dblp.uni-trier.de

The DBLP Computer Science Bibliography: Evolution, Research Issues, Perspectives

SPIRE 2002

Lisbon, Portugal

Thank you for the invitation

- Many of you use DBLP
- This talk gives some background information about the service
- You are invited to use the DBLP data to test and evaluate for your algorithms …

About me …

- born March 1959
- 1986 diploma in informatics from Aachen University of Technology
- 1993 Ph.D. from University of Trier
- since 1993 lecturer at U Trier
  - Programming for 1st/2nd year students
  - DB implementation, Digital Libraries

Outline

1. History
2. Technical Background
3. Perspectives & Research Issues

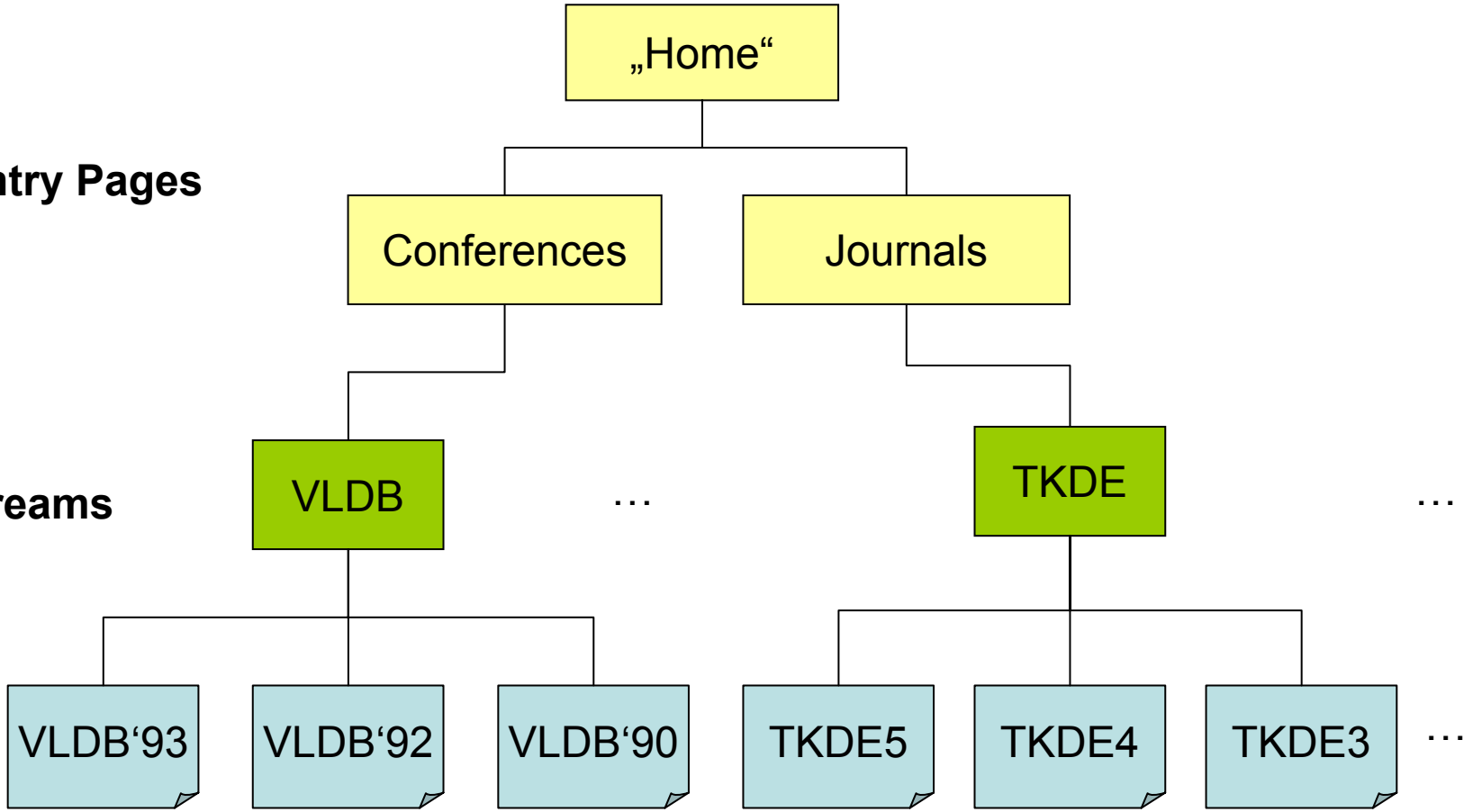
1. History

- The Beginning
- Person Pages
- Service
- Eary Recognition
- ACM SIGMOD Anthology
- Sponor
- Growth of DBLP
- Software Labs

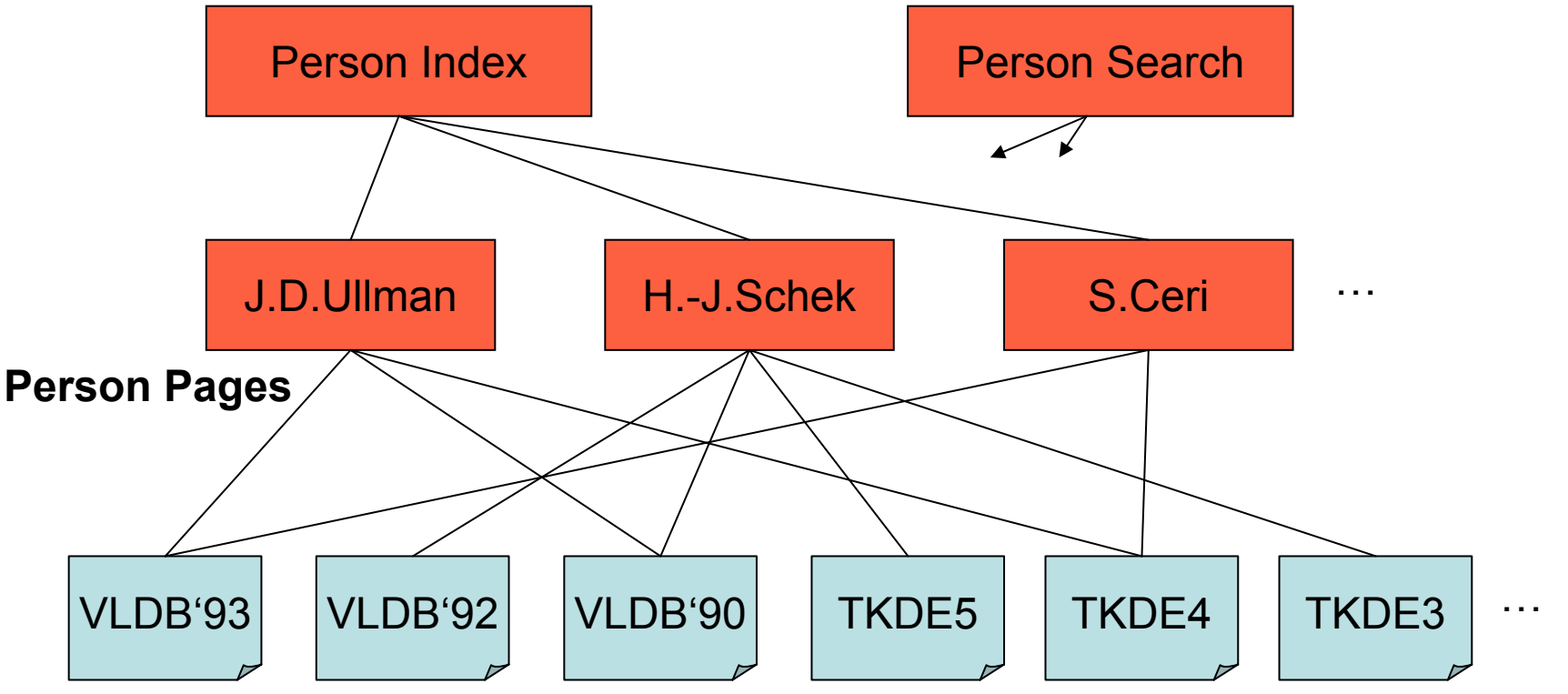
The Beginning

- End of 1993 - simple test of Web technology: Xmosaic, NCSA HTTP server
- Tables of contents:
  - Journals and proceedings
  - DataBase systems / Logic Programming

Basic Architecture



Person-Publication Network



Person-Publication Network

- Adding a hyperlink from each person name to a page which enumerates this person‘s publications
- Result of the complex social network behind research
- DB, IR: simply a view, a „canned“ query

DBLP is a service, not a research project

- limited resources
- trade-off:
  - development of new features & software
  - vs. entering & maintaining contents

No DBMS used until today

- prototype implementations (diploma theses): DBLP with SHORE, DB2
  - + better tools to maintain consistency
  - – software too large for maintenence
- trade-off: disk-space vs. CPU speed

Early Recognition

- 1997:
  - ACM SIGMOD Service Award
  - VLDB Endowment Special Recognition Award
- Helped to make DBLP a more „official“ project & to get a small inital fund

ACM SIGMOD Anthology

- SIGMOD had made some profits with it‘s conferences
- Idea by Rick Snodgrass:
  - use the money to scan in „historical“ DB publications
  - Combine these full texts and an improved version of DBLP to a digital libary

Anthology

Anthology: Contents

Journals, Newsletters:

- TODS
- TKDE
- VLDB Journal
- Distr. & Parallel DB
- Data Engineering
- SIGMOD Record
- SIGKDD Expl.
- SIGIR Forum
- Data Base

Anthology

Proceedings:

- ACM DL
- ACM GIS
- ADBIS
- CIKM
- COOPIS
- DASFAA
- DBPL
- DOLAP
- EDBT
- ER
- Hypertext
- ICDT
- KRDB
- MFDBS
- NPIV
- PDIS
- PODS
- POS
- SIGIR
- SIGMOD
- SIGFIDET
- SSD
- SSDBM
- VLDB
- XP
- \+ several Workshops

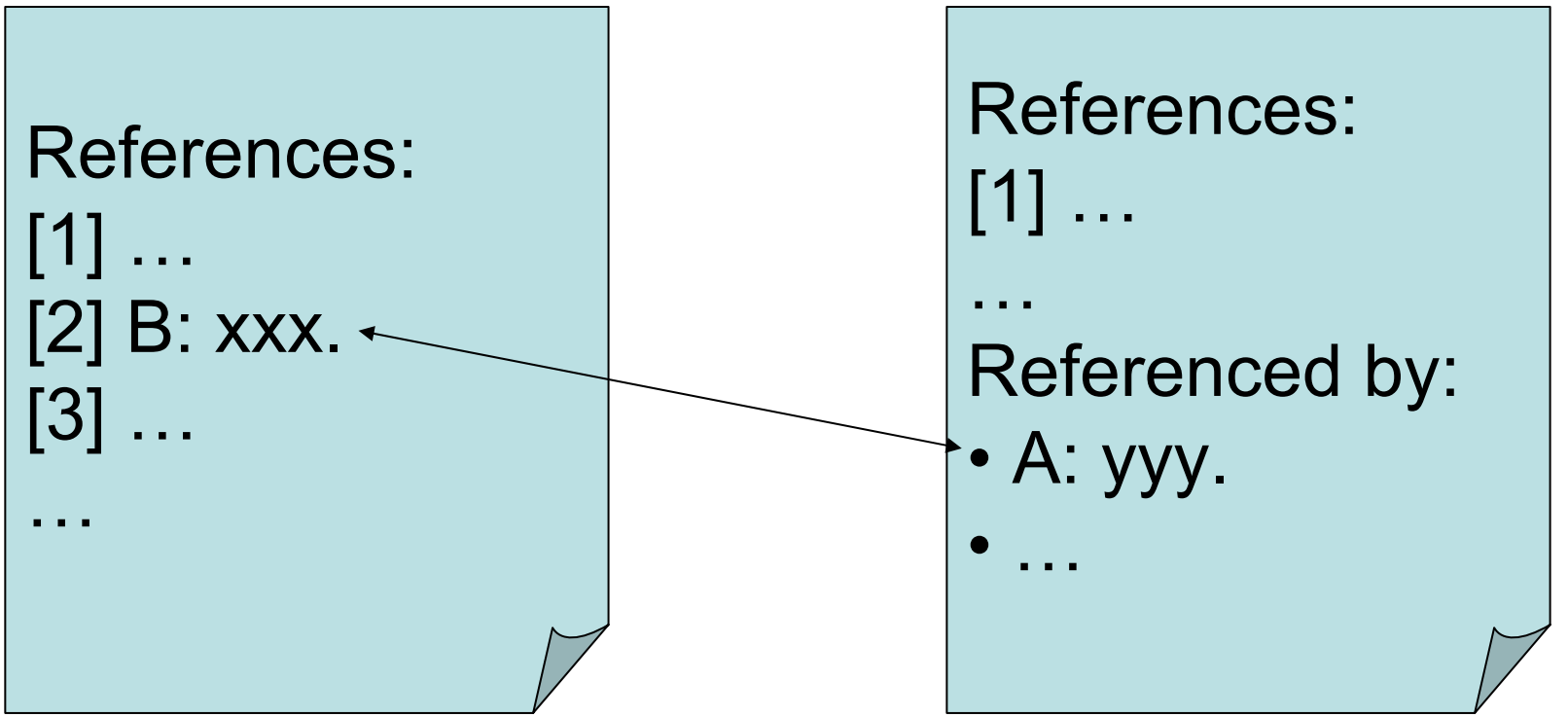
Books:

- Abiteboul/Hull/Vianu: Foundations of DBs
- Bernstein/Hadzilacos/Goodman: Concurrency Control and Recovery in Database Systems
- Maier: Theory of Relational Databases
- Gray: The Benchmark Handbook
- Stonebraker: The INGRES Papers
- Wiederhold: Database Design (2nd Ed.)
- Snodgrass: The TSQL2 Temporal Query L.

21 CDROMs / 2 DVDs >150000 pages full text

	size	# files	# PDF files
DVD 1	7.5 G	10339	10025
DVD 2	6.31 G	201902	4284

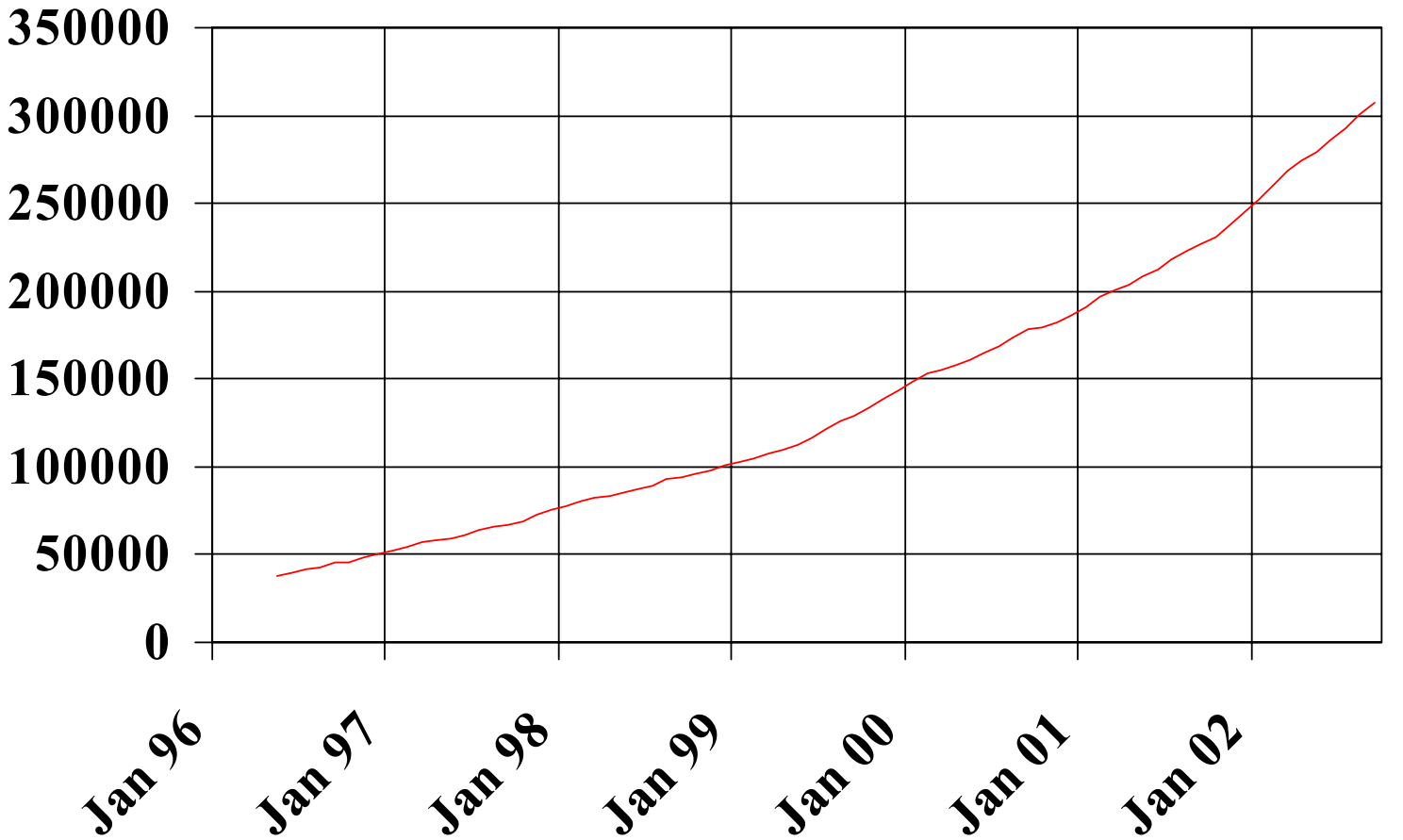
Anthology: Citation Links



Sponsor Found / Expansion

- help by MS Research & Jim Gray made it possible to expand DBLP to cover most areas of computer science
- students were hired to enter data

Growth of DBLP



Teaching Java …

- At U Trier we teach Java as the first programming language
- Assignments: DBLP XML data are used
  - graph algorithms
  - user interfaces
  - simple search engines
  - …

2. Technical Background

- Initial Design
- Person Pages
- Mirrors
- Simple Search
- XML-Records
- BHT-Files
- MG: advanced search
- Anthology search

Initial Design

- Entry pages
- Collection of HTML tables of contents
- TOCs were parsed to generate „Person Pages“ (customized xmosaic parser)
- Person Index

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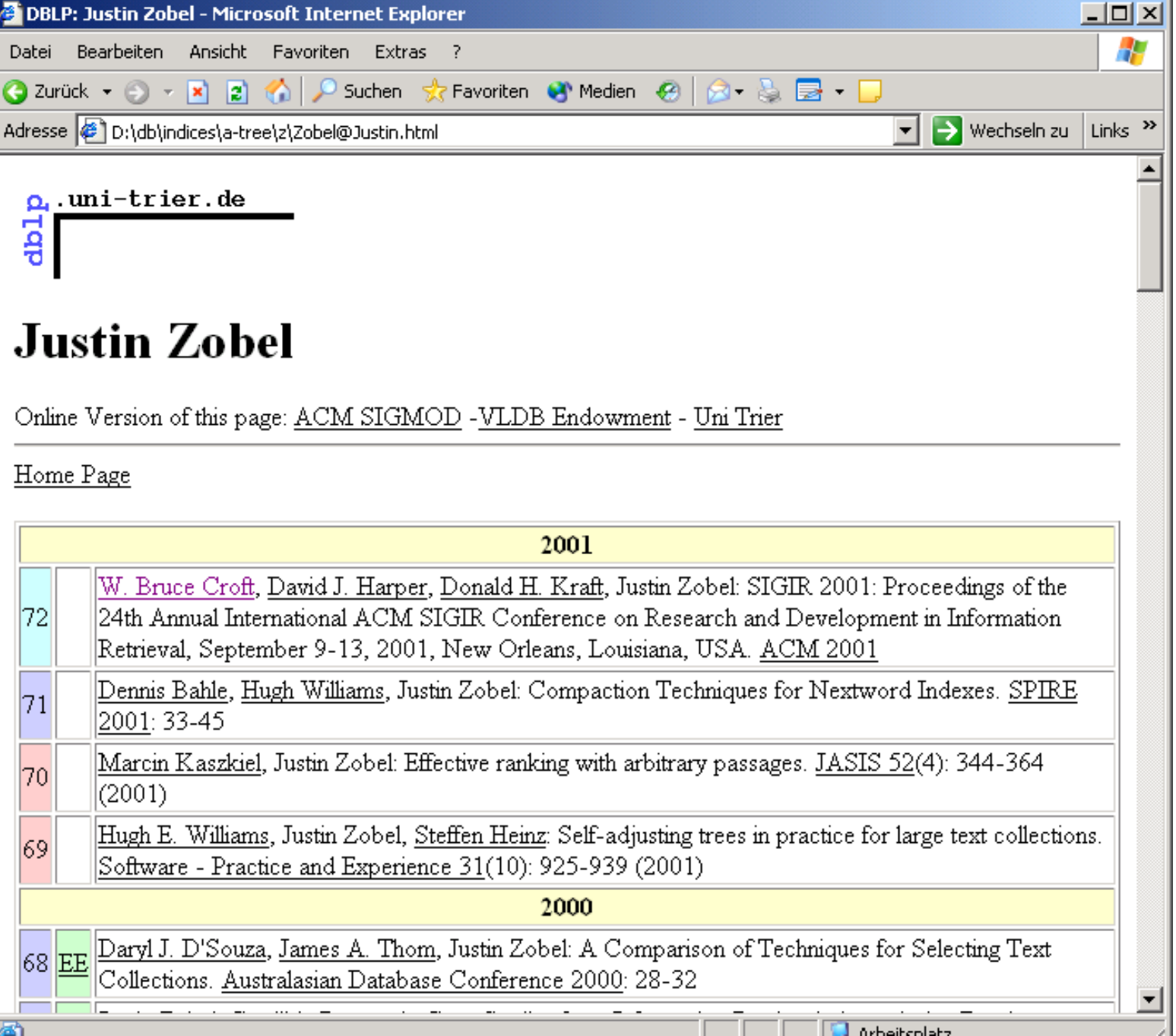
. SPIRE 1998: Santa Cruz, Bolivia

ring Processing and Information Retrieval: A South American Symposium, September 9-11, 1998, Santa Cruz de la Sierra Bolivia. IEEE Computer Society, 998

- Mauricio Ayala-Rincón, Paulo D. Conejo: A Linear Time Lower Bound on Updating Algorithms for Suffix Trees. 1-6
- Ricardo A. Baeza-Yates, Jesús Vegas, Gonzalo Navarro, Pablo de la Fuente: A Model and a Visual Query Language for Structured Text. 7-13
- Ricardo A. Baeza-Yates, Gonzalo Navarro: Fast Approximate String Matching in a Dictionary. 14-22
- Ricardo A. Baeza-Yates: Searching the Web: Challenges and Partial Solutions (Invited Paper). 23-31
- Lasse Bergroth, Harri Hakonen, Timo Raita: New Approximation Algorithms for Longest Common Subsequences. 32-40
- Aurelio López-López, Sung H. Myaeng: Evidence Accumulation with Competition in Information Retrieval. 41-49
- Ruy Luiz Milidiú, Artur Alves Pessoa, Eduardo Sany Laber: In-Place Length-Restricted Prefix Coding. 50-59
- Andrey A. Mironov, Pavel A. Pevzner: SST versus EST in Gene Recognition (Invited Paper). 60-64
- Matthew Montebello: Information Overload - An IR Problem? 65-74
- Mario A. Nascimento, Adriano C. R. da Cunha: An Experiment Stemming Non-Traditional Text. 75-80
- Arlindo L. Oliveira, João P. Marques Silva: Efficient Search Techniques for the Inference of Minimum Size Finite Automata. 81-89
- Edleno Silva de Moura, Gonzalo Navarro, Nivio Ziviani, Ricardo A. Baeza-Yates: Direct Pattern Matching on Compressed Text. 90-95
- Maria Emilia M. T. Walter, Zanoni Dias, Joao Meidanis: Reversal and Transposition Distance of Linear Chromosomes. 96-102
- Leandro Krug Wives, Stanley Loh: Hyperdictionary: A Knowledge Discovery Tool to Help Information Retrieval. 103-110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Zurück Suchen Favoriten Medien
Adresse D:\db\indices\a-tree\z\Zobel@Justin.html
Wechseln zu Links
dblp.uni-trier.de
Justin Zobel
Online Version of this page: ACM SIGMOD -VLDB Endowment - Uni Trier
Home Page
2001
72 W. Bruce Croft, David J. Harper, Donald H. Kraft, Justin Zobel: SIGIR 2001: Proceedings of the 24th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, September 9-13, 2001, New Orleans, Louisiana, USA. ACM 2001
71 Dennis Bahle, Hugh Williams, Justin Zobel: Compaction Techniques for Nextword Indexes. SPIRE 2001: 33-45
70 Marcin Kaszkiel, Justin Zobel: Effective ranking with arbitrary passages. JASIS 52(4): 344-364 (2001)
69 Hugh E. Williams, Justin Zobel, Steffen Heinz: Self-adjusting trees in practice for large text collections. Software - Practice and Experience 31(10): 925-939 (2001)
2000
68 EE Daryl J. D'Souza, James A. Thom, Justin Zobel: A Comparison of Techniques for Selecting Text Collections. Australasian Database Conference 2000: 28-32

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Author-Index: Root Page

- -- Abber
- Abbey -- Abd
- Abe -- Aboa
- Aboe -- Abreu, P
- Abreu, S -- Ackerman, A
- Ackerman, J -- Adams, A. A
- Adams, A. G -- Addison, M.
- Addison, Ma -- Adriae
- Adrian -- Agas
- Agat -- Agrawal, P.
- Agrawal, Pr -- Aha
- Ahe -- Ahn, R
- Ahn, S -- Aiken, M
- Aiken, P -- Akav
- Akaz -- Akm
- Akn -- Al-Qaq
- Al-Qas -- Albanese
- Albanesi -- Alb
- Alc -- Alexander, K.
- Alexander, Ke -- Ali, M.
- Ali, Ma -- Allen, C.
- Allen, Ch -- Allman
- Allmar -- Alonso, M.
- Alonso, M. -- Altham
- Althan -- Alves, Marce
- Alves, Marco -- Ambroise, C

...

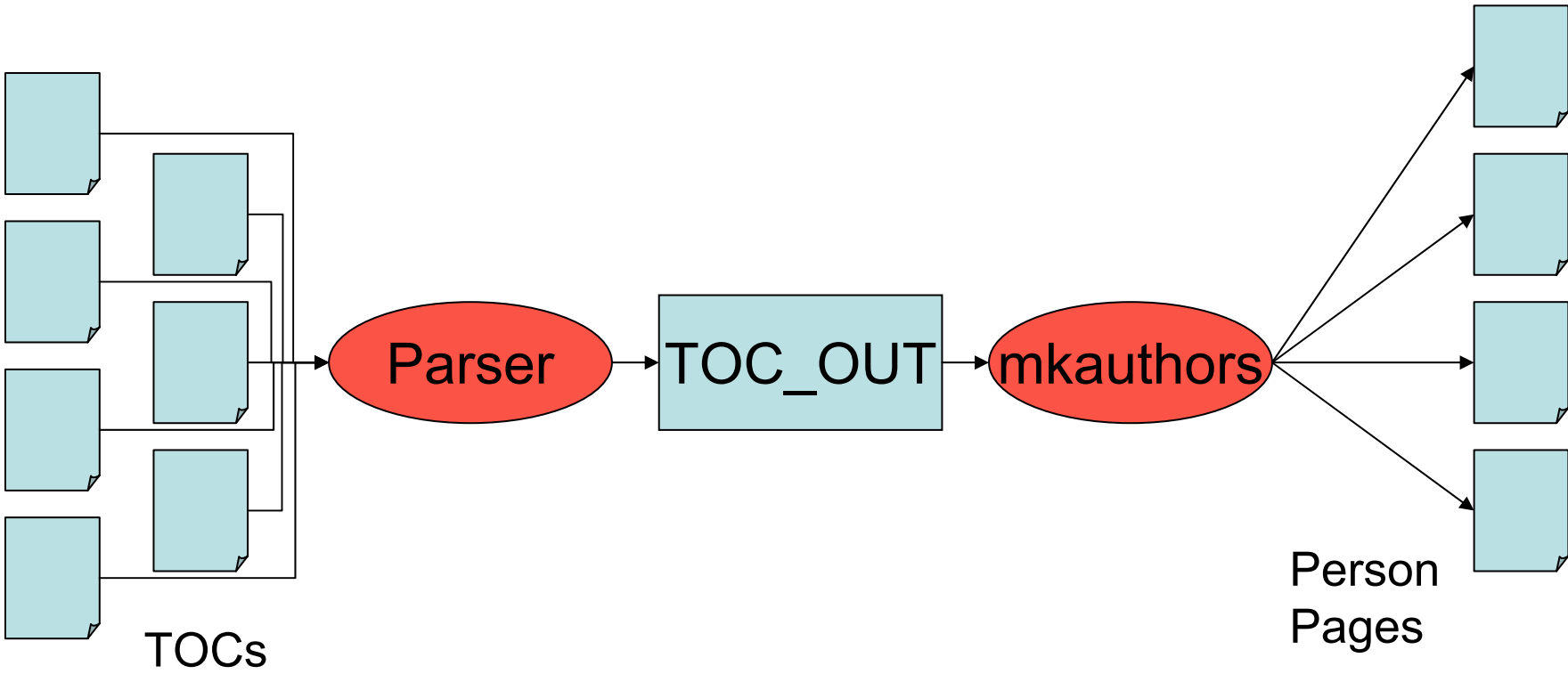
Author-Index

previous page - index root

- Lewis, S.
- Lewis, S. M.
- Lewis, Scott
- Lewis, Scott M.
- Lewis, Steven A.
- Lewis, Steven D.
- Lewis, Suzanna
- Lewis, T. A.
- Lewis, T. G.
- Lewis, T. H.
- Lewis, T. S.
- Lewis, Ted G.*
- Lewis, Vasily
- Lewis, Wendy
- Lewis II, Philip M.
- Lewit, A. F.
- Lewkowicz, Myriam
- Lewontin, Steve
- Lewski, Frank H.
- Lewyckyj, N.
- Lexa, Chuck
- Lexis, Clayton
- Lext, Jonas
- Ley, Dominik*
- Ley, Michael*
- Ley, Susan H.

...

TOC Parser / Generation of Person Pages



Mirrors

- University of Trier had a slow internet connections
- DBLP should have a high availability
- Technique:
  - transfer all TOCs + entry pages + TOC_OUT in a tar.gz file
  - run mkauthors on the mirror

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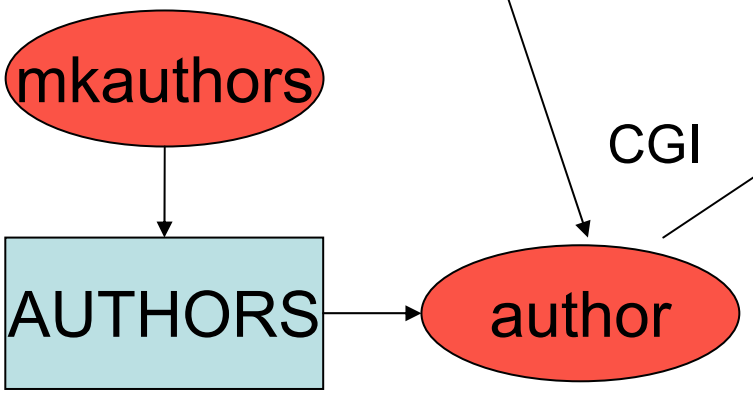
Search Author

Name: Gray Submit Reset -> Help

Index

DBLP: [Home | Search: Author, Title | Conferences | Journals]

Michael Ley (ley@uni-trier.de) Fri Aug 23 15:10:24 2002



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Search Results for 'Gray'

- Graydon Barz
- Gray Clossman
- V. Grayson Cuqlock-Knopp
- Graydon Davison
- C. Gray Girling
- A. Gray
- A. J. Gray
- Alex Gray
- Alexander Gray
- Alexander G. Gray
- Andrew R. Gray
- Brett Gray
- C. Thomas Gray
- Cary G. Gray
- D. Gray
- D. I. Gray
- David Gray
- David N. Gray
- E. M. Gray
- F. Gail Gray
- George Gray
- Harry J. Gray
- Heather Gray
- Helen Frances Gray

. . .

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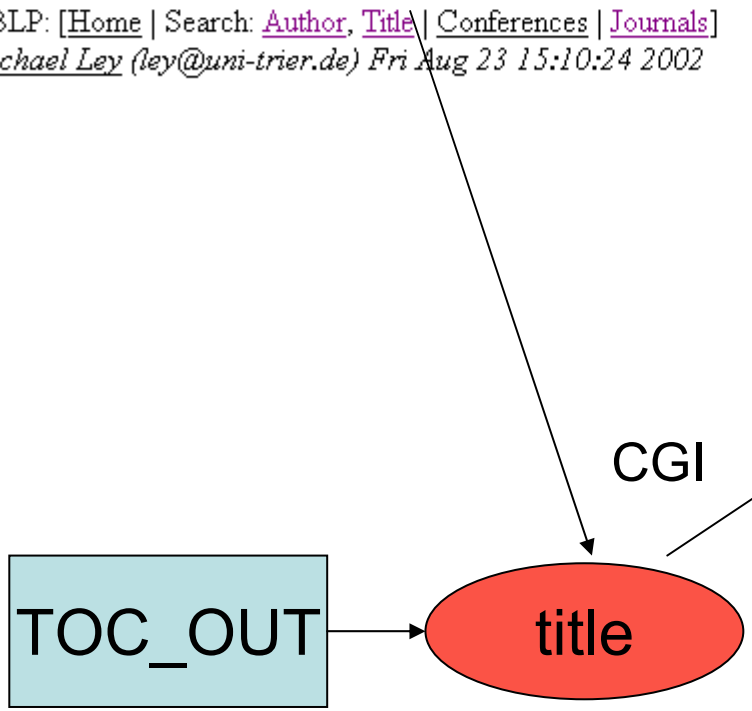
Search Title

Keyword: data cube Submit Reset

DBLP: [Home | Search: Author, Title | Conferences | Journals]
Michael Ley (ley@uni-trier.de) Fri Aug 23 15:10:24 2002



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Search Results for 'data cube'

- Yi-Leh Wu, Divyakant Agrawal, Amr El Abbadi: Using Wavelet De and Approximate Range-Sum Queries over Data Cubes. CIKM 20
- Jeffrey Scott Vitter, Min Wang, Balakrishna R. Iyer: Data Cube Ap Wavelets. CIKM 1998: 96-104
- David Wai-Lok Cheung, Bo Zhou, Ben Kao, Hongjun Lu, Tak Wa Requirement-Based Data Cube Schema Design. CIKM 1999: 162-
- Hua-Gang Li, Tok Wang Ling, Sin Yeung Lee, Zheng Xuan Loh: R Data Cubes. CODAS 2001: 79-86
- Y. Chung, M. Kim, W. Park, M. Kim: Fractionalized View Materia 2001: 156-157
- Mirek Riedewald, Divyakant Agrawal, Amr El Abbadi, Renato Paja Dynamic Environments. DaWaK 2000: 24-33
- Pedro Furtado, Henrique Madeira: Data Cube Compression with Q 167
- Hua-Gang Li, Tok Wang Ling, Sin Yeung Lee: Range-Max/Min Qu 2000: 467-476
- ZhongWei Luo, Tok Wang Ling, Chuan -eng Ang, Sin Yeung Lee, Queries in OLAP Sparse Data Cubes. DEXA 2001: 678-687
- Mauricio Minuto Espil, Alejandro A. Vaisman, Leonardo Terribile: a rule-based perspective. DMDW 2002: 72-81
- Chris Jermaine, Renée J. Miller: Approximate Query Answering in SIGMOD Workshop on Research Issues in Data Mining and Know
- Yuping Yang, Mukesh Singhal: Accessing Data Cubes along Compl

Bibliographic Records

citation linking, reviews, annotated bibliographies, …

- assign an unique ID to each publication
- make it accessible by this ID
- store the information in classical bibliograhic records

Bibliographic Records

- You may download them from
  http://dblp.uni-trier.de/xml/
  (uncompressed ~120MByte)
- Simple DTD
- Idea: BibTeX++ in XML syntax
- Examples …

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<article key="journals/wi/OberweisS91">
<author>Andreas Oberweis</author>
<author>Wolffried Stucky</author>
<title>Die Behandlung von Ausnahmen in
       Software-Systemen: Eine
       Literatur&uuml;bersicht.</title>
<pages>492-502</pages>
<year>1991</year>
<volume>33</volume>
<journal>Wirtschaftsinformatik</journal>
<number>6</number>
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<author>Andreas Oberweis</author>
<author>Oliver Paulzen</author>
<author>Hagen J. Sexauer</author>
<title>Ein wissensbasiertes Vorgehensmodell
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<pages>429-436</pages>
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<author>Andreas Oberweis</author>
<author>Wolffried Stucky</author>
<title>Extending ER Model Clustering by
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<pages>451-462</pages>
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<editor>Vram Kouramajian</editor>
<editor>Bernhard Thalheim</editor>
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  Texas, USA, December 15-17, 1993,
  Proceedings</title>
<booktitle>ER</booktitle>
<series href="db/journals/lncs.html">Lecture
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<year>1994</year>
<isbn>3-540-58217-7</isbn>
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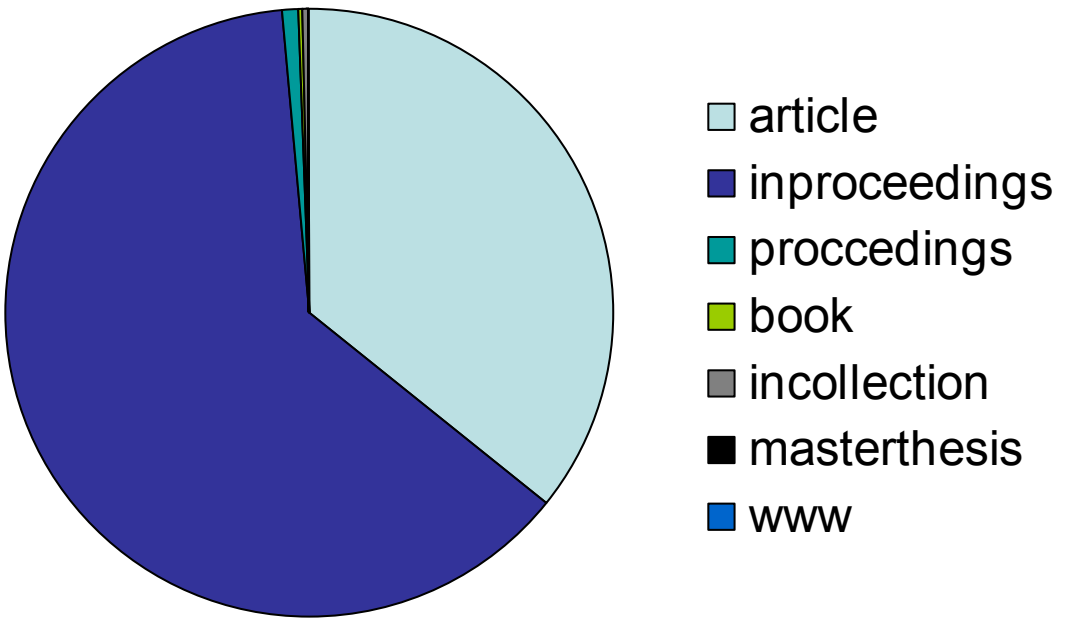
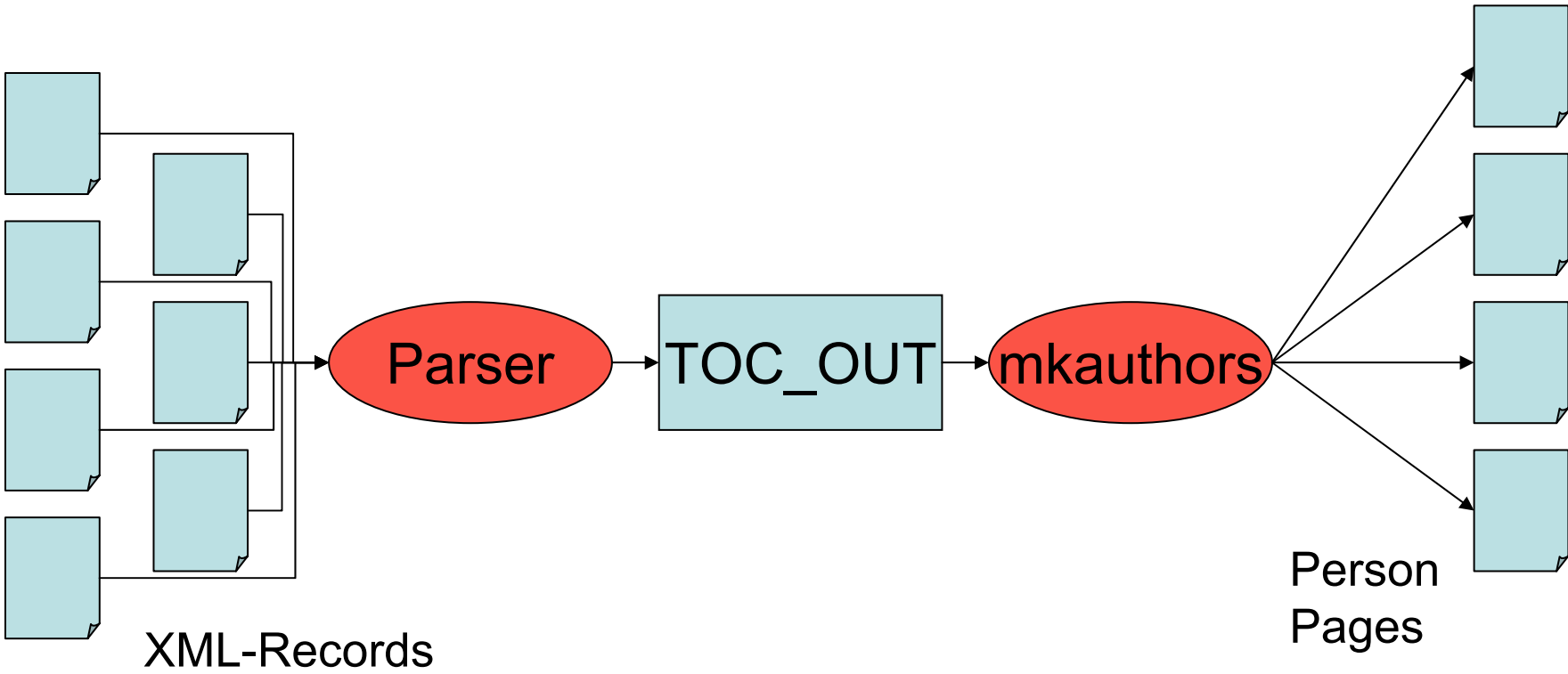
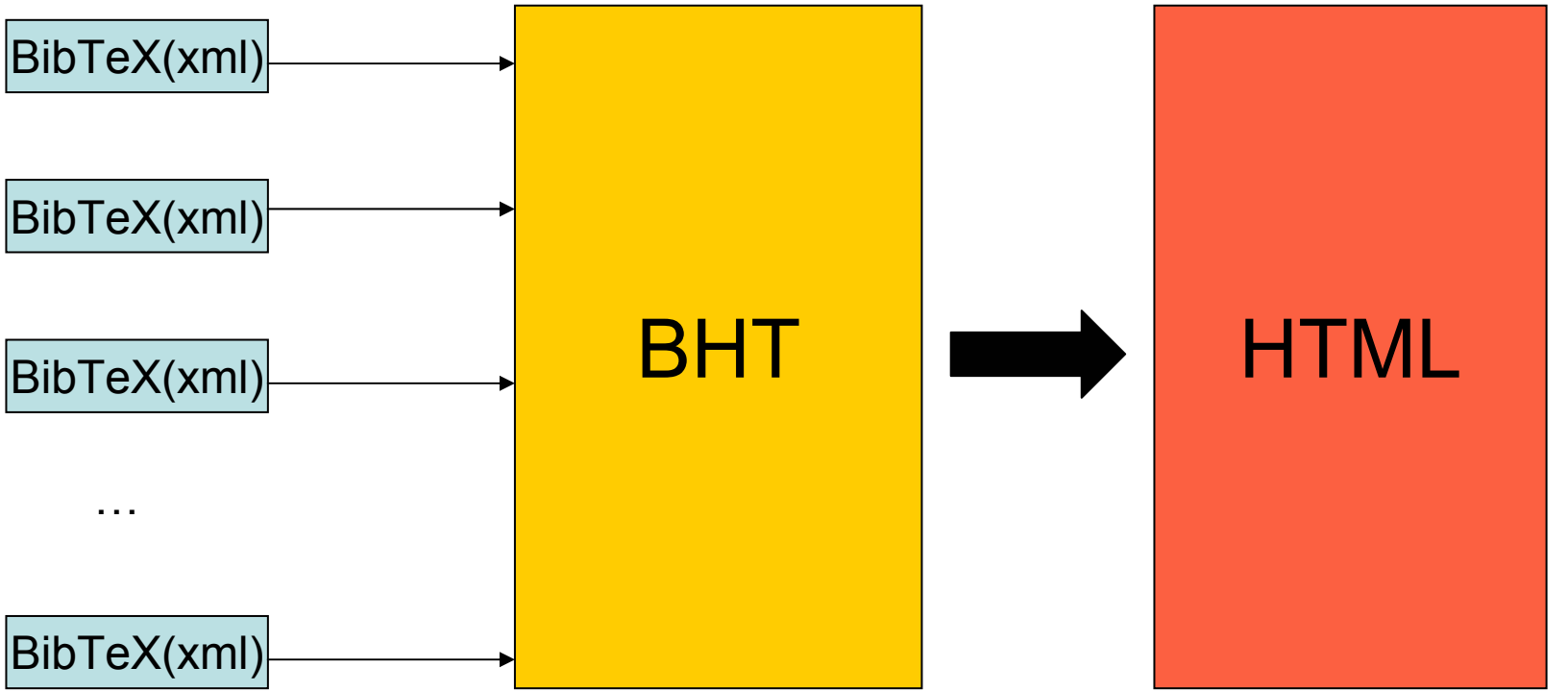
Publication Types



XML Parser / Generation of Person Pages



Tables of Contents, …



„Bibliography HyperText“ (BHT)

- include mechanism
  (<cite key='…' style='…'>)
- several addtional tags:
  <logo>, <footer>, <ref href="…">, …
- HTML

```
<html><head><title>25. SIGIR 2002: Tampere, Finland</title></head>
<body bgcolor="#ffffff" text="#000000" link="#000000"><logo style="sigir">
<h1>25. <ref href="db/conf/sigir/index.html">SIGIR</ref> 2002: Tampere,
Finland</h1><hr>
<cite key="conf/sigir/2002"><cite key="conf/sigir/2002" style="bibtex">
<center>
<img alt="SIGIR 2002" src="sigir2002logo.gif" border=0 width=108 height=94>
</center>
<ul>
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</ul>
<h2>Web Information Retrieval</h2>
<ul>
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<li><cite key="conf/sigir/ParkPGK02" style=ee>
<li><cite key="conf/sigir/SiC02" style=ee>
<li><cite key="conf/sigir/KraaijWH02" style=ee>
</ul>
<h2>Information Retrieval Theory</h2>          …
```

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Search

Authors	gray			
Title	cube		**Year**	**Page**
Conference			**ID**	
Journal			**Volume**	**Number**
Search	Reset	Maximum of 100 matches		

is search engine is powered by the MG Software.

CM SIGMOD Anthology - DBLP: [Home | Search: Author, Title | Conferences | Journals]

Anthology

dblp.uni-trier.de

Search Result

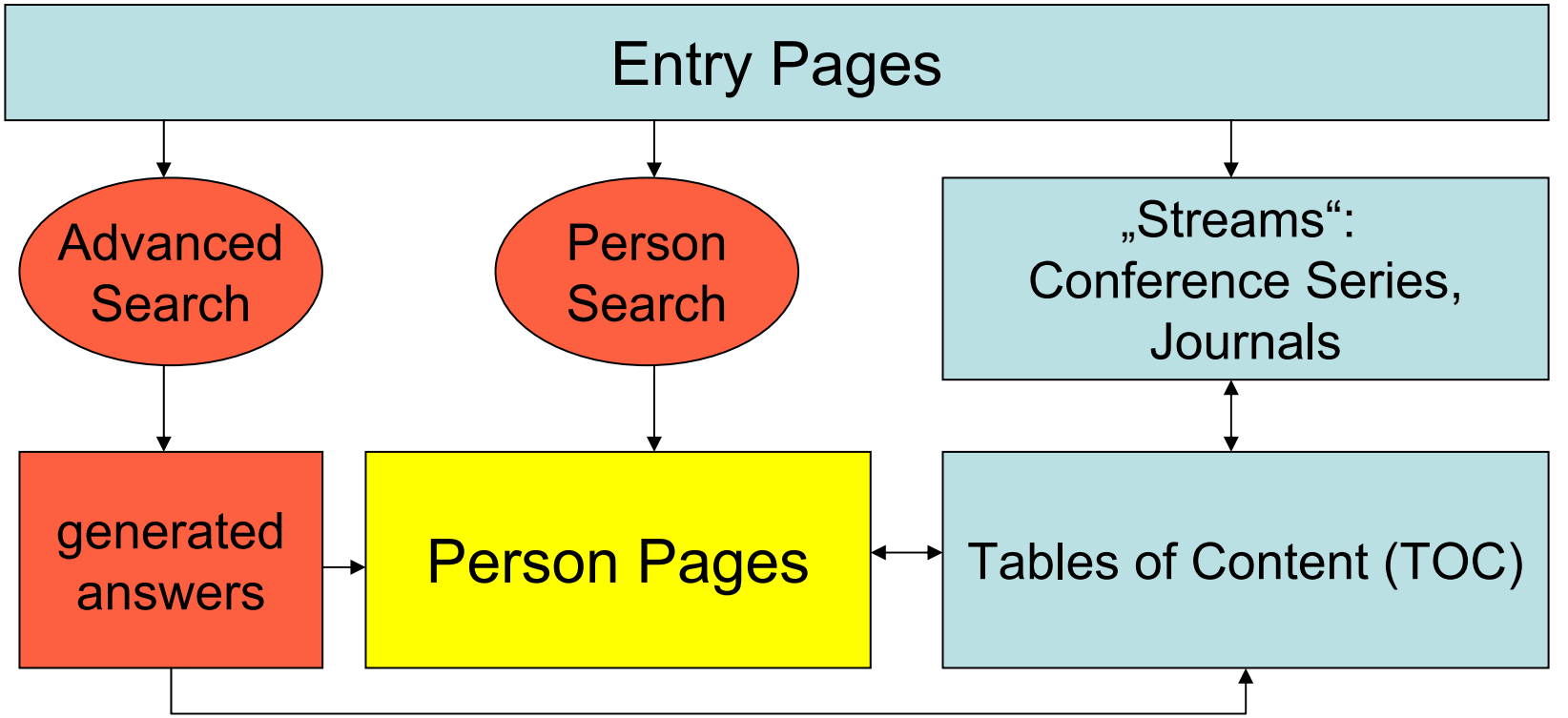
uery: author = "gray", title = "cube"

EE	Jim Gray, Adam Bosworth, Andrew Layman, Hamid Pirahesh: Data Cube: A Relational Aggregation Operator Generalizing Group-By, Cross-Tab, and Sub-Total. ICDE 1996: 152-159 [DBLP:conf/icde/GrayBLP96]
	J. R. Armstrong, F. Gail Gray: Fault Diagnosos in a Boolean *n* Cube Array of Microprocessors. IEEE Transactions on Computers 30(8): 587-590 (1981) [DBLP:journals/tc/ArmstrongG81]
	Jim Gray, Surajit Chaudhuri, Adam Bosworth, Andrew Layman, Don Reichart, Murali Venkatrao, Frank Pellow, Hamid Pirahesh: Data Cube: A Relational Aggregation Operator Generalizing Group-by, Cross-Tab, and Sub Totals. Data Mining and Knowledge Discovery 1(1): 29-53 (1997) [DBLP:journals/datamine/GrayCBLRVPP97]

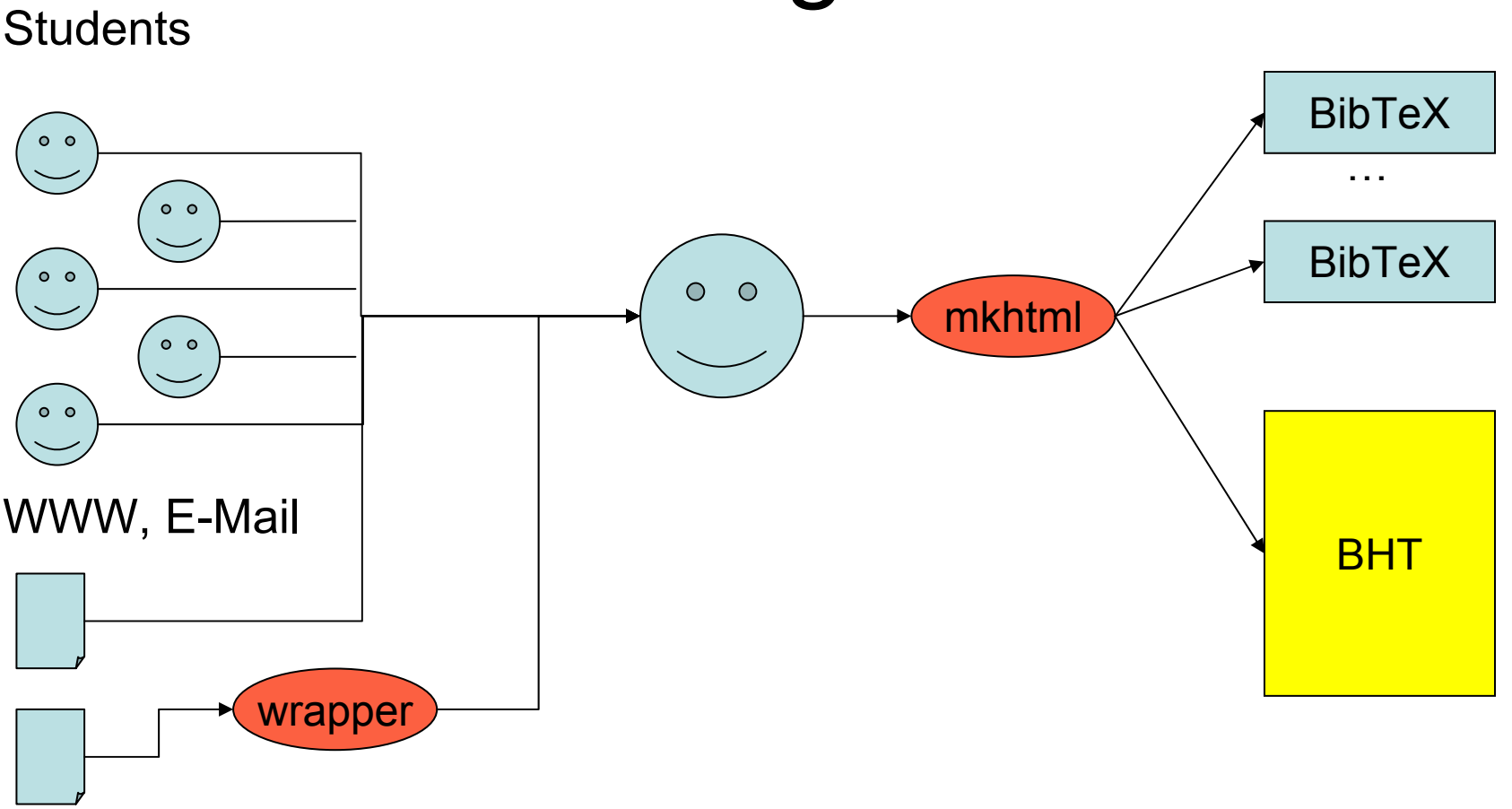
„Advanced Search“: MG

- „Managing Gigabytes“ Software by Witten, Moffat, Bell
- DBLP XML Records →MG Documents
- Filter: matching terms in the required field

DBLP Architecture



Entering Data



Anthology: Offline Search

- Simple search engine for all standard platforms → Java Applet (Java 1.0)
- Only author search
- Applet reads simple tree data structure from files:

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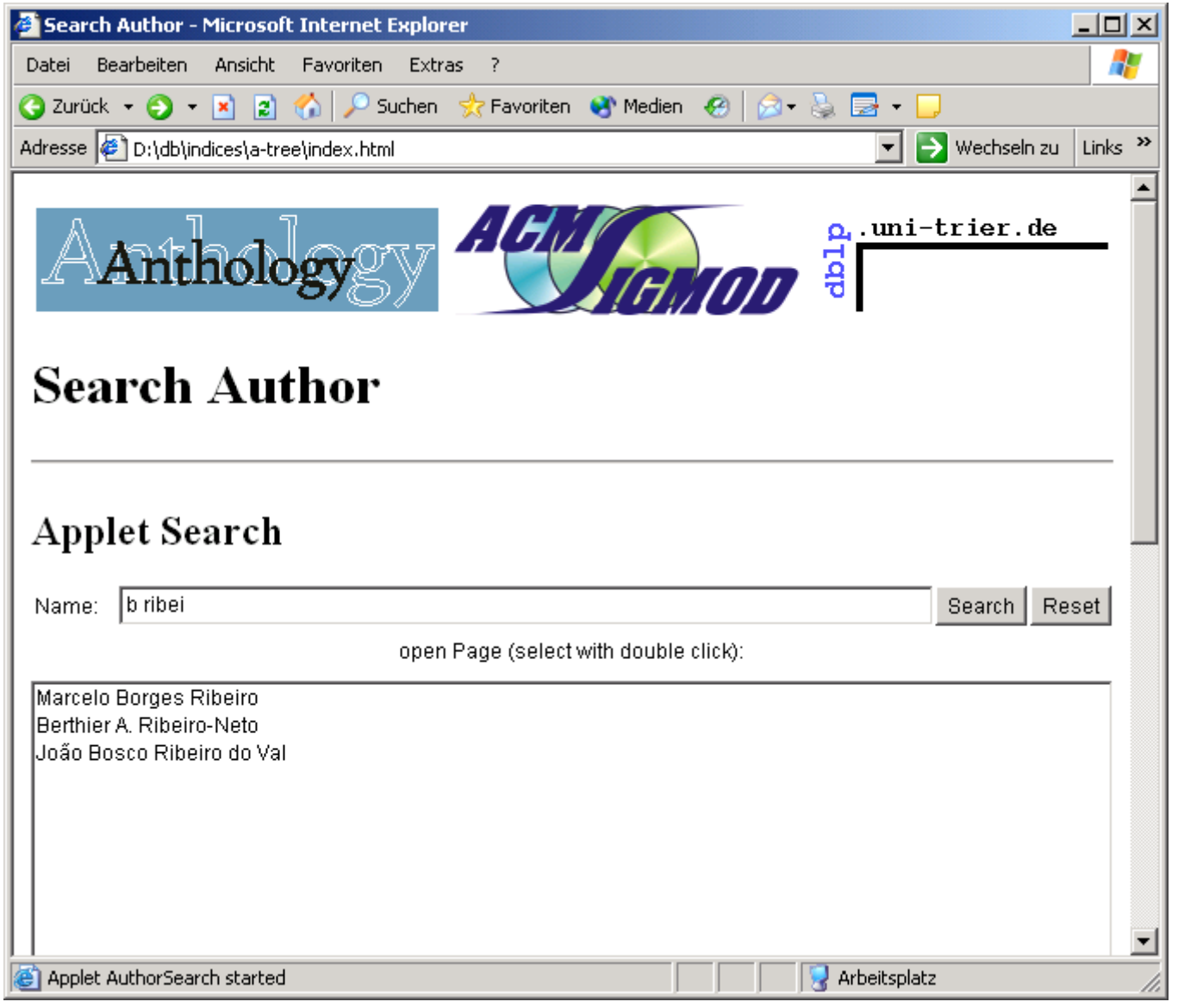
root: separators

…
curran,john H
cutting,d
czarnecki,h
dabbaghc
dagmar br
daigr
dale ro
dambr
dan cart
dan sm
dang,z
daniel d. fu
daniel j. bur
daniel mend
daniel sa
daniela mer
dannenberg,c
darad
…

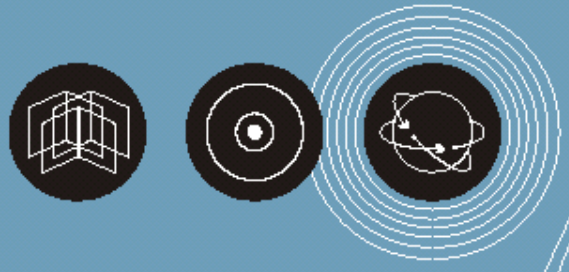
leaves: names (permutations of name parts)

…
Mann,Robert I.
Mann,Sally Fahrenholz-
Mann,Samuel
Mann,Stefan
Mann,Stephen
…
Mann-Ho Lee
Mann-May Yau
Manna,I.
Manna,M. La
Manna,Serena La
Manna,Zohar
Mannai,Dhamir N.
Mannarino,Gabriela Susana
Mannava,Phanindra K.
Manne,Fredrik
Manne,Srilatha
Manneback,Pierre
…


Search Author - Microsoft Internet Explorer
Datei Bearbeiten Ansicht Favoriten Extras ?
Zurück Suchen Favoriten Medien
Adresse D:\db\indices\a-tree\index.html
Wechseln zu Links
Anthology
ACM SIGMOD
dblp.uni-trier.de
Search Author
Applet Search
Name: b ribei
Search
Reset
open Page (select with double click):
Marcelo Borges Ribeiro
Berthier A. Ribeiro-Neto
João Bosco Ribeiro do Val
Applet AuthorSearch started
Arbeitsplatz

Anthology: Full Text Search

- Acrobat „catalog“: index construction
- „capture“: OCR for scanned texts
- manual entry of title fields was necessary
  - insufficient software support by Adobe
- Acrobat Reader „with search“
  - not available for Linux



The ACM SIGMOD

Anthology

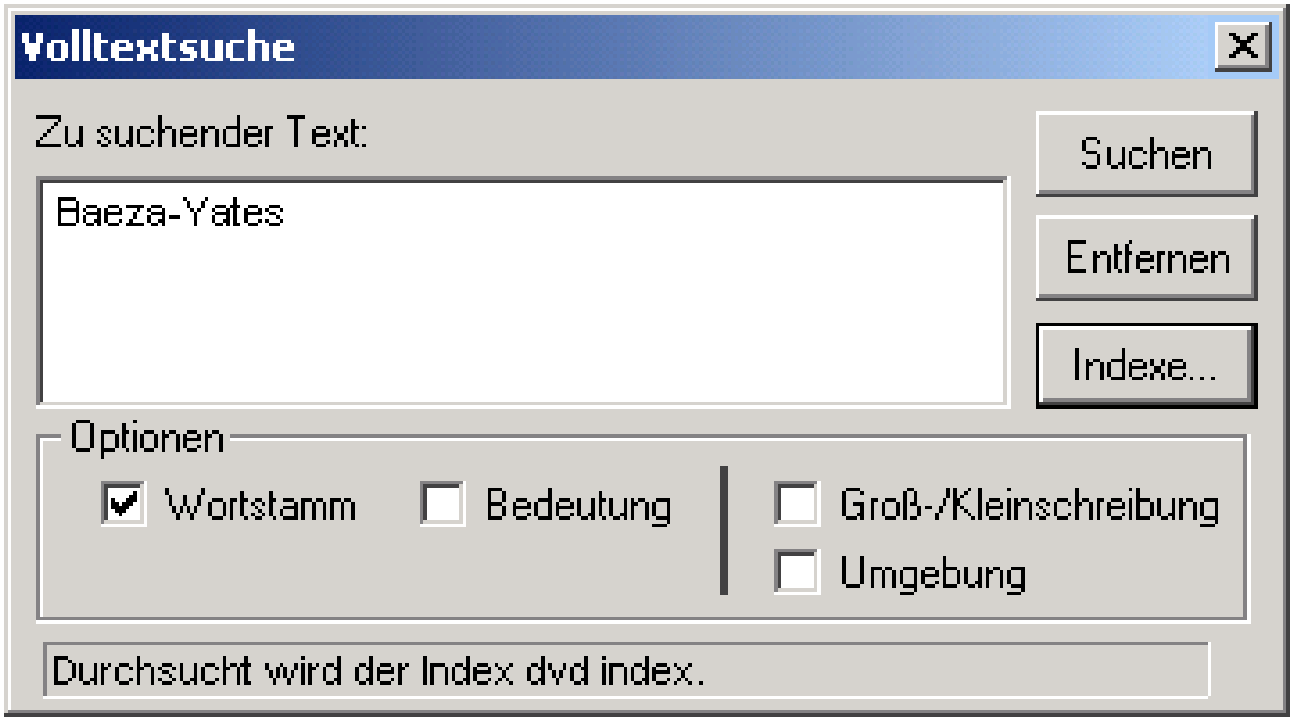
DVD 2, 2001

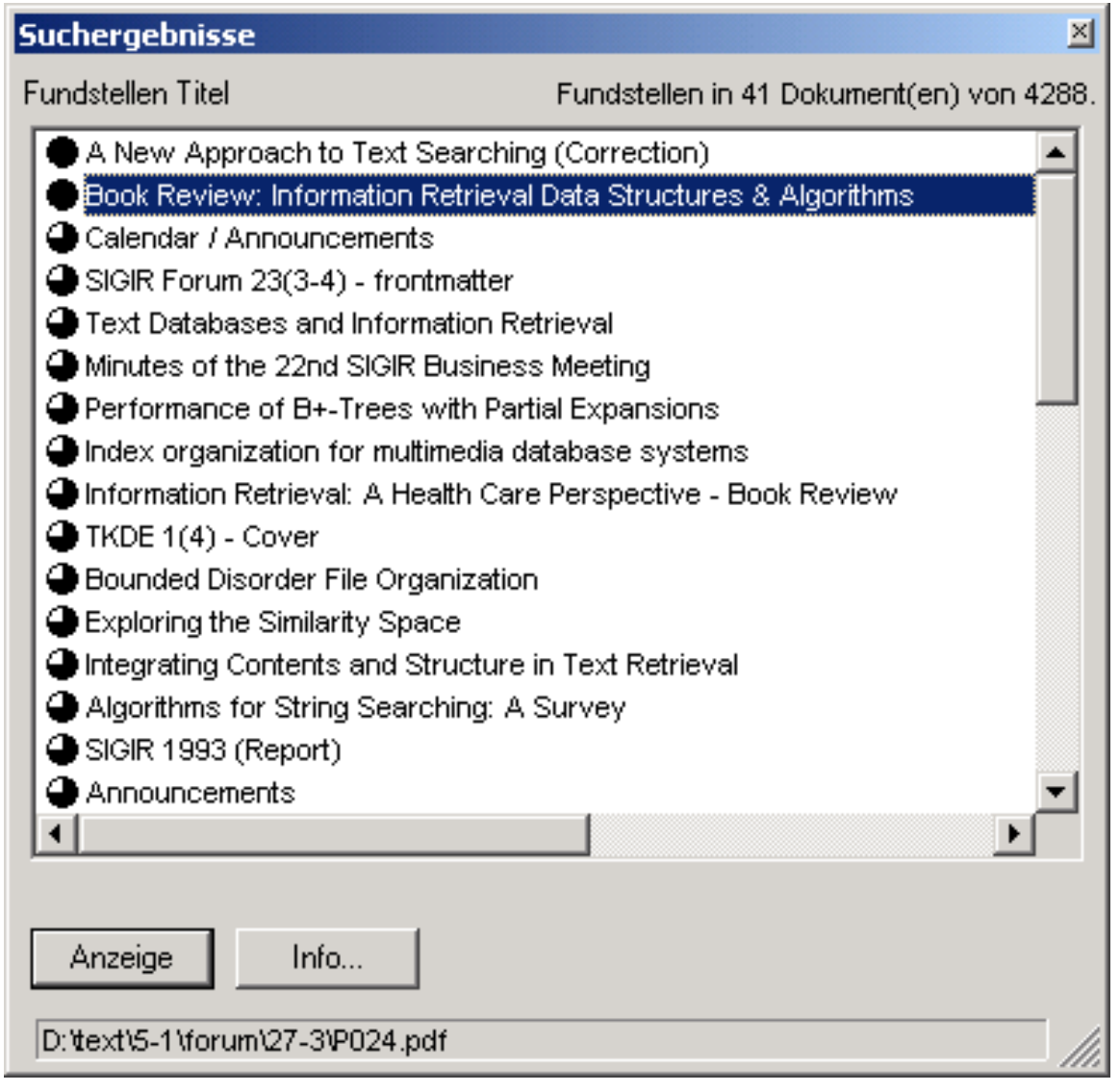
Table of Contents

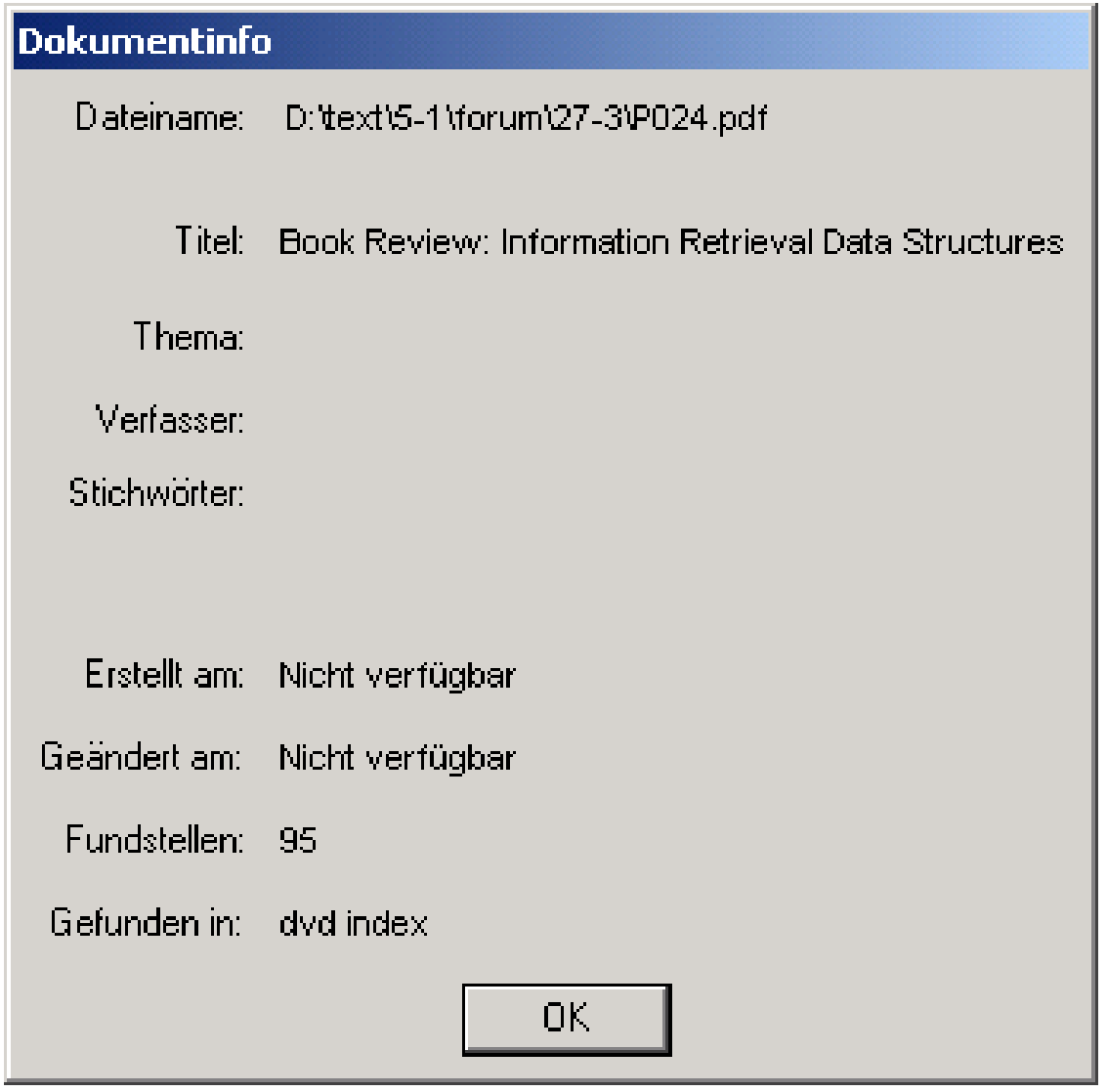
Full Text Index

Starts Web Browser

requires Acrobat Reader
WITH SEARCH


Volltextsuche
Zu suchender Text:
Baeza-Yates
Suchen
Entfernen
Indexe...
Optionen
Wortstamm
Bedeutung
Groß-/Kleinschreibung
Umgebung
Durchsucht wird der Index dvd index.


Suchergebnisse
Fundstellen Titel
Fundstellen in 41 Dokument(en) von 4288.
A New Approach to Text Searching (Correction)
Book Review: Information Retrieval Data Structures & Algorithms
Calendar / Announcements
SIGIR Forum 23(3-4) - frontmatter
Text Databases and Information Retrieval
Minutes of the 22nd SIGIR Business Meeting
Performance of B+-Trees with Partial Expansions
Index organization for multimedia database systems
Information Retrieval: A Health Care Perspective - Book Review
TKDE 1(4) - Cover
Bounded Disorder File Organization
Exploring the Similarity Space
Integrating Contents and Structure in Text Retrieval
Algorithms for String Searching: A Survey
SIGIR 1993 (Report)
Announcements
Anzeige
Info...
D:\text\5-1\forum\27-3\P024.pdf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Thema:
Verfasser:
Stichwörter:
Erstellt am: Nicht verfügbar
Geändert am: Nicht verfügbar
Fundstellen: 95
Gefunden in: dvd index
OK

William B. Frakes (Software Engineering Guild), Ricardo Baeza-Yates (University of Chile), editors. **Information Retrieval Data Structures & Algorithms**. Prentice Hall, Englewood Cliffs, New Jersey, 1992, 504 pp., $50.00 (Retail Price), ISBN 0-13-463837-9.

This is an extremely welcome addition to the Information Retrieval (IR) literature. Because of its technical approach it is much different from most of the available books on IR. The book consists of five sections containing eighteen chapters. The chapters are written by different authors.

The *introduction* section is made-up of two chapters and each chapter is written by one of the editors. The chapters acquaint the reader with various IR related concepts and provide pointers for the other chapters of the book.

The first chapter (by D. Harman, E. Fox, R. A. Baeza-Yates, W. Lee) of the *file structures* section provides a survey of techniques that can be used in the construction of inverted files then gives the details of two techniques that can be used for large document databases. The next chapter (by C. Faloutsos) provides a classification of signature-based methods and a short survey of the related studies. An alternative to inverted and signature files, the relatively new data structures, PAT trees and PAT arrays, is the topic of Chapter 5 (by G. H. Gonnet, R. A. Baeza Yates, T. Snider). This

3. Perspectives & Research Issues

- Funding & collaborations
- Person Names
- DBLP Browser
- Visualization
- Classification / Clustering

Informatics Portal

- DBLP will be a central part of a larger Informatics Portal
- Other parts:
  - CompuScience (FIZ Karlsruhe)
  - Collection of CS Bibliographies (Achilles/Vollmer, Karlsruhe)
  - LeaBib (Mayr, Munich)

Informatics Portal (2)

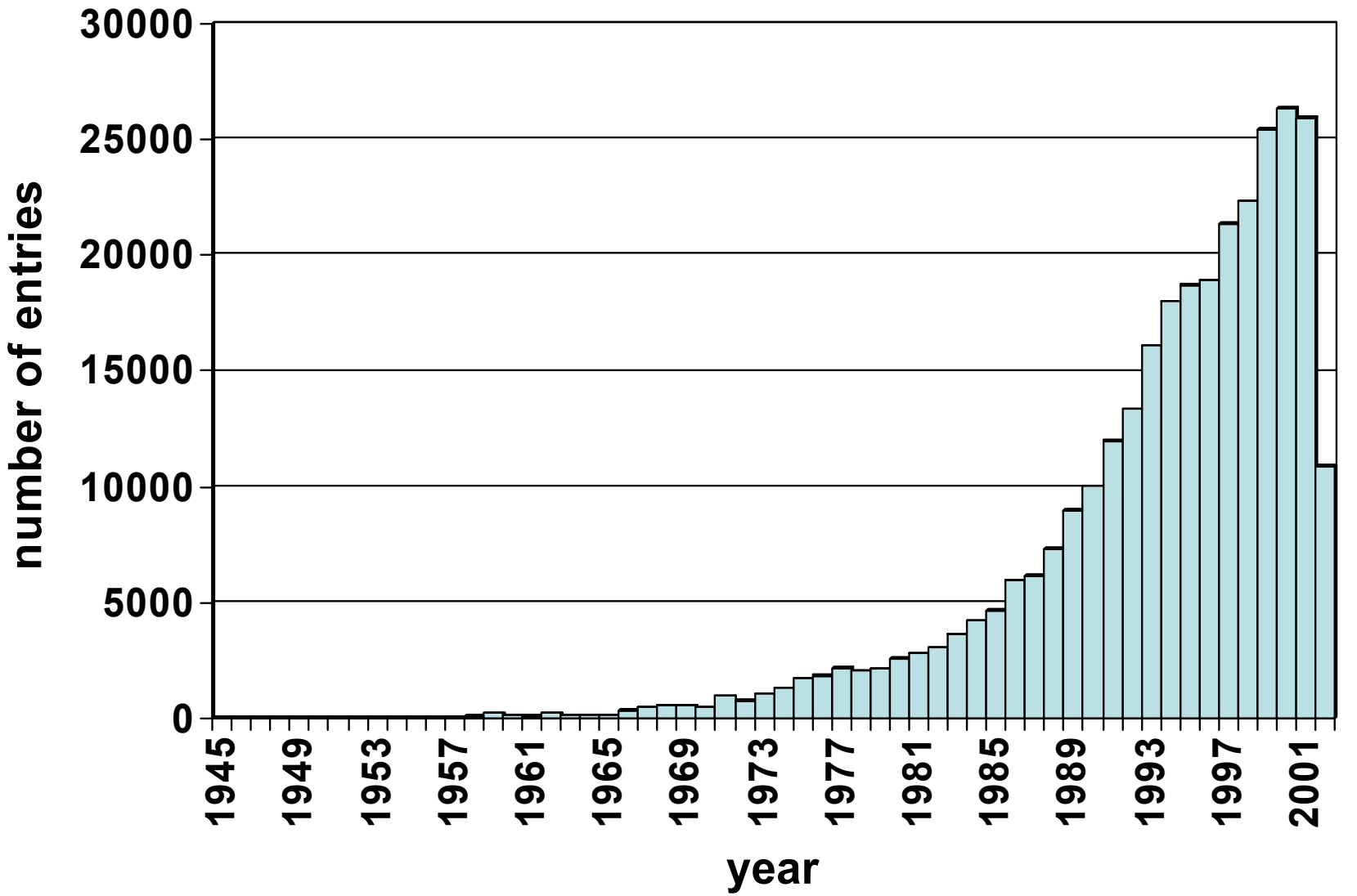
- Funded by the German Federal Ministry of Education and Research, 3 years
- In Cooperation with the „Gesellschaft für Informatik“ (German Computer Society)
- 2 open positions at Trier: service+research

Additional Contents …

- complete coverage of LNCS
- more ACM & IEEE publications
- cooperation with IFIP, Usenix, …
- cooperation with the libraries at Dagstuhl & Max-Planck-Institut für Informatik (Saarbrücken)
- several German series (LNI,IA,IFB…)

dblp.uni-trier.de

Number of records by publication year
(24 August 2002)



Challenge: How to manage the exponential growth of (computer) science publications ?

- maintenance problem
- „lost in publication space“

Person Names

- widely accepted method to identify persons
- names may not be unique
- a person may change her/his name (marriage, emigration to other cultural environment)
- variations of person names …

- abbreviations: Jeffrey D. Ullman, J. D. Ullman, J. Ullman, Jeff Ullman, …
- nicknames: Michael / Mike, William / Bill, Joseph / Joe
- permutations: Liu Bin / Bin Liu
- different transcriptions: Andrei / Andrej / Andrey
- accents: Stephane / Stéphane
- umlauts: Muller / Müller / Mueller

- ligatures: Weiß / Weiss, Åström / Aastrom
- case: Al-A'Ali / Al-A'ali
- hyphens: Hans-Peter / Hans Peter
- composition: MaoLin / Mao Lin, Kenichi / Ken-ichi / Ken'ichi
- postfixes: Karel Culik II, Jr. / Sr.
- typos

Person Names: Problems

- there should be a 1:1 mapping between persons and person pages
- how to search persons best ?
- how to normalize different spellings ?

name normalization costs more than 60% of our time …

Person Name Normalization

- for each new entry we try to locate the authors/editors in the existing collection
- if spellings differ, but we are confident that they are variations of the same person‘s name → make them equal
- write out most parts of the name
- person‘s perferred spelling ?

- for persons with many publications the name spelling usually converges to a stable & correct state
- for persons with a few known publications it is more likely that there are duplicate person pages, incorrect or incomplete spellings

Heuristics in the decision process

- coauthor relationship gives strong indications for the identity of persons
- streams (journals/conference series): condensation points for communities, weaker indication
- same keywords in titles
- time frame ?
- a lot of background knowledge …

Wanted: Tool to make DBLP maintenance more efficient

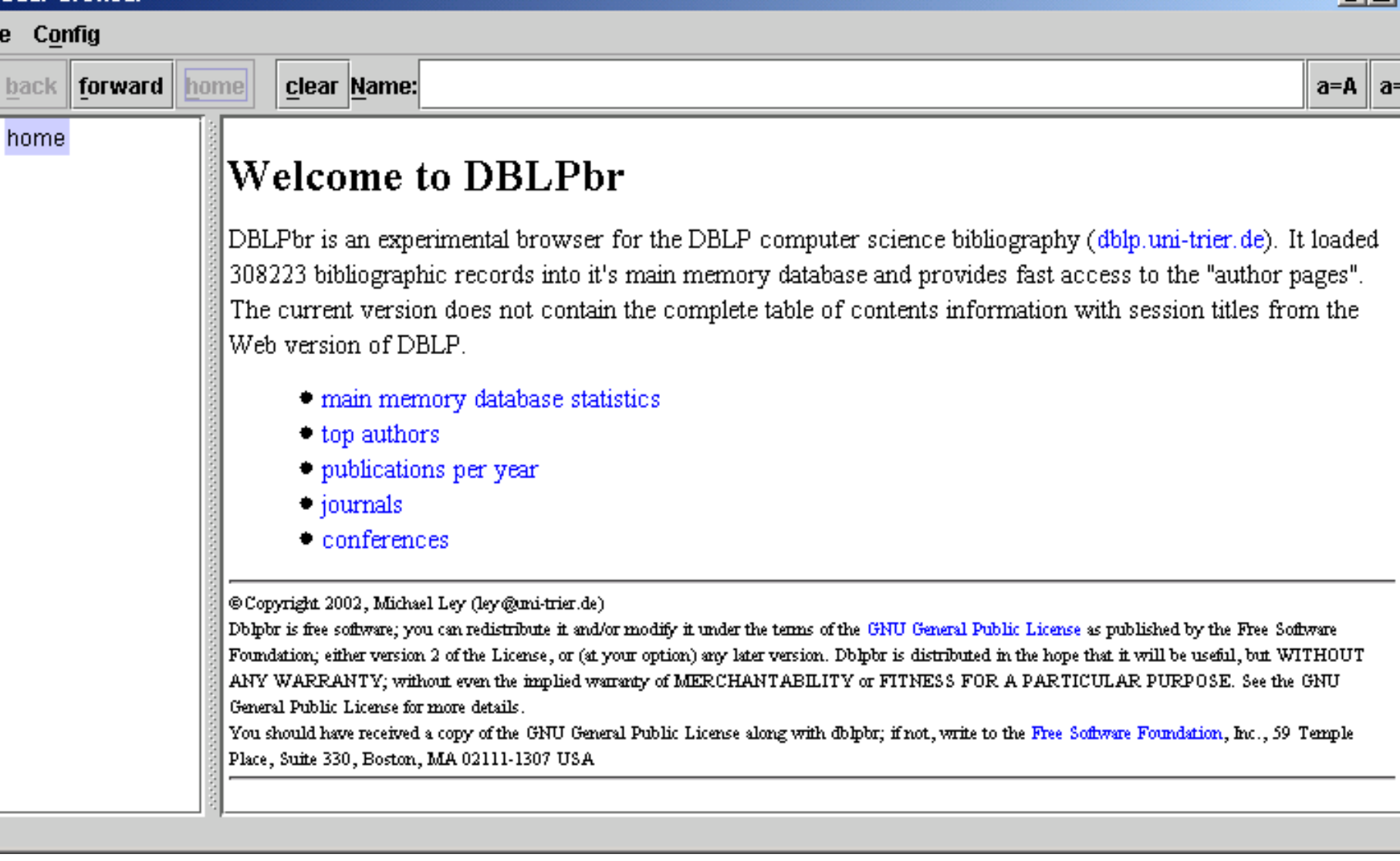
- specialized weight functions for the name normalization problem
  - query: new entry = list of names, title, publication stream, year, …
- „DBLP browser“: framework for experiments

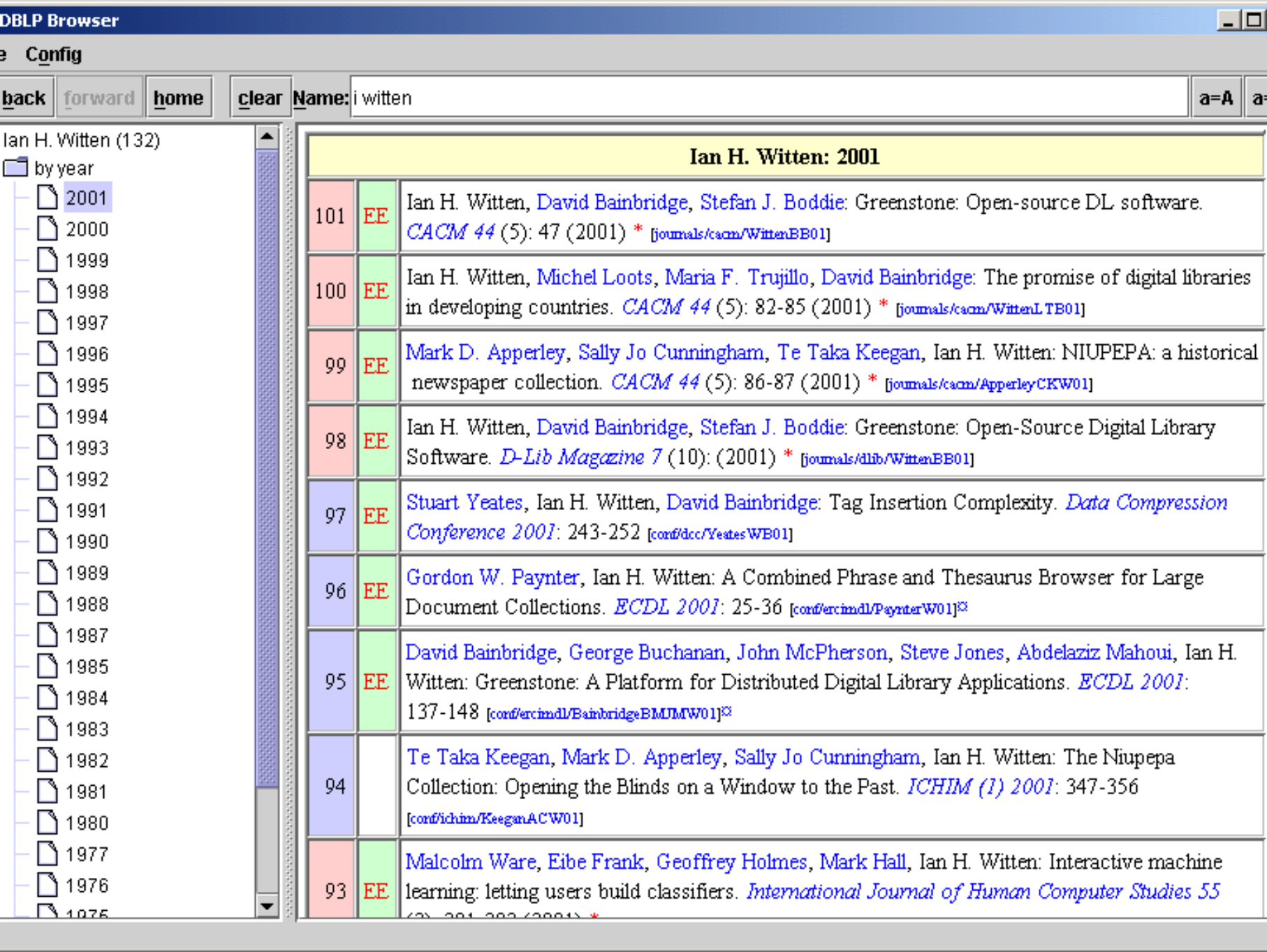
DBLP Browser: Roles

- maintenance tool
- bibliographic tool for users of DBLP
  - composition of reference lists
  - export in popular formats like BibTeX
- platform for experiments in visualization (SemIPort project …)

DBLP Browser

- main memory IR system
  - compressed representation of the bibliographic records
- convenient graphical user interface
- Java / Swing
- first prototype implemented


e Config
back
forward
home
clear
Name:
a=A
a=
home
Welcome to DBLPbr
DBLPbr is an experimental browser for the DBLP computer science bibliography (dblp.uni-trier.de). It loaded 308223 bibliographic records into it's main memory database and provides fast access to the "author pages". The current version does not contain the complete table of contents information with session titles from the Web version of DBLP.
main memory database statistics
top authors
publications per year
journals
conferences
© Copyright 2002, Michael Ley (ley@uni-trier.de)
Dblpbr is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version. Dblpbr is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.
You should have received a copy of the GNU General Public License along with dblpbr; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA


DBLP Browser
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Name: i witten
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Ian H. Witten (132)
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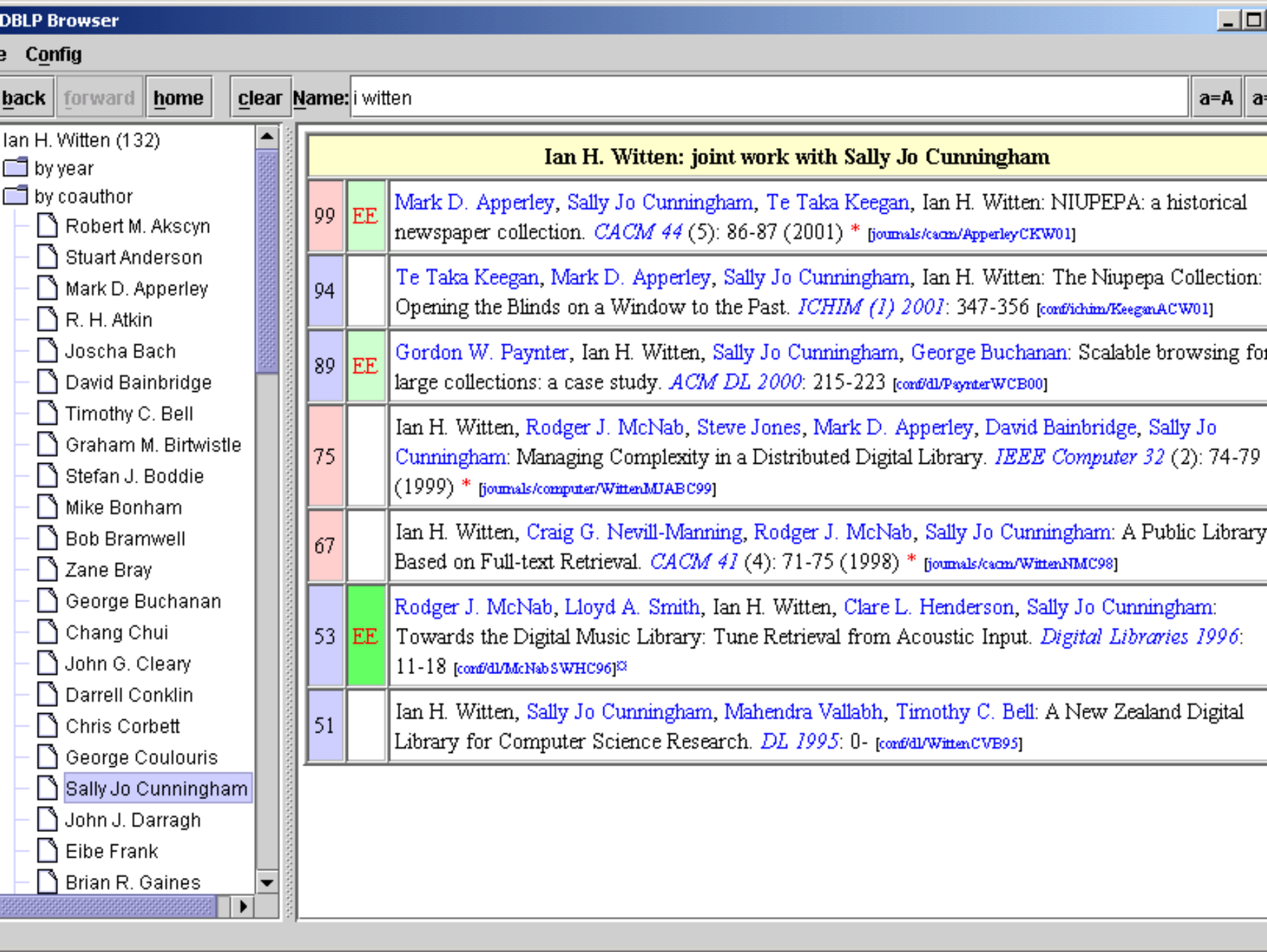
Ian H. Witten: 2001
101 EE Ian H. Witten, David Bainbridge, Stefan J. Boddie: Greenstone: Open-source DL software. CACM 44 (5): 47 (2001) * [journals/cacm/WittenBB01]
100 EE Ian H. Witten, Michel Loots, Maria F. Trujillo, David Bainbridge: The promise of digital libraries in developing countries. CACM 44 (5): 82-85 (2001) * [journals/cacm/WittenLTB01]
99 EE Mark D. Apperley, Sally Jo Cunningham, Te Taka Keegan, Ian H. Witten: NIUPEPA: a historical newspaper collection. CACM 44 (5): 86-87 (2001) * [journals/cacm/ApperleyCKW01]
98 EE Ian H. Witten, David Bainbridge, Stefan J. Boddie: Greenstone: Open-Source Digital Library Software. D-Lib Magazine 7 (10): (2001) * [journals/dlib/WittenBB01]
97 EE Stuart Yeates, Ian H. Witten, David Bainbridge: Tag Insertion Complexity. Data Compression Conference 2001: 243-252 [conf/dcc/YeatesWB01]
96 EE Gordon W. Paynter, Ian H. Witten: A Combined Phrase and Thesaurus Browser for Large Document Collections. ECDL 2001: 25-36 [conf/ercimdl/PaynterW01]
95 EE David Bainbridge, George Buchanan, John McPherson, Steve Jones, Abdelaziz Mahoui, Ian H. Witten: Greenstone: A Platform for Distributed Digital Library Applications. ECDL 2001: 137-148 [conf/ercimdl/BainbridgeBMJMW01]
94 Te Taka Keegan, Mark D. Apperley, Sally Jo Cunningham, Ian H. Witten: The Niupepa Collection: Opening the Blinds on a Window to the Past. ICHIM (1) 2001: 347-356 [conf/ichim/KeeganACW01]
93 EE Malcolm Ware, Eibe Frank, Geoffrey Holmes, Mark Hall, Ian H. Witten: Interactive machine learning: letting users build classifiers. International Journal of Human Computer Studies 55


DBLP Browser
e Config
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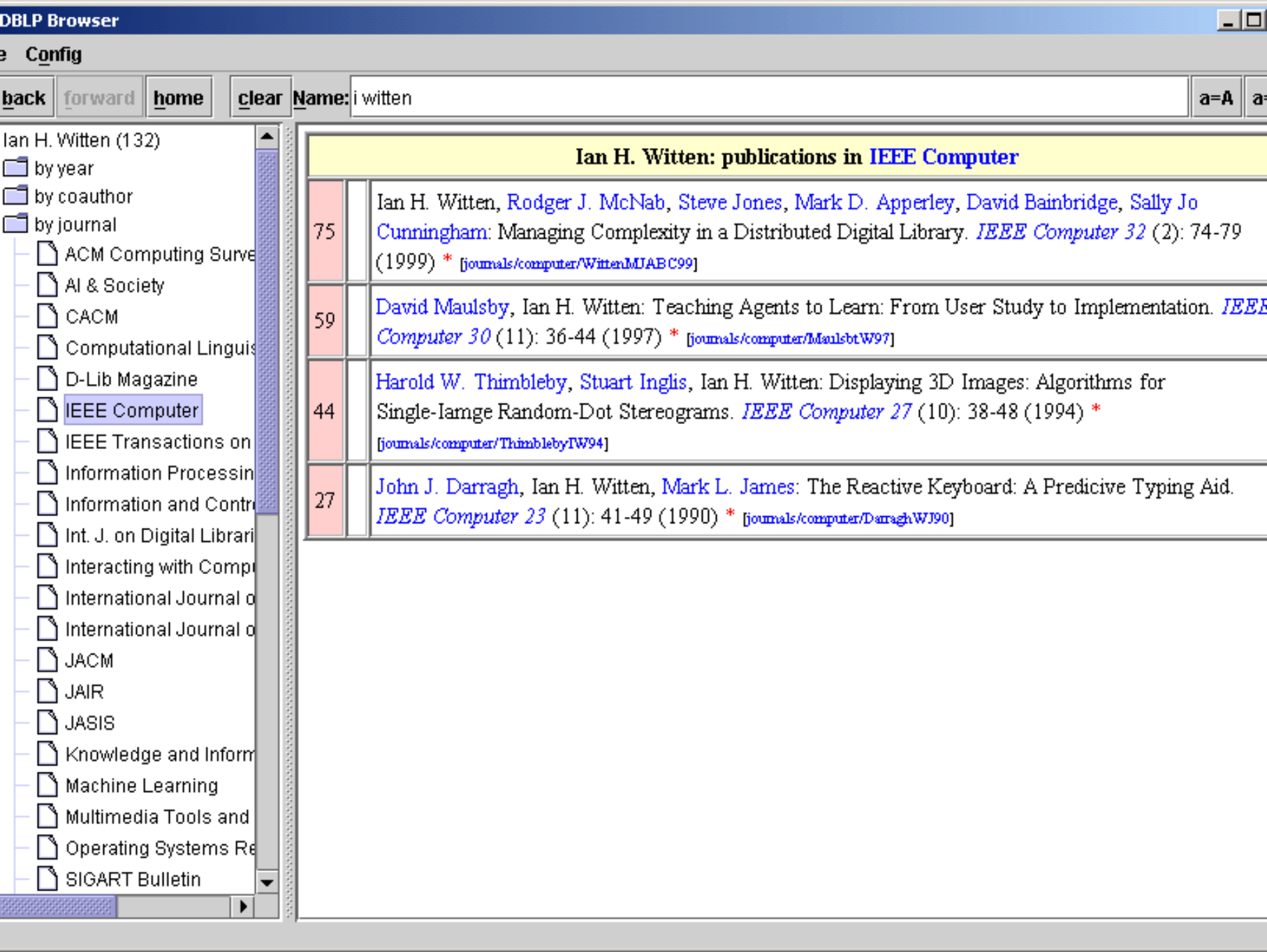
Name: i witten
a=A
Ian H. Witten (132)
by year
by coauthor
Robert M. Akscyn
Stuart Anderson
Mark D. Apperley
R. H. Atkin
Joscha Bach
David Bainbridge
Timothy C. Bell
Graham M. Birtwistle
Stefan J. Boddie
Mike Bonham
Bob Bramwell
Zane Bray
George Buchanan
Chang Chui
John G. Cleary
Darrell Conklin
Chris Corbett
George Coulouris
Sally Jo Cunningham
John J. Darragh
Eibe Frank
Brian R. Gaines
Ian H. Witten: joint work with Sally Jo Cunningham
99 EE Mark D. Apperley, Sally Jo Cunningham, Te Taka Keegan, Ian H. Witten: NIUPEPA: a historical newspaper collection. CACM 44 (5): 86-87 (2001) * [journals/cacm/ApperleyCKW01]
94 Te Taka Keegan, Mark D. Apperley, Sally Jo Cunningham, Ian H. Witten: The Niupepa Collection: Opening the Blinds on a Window to the Past. ICHIM (1) 2001: 347-356 [conf/ichim/KeeganACW01]
89 EE Gordon W. Paynter, Ian H. Witten, Sally Jo Cunningham, George Buchanan: Scalable browsing for large collections: a case study. ACM DL 2000: 215-223 [conf/dl/PaynterWCB00]
75 Ian H. Witten, Rodger J. McNab, Steve Jones, Mark D. Apperley, David Bainbridge, Sally Jo Cunningham: Managing Complexity in a Distributed Digital Library. IEEE Computer 32 (2): 74-79 (1999) * [journals/computer/WittenMJABC99]
67 Ian H. Witten, Craig G. Nevill-Manning, Rodger J. McNab, Sally Jo Cunningham: A Public Library Based on Full-text Retrieval. CACM 41 (4): 71-75 (1998) * [journals/cacm/WittenNMC98]
53 EE Rodger J. McNab, Lloyd A. Smith, Ian H. Witten, Clare L. Henderson, Sally Jo Cunningham: Towards the Digital Music Library: Tune Retrieval from Acoustic Input. Digital Libraries 1996: 11-18 [conf/dl/McNabSWHC96]
51 Ian H. Witten, Sally Jo Cunningham, Mahendra Vallabh, Timothy C. Bell: A New Zealand Digital Library for Computer Science Research. DL 1995: 0- [conf/dl/WittenCVB95]


DBLP Browser
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Name: i witten
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a
Ian H. Witten (132)
by year
by coauthor
by journal
ACM Computing Surve
AI & Society
CACM
Computational Linguis
D-Lib Magazine
IEEE Computer
IEEE Transactions on
Information Processin
Information and Contr
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Interacting with Compu
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International Journal o
JACM
JAIR
JASIS
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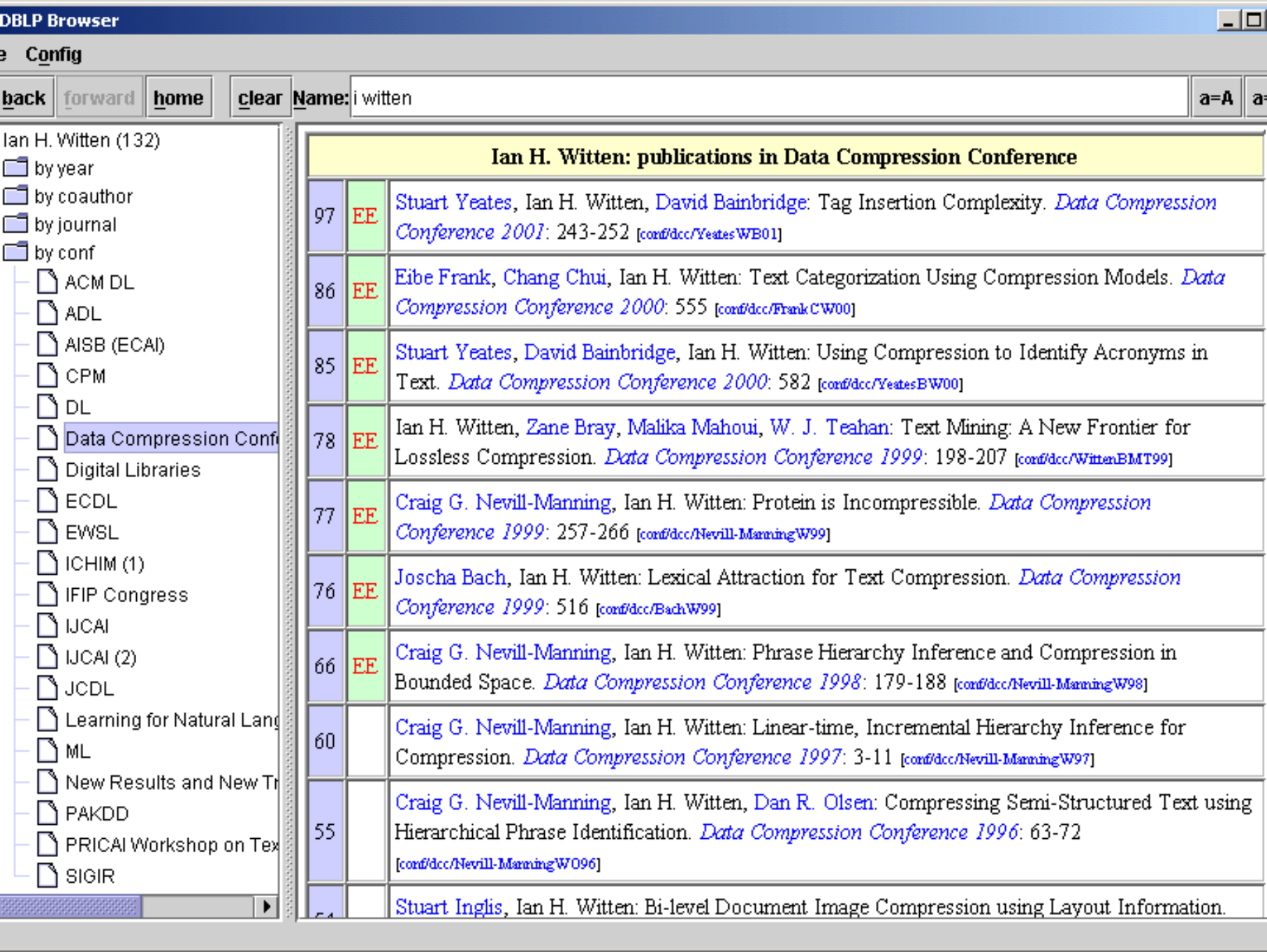
Machine Learning
Multimedia Tools and
Operating Systems Re
SIGART Bulletin
Ian H. Witten: publications in IEEE Computer
75
Ian H. Witten, Rodger J. McNab, Steve Jones, Mark D. Apperley, David Bainbridge, Sally Jo Cunningham: Managing Complexity in a Distributed Digital Library. IEEE Computer 32 (2): 74-79 (1999) * [journals/computer/WittenMJABC99]
59
David Maulsby, Ian H. Witten: Teaching Agents to Learn: From User Study to Implementation. IEEE Computer 30 (11): 36-44 (1997) * [journals/computer/MaulsbtW97]
44
Harold W. Thimbleby, Stuart Inglis, Ian H. Witten: Displaying 3D Images: Algorithms for Single-Iamge Random-Dot Stereograms. IEEE Computer 27 (10): 38-48 (1994) * [journals/computer/ThimblebyIW94]
27
John J. Darragh, Ian H. Witten, Mark L. James: The Reactive Keyboard: A Predicive Typing Aid. IEEE Computer 23 (11): 41-49 (1990) * [journals/computer/DarraghWJ90]


DBLP Browser
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back
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home
clear
Name: i witten
a=A
Ian H. Witten (132)
by year
by coauthor
by journal
by conf
ACM DL
ADL
AISB (ECAI)
CPM
DL
Data Compression Conf
Digital Libraries
ECDL
EWSL
ICHIM (1)
IFIP Congress
IJCAI
IJCAI (2)
JCDL
Learning for Natural Lang
ML
New Results and New Tr
PAKDD
PRICAI Workshop on Tex
SIGIR
Ian H. Witten: publications in Data Compression Conference
97 EE Stuart Yeates, Ian H. Witten, David Bainbridge: Tag Insertion Complexity. Data Compression Conference 2001: 243-252 [conf/dcc/YeatesWB01]
86 EE Eibe Frank, Chang Chui, Ian H. Witten: Text Categorization Using Compression Models. Data Compression Conference 2000: 555 [conf/dcc/FrankCW00]
85 EE Stuart Yeates, David Bainbridge, Ian H. Witten: Using Compression to Identify Acronyms in Text. Data Compression Conference 2000: 582 [conf/dcc/YeatesBW00]
78 EE Ian H. Witten, Zane Bray, Malika Mahoui, W. J. Teahan: Text Mining: A New Frontier for Lossless Compression. Data Compression Conference 1999: 198-207 [conf/dcc/WittenBMT99]
77 EE Craig G. Nevill-Manning, Ian H. Witten: Protein is Incompressible. Data Compression Conference 1999: 257-266 [conf/dcc/Nevill-ManningW99]
76 EE Joscha Bach, Ian H. Witten: Lexical Attraction for Text Compression. Data Compression Conference 1999: 516 [conf/dcc/BachW99]
66 EE Craig G. Nevill-Manning, Ian H. Witten: Phrase Hierarchy Inference and Compression in Bounded Space. Data Compression Conference 1998: 179-188 [conf/dcc/Nevill-ManningW98]
60 Craig G. Nevill-Manning, Ian H. Witten: Linear-time, Incremental Hierarchy Inference for Compression. Data Compression Conference 1997: 3-11 [conf/dcc/Nevill-ManningW97]
55 Craig G. Nevill-Manning, Ian H. Witten, Dan R. Olsen: Compressing Semi-Structured Text using Hierarchical Phrase Identification. Data Compression Conference 1996: 63-72 [conf/dcc/Nevill-ManningWO96]
Stuart Inglis, Ian H. Witten: Bi-level Document Image Compression using Layout Information.

DBLP Browser

e Config

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journals
- by name
- by # of papers
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  - 885..536
  - 528..300
  - 299..201
  - 200..141
  - 140..95
  - 95..62
  - 61..41
  - 41..19
  - 18..6
  - 6..1

1. CACM (5293)
2. TCS (4737)
3. IEEE Transactions on Computers (4477)
4. Information Processing Letters (4396)
5. TSE (2400)
6. IEEE Computer (2288)
7. JACM (2265)
8. The Computer Journal (2098)
9. SIAM J. Comput. (2010)
10. Software - Practice and Experience (1988)
11. Artificial Intelligence (1673)
12. Information and Control (1626)
13. JCSS (1595)
14. IEEE Software (1384)
15. IEEE Transactions on Pattern Analysis and Machine Intelligence (1337)
16. JASIS (1271)
17. IEEE Transactions on Parallel and Distributed Systems (1198)
18. JSC (1145)
19. IEEE Journal on Selected Areas in Communications (1133)
20. Information and Computation (1105)
21. Acta Informatica (1100)
22. IBM Systems Journal (1040)
23. International Journal of Man-Machine Studies (1027)
24. ACM Computing Surveys (1019)
25. J. Algorithms (1005)
26. TKDE (999)
27. Information Sciences (974)

DBLP Browser

e Config

back | forward | home | clear | Name: | a=A | a

top authors

- 267..156
- 152..126
- 126..115
- 115..105
- 104..98
- 98..93
- 93..89
- 89..86
- 86..83
- 83..80
- 80..77
- 77..75
- 75..72
- 72..71
- 71..69
- 69..68
- 68..67
- 67..65
- 65..63
- 63..62
- 62..61
- 61..59
- 59..59
- 59..58

1. Grzegorz Rozenberg (267)
2. Philip S. Yu (244)
3. Hector Garcia-Molina (238)
4. Jeffrey D. Ullman (227)
5. Christos H. Papadimitriou (221)
6. Moshe Y. Vardi (220)
7. Kang G. Shin (215)
8. Micha Sharir (206)
9. Elisa Bertino (202)
10. Oded Goldreich (192)
11. Robert Endre Tarjan (191)
12. Kurt Mehlhorn (189)
13. Michael Stonebraker (187)
14. Sushil Jajodia (175)
15. Moti Yung (175)
16. Joseph Y. Halpern (173)
17. Jeffrey Scott Vitter (172)
18. Abraham Silberschatz (171)
19. Oscar H. Ibarra (170)
20. Avi Wigderson (167)
21. Nancy A. Lynch (166)
22. Donald F. Towsley (165)
23. Hermann A. Maurer (165)
24. Marek Karpinski (164)
25. Leonidas J. Guibas (163)
26. Amir Pnueli (163)

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<author>Maurice Bruynooghe</author>
<author>Kristof Verschaetse</author>
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for a Restricted Class of PROLOG-Clauses.</title>
<pages>237-248</pages>
<year>1989</year>
<volume>41</volume>
<journal>Artificial Intelligence</journal>
<number>2</number>
<url>db/journals/ai/ai41.html#SchreyeBV89</url>
</article>
…
```

Representation of <title>-Fields:

- construct canonical Huffman codes on word level [MG-Book]
- degree of tree-nodes: 213 (0x2a-0xff)
- lexicon: 3-in-4 front coding
- Publications are sorted by journal/booktitle, year

Lexicon of title words

0=‘*‘, 1=‘+‘, 2=',', 3='-',
4='.', 5='/', 6='0', 7='1', …

…
7Comprehending32sibility5-ons0sion
2Compress21ibility3+n3onless
6Compressions3,ve2.lets2or
5Compressors/-ise2+d2s
4Comprising/5omisability3,ed4s
6Compromising0+r..sing.ter
2Compters0,ur/-ing/on
2Comptuer.4uatational1-ion4al
5Compuations20tional//iting/log
4Compulsory/,nd0.ting/s
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…

Lexicon: title words

```
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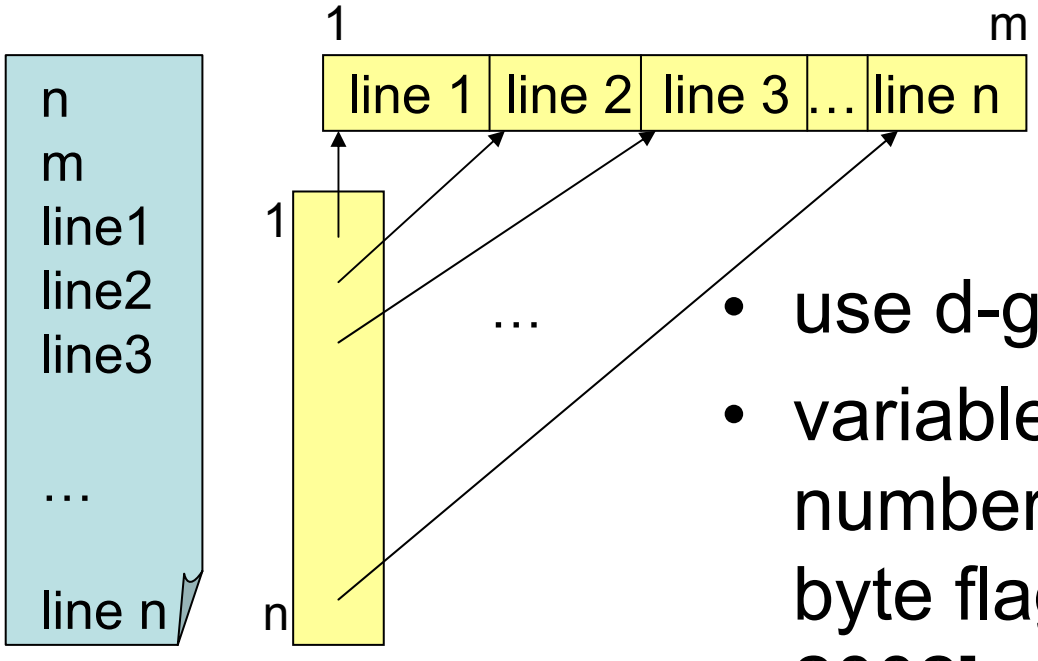
<author>Danny De Schreye</author>
<author>Maurice Bruynooghe</author>
<author>Kristof Verschaetse</author>
<title>c1c2c3 ...</title>
<pages>237-248</pages>
…
</article>
…
```

Representation of <author>- and <editor>-Fields:

- construct list of all persons
- sort them by number of publications
- add inverted lists (publication numbers) to all persons

```
Peter Smith 17 36 1003 7790 8800
Johanna Mayer 36 2077 9002
…
```

Representation of inverted indexes



- use d-gaps [MG-book]
- variable-byte coding (base 111 numbers, ≈ 7bit value + last byte flag) [Scholer et al., SIGIR 2002]

…
Alberto H. F. Laender)s»™"bê~□5º"žÙ\ü¢"@Í&ñ¤$¥"ð8ì?Øµ\-"ÜÖà·$œ¤"ïï$-¯"c—UÚLÌ"?¨"<°#Há"nÆWÕh·â‘#:Ò"=£’
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Jean-Louis Lassez)0Ñ‰×qØ¹$4Ò=ÆgÅ";´áM¹5Ä±#R÷Ò"Í#RÅ#&è#ø"ký¯-Â*˜"ô"·q™)¡)Î.-]ò8ßfŸ"Ì(§$;¬$õGí"æ#¨"aÒ’
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Walter L. Ruzzo)"SšŽ´“åO«V©r¸ž$4-'›"m—$Æ%jà"<Æ&Ö~òHö#¤¦#ë"Ÿ®%'©Õ' µƒÝ%°À?ø"É‘$§ÅñçQÚš"˜□ú
James E. Rumbaugh)o´#%ñ#Í$D®&DãQõ%\ï¦Ú¦¦©¦›žš□šš›œ¢¢š˜œš›™™□›#$žö§" ËÅ&G«"1ø
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…

Lexicon: title words

Person table

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<author>a3</author> <title>c1c2c3 ...</title>
<pages>237-248</pages>
<journal>Artificial Intelligence</journal>
…
</article>
…
```

Representation of <journal>- and <booktitle>-Fields:

- construct lists of all journals and booktitles
- add position of first publication with this journal/booktitle and count

```
Artificial Intelligence 5000 603
TODS 7890 400
…
```

331
10509
CACM)#^ãPÜ
TCS)7I¢KÛ
IEEE Transactions on Computers),[žIµ
Information Processing Letters)/KàHÓ
TSE)89Ô6Ü
IEEE Computer)+□ã5Ô
JACM)0|˜5½
The Computer Journal)8UÒ3ô
SIAM J. Comput.)5@-3œ
Software - Practice and Experience)6zÛ2õ
Artificial Intelligence)"‹Ê0˜
Information and Control)/Ž÷/Ø
JCSS)12Î/¹
IEEE Transactions on Pattern Analysis and Machine Intelligence),□Ò.¤
…

Lexicon: title words

Person table

Journal table

Booktitle table

```
<article key="journals/ai/SchreyeBV89">
<author>a1</author> <author>a2</author>
<author>a3</author> <title>c1c2c3 ...</title>
<pages>237-248</pages> <journal>j</journal>
<number>2</number>
<url>db/journals/ai/ai41.html#SchreyeBV89</url>
</article>
…
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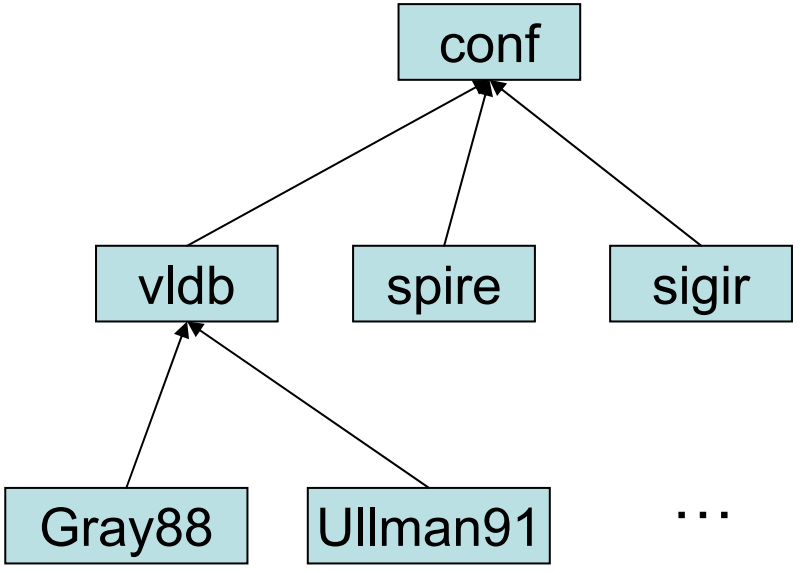
Representations of Paths: key, <ee>, <url>

construct paths dictionary: bottom-up tree of path elemens



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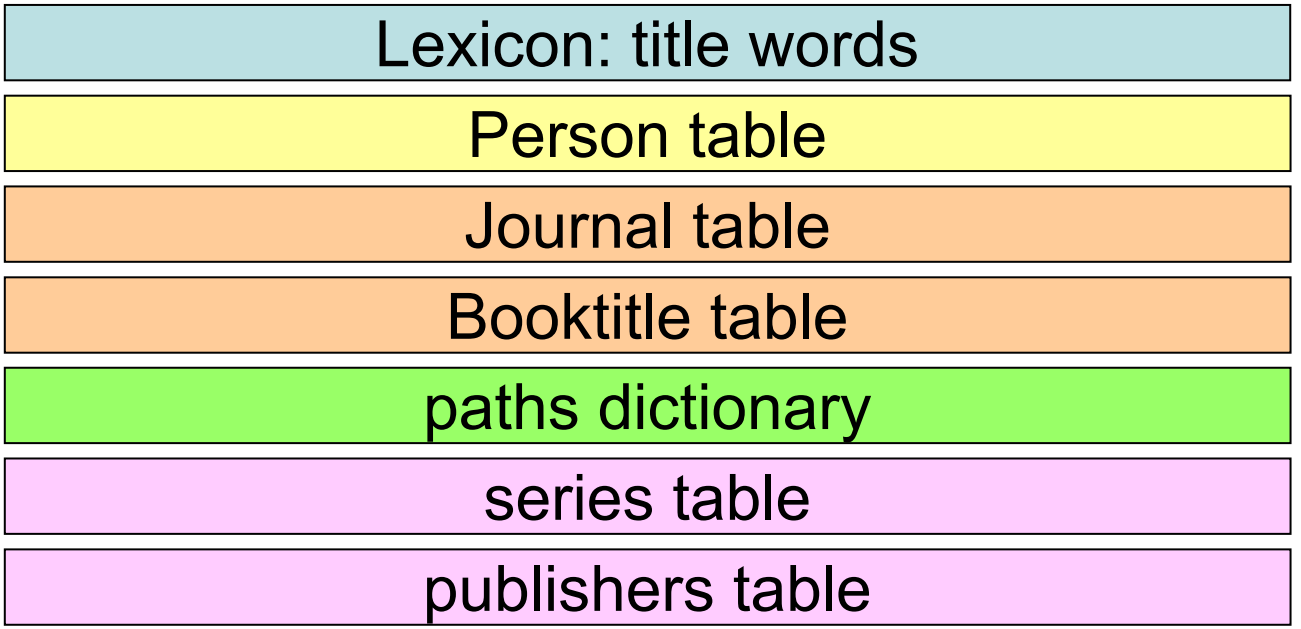


…
Av’SchreyeBV89)T½fùf:´föf*ÚñfL•fófîfNŸf3;föfHþl3Km)g#Ÿœuv Y□pš¹’b“#û"“"+´
…

$$A p_1 \text{SchreyeBV89} T I_1 I_2 \ldots) g n_1 n_2 u p_2 Y y p j v n b 3 a_1 a_2 a_3$$

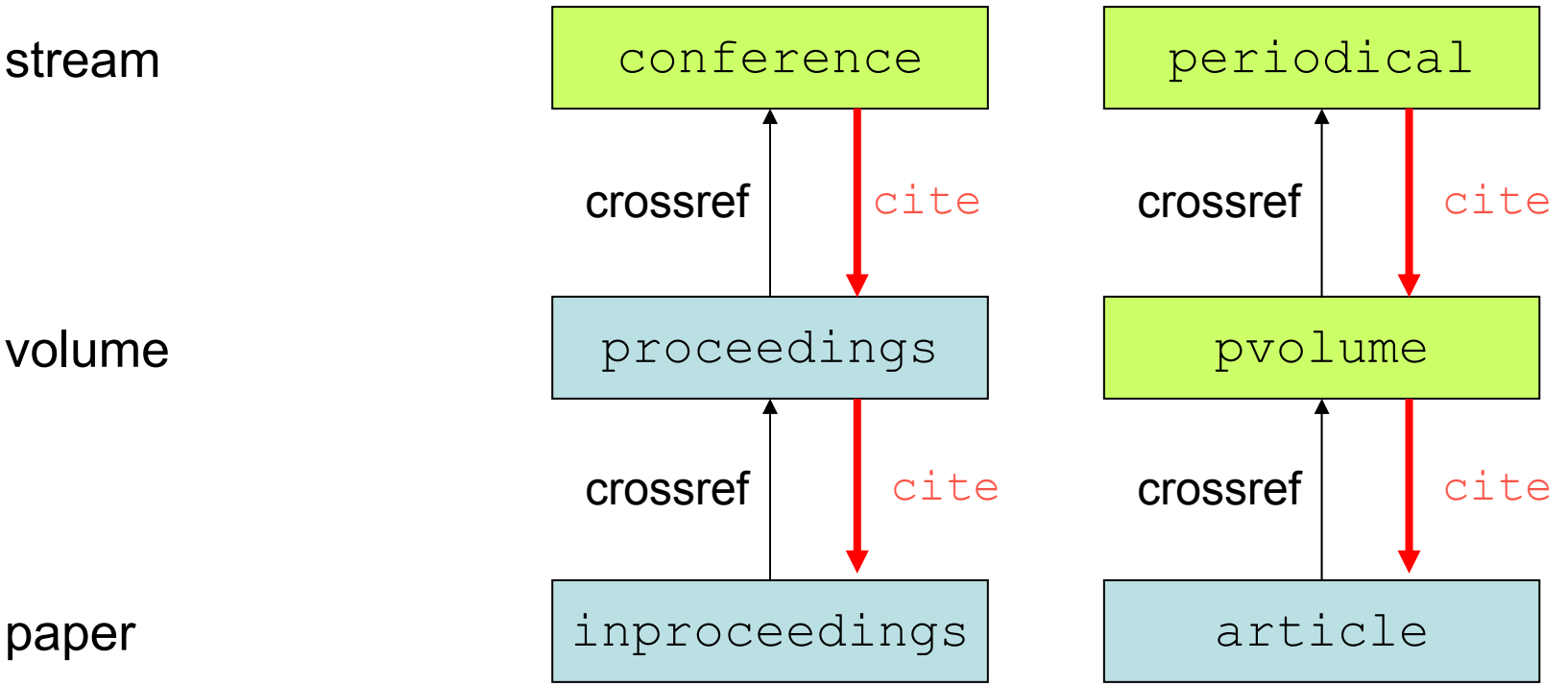
DBLP Browser: Compression

XML-file (Sept 3, 2002)	123328 KB
zip(XML-file)	22100 KB
Compressed representation	26664 KB
zip(compressed representation)	14732 KB

DBLP (Browser): next step

- search
- visualization
- BHT files, but standard cases should not require BHT files: extentsion of the BibTeX data model …

Extension of the BibTeX data model



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<booktitle>VLDB</booktitle>
<url>db/conf/vldb/index.html</url>
<toc>
  …
  <cite>conf/vldb/2002</cite>
  …
  <cite>conf/vldb/2001</cite>
  …
</toc>
</conference>
```

User Interfaces for Bibliographic Collections

- conventional wisdom: provide a good IR system
- DBLP: browsing oriented interface + very simple search tools

Why is DBLP nervertheless used?

„…there was little comprehensive searching by faculty researchers because they worked within specialized forums where they could more efficiently find the materials they needed. This precluded comprehensive searching to identify an exhaustive set of materials in a wider variety of forums. […] They also used browsing to examine electronic announcements of conferences, and tables of contents of journals …“

[Lisa Covi, PhD thesis 1996]

Problems of the many search-oriented Web-Portals

- How to query … ?
- Description / characterization of the collection unknown

views – visualizations – diagrams

- global characterizations of the collection (coarse navigation)
- stream level diagrams
- person page visualizations

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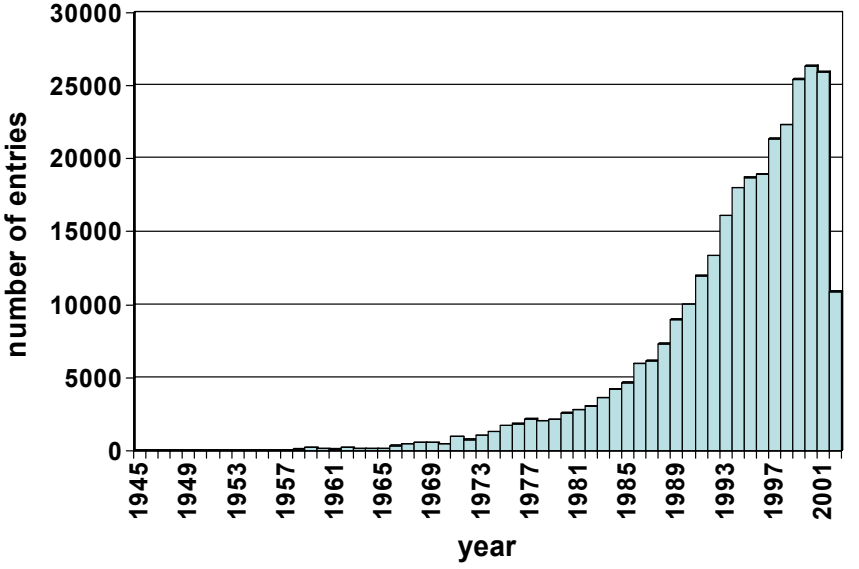
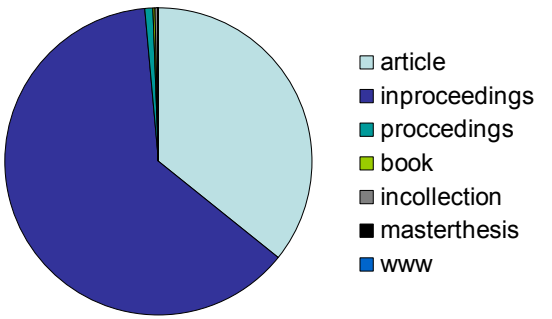
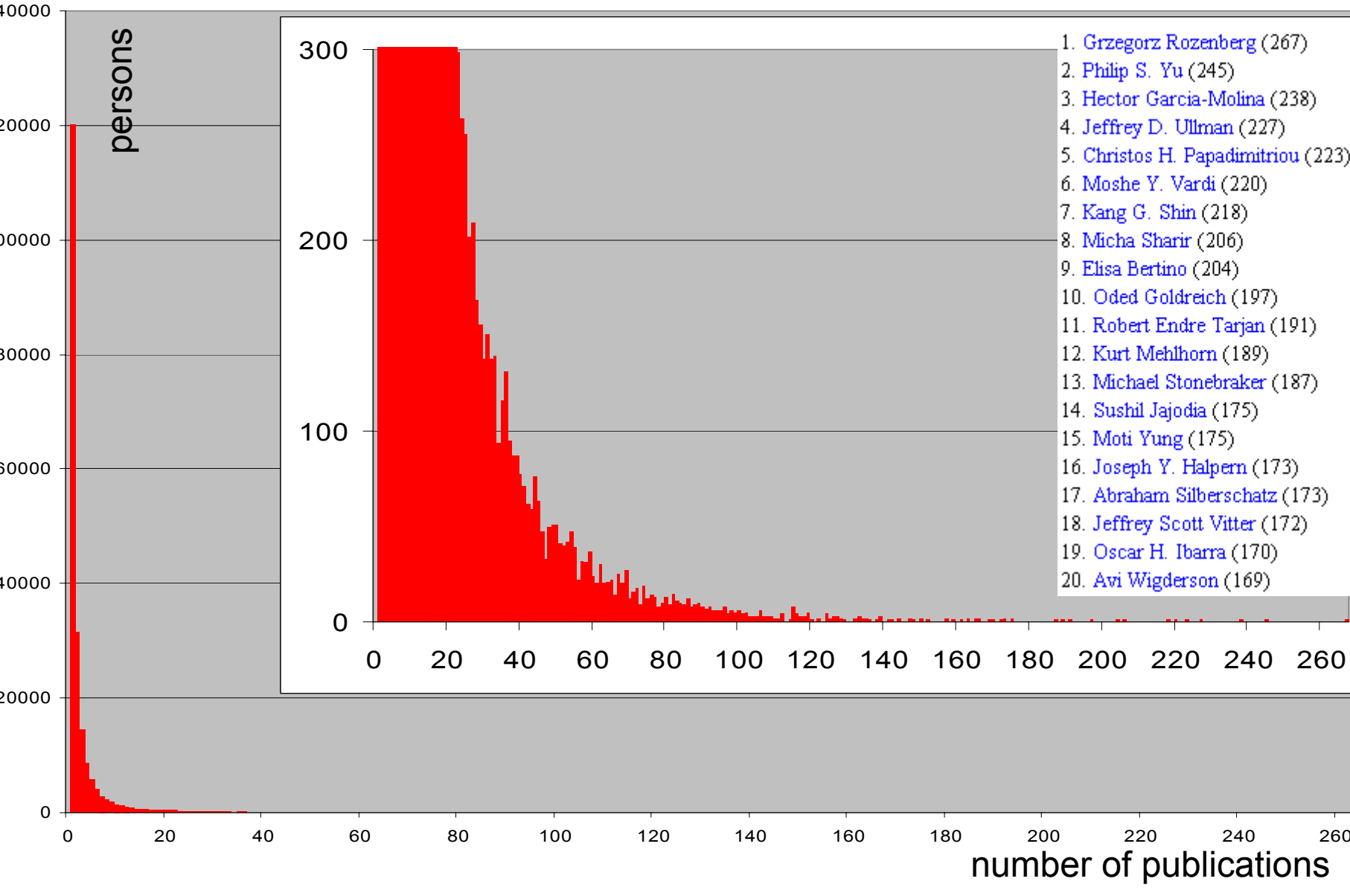
global characterizations …

. CACM (5361)
. TCS (4737)
. IEEE Transactions on Computers (4477)
. Information Processing Letters (4396)
. TSE (2407)
. IEEE Computer (2288)
. JACM (2265)
. The Computer Journal (2098)
. SIAM J. Comput. (2010)
0. Software - Practice and Experience (1988)
1. Artificial Intelligence (1673)
2. Information and Control (1626)
3. JCSS (1595)
4. IEEE Transactions on Pattern Analysis and Machine
5. IEEE Software (1384)
6. JASIS (1271)
7. IEEE Transactions on Parallel and Distributed Syste
8. JSC (1145)
9. IEEE Journal on Selected Areas in Communications
0. Information and Computation (1105)
1. Acta Informatica (1100)
2. IBM Systems Journal (1040)

1. IJCAI (2863)
2. DAC (2478)
3. INFOCOM (2345)
4. ISCAS (2042)
5. FOCS (2037)
6. STOC (1811)
7. AAAI (1747)
8. VLDB (1728)
9. ICALP (1664)
10. Winter Simulation Conference (1483)
11. SIGMOD Conference (1460)
12. ICSE (1454)
13. MFCS (1434)
14. HICSS (1424)
15. ICDE (1390)
16. IFIP Congress (1388)
17. GI Jahrestagung (1318)
18. ICDCS (1187)
19. Int. CMG Conference (1173)
20. DAGM-Symposium (1131)
21. DEXA (1122)
22. SIGIR (1111)






persons
number of publications
0
20000
40000
60000
80000
100000
120000
140000
0
20
40
60
80
100
120
140
160
180
200
220
240
260
300
200
100
0
1. Grzegorz Rozenberg (267)
2. Philip S. Yu (245)
3. Hector Garcia-Molina (238)
4. Jeffrey D. Ullman (227)
5. Christos H. Papadimitriou (223)
6. Moshe Y. Vardi (220)
7. Kang G. Shin (218)
8. Micha Sharir (206)
9. Elisa Bertino (204)
10. Oded Goldreich (197)
11. Robert Endre Tarjan (191)
12. Kurt Mehlhorn (189)
13. Michael Stonebraker (187)
14. Sushil Jajodia (175)
15. Moti Yung (175)
16. Joseph Y. Halpern (173)
17. Abraham Silberschatz (173)
18. Jeffrey Scott Vitter (172)
19. Oscar H. Ibarra (170)
20. Avi Wigderson (169)

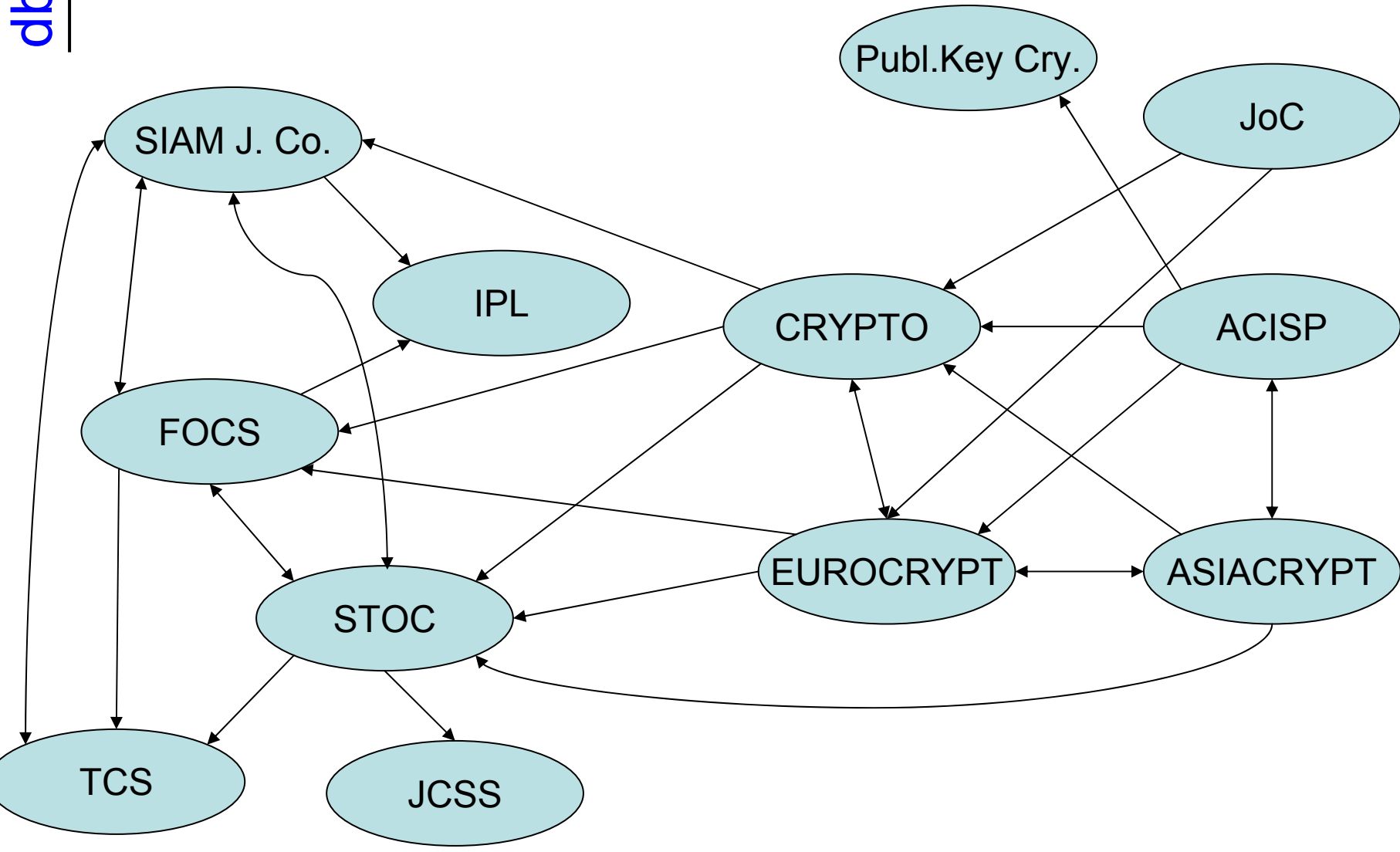
Classification

- ACM CR System
  - classifications only avalable for small subset of computer science literature
  - often criticized as too inflexible / too coarse
- intellectual classification (on the paper level) is too expensive

Clustering on stream level

related conferences or journals:

- in which other streams did the authors of this stream publish most frequently ?
- todo:
  - what is „most frequently“?
  - what is the neighborbood of a stream ?
  - ...


Publ.Key Cry.
JoC
SIAM J. Co.
IPL
CRYPTO
ACISP
FOCS
EUROCRYPT
ASIACRYPT
STOC
TCS
JCSS

Thank you for your attention

„Porta Nigra“ – the most famous landmark of Trier

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