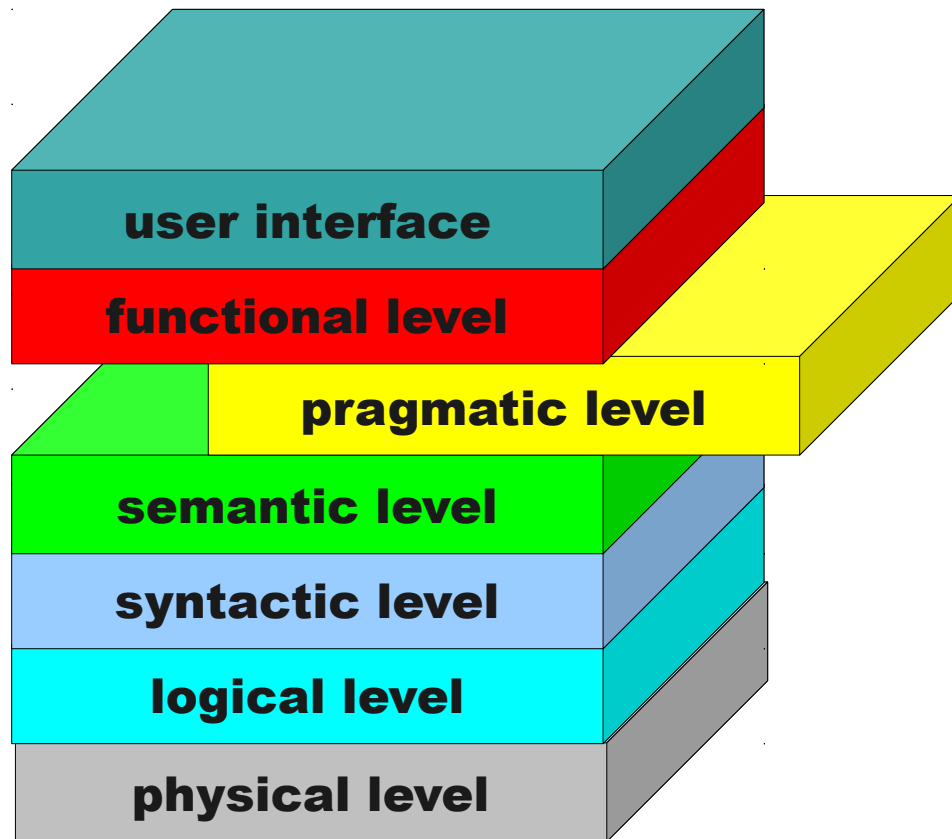
Levels of Experimentation: Syntactic/Semantic



Test of representations

- Focus on effectiveness
- Efficiency vs. effectiveness

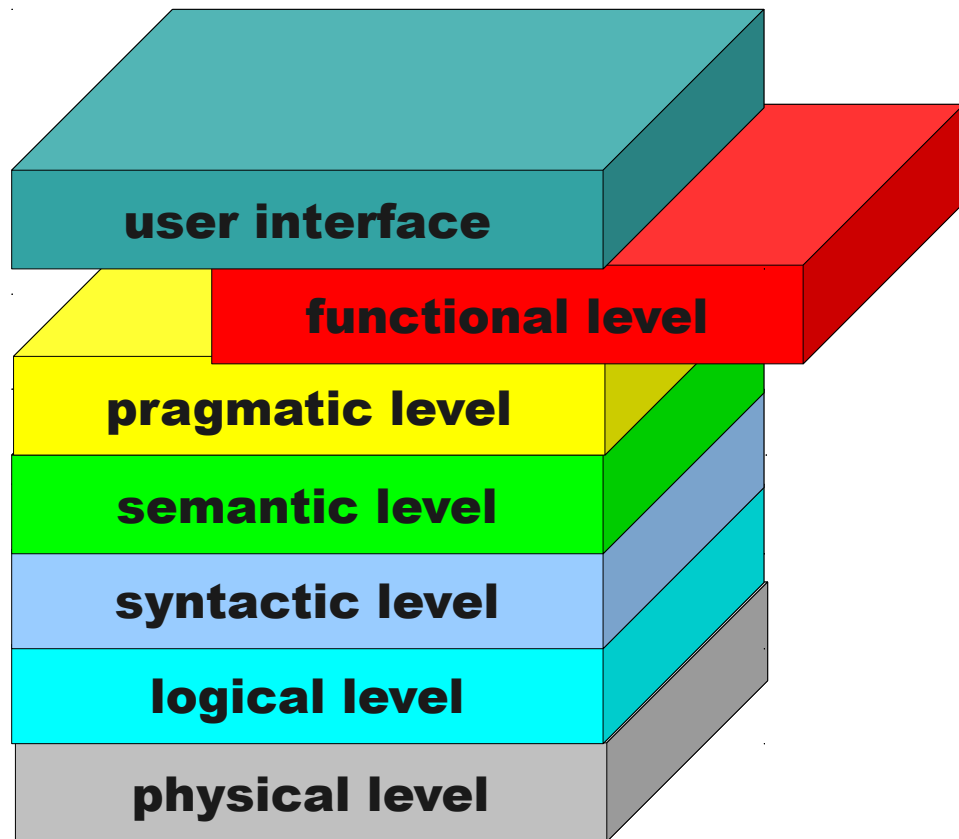
Levels of Experimentation: Pragmatic



Field studies:

- System support for
 - problem solving
 - work tasks

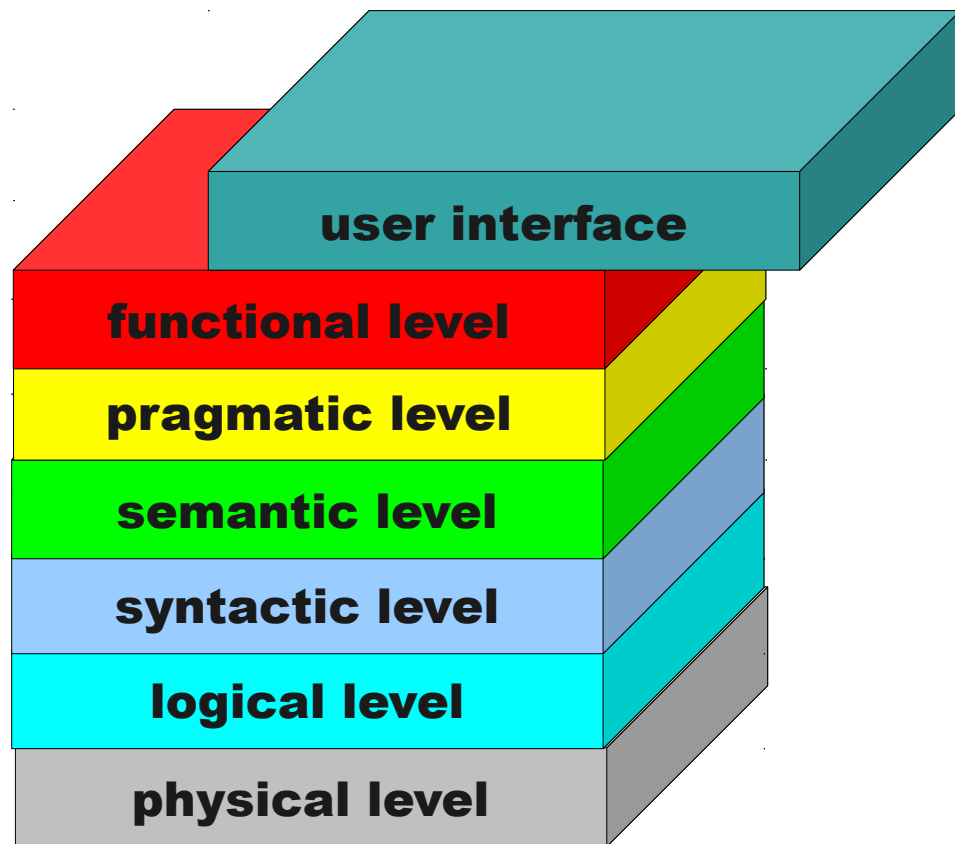
Levels of Experimentation: Functional



Test of search/cognitive functions

- user experiments
 - lab
 - living labs

Levels of Experimentation: User Interface



User interface tests

- user experiments
 - lab
 - living labs

The ezDL system

Library Choice

Refresh

computer science



DBLP

A bibliography service for computer science. Very fast because locally indexed.



Dummy

This is a dummy wrapper that has kind of a long description in English but a short description in Germ...

Search

Search query

Form

Title: "information retrieval"

Free

Author: e.g. "seth nickel" OR "suzanna smith"

Free

Year: e.g. 1970-1972

Free-Text: e.g. "information retrieval" OR search

Clear

Search

Results: 931

Sort by: Relevance



Extract

Filter: filter something out...

642.Integration of Information Retrieval and Data Base Management Sys

J. S. Deogun and V. V. Raghavan
1985 (BibDB)

643.Integration of Information Retrieval and Database Management Sys

J. S. Deogun and V. V. Raghavan
1988 (BibDB)

644.Forward Multidimensional Search with Application to Information Retrieval Systems

C. X. Durand
1987 (BibDB)

645.Anaphora in Natural Language Processing and Information Retrieval

E. DuRoss Liddy
1990 (BibDB)

646.A behavioural approach to information retrieval system design

D. Ellis
1989 (BibDB)

647.Research and Development of Information Retrieval Models and the

E. A. Fox
1989 (BibDB)

648.From Information Retrieval to Networked Multimedia Information Ac

E. Fox
1993 (BibDB)

Query History

Click to set search query to search tool.
Double click to execute query in addition.



Title="information retrieval" [dblp, acm, t



Title="information retrieval" AND Title=vi

Clipboard

The clipboard can also be used to collect n...

Term

Name of...

Create new

J. Zhang (2009). "Visualization for Informat
G. Song (2009). "Client-Side Visualization c
D. Rodighiero et. al. (2009). "Mapping for I
K. Yoshikawa, H. Yamamoto (1999). "Whole
ME. Rorvig, M. Hemmje (1996). "Foundatio
I. Fahmi et. al. (2007). "SWHi System Desc

Clear

Details

An Information Retrieval View of Environmental Information Systems

Year: 1991

Author

Norbert Fuhr

Abstract

In the design of future enviromental systems, the semantics of the data as well as the kind of queries to those systems have to be considered. Enviromental data is frequently uncertain and incomplete.

...ous data structures as well as multimedia data have to be by the system. For interactive queries, the system should allow ries and query formulations that are independent of the ucture of the data and its representation. For vague queries and imprecise data, methods developed in information retrieval can be applied. Heterogeneous data structures can be handled with concepts from object-oriented database management systems. In multimedia information systems, the problem of full integration of the different media is yet unsolved, especially in case the information a user searches for is stored in different media. We claim that the retrieval interface offered by current database management systems is not sufficient for interactive use. In addition, functions like ranking, browsing, zooming, relevance feedback and cooperative support should be provided. Finally, we emphasize the need for empirical studies for the design of future environmental information systems. Keywords: information retrieval, environmental information systems, heterogeneous data structures, multimedia data, vague queries, imprecise data, interactive information systems.

ezDL - (visitor)

FileToolsPerspectivesHelp

Search

Extraction

Search query

Form

Free

Title:

e.g. introduction visualisation

Author:

e.g. "seth nickel" OR "suzanna smith"

Year:

2010

Free-Text:

e.g. "information retrieval" OR search

Clear

Search

Results: 70

Select View:

Detail View

Undo Max Zoom All

Redo

Reset View

Filter Item Information-column	Filter Meta-column	Filter Reviews-column	Filter Abstract-column
Item Information	Meta	Reviews	Abstract
Title: The Road to the Isles	ISBN: 0330480677	Review count: 0	Abstract: A wonderfully evocative account of the
Title: Understanding Phonetics (A Hodder Arnold	ISBN: 0340928271	Review count: 0	Abstract: This series provides approachable, vet
Title: Death of a Stranger	ISBN: 0345459334	Review count: 16	Abstract: Private enquiry agent William Monk is hired
Title: Can't Take My Eyes Off of You	ISBN: 0345479920	Review count: 2	Abstract: unknown
Title: Soryuden The Novel Book One: Super Dragon	ISBN: 0345496485	Review count: 0	Abstract: unknown
Title: Never Eat Alone: And Other Secrets to Success	ISBN: 0385512066	Review count: 100	Abstract: <p>Do you want to get ahead in life?
Title: Gert Garibaldi's Rants and Raves: From Butt to Booty	ISBN: 0385734328	Review count: 0	Abstract: LIFE DOESN'T GET any easier for Gert
Title: New American Story	ISBN: 0394172981	Review count: 0	Abstract: unknown
Title: Textual Scholarship: An Introduction (Garland	ISBN: 0415970288	Review count: 2	Abstract: This book is the first to address the entire
Title: Pee Wee Scouts: That Mushy Stuff Author: Judy Delton Year: 2010 Publisher: Yearling Publication date: unknown	ISBN: 0440401763 Number of pages: 80 Binding: Paperback Edition: Reissue Tags: unread // young adult // read // juvenile // Fiction // chapter book // children's // stories // love // medium paperback // holidays // y // Double // Valentine's Day // Valentine's // Level L - green // mfm // 8 // Level N // clubs // Pee Wee Scouts // pee wee scouts valentines day holiday //	Review count: 3 Reviews: That Mushy Stuff // A wonderful valentine's story! // another great pee wee scout adventure //	Abstract: It's Valentine's Day and love is in the air near the Pee Wee Scouts. They're making mushy valentines and working on first aid badges--and one of them is working on her own secret plan.

Library Choice

Refresh

iTrack

☒ Amazon/Libr... iTrack

Tray

The tray can also be used to collect new terms an...

Term

Name of ne...

Create new

Query History

Click to view old query. Double click to re-run query.

Year=2010 [amazonlit] (70) 36 min

Clear all

Details

YOU: The Owner's Manual: An Insider's Guide to the Body that Will Make You Healthier and Younger

Year: 2010

Author

Michael F. Roizen

Abstract

If there ever was a pair of docs who can make the small intestine seem truly intriguing, here they are. Dr. Mehmet Oz is an alternative-medicine maverick and a cardiologist known to implement acupuncture during open-heart surgery. Dr. Michael Roizen developed the <i>RealAge </i> concept of calculating one's biological, as opposed to chronological, age. Here they've whipped up a witty guide to the workings of the entire body, appropriate not just for those who can't tell their pancreas from their pituitary. Even <i>Cheers' </i> Cliff Claven types who think they know it all will likely be humbled by the 50-question "body-quotient" quiz that starts off the book. <p> With much sassy humor (they describe the adrenals as similar in shape to Mr. Potato Head's hat), they give a guided tour of the body's anatomy and major systems (hormonal, nervous, digestive, sensory, etc.) including plenty of fascinating trivia along the way. How often should you get your thyroid level checked? How much gas does the average person produce in a

Search finished

ezDL - (visitor, visitor)

File Tools Perspectives Help

Query History

Click to set search query to search tool. Double click to execute query in addition.

- Author=Frommholz [dblp, acm, bibdb] (44) 0 min
- Title="information retrieval" [dblp, acm, bibdb] (931) 3 min
- Title="information retrieval" AND Title=visualization [dblp, acm, bibdb] (14) 4 min

Clipboard

The clipboard can also be used to collect new terms and authors.

Term Name of new object

- J. Zhang (2009). "Visualization for Information Retrieval."
- G. Song (2009). "Client-Side Visualization of Internet Forums for Information Retrieval."
- D. Rodighiero et. al. (2009). "Mapping for Multi-source Visualization: Scientific Informati"
- K. Yoshikawa, H. Yamamoto (1999). "Whole Data Visualization by Similarity Degree for N"
- ME. Rorvig, M. Hemmje (1996). "Foundations of Advanced Information Visualization for I"
- I. Fahmi et. al. (2007). "SWHi System Description: A Case Study in Information Retrieval"

Details

A Probabilistic Framework for Information Modelling and Retrieval Based on User Annotations

Year: 2008

Author

Ingo Frommholz

Abstract

Annotations are a means to make critical remarks, to explain and comment things, to add notes and give... they can be found in digital libraries and laboratories, for example as a building block for scientific disc... the other. We further find them in product reviews, scientific databases and many "Web 2.0" applications... can be regarded as annotations in a certain sense. Digital annotations can be (textual) comments, markin... other documents or document parts. Since annotations convey information which is potentially important... tries to answer the question of how to exploit annotations for information retrieval. It gives a first answer t... improved with annotations. A survey of the "annotation universe" reveals some facets of annotations; for... annotations (extending the content of the annotation object) or meta level ones (saying something about... annotations themselves, other objects created during the process of annotation can be interesting for ret... These objects are integrated into an object-oriented model comprising digital objects such as structured d... fragments. In this model, the different relationships among the various objects are reflected. From this mod... annotation-based retrieval, the structured annotation hypertext, is derived. In order to thoroughly exploit... annotation hypertexts, a probabilistic, object-oriented logical framework called POLAR is introduced. In POL... modelled by means of probabilistic propositions and four-valued logics. POLAR allows for specifying several... annotated (sub)parts or fragments. Queries can be posed to extract the knowledge contained in structure... annotation-based retrieval, i.e.) document and discussion search, by applying an augmentation strategy (l... propositions from subcontexts like annotations, or relevance augmentation, where retrieval status values a... probabilistic inference, where $P(d \rightarrow q)$, the probability that a document d implies a query q

Search finished

Search

Search query

Title:

Author:

Year:

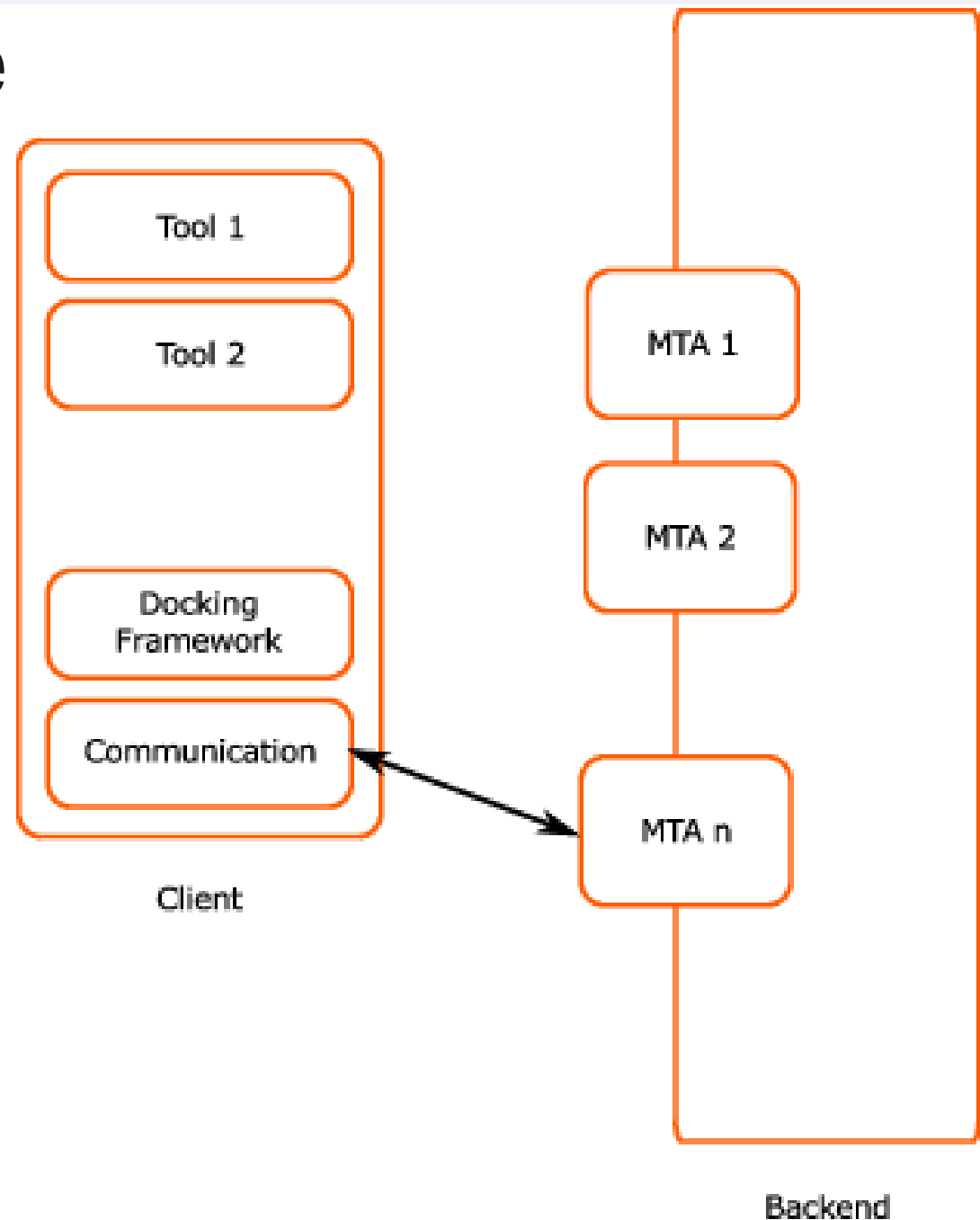
Free-Text:

Results: 44

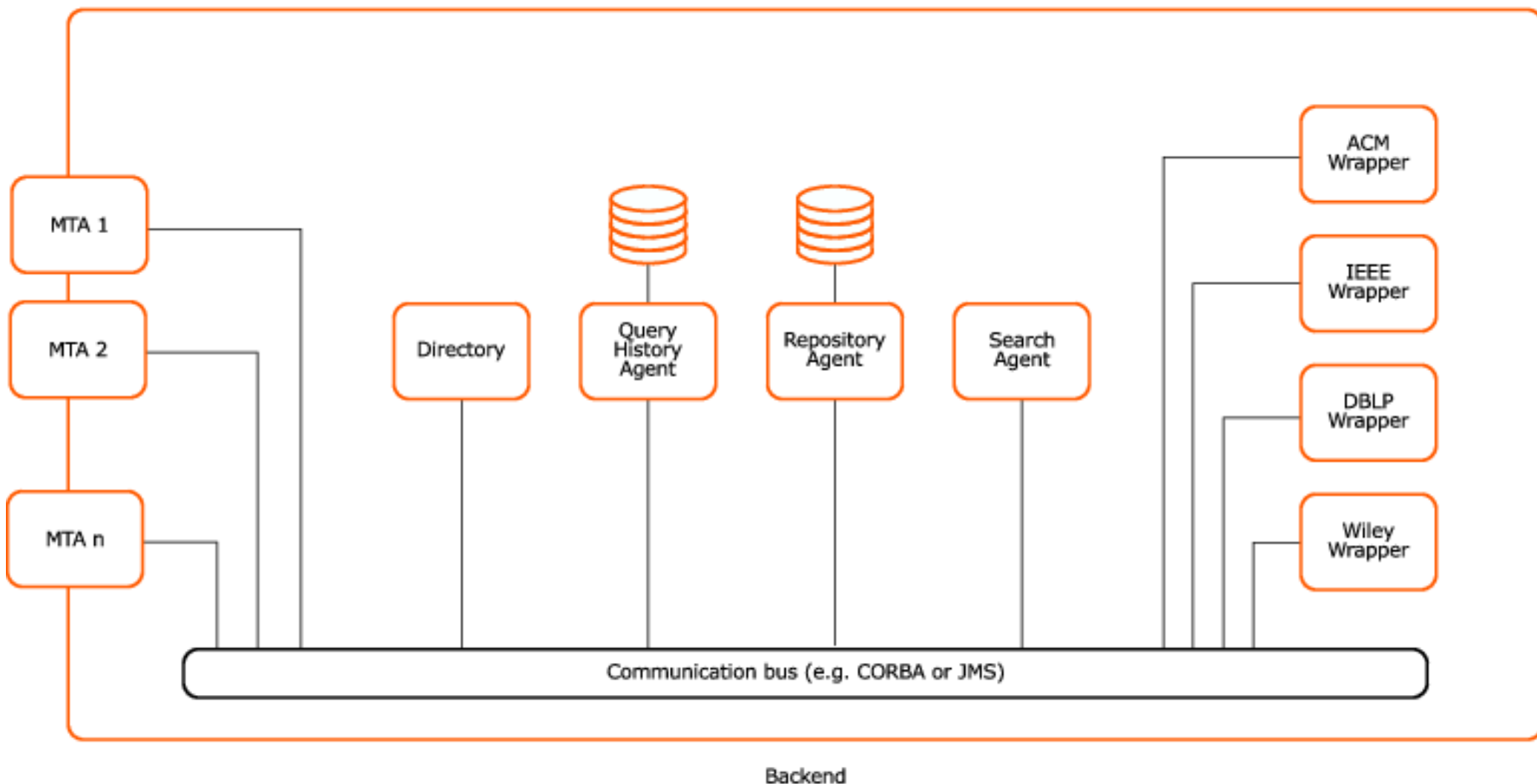
Sort by: Relevance Filter:

- 6. A Probabilistic Framework for Information Modelling and Retrieval**
 Ingo Frommholz
2008 (BibDB)
- 7. Annotation-Based Document Retrieval with Probabilistic Logics.**
 Ingo Frommholz
2007 (DBLP)
- 8. Evaluation of Relevance and Knowledge Augmentation in Discuss**
 Ingo Frommholz; Norbert Fuhr
2006 (DBLP)
- 9. Probabilistic, object-oriented logics for annotation-based retrieval**
 Ingo Frommholz; Norbert Fuhr
2006 (ACM DL, DBLP)
- 10. Determining the Polarity of Postings for Discussion Search.**
 Ingo Frommholz; Marc Lechtenfeld
2008 (DBLP)
- 11. Report on the INEX 2006 heterogeneous collection track**
 Ingo Frommholz; Ray Larson
2007 (ACM DL)

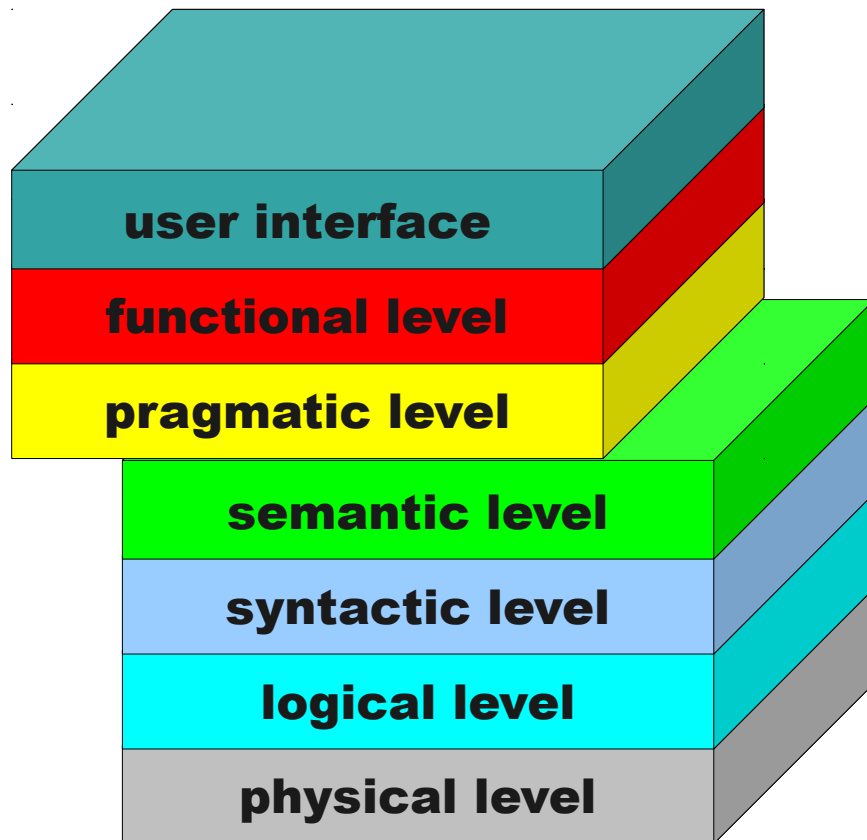
ezDL Architecture



ezDL Backend Architecture



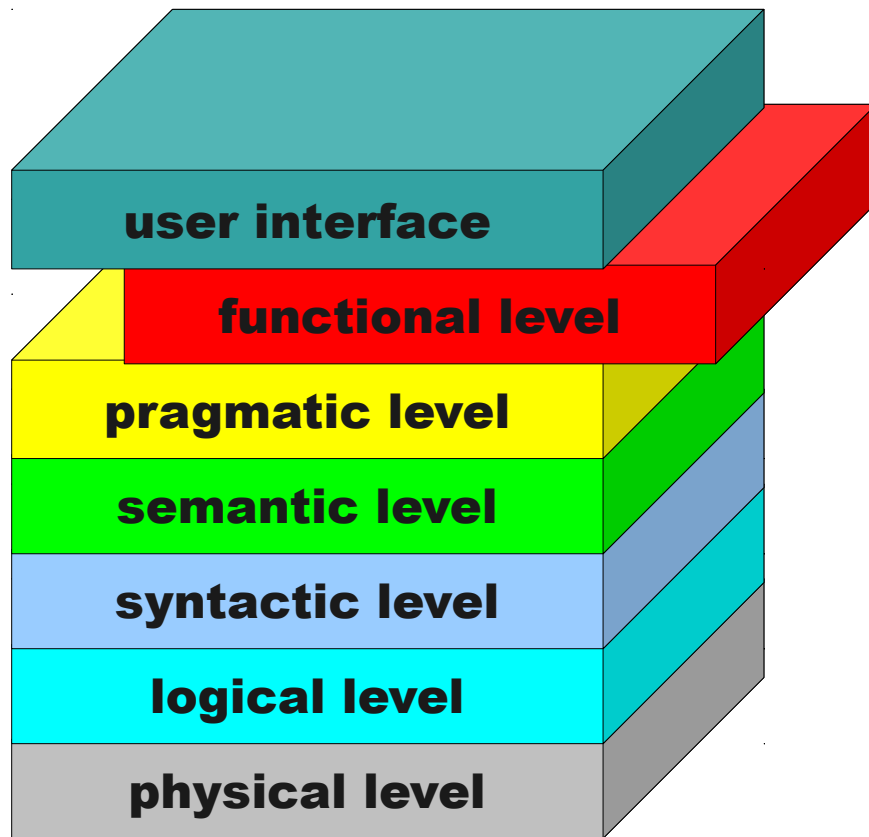
ezDL – Lower Levels



Wrappers to IR Backends

- Amazon books (SOLR)
- Computer Science DLs: ACM, LEABIB, DBLP, Wiley, SpringerLink, IEEE Xplore, CiteseerX, ...
- Medicine: PubMed,...

ezDL



- higher level search functions: tactics, stratagems
- proactive support
- session support
- support of the digital library lifecycle

User Interface

user interface

functional level

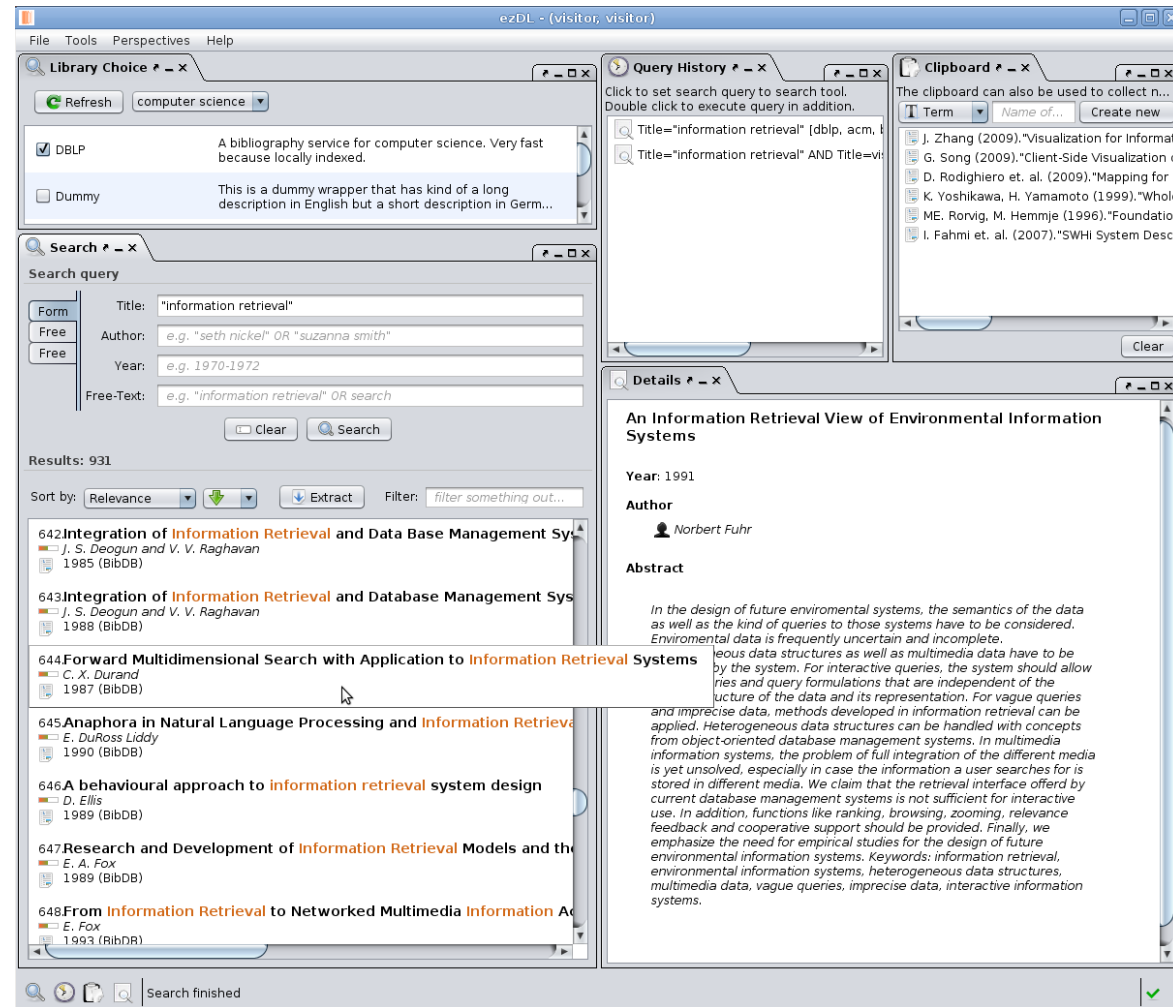
pragmatic level

semantic level

syntactic level

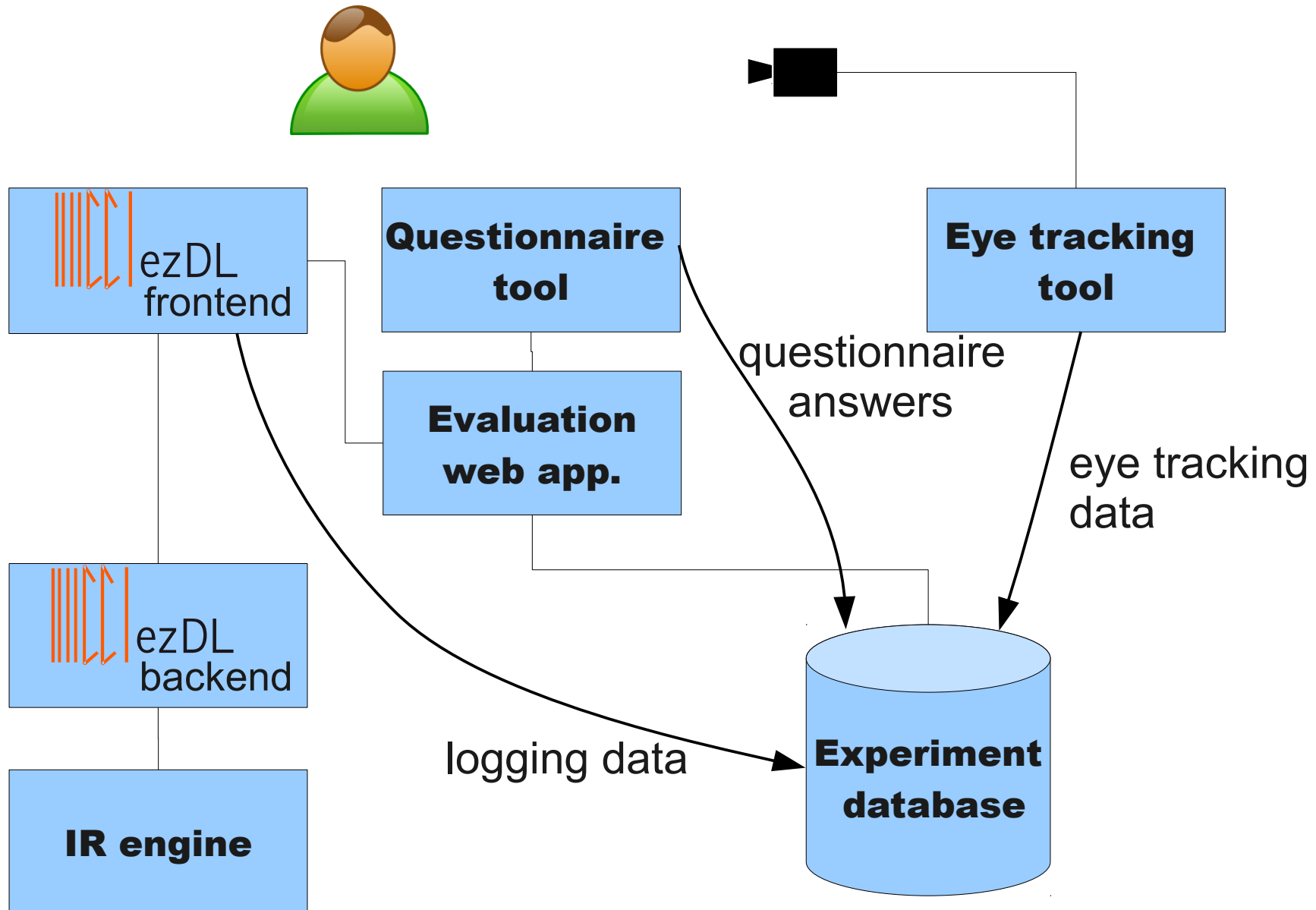
logical level

physical level



ezDL experimentation

Experimental architecture



Evaluation web app.

Start



Training Task



**Pre-Exp
Questionnaire**



**Pre-Task
Questionnaire**



Task

Starts System



System



**Post-Task
Questionnaire**



**Post-Exp
Questionnaire**



End

Log Viewer

***Analysis Tool
(Example)***

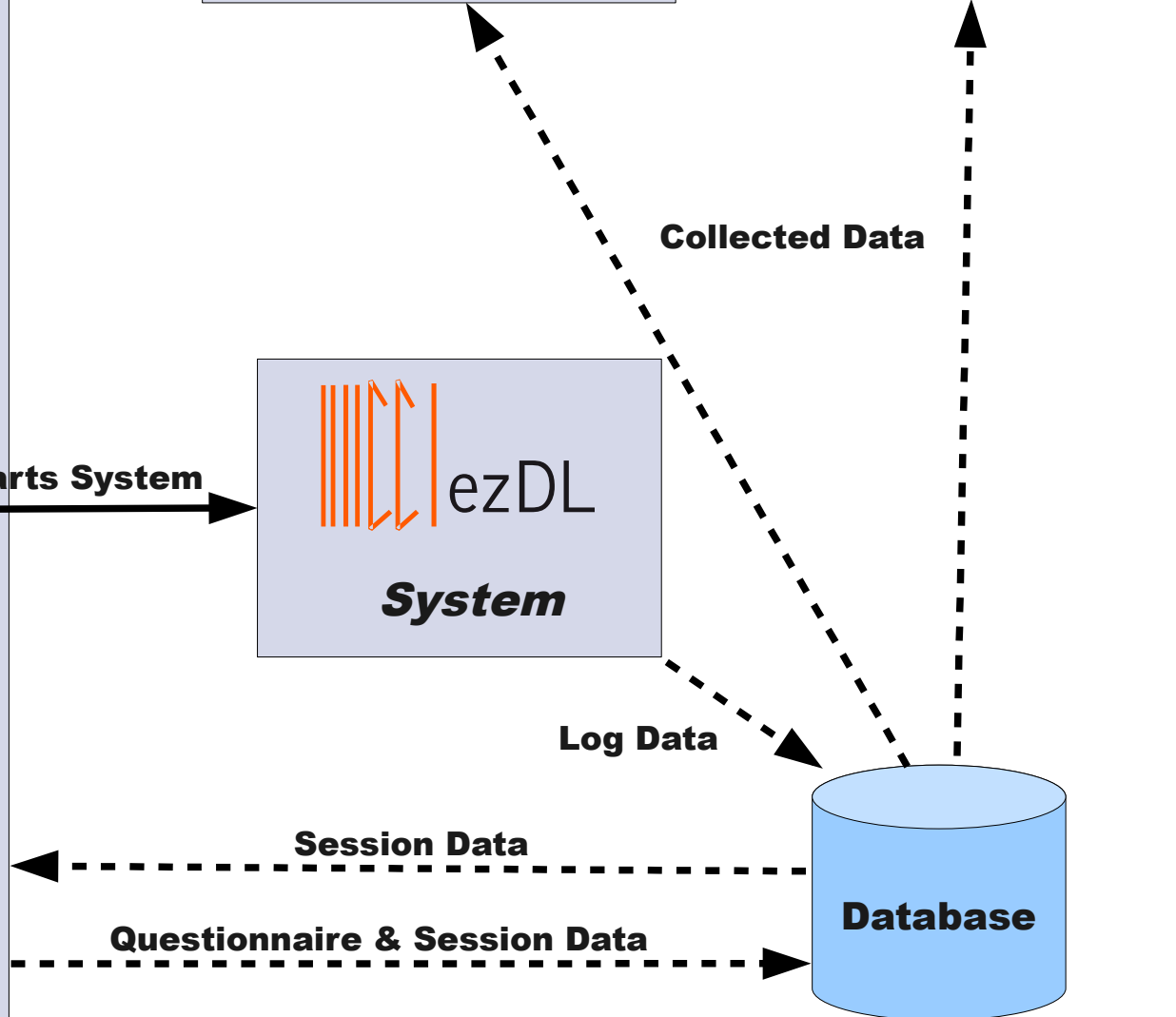
Collected Data

Log Data

Session Data

Questionnaire & Session Data

Database



Experiment database

- Data controlling the experiments
 - task scheduling (latin square design)
 - scheduling of questionnaires
- Results:
 - logging data: actions, result items
 - questionnaire answers
 - eye tracking data

User:

Password:

First Task: ▼

Second Task: ▼

Third Task: ▼

Task 1 (task1)

You are at an early stage of working on an assignment, and have decided to start exploring the literature in order to get an overview of your topic. Your initial idea has led to the following research need:

Find trustworthy books discussing the conspiracy theories which developed after the 9/11 terrorist attacks in New York.

Task 2 (task2)

You are at an early stage of working on an assignment, and have decided to start exploring the literature in order to get an overview of your topic. Your initial idea has led to the following research need:

Find controversial books discussing the climate change and whether it is man-made or not.

Task 3 (task3)

You are at an early stage of working on an assignment, and have decided to start exploring the literature in order to get an overview of your topic. Your initial idea has led to the following research need:

Find highly acclaimed novels that treats issues related to racial discrimination.

Task 4 (task4)

You are in the data gathering stage of an assignment and need to collect a series of books that should serve as data for further analysis. This has led to the following research need:



TPDL 2011 Workshop: User-Oriented Evaluation of Digital Library Interfaces

Pre-Experiment Questionnaire

Please fill out questionnaire

Age:

Gender:

First language:

Current Occupation:

Which diplomas/degrees have you been awarded?

- ☐ High School
- ☐ Bachelor or equivalent
- ☐ Master or equivalent
- ☐ PhD, Doctoral equivalent
- ☐ Professional degree (medicine, law etc.)

area/field:
area/field:
area/field:
area/field:
area/field:

If you are a student, which university degree are you in the process of completing?

- ☐ Bachelor or equivalent
- ☐ Master or equivalent
- ☐ PhD, Doctoral equivalent
- ☐ Professional degree (medicine, law etc.)

area/field:
area/field:
area/field:
area/field:

Overall, how many years have you used the Web or other computerized resources to search for information? years.

How often do you search? (1: Never, 2: Once/twice a year, 3: Once/twice a month, 4: Once/twice a week, 5: once/twice a day)

...Digital libraries of scholarly articles (e.g. institutional repositories, ACM Digital Library)

☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

...Web search engines (e.g. Google)

☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

...Digital bookstore, such as e.g. Amazon

☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

If you already have used a digital bookstore, what was your search purpose?

- ☐ to find a known book for purchase
- ☐ to explore bookstore for leisure purposes
- ☐ to explore bookstore for study/work purposes

Logging

Log Viewer

Session overview

Session Id	User Id	Start	End	Log Data
3b658a78-8761-429c-8641-33e4d9ab8bed	oslo-13	Wed, 31 Aug 2011 16:02:48 +0200	Wed, 31 Aug 2011 16:14:28 +0200	XML
cfea03fb-6dd8-4384-be4c-c8c623907aa7	oslo-12	Wed, 31 Aug 2011 15:54:34 +0200	Wed, 31 Aug 2011 16:04:41 +0200	XML
bf611c9f-ba71-4c86-91eb-1eba6dd42ae7	oslo-11	Wed, 31 Aug 2011 15:53:30 +0200	Wed, 31 Aug 2011 16:05:14 +0200	XML
959e0013-8c31-4805-9af4-b17341e8f299	oslo-10	Wed, 31 Aug 2011 15:49:09 +0200	Wed, 31 Aug 2011 15:59:02 +0200	XML
d52d8559-a6b7-4558-80e9-321c07378a5d	oslo-13	Wed, 31 Aug 2011 15:47:52 +0200	Wed, 31 Aug 2011 15:59:45 +0200	XML
31aa11c1-d95b-43b7-909b-ae5cd8bf510a	oslo-12	Wed, 31 Aug 2011 15:45:13 +0200	Wed, 31 Aug 2011 15:51:20 +0200	XML
ed845846-b198-485b-a364-f95eba10fe81	oslo-12	Wed, 31 Aug 2011 15:35:43 +0200	Wed, 31 Aug 2011 15:38:17 +0200	XML
58ae76a3-51e0-4661-b2f5-c5390476f89d	oslo-11	Wed, 31 Aug 2011 15:35:40 +0200	Wed, 31 Aug 2011 15:50:47 +0200	XML
f3a7801d-002e-46c2-897f-75fabb38513e	oslo-12	Wed, 31 Aug 2011 15:35:32 +0200	Wed, 31 Aug 2011 15:37:27 +0200	XML
31fdc70c-dddc-46a6-878c-e759b2339c88	oslo-10	Wed, 31 Aug 2011 15:31:56 +0200	Wed, 31 Aug 2011 15:47:04 +0200	XML
263c5b48-0195-49a8-ae31-fa915ff60deb	oslo-12	Wed, 31 Aug 2011 15:25:25 +0200	Wed, 31 Aug 2011 15:34:56 +0200	XML
e20454af-70b8-4f19-95f4-4a6c35eba044	oslo-12	Wed, 31 Aug 2011 15:25:12 +0200	Wed, 31 Aug 2011 15:35:15 +0200	XML
7b6d5032-aaa7-412b-834f-0101c41dc400	oslo-13	Wed, 31 Aug 2011 15:24:38 +0200	Wed, 31 Aug 2011 15:39:20 +0200	XML
481069c6-4234-426d-8797-3925a72311ab	oslo-11	Wed, 31 Aug 2011 15:23:42 +0200	Wed, 31 Aug 2011 15:31:55 +0200	XML
95c57258-a7bc-4993-a141-f198d01d87b8	oslo-10	Wed, 31 Aug 2011 15:20:58 +0200	Wed, 31 Aug 2011 15:29:42 +0200	XML
75ce5d7f-dc05-456f-a7a0-def3c40f621a	oslo-13	Wed, 31 Aug 2011 15:15:21 +0200	Wed, 31 Aug 2011 15:20:59 +0200	XML
144949f7-3b32-4ecc-9f1e-52b46f89b283	oslo-13	Wed, 31 Aug 2011 15:13:48 +0200	Wed, 31 Aug 2011 15:15:19 +0200	XML
a443b142-7196-4054-93ab-caaf9bb868d9	oslo-12	Wed, 31 Aug 2011 15:13:45 +0200	Wed, 31 Aug 2011 15:19:25 +0200	XML
f7c96b09-2481-4233-b455-566c61d7ce11	oslo-11	Wed, 31 Aug 2011 15:12:39 +0200	Wed, 31 Aug 2011 15:18:37 +0200	XML
58362f1c-9d74-456e-99c3-6b75460c837b	oslo-10	Wed, 31 Aug 2011 15:12:36 +0200	Wed, 31 Aug 2011 15:17:38 +0200	XML
5ebf05da-6117-4ee8-ab23-86382bfc5f9e	oslo-7	Wed, 31 Aug 2011 14:20:26 +0200	Wed, 31 Aug 2011 14:33:36 +0200	XML
9c399787-b92d-48b8-84bd-9e6ebd7b5ced	oslo-9	Wed, 31 Aug 2011 14:13:15 +0200	Wed, 31 Aug 2011 14:28:35 +0200	XML
f9af0877-0d05-4d73-a0ac-66bce49513b4	oslo-6	Wed, 31 Aug 2011 14:07:31 +0200	Wed, 31 Aug 2011 14:22:39 +0200	XML

```
- <log>
  - <event name="start" timestamp="1314799370195" timestampClient="1314799409473">
    <user>oslo-13</user>
    <version>a</version>
  </event>
  - <event name="taskselected" timestamp="1314799370263" timestampClient="1314799409473">
    <task>task3</task>
  </event>
  <event name="clientstart" timestamp="1314799370519" timestampClient="1314799410020"/>
  - <event name="desktopinfo" timestamp="1314799370551" timestampClient="1314799410020">
    <screenX>1680</screenX>
    <screenY>1050</screenY>
    <os>Windows 7</os>
    <java>1.6.0_26</java>
  </event>
  - <event name="search" timestamp="1314799395637" timestampClient="1314799435519">
    <solrQuery>4.racial AND 4.discrimination</solrQuery>
    <textQuery/>
    <titleQuery>racial discrimination</titleQuery>
    <authorQuery/>
    <yearQuery/>
    <abstractQuery/>
    <reviewQuery/>
    <searchType>content</searchType>
    <startDocNum>0</startDocNum>
    <endDocNum>19</endDocNum>
    <sorting order="descending">9998</sorting>
  - <fields>
    <field>7</field>
    <field>1003</field>
    <field>4</field>
    <field>31</field>
    <field>8029</field>
    <field>1018</field>
    <field>8030</field>
  </fields>
  <projection>compact</projection>
</event>
- <event name="results" timestamp="1314799396417" timestampClient="1314799436174">
```


Eye Tracking: Areas of Interest (AOI)

The screenshot displays the INEX 2009 Daffodil search interface, which is divided into several functional areas. Eye-tracking heatmaps are overlaid on the interface to indicate user interest:

- Searchfield:** A red heatmap highlights the search input area at the top left.
- Advanced Search:** A blue heatmap highlights the advanced search filters (Title, Author, Year) below the search field.
- Controls:** A red heatmap highlights the sorting and view controls below the advanced search filters.
- Result List:** A large green heatmap covers the list of search results on the left side of the interface.
- Basket:** A red heatmap highlights the basket area at the top right, which lists items like 'Sociology' by Peter J. Stein and John J. MacLonis.
- Related Terms / Task:** A red heatmap highlights the 'Related Terms / Task' panel on the right, which lists related terms like 'social network', 'adult', 'brain', 'language processing', etc.
- Query History / Details / Reviews:** A red heatmap highlights the 'Query History / Details / Reviews' panel on the right, which shows details for the 'Sociology' query, including a description, price, publisher, and subjects.

The interface includes a search bar, advanced search filters, a result list, a basket, and a detailed view of the selected query. The bottom of the interface shows navigation controls and a status bar.

Eye tracking: Dynamic AOsIs

00:02:05:1

Query

Search terms

c sharp basics

search also in reviews

Advanced

Title: harry potter and the half-blood prince

Author: rowling

Year: 2000-2005

Abstract: harry potter london

Reviews: good introduction

Search

Results

Sorting Relevance

View compact

Text: c sharp basics

Visual C#.NET Programming (2002)

Harold Davis

Sybex Inc

★★★★☆ (4)

Visual C#: .Net Developer's Handbook with CDROM (2002)

John Paul Mueller

Sybex Inc

★★★★☆ (1)

Infection Control: Hospital and Community (1997)

C. Mercier

Nelson Thornes

★★★★★ (0)

Presenting C# (Other Sams) (2000)

Christoph Wille

Sams

★★★★☆ (34)

Building Web Applications with C# and .NET: A Complete Reference (2002)

Dudley W. Gill

CRC

★★★★☆ (1)

Basket

Double click on filed item to view details.

Remove Selected Item

Remove All

Task

Your current task.

Task 7

Try to find books about a specific topic or of a certain type, but do not look for a specific title you already know.

Query History

Click to set search query to search tool. Double click to execute query in addition.

Text: c sharp basics (12) 1 min ago

Text: c# basics (0) 1 min ago

Details

Add to basket

Click on result item to show its details.

★★★★★ Great for getting up to speed quickly

2004-01-19

Total Votes:3, Helpful Votes:3

more...

★★★★☆ Not so good

2003-05-26

Total Votes:10, Helpful Votes:10

Review

Granted, the author states "this book is to teach you and OTHER EXPERIENCED PROGRAMMERS..." but he also states something along the lines of "no previous programming experience is absolutely necessary..." but in the first chapter about web services, he never says more than 2 sentences about what a web service really is. How is it different from an ASP.NET web application? I had to get the answer from the book "Introducing MS.NET." Also, the author assumes you have experience with VB, because he doesn't note when he uses VB-exclusive features (such as a Property Get statement) in C#. Not recommended for beginning programmers with no experience of VB.

★★★★★ This is really a good programming book!

2002-08-30

Total Votes:10, Helpful Votes:10

more...

★★★★★ A great programming book that's actually fun to read

Sorting helpfulness

Details

Reviews (4)

1 to 12 of 12 p. 1 of 1

First

Previous

Next

Last

Search finished

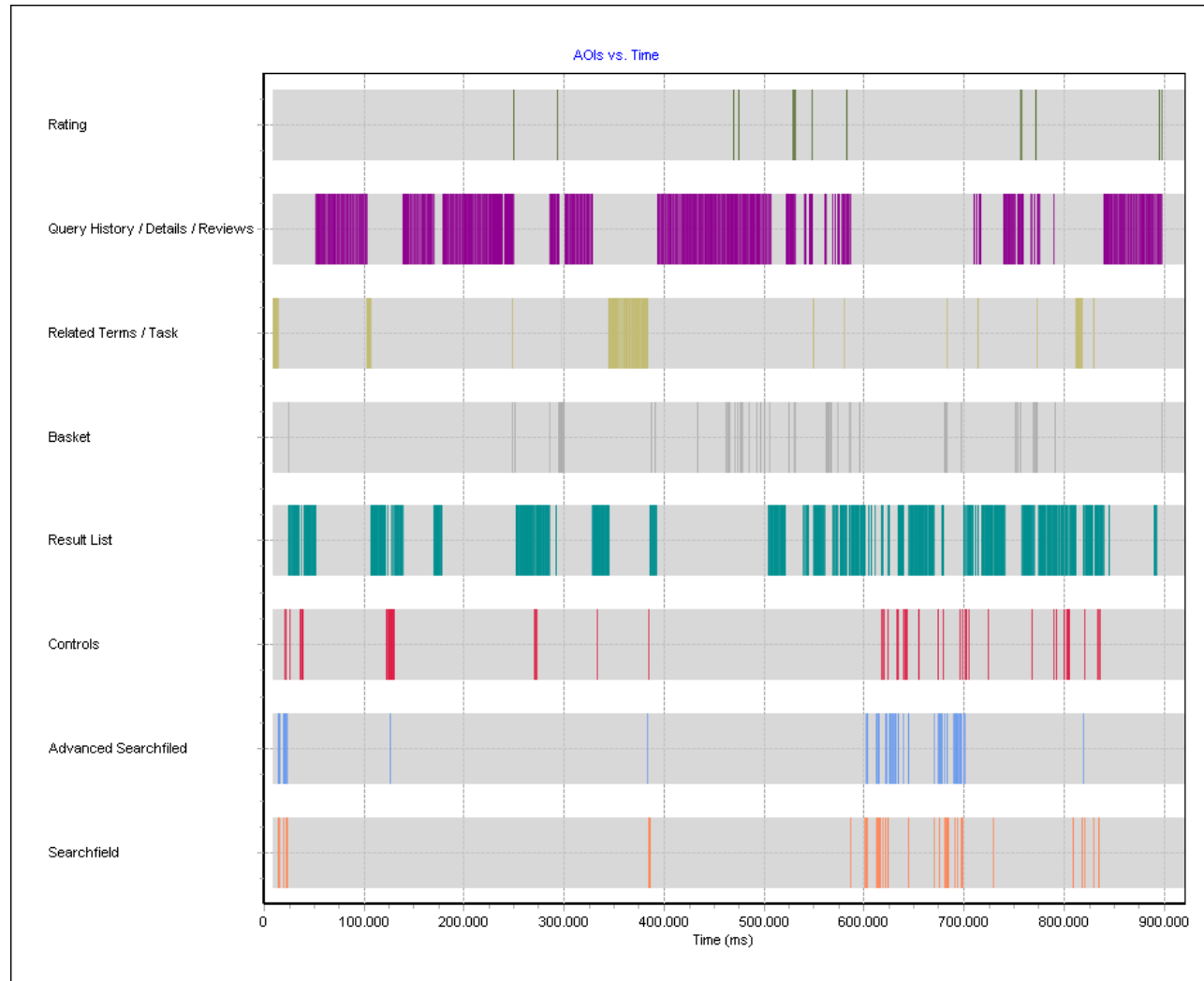
End Task

Eye Tracking: Dynamic AOsIs

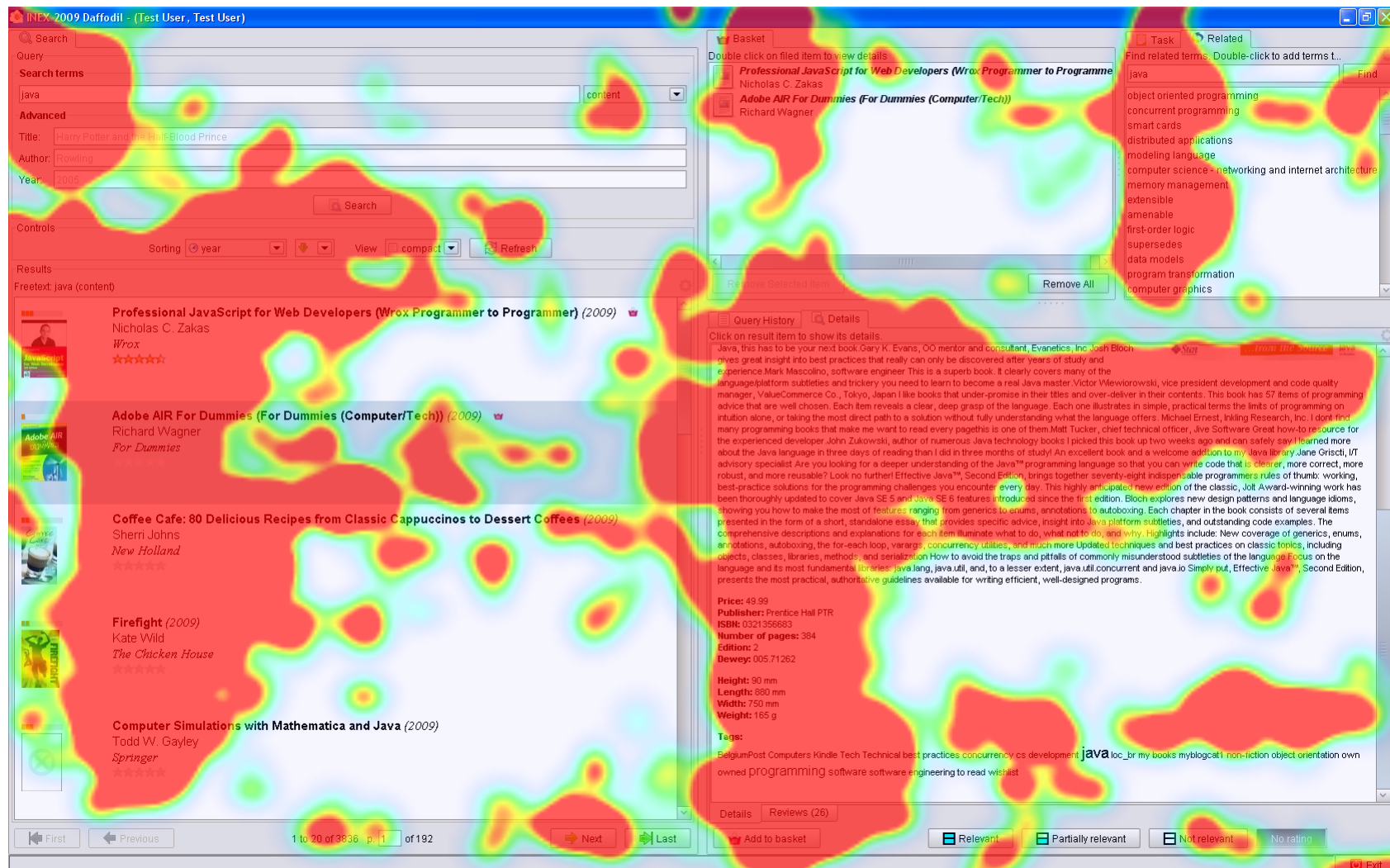
The screenshot displays a web application interface with several components and eye-tracking annotations:

- Search Bar:** Contains the text "c sharp basics" and a checkbox for "search also in reviews".
- Advanced Query Fields:** Includes fields for Title, Author, Year, Abstract, and Reviews, each with a search button.
- Search Controls:** Includes a "Results" tab, a "Sorting" dropdown, and a "View" dropdown.
- Result List:** Displays five search results, each with a book cover, title, author, publisher, and rating. The results are labeled "Result1" through "Result5".
- Task View:** A sidebar on the right showing the current task: "Task 7: Try to find books about a specific topic or of a certain type, but do not look for a specific title you already know." It also includes a "Query History" section.
- Basket View:** A section on the right showing a list of items in the basket, with buttons for "Remove Selected Item" and "Remove All".
- Details View:** A section on the right showing details for a selected item, including a "Review" section with four reviews (Review1, Review2, Review3, Review4) and a "Review Sorting" dropdown.
- Annotations:** Various text labels are overlaid on the interface, including "QueryView", "AdvancedQueryFields", "BasketView", "QueryHistoryView", "AddToBasketButton", "Result1", "Result2", "Result3", "Result4", "Result5", "Review1", "Review2", "Review3", "Review4", "ReviewSorting", "DetailChoice", and "Pages".

Eye Tracking: AOIs vs. Time



Eye Tracking: Heatmap





Conclusion

Conclusion

- Easy performance of IIR experiments
- Flexible configuration
- Extensible system
- Distributed system
- Centralized collection of experimental data
- Flexible analysis of data