Text, Tags and Thumbnails:
Latest Trends in Bioscience Literature Search

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UC Berkeley

Special Libraries Association
Pharmaceutical & Health Technologies Division Spring Meeting
March 22, 2009

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NSF DBI-0317510 and a gift from Genentech

Tutorial Outline

- Fundamentals of User Interface Design
- Search Interfaces
  - Faceted navigation
  - Specific to bioscience literature
    - Term suggestions
    - Showing figures in search results
- Social Tagging

Let’s get acquainted

Fundamentals of UI Design

Principles of HCI (Human-Computer Interaction)

- Design for the user
  - AKA: user-centered design
  - Not for the designers
  - Not for the system

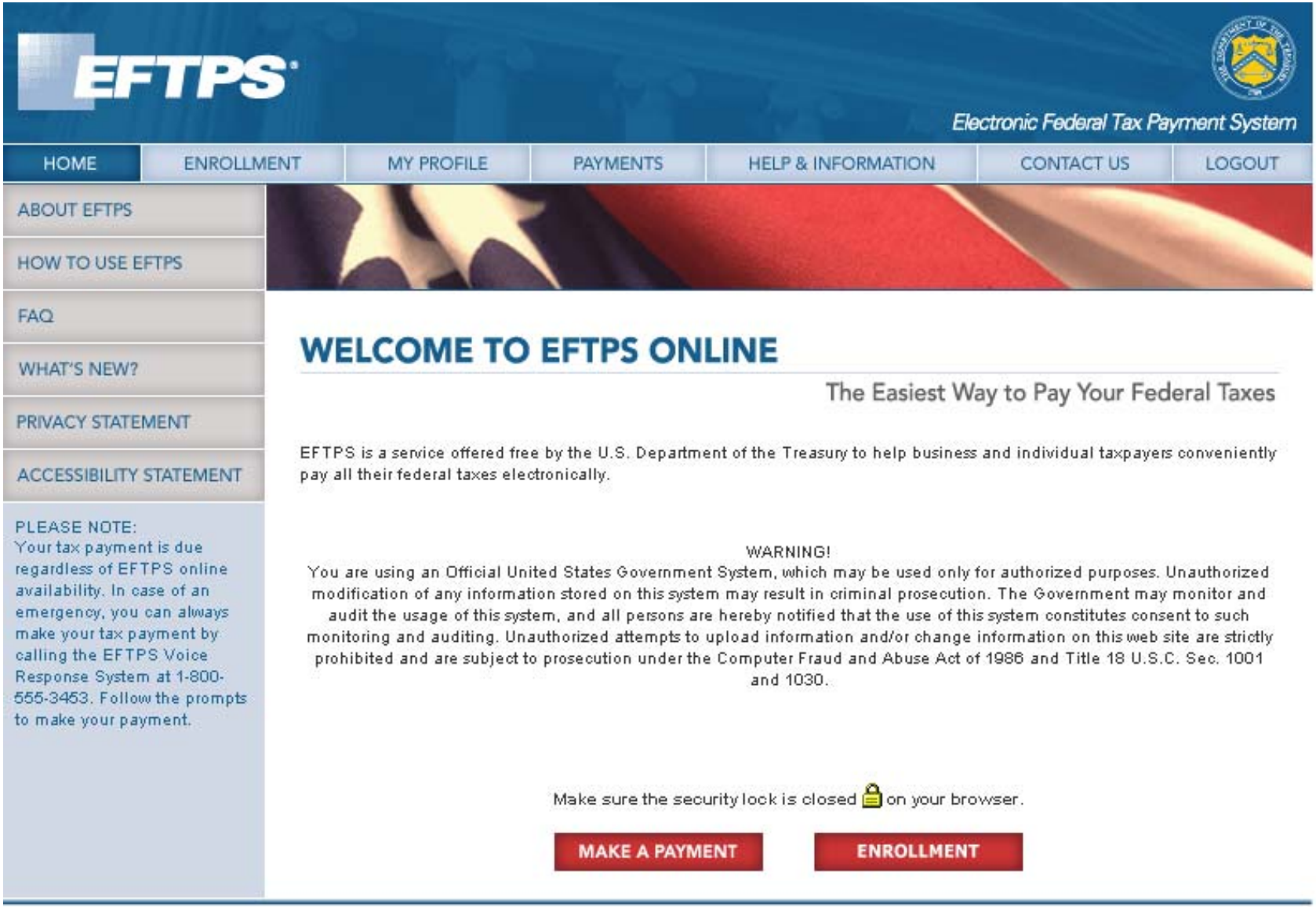
- Make use of cognitive principles where available
  - Important guidelines for search:
    - Reduce memory load
    - Speak the user's language
    - Provide helpful feedback
    - Respect perceptual principles

What makes for a good/bad user experience?

Your examples?

My (subtle) example

Paying my taxes online, March 2009.


EFTPS
Electronic Federal Tax Payment System
HOME
ENROLLMENT
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PAYMENTS
HELP & INFORMATION
CONTACT US
LOGOUT
ABOUT EFTPS
HOW TO USE EFTPS
FAQ
WHAT'S NEW?
PRIVACY STATEMENT
ACCESSIBILITY STATEMENT
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WELCOME TO EFTPS ONLINE
The Easiest Way to Pay Your Federal Taxes
EFTPS is a service offered free by the U.S. Department of the Treasury to help business and individual taxpayers conveniently pay all their federal taxes electronically.
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Home
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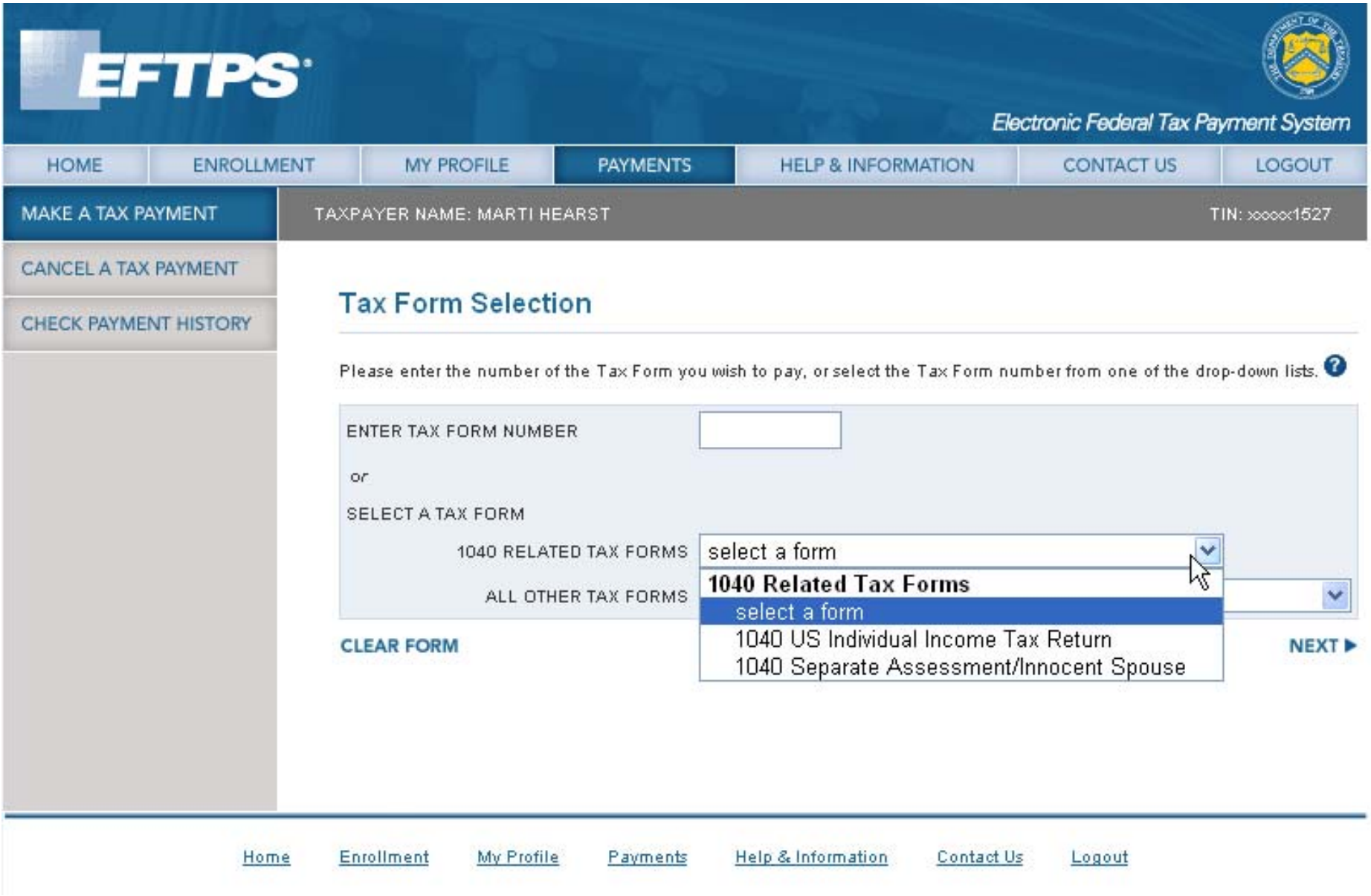
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LOGOUT
MAKE A TAX PAYMENT
CANCEL A TAX PAYMENT
CHECK PAYMENT HISTORY
TAXPAYER NAME: MARTI HEARST
TIN: xxxxx1527
Tax Form Selection
Please enter the number of the Tax Form you wish to pay, or select the Tax Form number from one of the drop-down lists.
ENTER TAX FORM NUMBER
or
SELECT A TAX FORM
1040 RELATED TAX FORMS
select a form
ALL OTHER TAX FORMS
1040 Related Tax Forms
select a form
1040 US Individual Income Tax Return
1040 Separate Assessment/Innocent Spouse
CLEAR FORM
NEXT
Home
Enrollment
My Profile
Payments
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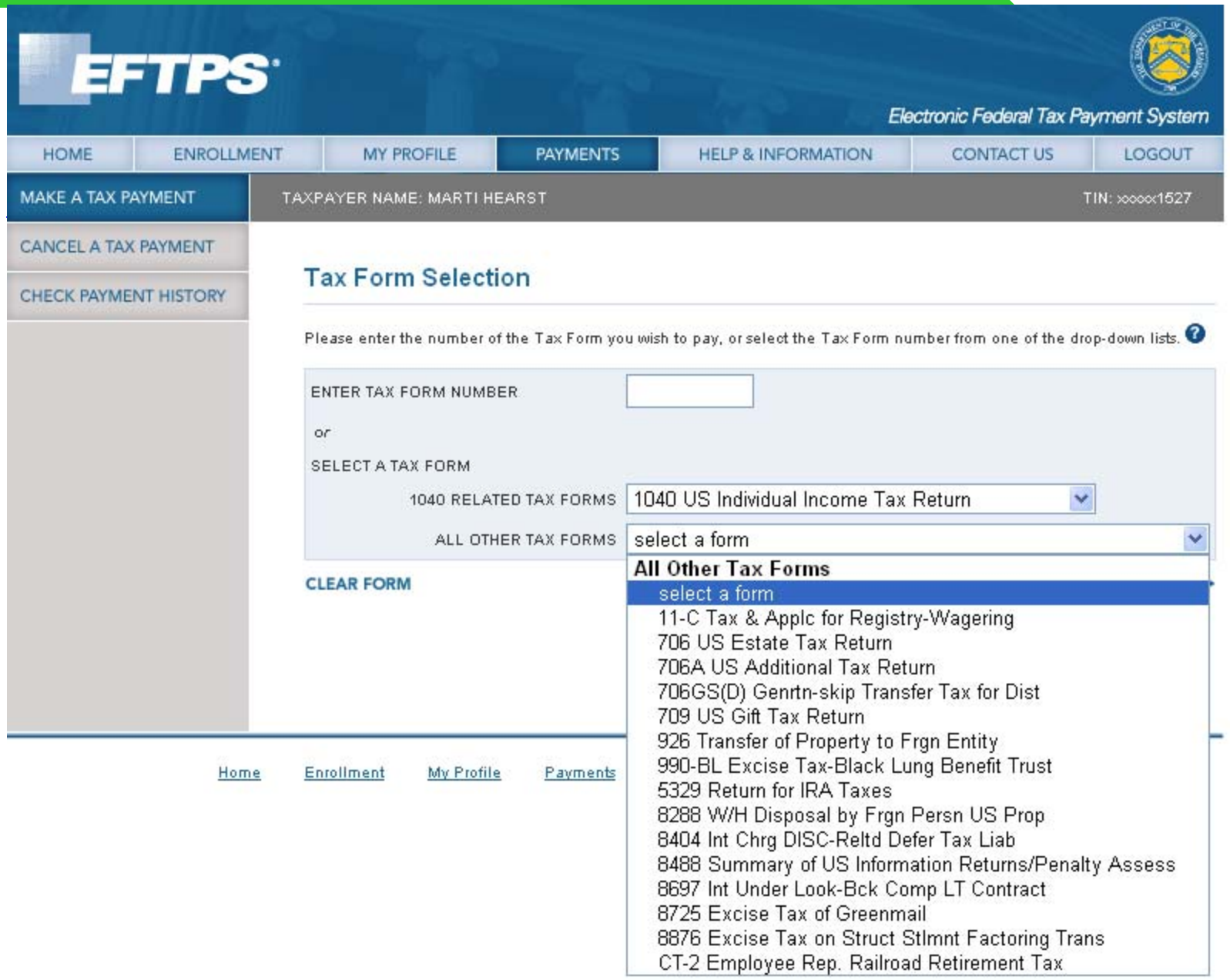
Logout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MY PROFILE
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MAKE A TAX PAYMENT
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CHECK PAYMENT HISTORY
TAXPAYER NAME: MARTI HEARST
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Tax Form Selection
Please enter the number of the Tax Form you wish to pay, or select the Tax Form number from one of the drop-down lists.
ENTER TAX FORM NUMBER
or
SELECT A TAX FORM
1040 RELATED TAX FORMS
1040 US Individual Income Tax Return
ALL OTHER TAX FORMS
select a form
CLEAR FORM
All Other Tax Forms
select a form
11-C Tax & Applc for Registry-Wagering
706 US Estate Tax Return
706A US Additional Tax Return
706GS(D) Genrtn-skip Transfer Tax for Dist
709 US Gift Tax Return
926 Transfer of Property to Frgn Entity
990-BL Excise Tax-Black Lung Benefit Trust
5329 Return for IRA Taxes
8288 W/H Disposal by Frgn Persn US Prop
8404 Int Chrg DISC-Reltd Defer Tax Liab
8488 Summary of US Information Returns/Penalty Assess
8697 Int Under Look-Bck Comp LT Contract
8725 Excise Tax of Greenmail
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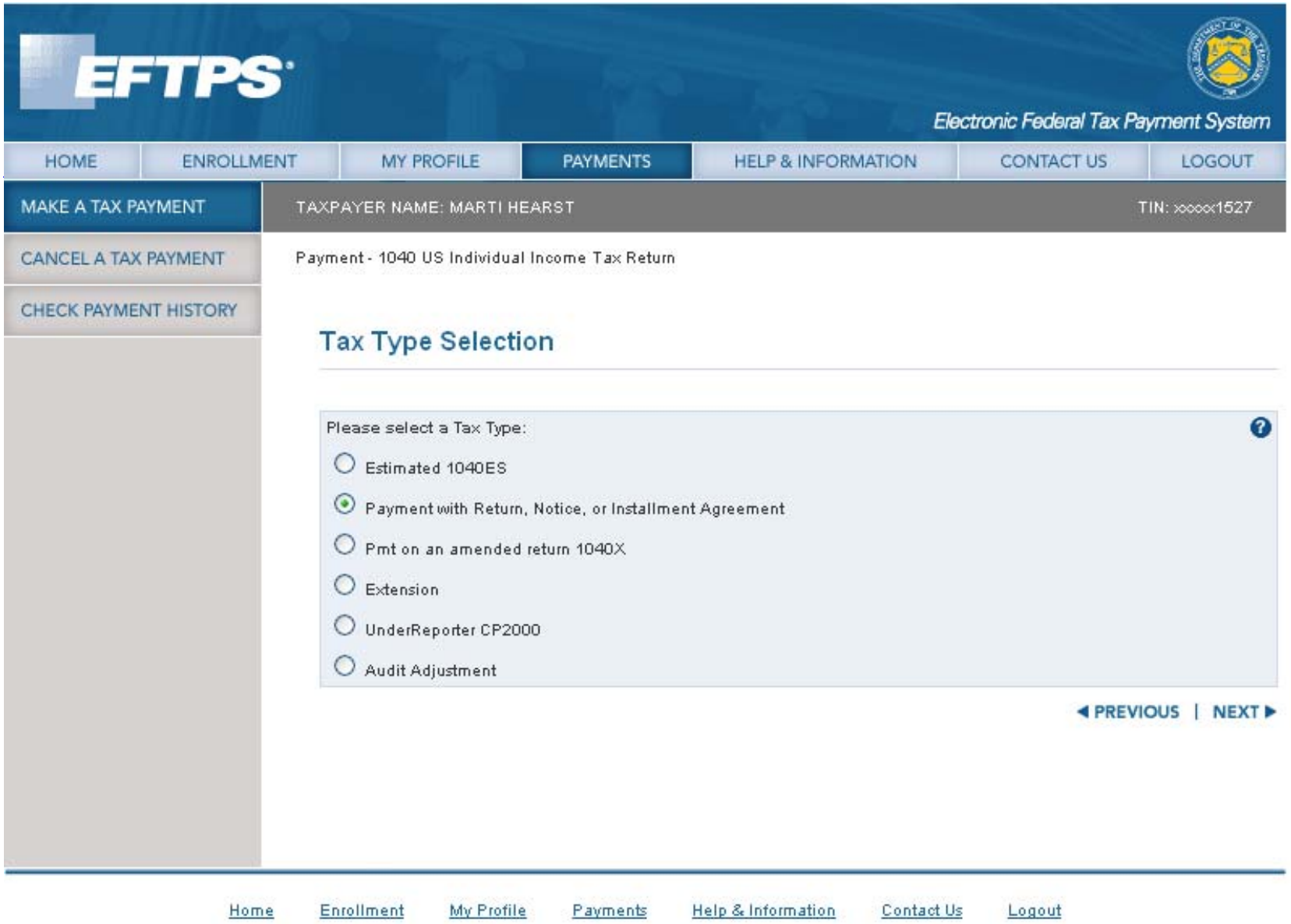
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MAKE A TAX PAYMENT
CANCEL A TAX PAYMENT
CHECK PAYMENT HISTORY
TAXPAYER NAME: MARTI HEARST
TIN: xxxxx1527
Payment - 1040 US Individual Income Tax Return
Tax Type Selection
Please select a Tax Type:
Estimated 1040ES
Payment with Return, Notice, or Installment Agreement
Pmt on an amended return 1040X
Extension
UnderReporter CP2000
Audit Adjustment
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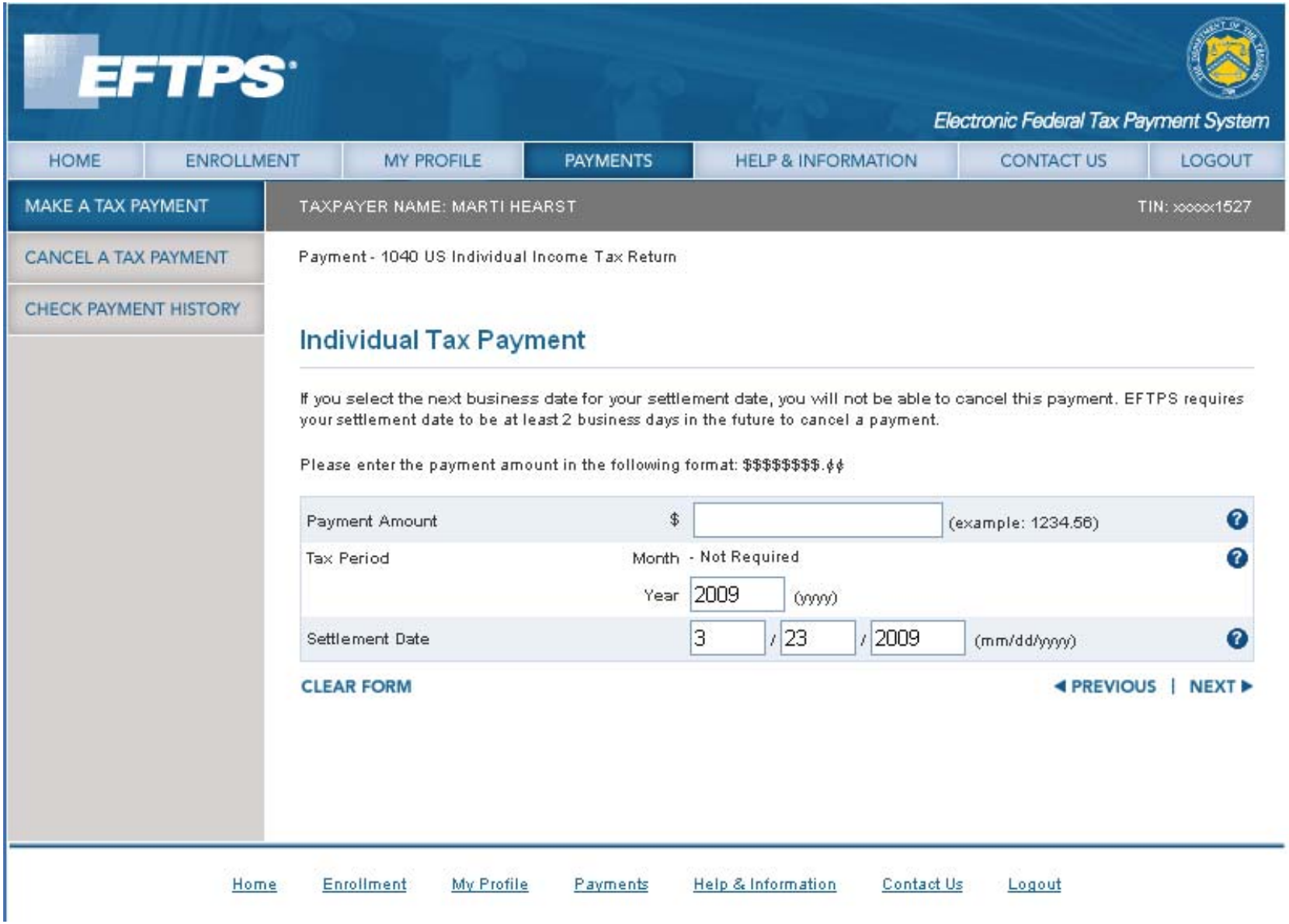
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CONTACT US
LOGOUT
MAKE A TAX PAYMENT
CANCEL A TAX PAYMENT
CHECK PAYMENT HISTORY
TAXPAYER NAME: MARTI HEARST
TIN: xxxxx1527
Payment - 1040 US Individual Income Tax Return
Individual Tax Payment
If you select the next business date for your settlement date, you will not be able to cancel this payment. EFTPS requires your settlement date to be at least 2 business days in the future to cancel a payment.
Please enter the payment amount in the following format: $$$$$$$$.¢¢
Payment Amount
$
(example: 1234.56)
Tax Period
Month - Not Required
Year
2009
(yyyy)
Settlement Date
3
/
23
/
2009
(mm/dd/yyyy)
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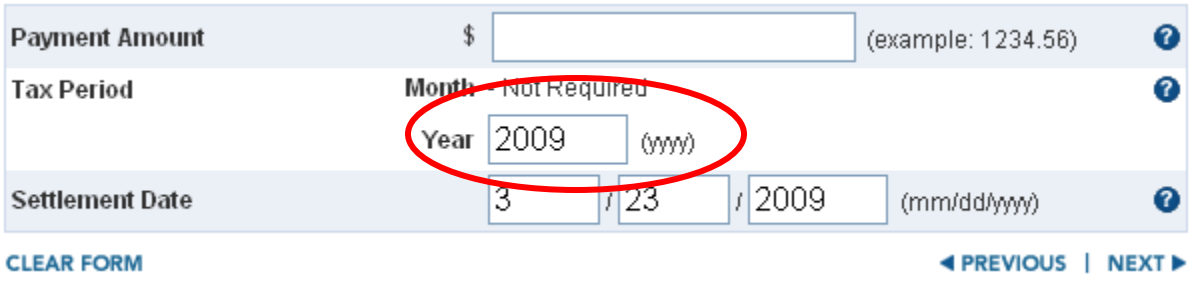
Problems

- Biggest problem: I will pay taxes for the wrong year, requiring a very costly repair.
  - They have a special option in the phone tree for this error (proof of a usability problem!)
- Other problems:
  - What does this mean? What do I do?
  - Why a 

ose from, and what

Problems

- Biggest problem: I will pay taxes for the wrong year, requiring a very costly repair.
  - They have a special option in the phone tree for this error (proof of a usability problem!)
    - Yes; I made this error last year and it still isn't fixed!
  - Violates: avoid errors, provide good defaults

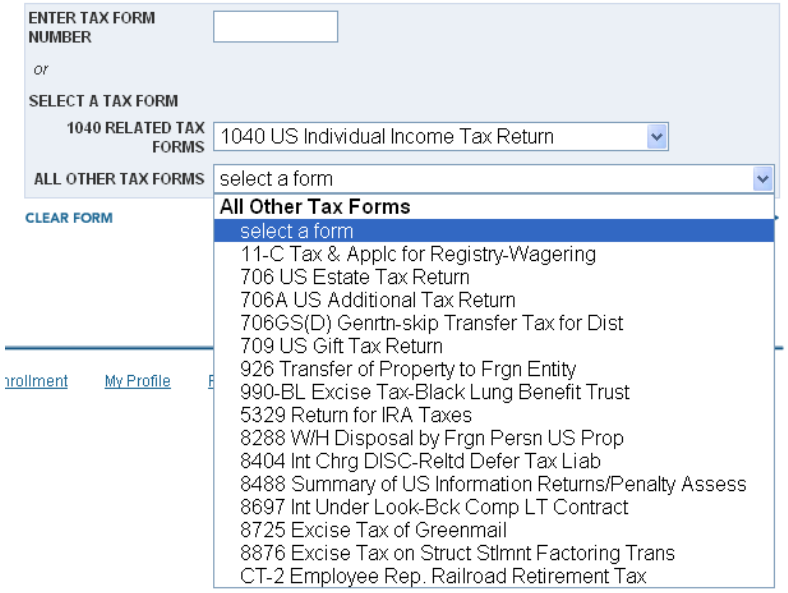


Problems

- What does this mean? What do I do?
- Violates:
  - Speak the user's language
  - Provide help.

Problems

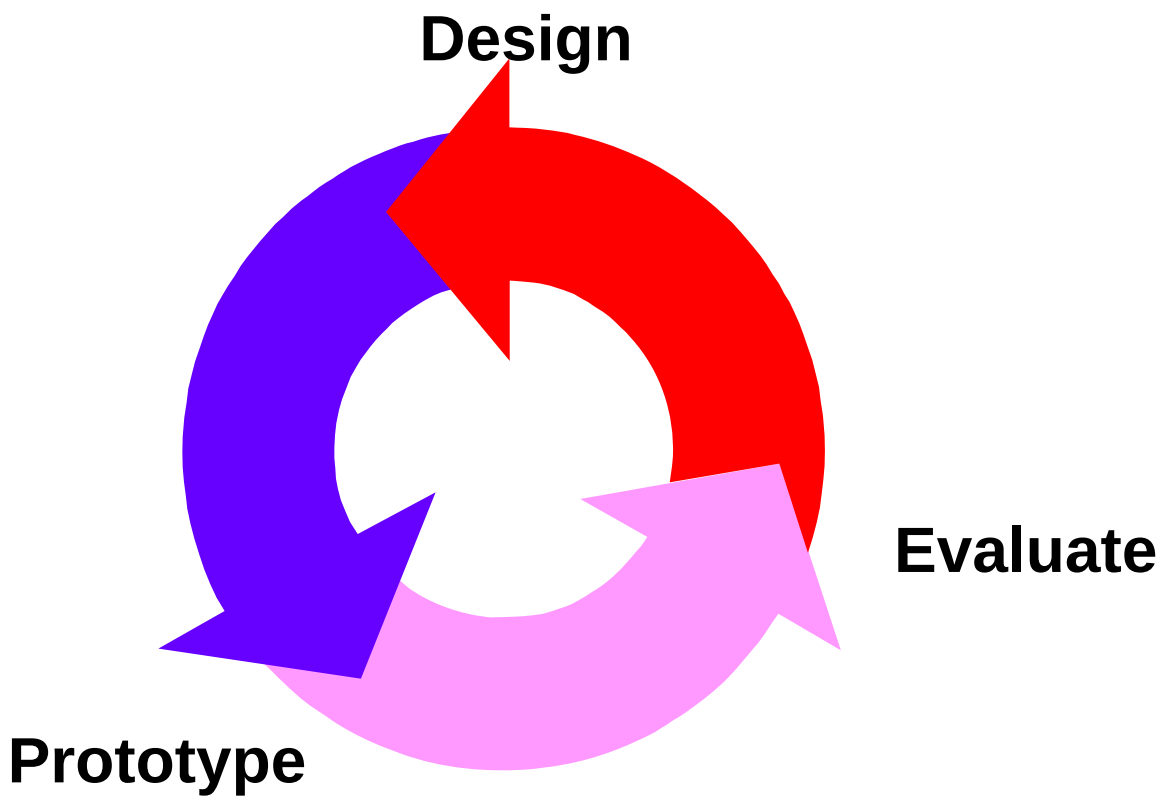
- Which form am I selecting?
- What if my choice is missing?
- Entering in a form number doesn't work.
- Violates:
  - Provide useful labels
  - Match the user's task



User-Centered Design

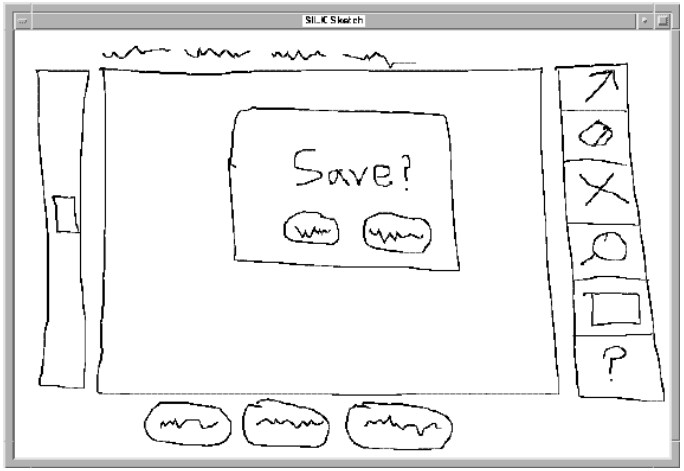
- Needs assessment
  - Find out
    - who users are
    - what their goals are
    - what tasks they need to perform
  - Task Analysis
    - Characterize what steps users need to take
    - Create scenarios of actual use
    - Decide which users and tasks to support
- Iterate between
  - Designing
  - Evaluating

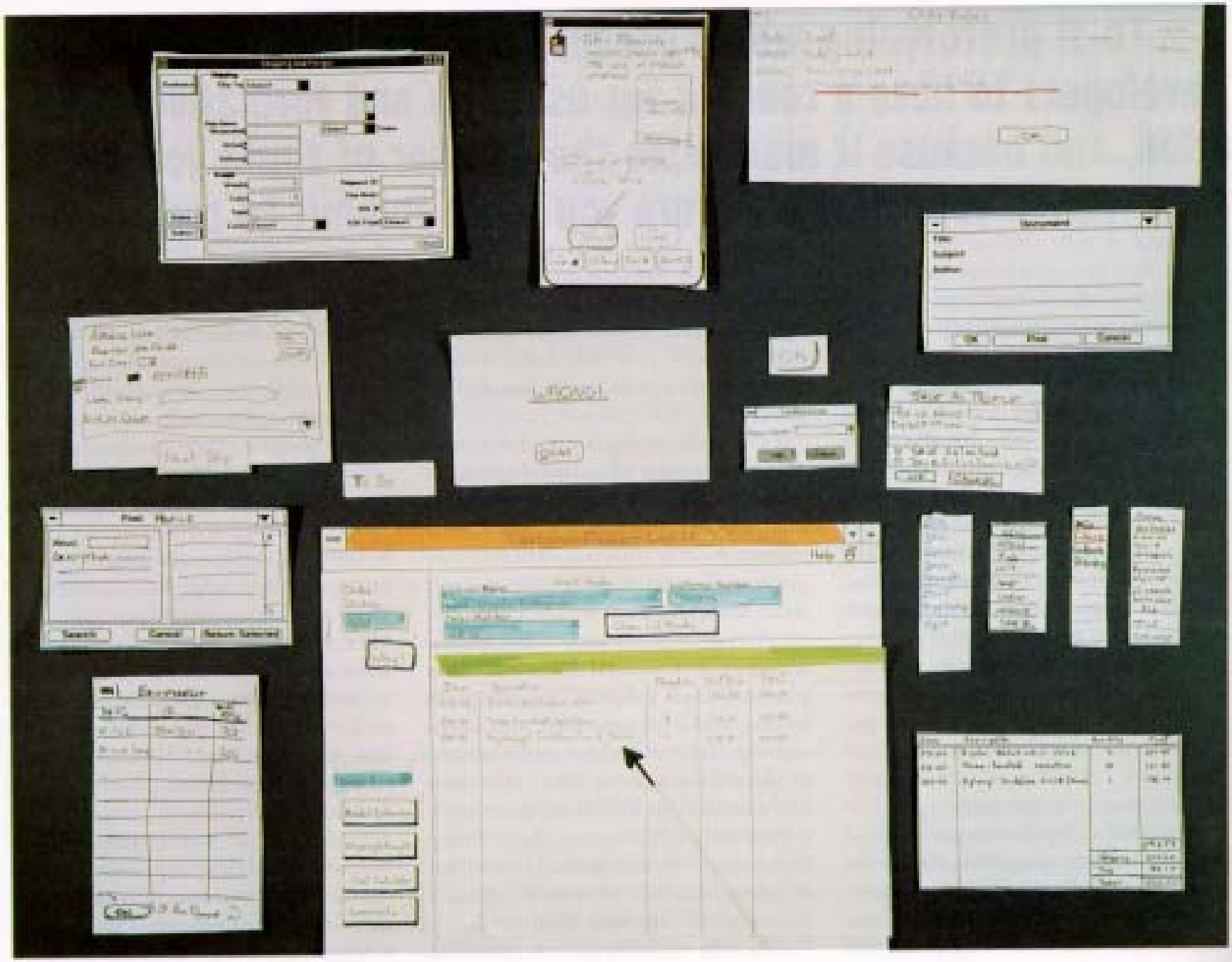
User Interface Design is an Iterative Process



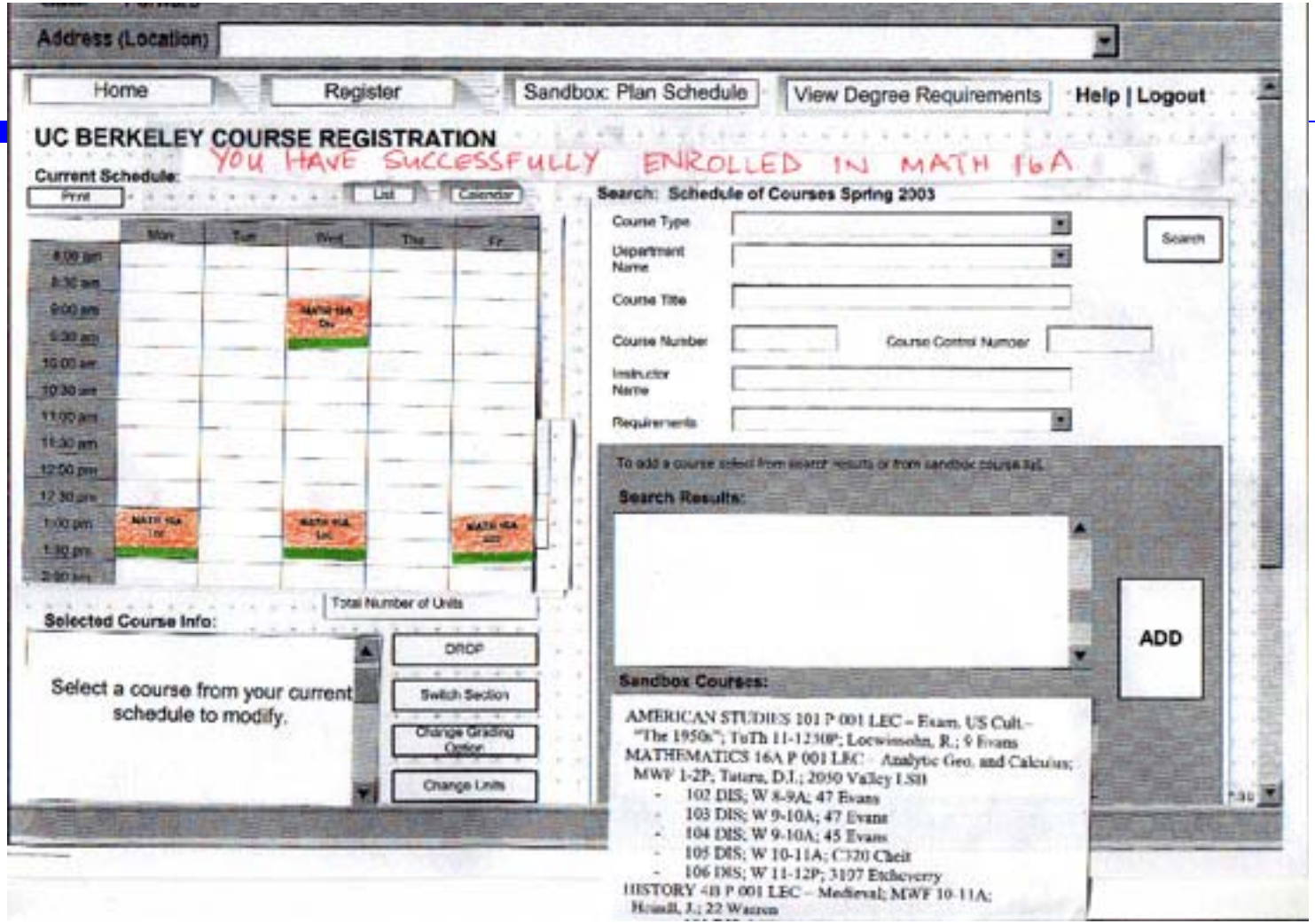
Rapid Prototyping

- Build a mock-up of design
- Low fidelity techniques
  - paper sketches
  - cut, copy, paste
  - video segments





Telebears example



Telebears example: Task 4: Adding a course

Why Do Prototypes?

- Get feedback on the design faster
- Experiment with alternative designs
- Fix problems before code is written
- Keep the design centered on the user

Evaluation

- Test with real users (participants)
  - Formally or Informally
- "Discount" techniques
  - Potential users interact with paper computer
  - Expert evaluations (heuristic evaluation)
  - Expert walkthroughs

Design Guidelines

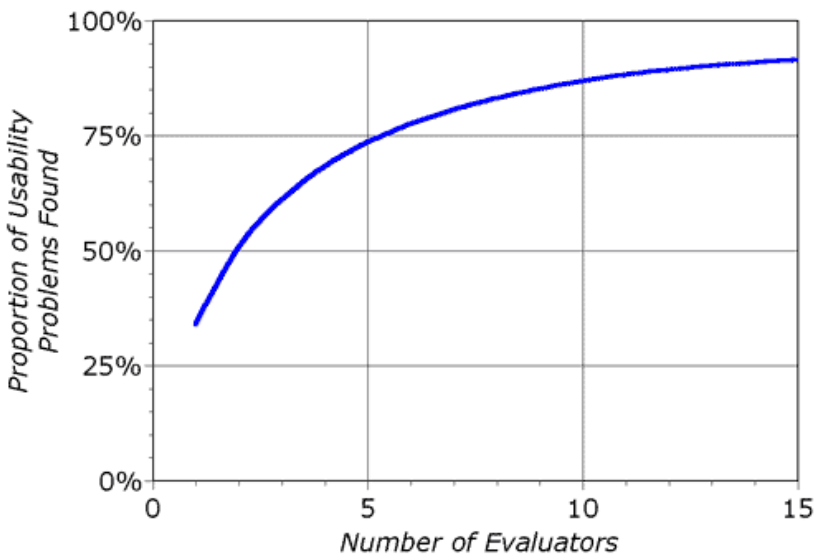
- What are they?
  - Rules of thumb for how to design
  - Bloopers book has many recommendations
- Examples:
  - Provide informative feedback
  - Support recognition over recall
  - Provide for user control and understanding
- Heuristic Evaluation:
  - An expert measures the mock-ups against well-known design guidelines.

Results of Using Heuristic Evaluation

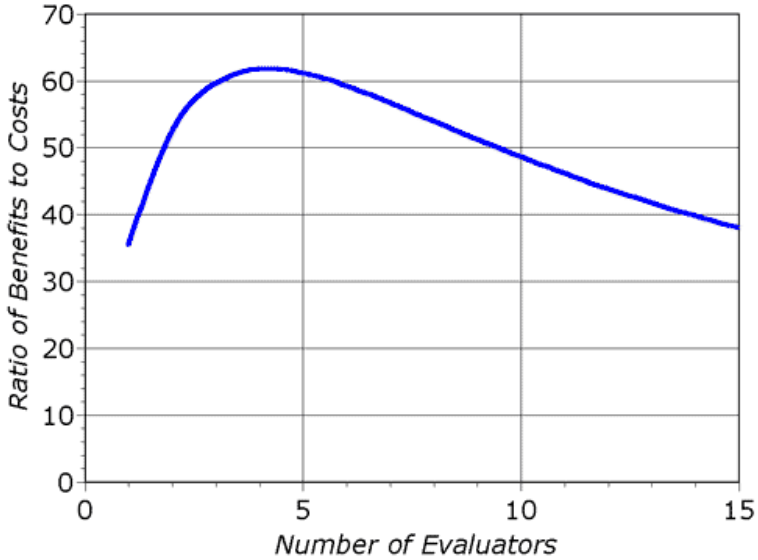
- Single evaluator achieves poor results
  - only finds 35% of usability problems
  - 5 evaluators find ~ 75% of usability problems
  - why not more evaluators? 10? 20?
    - adding evaluators costs more
    - adding more evaluators doesn't increase the number of unique problems found

Decreasing Returns

problems found



benefits / cost

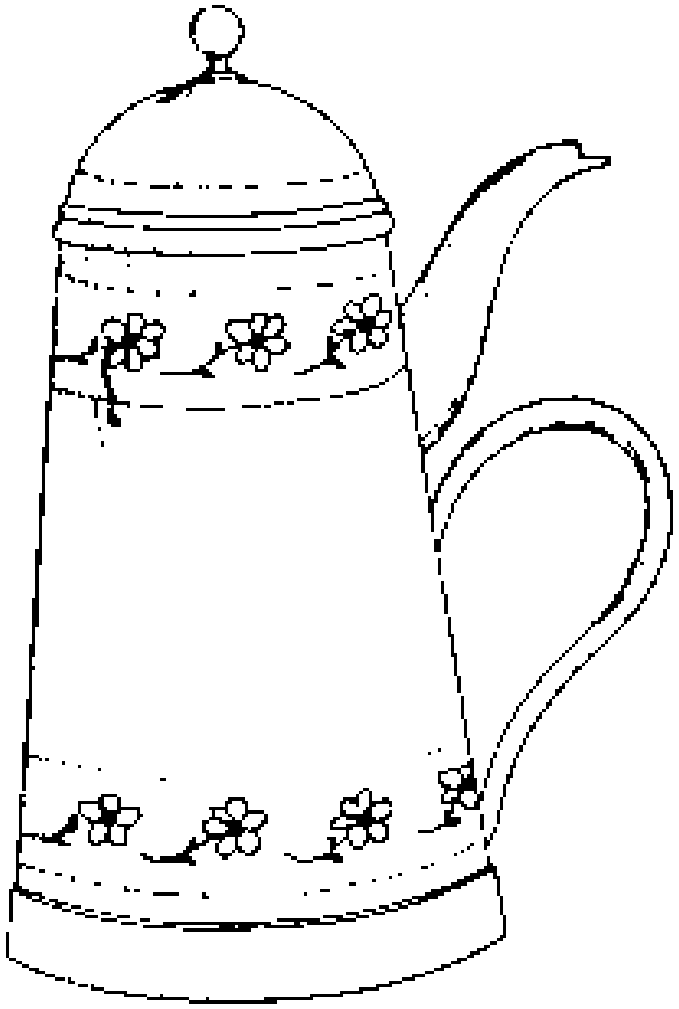


- (from Nielsen)
- Caveat: these graphs are for a specific example
- This is a controversial point.

Affordances

- The perceived properties of an object that determine how it can be used. (Don Norman)
  - Knobs are for turning.
  - Buttons are for pushing.
- Some affordances are obvious, some learned
  - Glass can be seen through.
  - Glass breaks easily.
- Sometimes visual plus physical feedback
  - Floppy disk example
    - Rectangular – can't insert sideways
    - Tabs on the disk prevent the drive from letting it be fully inserted backwards

Affordances of a Teapot?



Affordances of an iPod?

Small Details Matter

- UIs for search especially require great care in small details
  - In part due to the text-heavy nature of search
  - A tension between more information and introducing clutter
- How and where to place things is important
  - People tend to scan or skim
  - Only a small percentage reads instructions

Small Details Matter

Example:

- In an earlier version of the Google Spellchecker, people didn't always see the suggested correction
  - Used a long sentence at the top of the page:

"If you didn't find what you were looking for …"

  - People complained they got results, but not the right results.
  - In reality, the spellchecker had suggested an appropriate correction.

Small Details Matter

- The fix:
  - Analyzed logs, saw people didn't see the correction:
    - clicked on first search result,
    - didn't find what they were looking for (came right back to the search page
    - scrolled to the bottom of the page, did not find anything
    - and then complained directly to Google
  - Solution was to repeat the spelling suggestion at the bottom of the page.
- More adjustments:
  - The message is shorter, and different on the top vs. the bottom

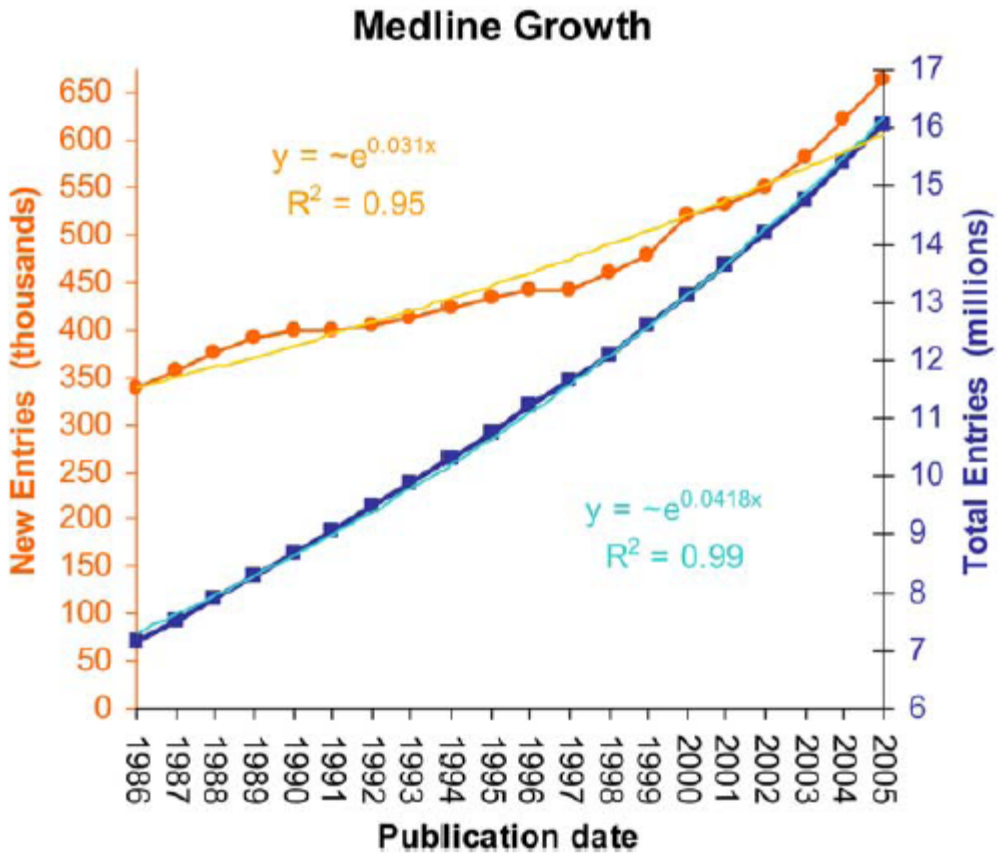
Interview with Marissa Mayer by Mark Hurst:
http://www.goodexperience.com/columns/02/1015google.html

Time for a Break!

Searching Bioscience Literature

Double Exponential Growth in Bioscience Journal Articles

From Hunter & Cohen, Molecular Cell 21, 2006



BioText Project Goals

- Provide flexible, useful, appealing search for bioscientists.
- Focus on:
  - Full text journal articles
  - New language analysis algorithms
  - New search interfaces
- Supported by the NSF
  - http://biotext.berkeley.edu

The Importance of Figures and Captions

- Observations of biologists' reading habits:
  - It has often observed that biologists focus on figures+captions along with title and abstract.

- KDD Cup 2002
  - The objective was to extract only the papers that included experimental results regarding expression of gene products and
  - to identify the genes and products for which experimental results were provided.
  - ClearForest+Celera did well in part by focusing on figure captions, which contain critical experimental evidence.

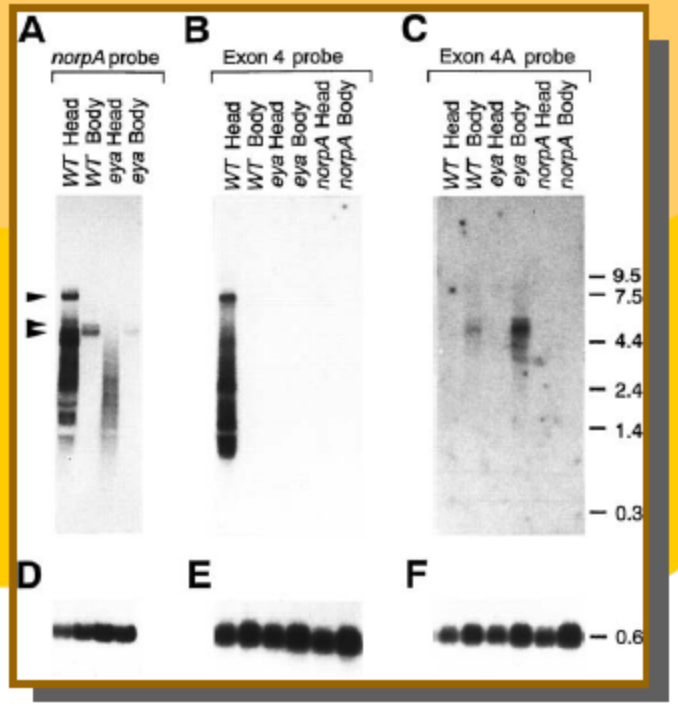
ClearForest

The Figure IS the Result

Molecular Biologists who review these papers, look mainly for the figures!

Example:

This figure (from *R100, in the Training Set) that shows that a specific transcript is present both in the eye and the body.



Obvious highlighted sections (Title and Abstract) are used too.

*Multiple Subtypes of Phospholipase C Are Encoded by the norpA Gene of Drosophila melanogaster
Sunkyu Kim , Richard R. McKay , Karen Miller , Randall D. Shortridge
J. Biol. Chem. 270(24): 14376-82.

Our Idea

- Make a full text search engine for journal articles that focuses on showing figures
- Make it possible to search over caption text (and text that refers to captions)
- Try to group the figures intelligently

Developing the BioText Search Interface

- Main idea: a search interface that meets the unique needs of bioscientists.
- Hypothesis: the articles' figures should be exposed in the interface.
- Process:
  - Did interviews, designed mock-up
  - Made an initial prototype
  - Did a pilot study
  - Used these results to redesign
  - Evaluated the new design
- Results: highly positive responses.

Related Work

- Cohen & Murphy:
  - Parsed structure of image captions
  - Extract facts about subcellular localization
- Yu et al.
  - Created a small image taxonomy; classified images according to these with SVMs
- Yu & Lee:
  - BioEx: Link sentences from an abstract to images in the same paper; show those when displaying a paper.
  - Not focused on a full search interface; can't search over caption text.

Pilot Usability Study

- Primary Goal:
  - Determine whether biological researchers would find the idea of caption search and figure display to be useful or not.
- Secondary Goal:
  - Should caption search and figure display be useful, how best to support these features in the interface.

Method

- Told participants we were evaluating a new search interface
  - (tip: don't say *"our"* interface)
- Asked them to use each design on their own queries
  - (order of presentation was varied)
- Had them fill out a questionnaire after each interface session
- Also had open-ended discussions about the designs

Participants

ID	status	sex	lit search	area(s) of specialization
1	undergrad	F	monthly	organic chemistry
2	graduate	F	weekly	genetics / molecular bio.
3	other	F	rarely	medical diagnostics
4	postdoc	M	weekly	neurobiology, evolution
5	graduate	F	daily	evolutionary bio., entomology
6	undergrad	F	weekly	molecular bio., biochemistry
7	undergrad	F	monthly	cell developmental bio.
8	postdoc	M	daily	molecular / developmental bio.

Captions + Figure View

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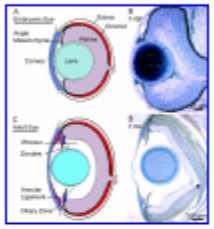
zebrafish (List / Grid / Groups) Search

215 results found << Previous | Page 1 of 11 | Next >>



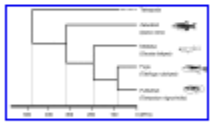
Overlay | New Window

Morphogenesis of the anterior segment in the zebrafish eye. Kelly A Soules, Brian A Link. BMC Developmental Biology. 28 Jun 2005.

Figure 2. Comparison of embryonic and adult zebrafish eyes. Diagram of embryonic (A) and adult (C) zebrafish eyes. Histology of 3 dpf embryonic (B) and 1 month adult (D) eyes.

PMID: 15985175 (All figures in this article)

Figure Type: uncategorized



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Evolution and origin of vomeronasal-type odorant receptor gene repertoire in fishes. Yasuyuki Hashiguchi, Mutsumi Nishida. BMC Evolutionary Biology. 3 Oct 2006.

Figure 1. Phylogenetic relationship and estimated divergence times [25] of zebrafish, medaka, fugu, and pufferfish.

PMID: 17014738 (All figures in this article)

Figure Type: uncategorized

A Center of a Different Stripe. Julia R. Barrett. Environmental Health

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zebrafish | List | Grid | Groups | Search

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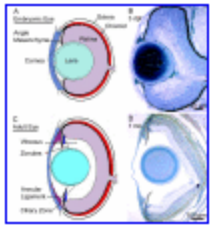

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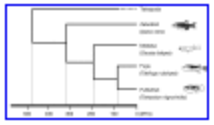

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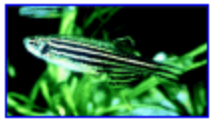

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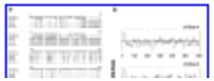
A Center of a Different Stripe. Julia R. Barrett. Environmental Health Perspectives. 31 Dec 1969.

Small wonder. The tiny zebrafish is proving to be a giant advantage to researchers studying neurotoxicity and development in humans.

PMID: 15756770 (All figures in this article)

Figure Type: uncategorized



D-glucuronyl C5-epimerase acts in dorso-ventral axis formation in zebrafish. Giancarlo Ghiselli, Steven A Farber. BMC Developmental Biology. 12 Sep 2005.

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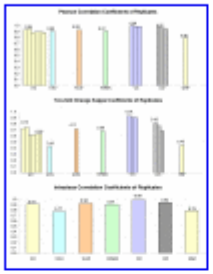
authors:Liu,Lei

List Grid Groups Search

20 results found



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A study of inter-lab and inter-platform agreement of DNA microarray data.
Huixia Wang, Xuming He, Mark Band, Carole Wilson, Lei Liu. BMC Genomics. 11 May 2005.

Figure 1. Consistency of replicates.

PMID: 15888200 (All figures in this article)

Figure Type: uncategorized

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A study of inter-lab and inter-platform agreement of DNA microarray data.
Huixia Wang, Xuming He, Mark Band, Carole Wilson, Lei Liu. BMC Genomics. 11 May 2005.

Figure 2. Correlation coefficients for pairwise comparisons between data sets.

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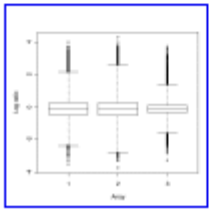

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Huixia Wang, Xuming He, Mark Band, Carole Wilson, Lei Liu. BMC Genomics. 11 May 2005.

Figure 3. Boxplot of the full data set of CO, with 7,282 Unigene IDs.

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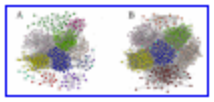

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Exploring photosynthesis evolution by comparative analysis of metabolic networks between chloroplasts and photosynthetic bacteria. Zhuo Wang, Xin-Guang Zhu, Yazhu Chen, Yuanyuan Li, Jing Hou, Yixue Li, Lei Liu. BMC Genomics. 30 Apr 2006.

Figure 4. Conserved and different modules in metabolic network between chloroplasts and Synechococcus sp. WH8102 (syw). The modular structures of enzyme-centric networks for chloroplasts and syw are shown in (A) and (B) respectively. Each module is represented by a specific color. The five pairs of modules with same color are conserved modules between chloroplast and syw, among which the yellow, green and blue modules correspond to amino-acid metabolism, the light-orange and pink modules belong to carbohydrate metabolism and nucleotide metabolism respectively. The picture was drawn using the Pajek program.

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Exploring photosynthesis evolution by comparative analysis of metabolic networks between chloroplasts and photosynthetic bacteria. Zhuo Wang, Xin-Guang Zhu, Yazhu Chen, Yuanyuan Li, Jing Hou, Yixue Li, Lei Liu. BMC Genomics. 30 Apr 2006.

Figure 5. The Calvin Cycle pathway and its hypergraph representation.(A) The metabolic scheme of the Calvin Cycle, derived from the Database of Chloroplast/Photosynthesis Related Genes. (B) An example of hypergraph representation of biochemical reactions. (C) Graph visualization of the Calvin Cycle pathway in (A), where the red nodes and yellow nodes represent enzymes and compounds respectively. ATP, ADP, H2O, H+, NAD+, NADP+, NADH, NADPH, Orthophosphate and Pyrophosphate have been omitted.

PMID: 16646993 (All figures in this article)

Figure Type: photo

ESTIMA, a tool for EST management in a multi-project environment. Charu G Kumar, Richard LeDuc, George Gong, Levan Roinishivili, Harris A Lewin, Lei Liu. BMC Bioinformatics. 4 Nov 2004.

Figure 1. ESTIMA is organized around three major components. A single installation of the ESTIMA web application can provide a front-end for any number of projects; in this case, three different projects are shown. The web

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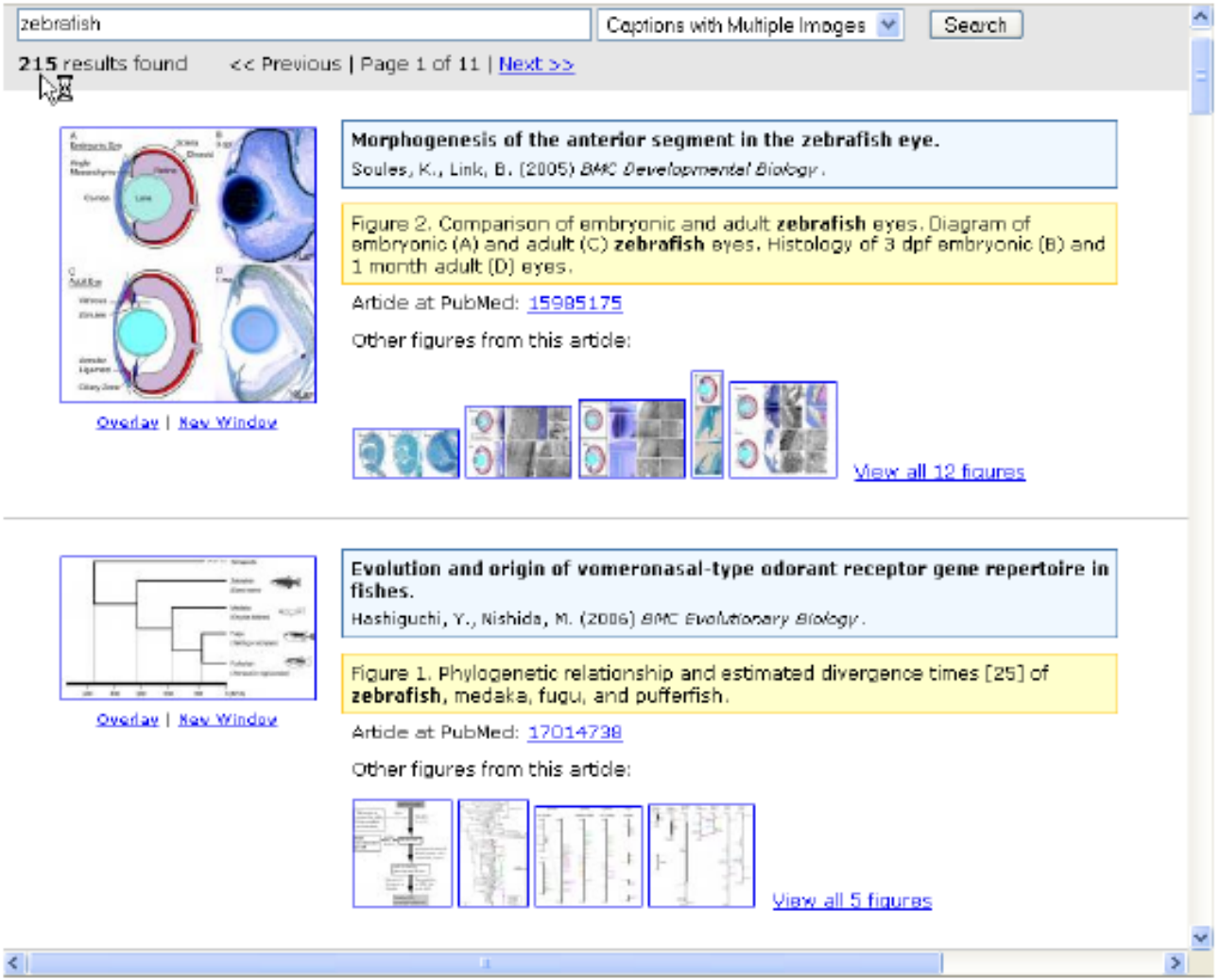

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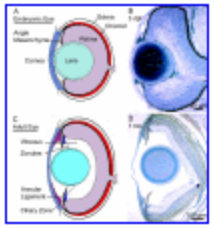

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Figure 2. Comparison of embryonic and adult zebrafish eyes. Diagram of embryonic (A) and...

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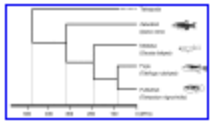

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Figure 1. Phylogenetic relationship and estimated divergence times [25] of zebrafish,...

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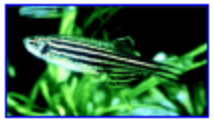

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Small wonder. The tiny zebrafish is proving to be a giant advantage to researchers...

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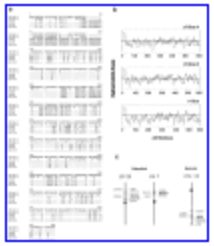

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Figure 1. Cloning and structural analysis of zebrafish glce. (a) Alignment of Glce from...

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The inside scoop. Because zebrafish development occurs externally and the embryo is...

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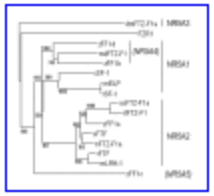

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Figure 2. NR5A sequence similarity analysis displayed in a radial tree. Clades...

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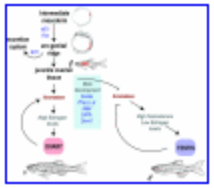

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Figure 5. A generalized model of the involvement of different genes in zebrafish sex...

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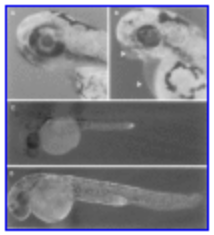

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Fig. 6.. GFP expression in TNF-GFP transgenic zebrafish under the fluorescence...

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Figure 5. Chromosomal assignment of zebrafish grn genes. Zebrafish grna is located close...

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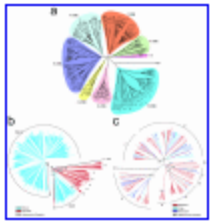

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Figure 2. Phylogeny of zebrafish and other vertebrate OR families. (a) Phylogeny of...

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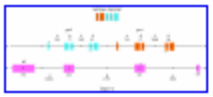

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Figure 3. Genomic organization of zebrafish grn1, grn2 and their complementary antisense...

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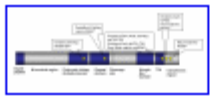

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Figure 4. A schematic picture of the PMEL17 protein with domains and known mutations....

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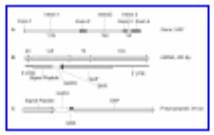

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Figure 2. A) Schematic intron-exon diagram of the zebrafish gnrh3 gene The exons and...

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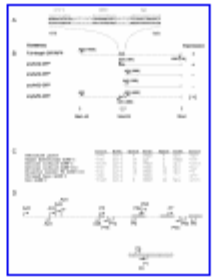

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Figure 4. GnRH tissue specific enhancer and promoter constructs A) The in silico...

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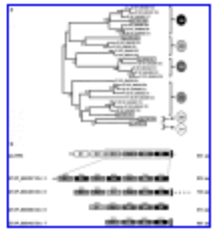

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Fig. 7. Annotation of zebrafish LITR-like proteins. a Phylogenetic analysis of ZfLITR...

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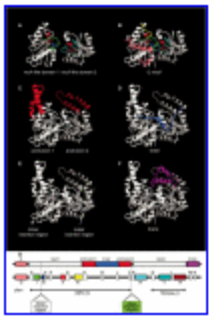

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Figure 3. Conserved blocks contribute to distinctive structural features of Snf2 family...

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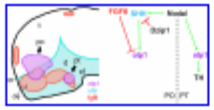

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Figure 11. Schematic representation of the spatial and functional links between otp1...

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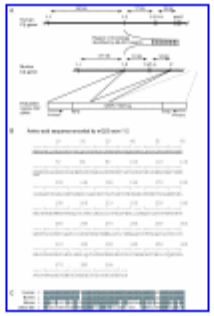

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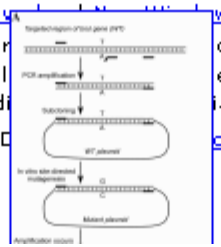

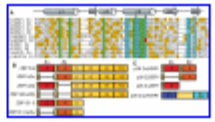

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Figure 1. Comparison of Zα domains (A) and schematic representation of constructs used...

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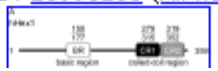

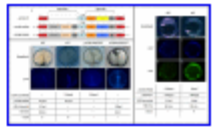

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Figure 1. Schematic representation of Gal4/Vp16-UAS expression vectors (A), comparison...

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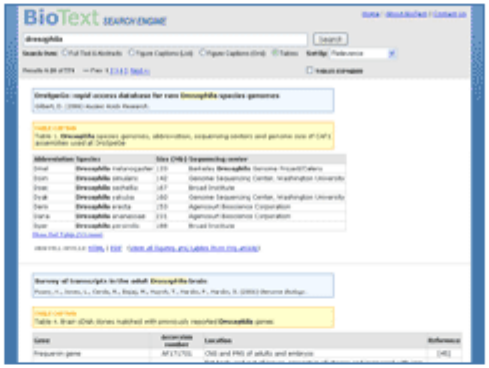

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Proteomics of early zebrafish embryos

Link, V., Shevchenko, A., Heisenberg, C. (2006) *BMC Developmental Biology*.

ABSTRACT

Zebrafish (D. rerio) has become a powerful and widely used model system for the analysis of vertebrate embryogenesis and organ development. While genetic methods are readily available in **zebrafish**, protocols for two dimensional (2D) gel electrophoresis and proteomics have yet to be developed. As a prerequisite to carry out proteomic experiments with early **zebrafish** embryos, we developed a method to efficiently remove the yolk from large batches of embryos. This method enabled high resolution 2D gel electrophoresis and improved Western blotting considerably. Here, we provide detailed protocols for proteomics in **zebrafish** from sample... Show Full Abstract

FULL-TEXT EXCERPTS

...Background The **zebrafish** has become a widely used vertebrate model system for which a large tool-box of genetic and cell biological methods has been established [1,2]. Research using **zebrafish** is further supported by the **zebrafish** sequencing project, which has facilitated the generation of microarrays for large scale expression profiling. It has been proposed that proteomics should complement the genome-wide expression profiling [3]. However, a major obstacle in the application of proteomics has been the... Show Full Excerpts

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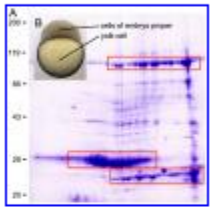
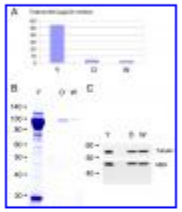
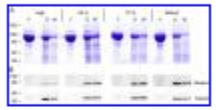

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Cognitive Aging in Zebrafish

Yu, L., Tucci, V., Kishi, S., Zhdanova, I. (2006) *PLoS ONE*.

ABSTRACT

Age-related impairments in cognitive functions represent a growing clinical and social issue. Genetic and behavioral characterization of animal models can provide critical information on the intrinsic and environmental factors that determine the

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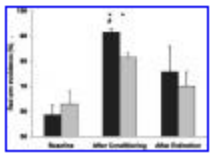
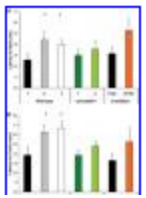
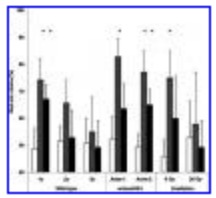

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Abbreviation definition identification based on automatic precision estimates

Sohn, S., Comeau, D., Kim, W., Wilbur, W. (2008) *BMC Bioinformatics*.

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...for a given SF or the list is exhausted. Since the algorithm starts from the most reliable strategy it can identify the most probable LF if multiple LF candidates exist. No gold standard is required. Many methods have been proposed to automatically identify abbreviations. **Schwartz** and **Hearst** [6] developed a simple and fast algorithm that searches backwards from the end of both potential SF and LF and finds the... Show Full Excerpts

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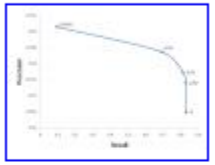
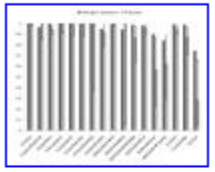

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A comparison study on algorithms of detecting long forms for short forms in biomedical text

Torii, M., Hu, Z., Song, M., Wu, C., Liu, H. (2000) *BMC Bioinformatics*.

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...to detect LFs, which also reflects the alignment idea. Similarly, the method by Yoshida and colleagues [15] detects LFs based on the assumption that the first several letters of each syllable in the words of LFs constitute the corresponding SFs. Another alignment-based algorithm is proposed by **Schwartz** and **Hearst** [4]. Given an SF candidate in parentheses, their algorithm seeks the shortest...

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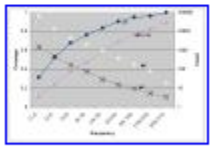


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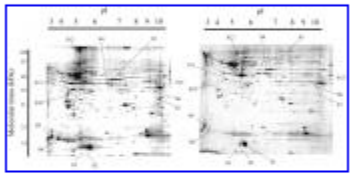

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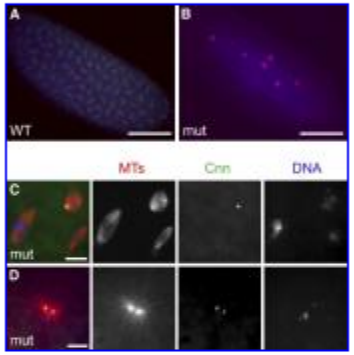

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Figure 4. Centrioles Are Essential for Early Embryonic Development (A and B) WT...

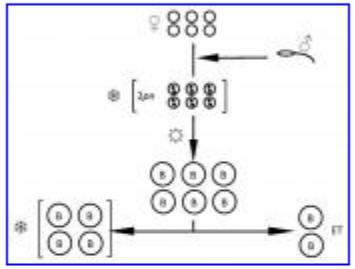

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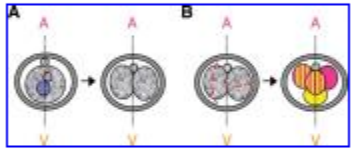
Figure 1. Schematic for prophylactic embryo cryopreservation at the 2pn stage,...



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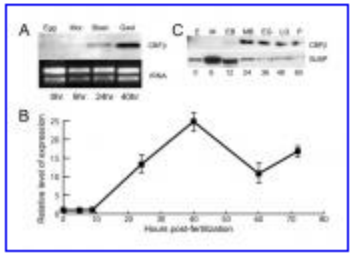

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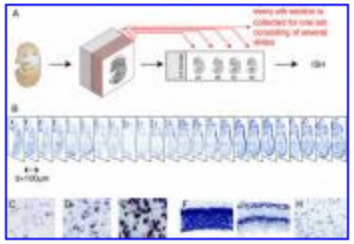

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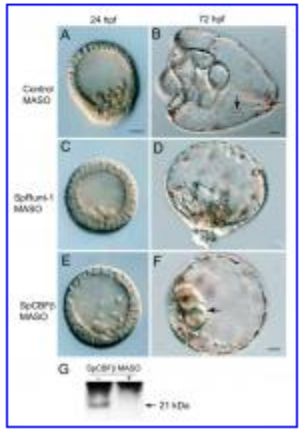

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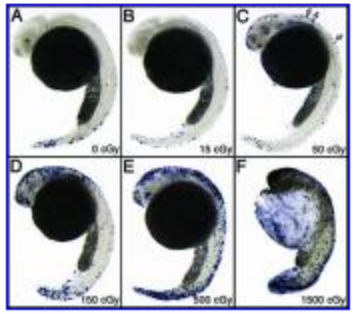

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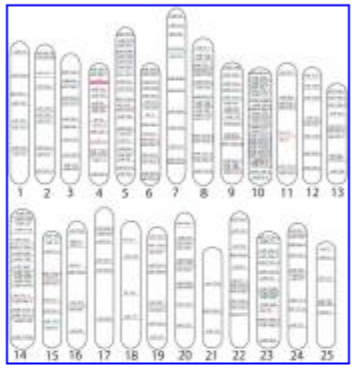

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Figure 1. Chromosomal Location of Zebrafish miRNAs. The relative locations of...

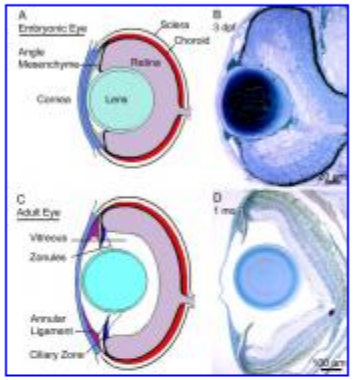

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Figure 2. Comparison of embryonic and adult zebrafish eyes. Diagram of embryonic (A) and adult (C)...

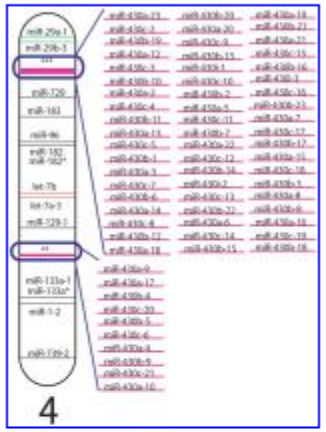

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Figure 2. Clustered Zebrafish miRNAs. The miR-430 family has two large clusters on...

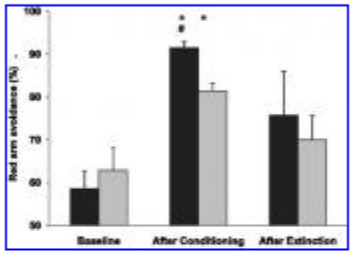

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Figure 12. Generalization of red color avoidance in the T-maze condition, following...

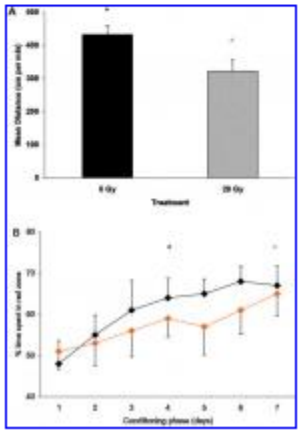

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Figure 6. Changes in performance in

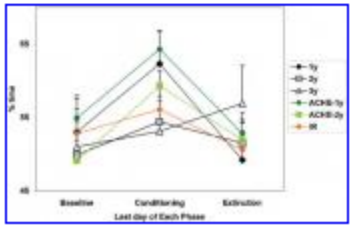

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Figure 3. Spatial entrainment in

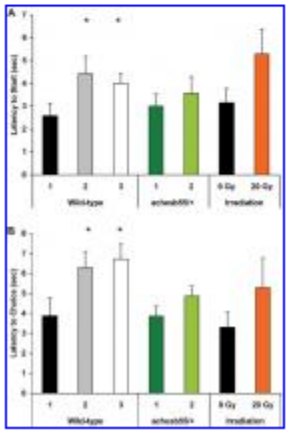

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Figure 9. Latency to Start (A) and

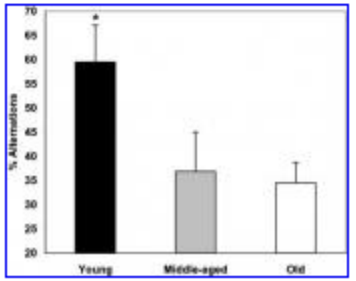

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Figure 10. Increased alternation in

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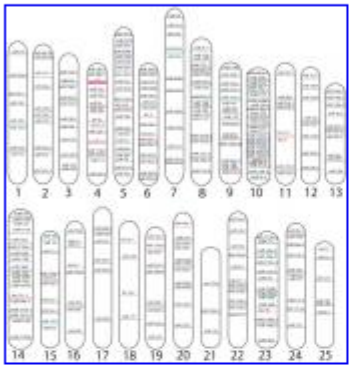

View Fig. & Caption

Genomic Organization of Zebrafish microRNAs

Thatcher, E., Bond, J., Paydar, I., Patton, J. (2008) *BMC Genomics*.

FIGURE CAPTION

Figure 1. Chromosomal Location of **Zebrafish** miRNAs. The relative locations of individual miRNAs are shown across the 25 **zebrafish** chromosomes. miRNA families are denoted by different colors.

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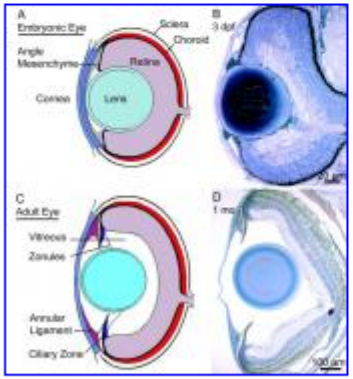

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Morphogenesis of the anterior segment in the zebrafish eye

Soules, K., Link, B. (2005) *BMC Developmental Biology*.

FIGURE CAPTION

Figure 2. Comparison of embryonic and adult **zebrafish** eyes. Diagram of embryonic (A) and adult (C) **zebrafish** eyes. Histology of 3 dpf embryonic (B) and 1 month adult (D) eyes.

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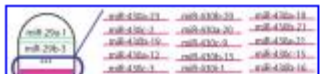

Genomic Organization of Zebrafish microRNAs

Thatcher, E., Bond, J., Paydar, I., Patton, J. (2008) *BMC Genomics*.

phylogenetic tree

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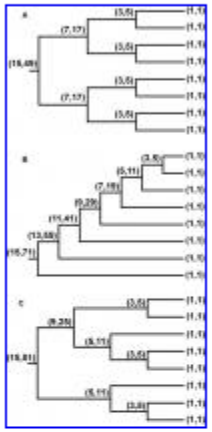

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Figure 1. Branch size and cumulative branch size examples. The values of the...

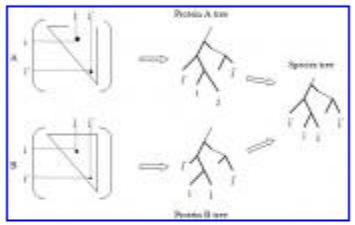

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Figure 2. Illustration of how the elements of the distance matrices correspond to...

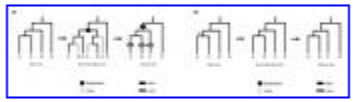

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Figure 2. Tree reconciliation bias. (a) The effect of wrongly inferring the gene tree:...

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Figure 6. Slight bias towards placing duplicates on the tips of the tree. (a) Shows...

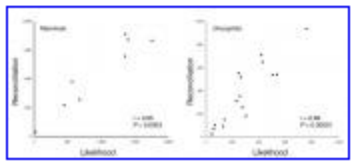

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Figure 7. Relationship between tree

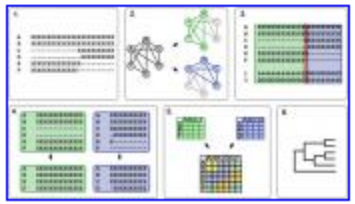

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Figure 4. Overview of SIA method

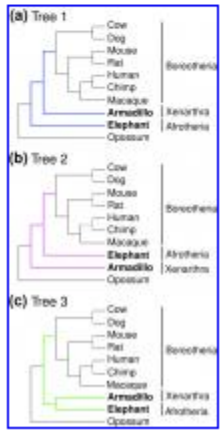

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Figure 1. Three phylogenetic

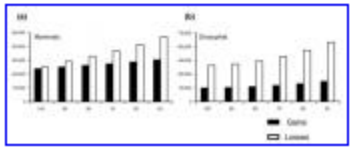

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Figure 4. The effect of tree

Dynamic and redundant regulation of LRRK2 and LRRK1 expression

Biskup, S., Moore, D., Rea, A., Lorenz-Deperieux, B., Coombes, C., Dawson, V., Dawson, T., West, A. (2007) *BMC Neuroscience*.

TABLE CAPTION

Table 1. Summary of antibodies tested on **Western Blot**

Antibody	Overexpressed mLRRK2	Overexpressed hLRRK2	Endogenous mLRRK2	Endogenous hLRRK2	Peptide Location
Abgent AP7099a	-	-	-	-	N/A
Abgent AP7099b	-	-	-	-	(LRR, AA 1246–1265, 100% identity)H: WSRVEKLHLSHNKLKEIPPEM: WSRVEKLHLSHNKLKEIPPE
Abgent AP7099c	-	-	-	-	(N-Term, around L229)H: EEIVLHVLHCLHSLAIPCNNVEVLMSGNVRM: KEIVYHVLCCLHSLAVTCSNVEVLMSGNVR
Abgent AP7099d	-	-	-	-	(N-Term, around E285)H: VSCCLLHRLTLGNFFNILVLNEVHEFVVKAM: VSCSLFQKLTLGNFFNILVLNEVHVFVVKA
Abgent AP7099e	-	+	-	+	(N-Term, around E519)H: RAILHFIVPGMPEESREDTEFHHKLNMVKKM: RAILHFVVPGLLEESRE..DSQCRPNVLRK
Abgent AP7099f	-	+	-	-	(N-Term, around L893)H: AQSDDLDSEGSEGSFLVKKKSNSISVGEFYM: GQSDDLDSEGSESSFLVKRKSNSISVGEVY
Abgent AP7099g	-	+	-	-	(N-Term, around L899)H: AQSDDLDSEGSEGSFLVKKKSNSISVGEFYM: GQSDDLDSEGSESSFLVKRKSNSISVGEVY

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Development of antibodies to human embryonic stem cell antigens

Cai, J., Olson, J., Rao, M., Stanley, M., Taylor, E., Ni, H. (2005) *BMC Developmental Biology*.

Development of antibodies to human embryonic stem cell antigens

Cai, J., Olson, J., Rao, M., Stanley, M., Taylor, E., Ni, H. (2005) *BMC Developmental Biology*.

TABLE CAPTION

Table 1. Summary list of antibody verification by **western blot**

Antibody	Sample used for analysis	Mol. Wt. (KD)
Gt × hBrachyury	mouse ES-derived EB lysate	48
Ms × hDPPA5	N/A	N/A
Gt × hGATA6	Caco2 cell lysate	65
Gt × hNanog	NTERA-2 cell lysate	33
Gt × hOct 3/4	NTERA-2 cell lysate	39
Gt × hPDX1	beta-TC 6 cell lysate	32
Gt × hSOX17	mouse ES-derived EB lysate	45

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Influence of IFN-gamma and its receptors in human breast cancer

García-Tuñón, I., Ricote, M., Ruiz A, A., Fraile, B., Paniagua, R., Royuela, M. (2007) *BMC Cancer*.

TABLE CAPTION

Table 1. Comparison of immunostaining intensities in **Western blot** analysis

	IFNγ	IFNγ-Rα	IFNγ-Rβ	Actin
Benign lesions	9.75 ± 3.1^a	18.59 ± 2.1^a	18.81 ± 3.2^a	57 ± 4.1^a
In situ carcinoma	20.25 ± 1.9^b	21.1 ± 3.6^a	19.68 ± 4.1^a	49 ± 3.4^a
Infiltrating carcinoma	13 ± 2.7^a	13.51 ± 2.2^b	22.01 ± 6.8^a	54 ± 3.8^a

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Spring Meeting

Bcl-XL is qualitatively different from and ten times more effective than Bcl-2 when expressed in a breast cancer cell line

Fiebig, A., Zhu, W., Hollerbach, C., Leber, B., Andrews, D. (2006) *BMC Cancer*.

TABLE CAPTION

Table 1. Expression of **Bcl-2**, Bcl-XL and mutant proteins in MCF-7 cells

Cell Clone	Number of Independent Experiments	Expression of Bcl-2 or Bcl-XL proteins (ng/µg total protein) no drug	Expression of Bcl-2 or Bcl-XL proteins (ng/µg total protein) at the EC50 dose of doxorubicin	EC 50 doxorubicin (µM) Inhibition of PARP degradation.
Neo	5	n.d.	n.d.	1.9 ± 0
Bcl-2 (#2)	6	4.5 ± 1.0	2.5 ± 0.1	22.8 ± 3.3
Bcl-2 (#5)	7	3.6 ± 0.7	1.6 ± 0.1	30.6 ± 1.0
Bcl2-acta (#24)	7	1.2 ± 0.3	0.2 ± 0.02	13.2 ± 1.7
Bcl2-cb5 (#18)	5	1.5 ± 0.4	1.3 ± 0.02	2.3 ± 0.1
Bcl-XL (#42)	6	0.8 ± 0.2	0.7 ± 0.05	85.4 ± 0.6
BclX-Δt (#1)	5	0.6 ± 0.1	0.5 ± 0.01	8.7 ± 1.7

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Expression patterns and prognostic value of Bag-1 and Bcl-2 in breast cancer

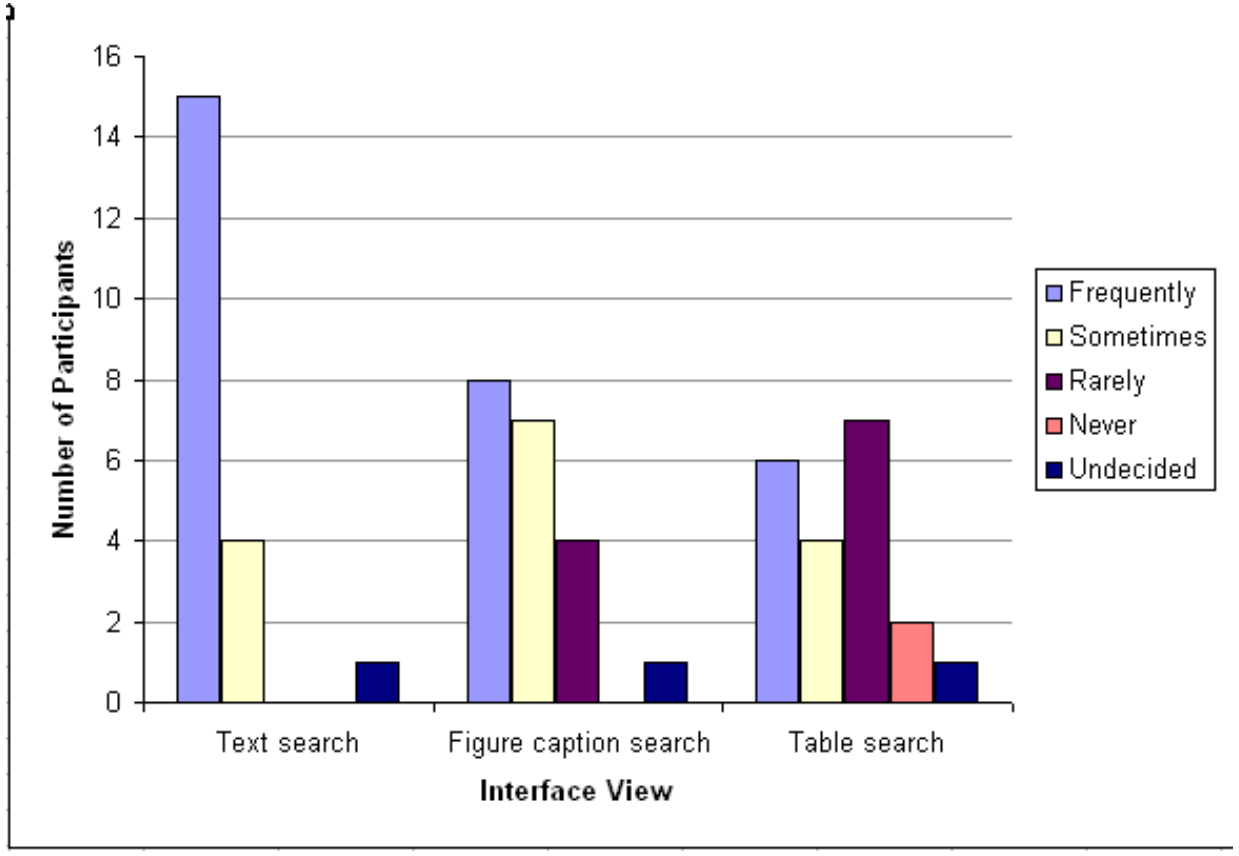
Second Study

- Modified, improved interface
- 20 participants
  - 6 grad students, 6 postdocs, 1 faculty, 7 other
    - Cell or molecular biology, genetics or genomics, biochemistry, evolutionary biology, bioinformatics.
  - All use PubMed, most as primary tool

Second Study

- Procedure:
  - Session lasted ~1 hour
  - Participants were shown the interface and its views, and then asked to use it and respond.
  - They then assessed the interfaces explicitly.
- Measures:
  - Focus on subjective responses.
  - Intent to use is a reliable indicator of actual usage. (Venkatesh & Morris 03, Sun & Zhang 06)

How Likely to Use Interface?



Full Text View: Favorable Aspects

	Text View – Favorable Aspects
11	Ability to see figure thumbnails.
7	Direct links to full paper without going through PubMed.
5	Ability to see excerpts.
5	Colors are helpful.
5	The layout – it is easy to navigate.
5	Highlighting.
4	The expand options don't require reload so it is fast.
3	Clear.
2	Variety of info at once the parts that people read first in papers.
2	Compact / easy to browse.
2	Intuitive / simple.
2	Option to select what to display abstract, excerpts, thumbnails.
1	The narrow horizontal width of title and abstract – more readable.
1	Not distracting despite all the information.

Full Text View: Unfavorable Aspects

	Text View – Unfavorable aspects
5	By default should display titles only.
3	When unselecting abstracts, figures and full-text, so you can browse quickly through titles, it would be good to have the option to open individually just one abstract individually, rather than all or nothing.
2	Given that the system shows figure thumbnails, it should show tables too.
2	Should see all thumbnails, not limited to six.
2	Should use different colors especially the yellow.
2	Should provide better citation display, especially journals, and a more precise date.
1	When "going back" from the endgame view to the search results, should go to the part of the page you were and not back at the top stated for all view types.
1	Descending date should be the sorting default.
1	The screen is too wide – should be resizable.
1	Thumbnails should be bigger.
1	Should display relevance score when sorted by relevance.
1	The color of the purple boxes jumps out too much.

Figure Caption Views: Favorable Aspects

	Figure Views – Favorable Aspects
5	Ability to search in captions.
5	It is good to have two figure view options; grid is good for a quick browse.
3	Clear display/layout.
3	The caption is viewable without extra work.
2	Colors are easy to keep track what you are looking at.
2	Pop-up title in grid view.
2	Highlighting.
2	Compact.
2	Good for when you look for an image.
1	Everything.
1	Direct links to full paper.
1	Clicking on figures open in new window.
1	Ability to link to all figures from one paper.

Figure Caption Views: Unfavorable Aspects

	Figure Views – Unfavorable Aspects
3	Figures should be on the right to match the text view layout.
2	Figures from the same paper should be under the same title.
2	Alongside each figure, provide a way to see or jump to other figures from the same paper.
1	Figures should be displayed in the order they appear within a paper, if more than one figure from a given paper occurs in the results.
1	Preferable to have newest figures first.
1	The color yellow of the caption jumps out.
1	Bold is good for highlighting but not the yellow.
1	Remove grid view, it is redundant.

Table View: Favorable Aspects

	Table View – Favorable Aspects
5	Access to information that is in tables but nowhere else.
4	Useful, good for finding information.
4	By default the tables are short.
4	Expand table length option.
4	Clear.
4	Standardized, all tables in same format not as they appear in papers makes it easy to browse.
3	Highlighting.
2	Informative to have title and caption with each table.
1	Colors.
1	Direct link to full text.

Table View: Unfavorable Aspects

	Table View – Unfavorable Aspects
5	Table display is not as useful/informative as images when shown in isolation because context is missing.
4	Should have different highlighting inside the tables, a way to stand out more.
3	Caption color too strong and confusing with the yellow highlighting.
1	In the non-expanded mode, would be good to see the part of the table that the query was found, not the top few rows, but still see the header of the table.
1	Tables from the same paper should be under one entry/title.
1	Would be better for tables to open in new window rather than expanding on same page.
1	Would prefer caption under the table – more traditional.

Showing Related Terms in Bioscience Literature Search

Needs assessment and low-fi evaluation

First Questionnaire

- General information about how they search and what related information they want to see.
- 38 participants
  - 22 grad students, 6 postdocs, 5 faculty, 5 other
  - Systems biology, bioinformatics, genomics, biochemistry, cellular and evolutionary biology, microbiology, physiology, …

Participants' Characteristics

When you are doing your work, approximately what percentage of the time involves your using a computer?			
0-20 %		2	5%
20-40 %		7	18%
40-60 %		8	21%
60-80 %		7	18%
80-100 %		14	37%
	Total	38	100%

How often do you search the biomedical literature?			
Every day		18	47%
Every week		14	37%
Every month		3	8%
Rarely		3	8%
Never		0	0%
	Total	38	100%

What proportion of your searches include gene/protein names?			
I don't use gene/protein names in my queries		5	13%
less than 10% of my searches		5	13%
10-25% of my searches		8	21%
25-50% of my searches		6	16%
50-75% of my searches		11	29%
75-100% of my searches		3	8%
	Total	38	100%

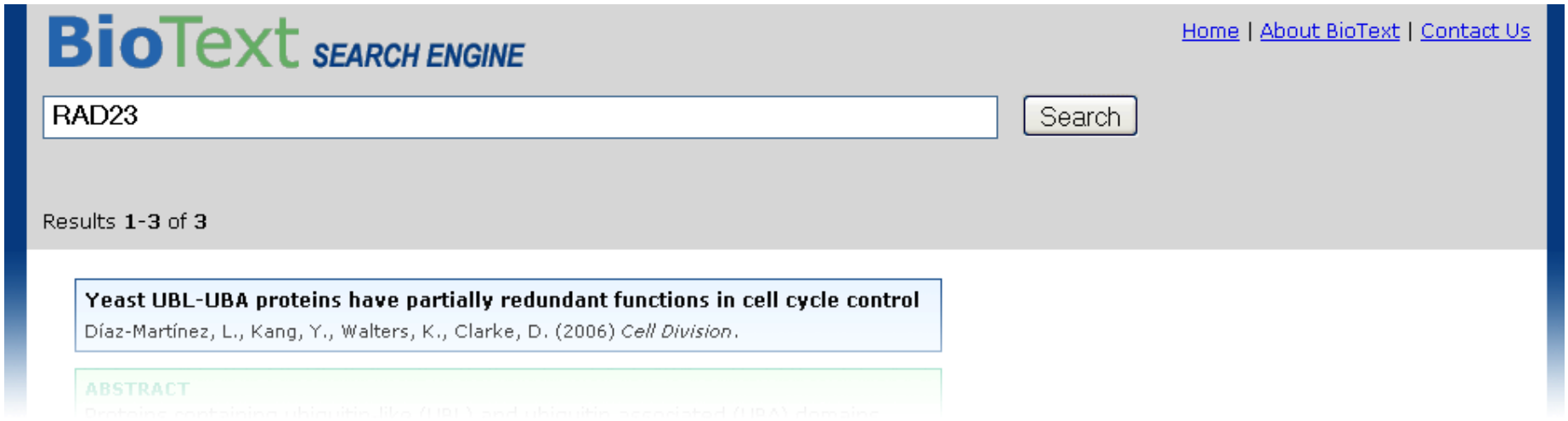
Results

Related Information Type	Avg rating	# selecting 1 or 2
Gene's Synonyms	4.4	2
Gene's Synonyms refined by organism	4.0	2
Gene's Homologs	3.7	5
Genes from same family: parents	3.4	7
Genes from same family: children	3.6	4
Genes from same family: siblings	3.2	9
Genes this gene interacts with	3.7	4
Diseases this gene is associated with	3.4	6
Chemicals/drugs this gene is associated with	3.2	8
Localization information for this gene	3.7	3

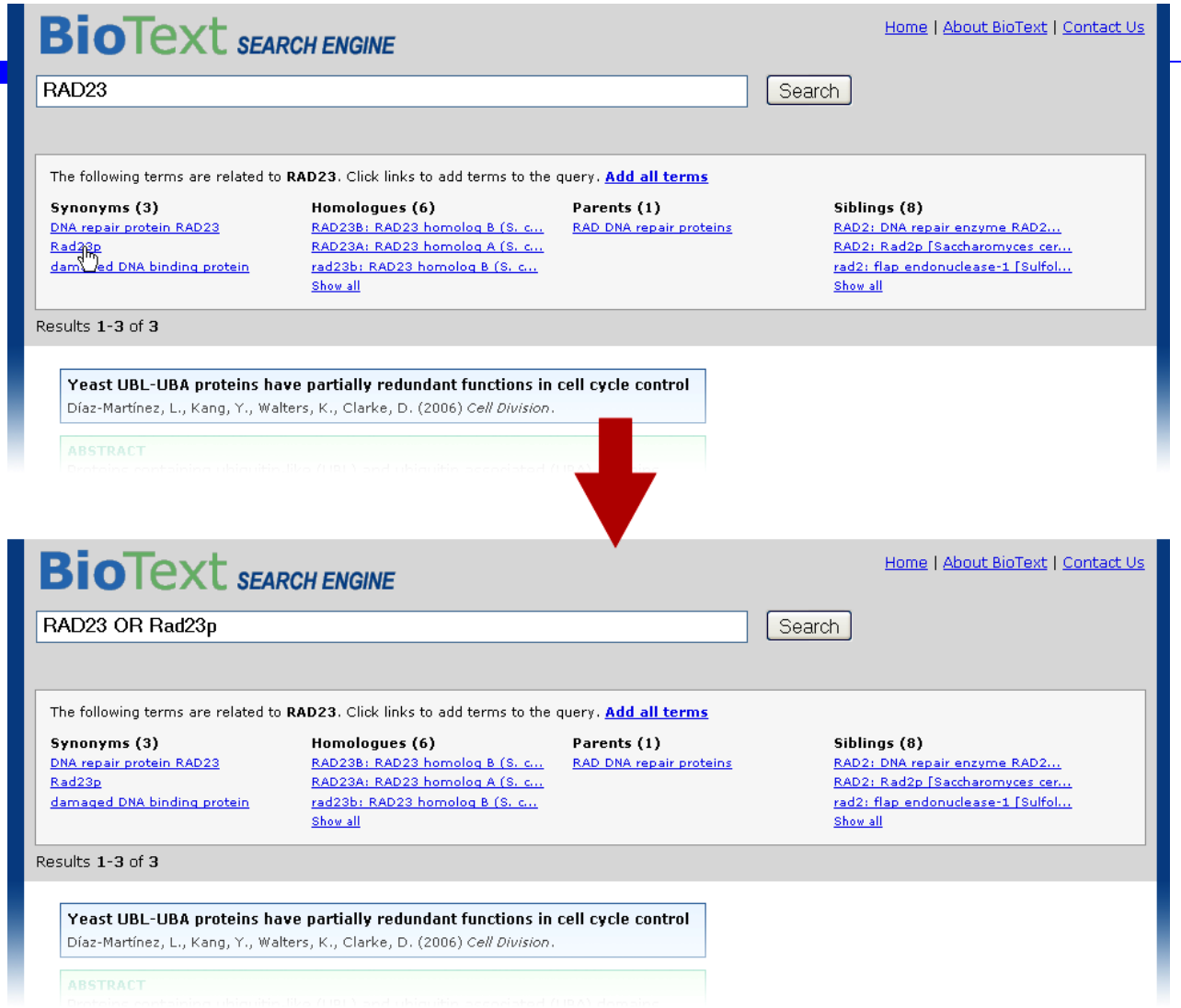
Second Questionnaire

- Evaluating 4 designs for gene/protein name suggestions
- 19 participants
  - 4 grad students, 7 postdocs, 3 faculty, 5 other
  - Wide range of specializations

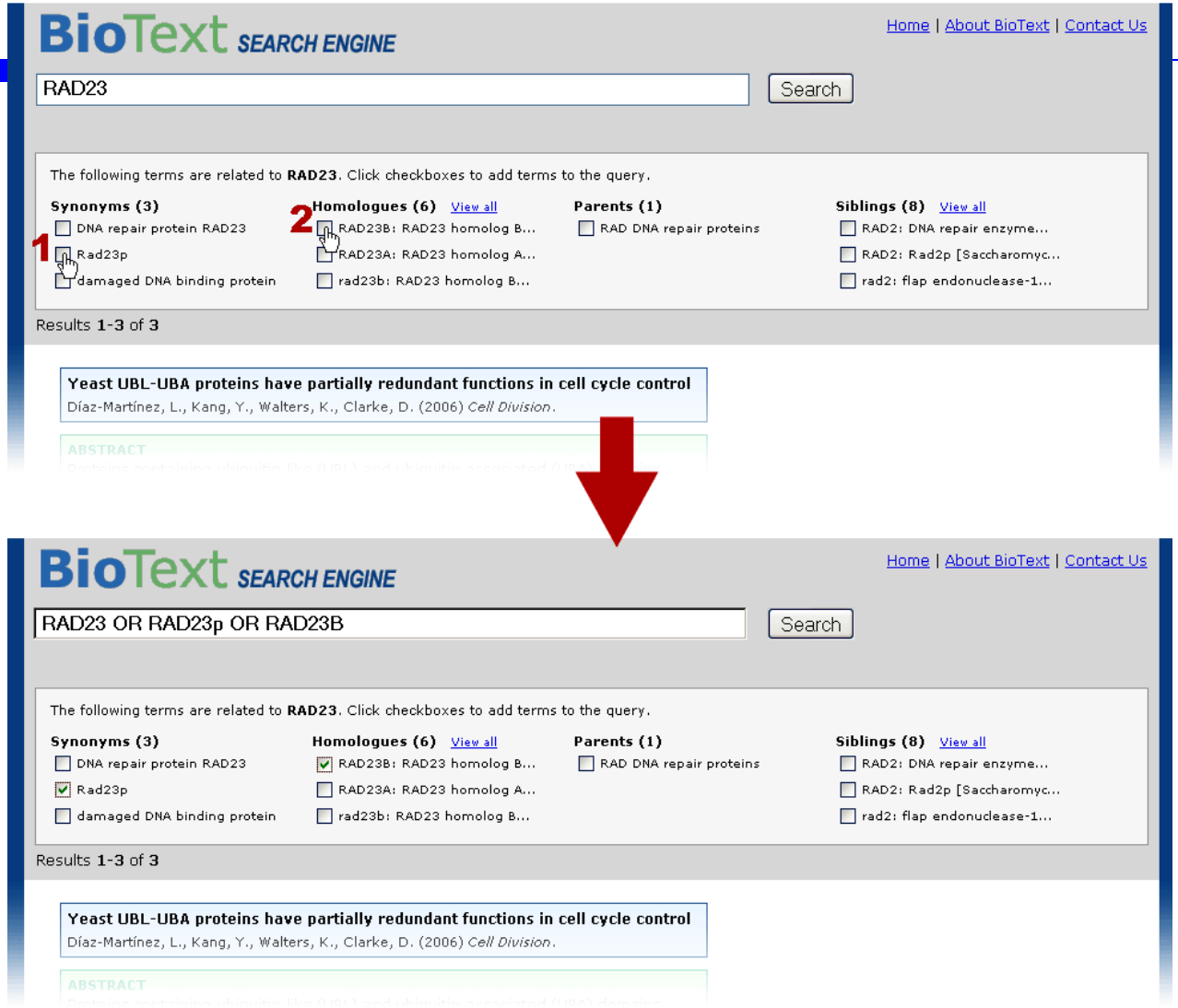
Design 1: Baseline



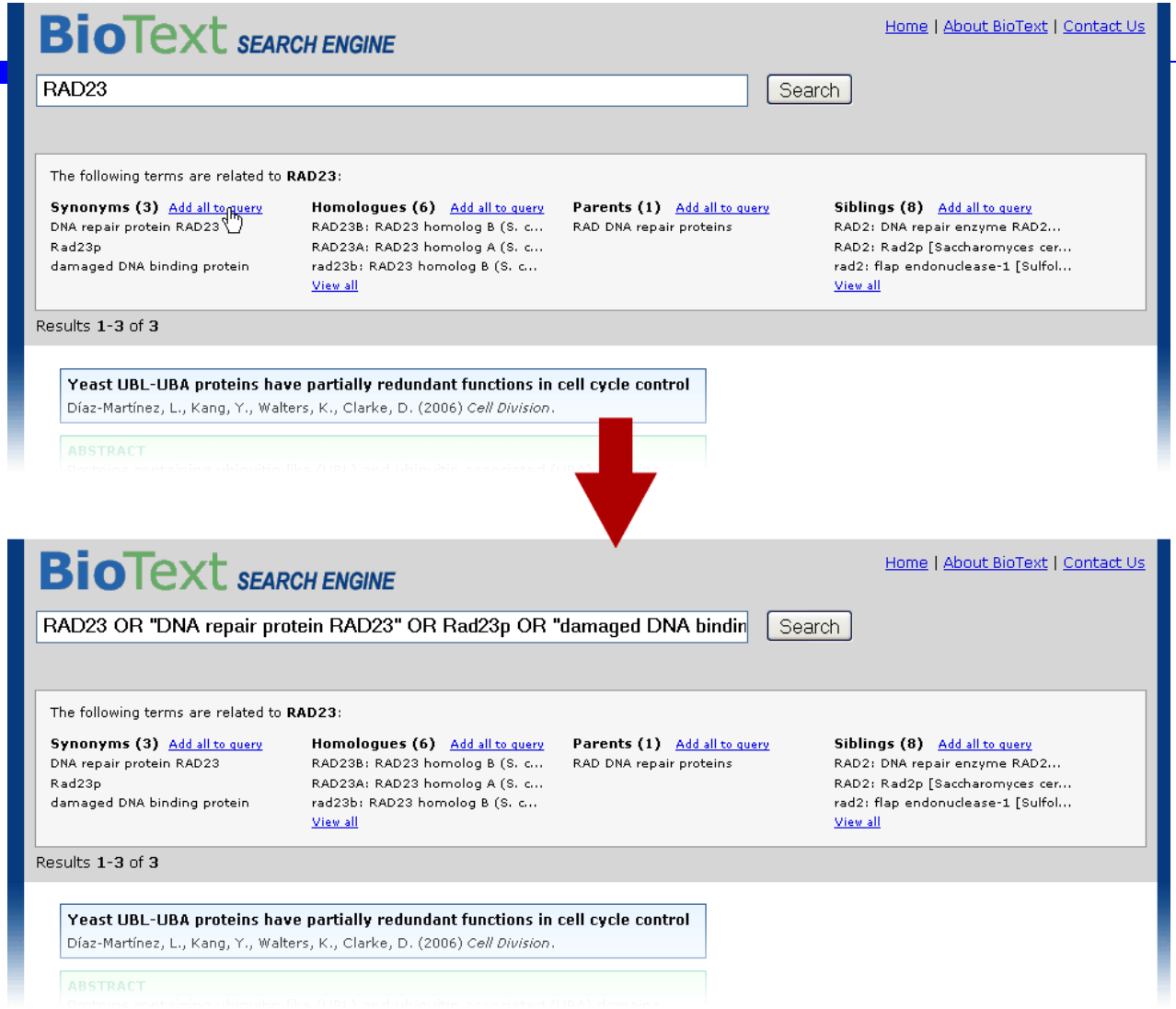
Design 2: Links



Design 3: Checkboxes



Design 4: Grouped Links



Results

Design	Participants who rated design 1st or 2nd		Average rating (1=low, 4=high)
	#	%	
3 (checkboxes)	15	79	3.3
4 (grouped links)	10	53	2.6
2 (links)	9	47	2.5
1 (baseline)	0	0	1.6

Results: More Detail

- **Strong desire** for the search system to suggest information **closely related** to gene/protein names.
- **Some interest** in less **closely related** information .
- Most participants **want to see organism names** in conjunction with gene names.
- A majority of participants prefer to see term suggestions **grouped by type** (synonyms, homologs, etc).

Results: More Detail

- **Split** in preference between single-click **hyperlink** interaction (categories or single terms) and **checkbox**-style interaction.
- The majority of participants prefers to have the **option to chose** either **individual names** or **whole groups** with **one click**.
- **Split** in preference between the system suggesting **only names** that it is **highly confident** are related and include names that it is **less confident** about under a **“show more” link**.

Summary: BioText Search Studies

- Nearly all participants strongly desire
  - Full text search
  - Figure display in search results
- Impediments to adoption
  - Needs to index all articles
  - Needs to be in the primary search tool(s)
- Participants also want to see term suggestions that are closely related to their query.

Time for a Break!

More on Search Interfaces

Useful Search Interface Tropes

- Dynamic query term suggestions
  - Others' queries
  - Metadata or text from the Collection

Useful Search Interface Tropes

- Grouping of retrieval results
  - By meaningful categories
  - By genre


my nextbio
data import
community
sign in | register for free
NEXTBIO
embryo
search
tissue Embryo
tissue Embryo tail
biosource Duck embryo
tissue Embryonic tissue
tissue Embryonic cell
tissue Embryonic term
tissue Embryonic space
tissue Embryoblast
disease Embryotoxon
disease Embryocardia
Auto-complete lists matching genes, diseases, SNPs, tissues, biogroups, compounds and authors. Use of auto-complete is optional, you can simply type and click Search.
181)
search
Explore genes, pathways, diseases and compounds across curated data
Search thousands of public microarray, mutation and phenotypic studies
Access millions of related journal articles and clinical trials
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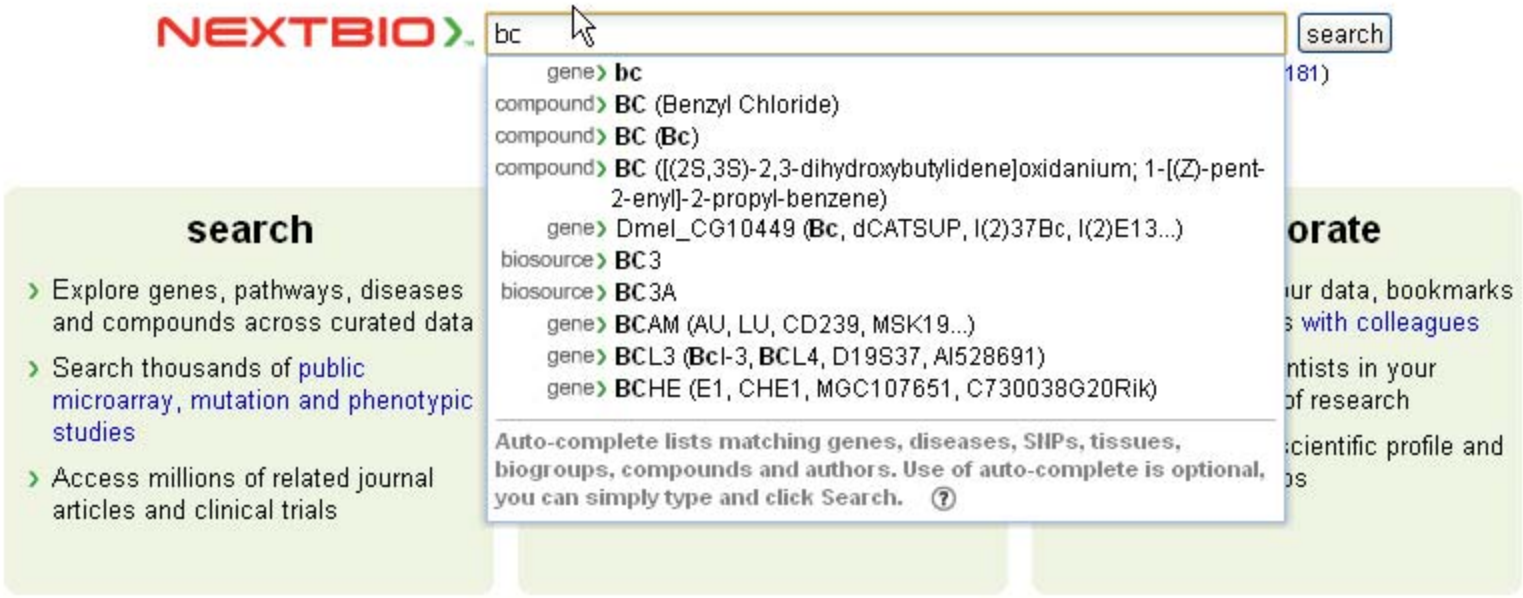
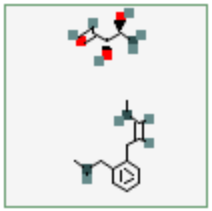
NextBio


NEXTBIO
bc
search
gene› bc
compound› BC (Benzyl Chloride)
compound› BC (Bc)
compound› BC ([(2S,3S)-2,3-dihydroxybutylidene]oxidanium; 1-[(Z)-pent-2-enyl]-2-propyl-benzene)
gene› Dmel_CG10449 (Bc, dCATSUP, l(2)37Bc, l(2)E13...)
biosource› BC3
biosource› BC3A
gene› BCAM (AU, LU, CD239, MSK19...)
gene› BCL3 (Bcl-3, BCL4, D19S37, AI528691)
gene› BCHE (E1, CHE1, MGC107651, C730038G20Rik)
Auto-complete lists matching genes, diseases, SNPs, tissues, biogroups, compounds and authors. Use of auto-complete is optional, you can simply type and click Search.
181)
search
› Explore genes, pathways, diseases and compounds across curated data
› Search thousands of public microarray, mutation and phenotypic studies
› Access millions of related journal articles and clinical trials
orate
ur data, bookmarks
s with colleagues
ntists in your
f research
cientific profile and
os

my nextbio data import community

NEXTBIO BC search

treatment › [(2S,3S)-2,3-dihydroxybutylidene]oxidanium; 1-[(Z)-pent-2-enyl]-2-propyl-benzene (BC)



Molecular weight: 290.397 g/mol

Molecular formula: $C_{18}H_{26}O_3$

view more »

experiments(0) | literature(17,413) | clinical trials(304) | news(60) | more...

by relevance by date | show filter

individual publication results for: BC

related terms: **all** | affiliation | author | biogroup | compound | disease | gene | tissue ⓘ **analyze:** **50** | 200 | 1000 results ⓘ

Sizes of the terms below reflect their relevance to your search. Click on a term to refine your search.

aldol an aldehyde bc1 biotin **breast cancer** cardiovascular disease catalytic activity chloroplast CO2 dehydrogenase electron transporter factor VIII fatty acids hemophilia A IFN-beta imine leukemias Lima magnetic field Maya methicillin-resistant Staphylococcus aureus MeV multiple sclerosis muonium mutagenesis oxygen perovskite Persian protein complexes Scd1 schizophrenia skeleton SNPs Solexa Soraphen A Staphylococcus aureus thrombocytopenia used 2 VHL von Willebrand factor

17,413 publications

Understanding the cytochrome bc complexes by what they don't do. The Q-cycle at 30. full text

Jonathan L Cape, Michael K Bowman, David M Kramer

The cytochrome (cyt) bc(1), b(6)f and related complexes are central components of the respiratory and photosynthetic electron transport chains. These complexes carry out an extraordinary sequence of electron and proton transfer reactions that conserve redo...

Trends in plant science. 2006 Jan

experiments(0) | literature(17,413) | clinical trials(304) | news(60) | more...

by relevance | by date | show filter

individual publication results for: BC

related terms: all | affiliation | author | biogroup | compound | disease | gene | tissue

analyze: 50 | 200 | 1000 results

Sizes of the terms below reflect their relevance to your search. Click on a term to refine your search.

apoptosis catalytic activity cell death cells migrated chloroplast chromatin cytokine secretion denitrification pathway DNA binding electron transporter fatty acid metabolism immune responses mutagenesis NADH oxidation phospholipid binding photosynthesis photosynthetic electron transport chains photosystem II protein complexes RNA interference signal transduction von Willebrand factor

17,413 publications

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Trends in plant science. 2006 Jan

Earliest date for milk use in the Near East and southeastern Europe linked to cattle herding. full text
Richard P Evershed, Sebastian Payne, Andrew G Sherratt, Mark S Copley, Jennifer Coolidge, Duska Urem-Kotsu, Kostas Kotsakis, Mehmet Ozdoğan, Aslý E Ozdoğan, Olivier Nieuwenhuyse,...
The domestication of cattle, sheep and goats had already taken place in the Near East by the eighth millennium bc. Although there would have been considerable economic and nutritional gains from using these animals for their milk and other products from li...
Nature. 2008 Sep 25

Observation of the Bc meson in the exclusive decay Bc-->J/psipi. full text
V M Abazov, B Abbott, M Abolins, B S Acharya, M Adams, T Adams, E Aguilo, S H Ahn, M Ahsan, G D Alexeev,...
A fully reconstructed Bc-->J/psipi signal is observed with the D0 detector at the Fermilab Tevatron pp[over] collider using 1.3 fb(-1) of


experiments(0)
literature(17,413)
clinical trials(304)
news(60)
more...
by relevance by date | show filter
individual publication results for: BC
related terms: all | affiliation | author | biogroup | compound | disease | gene | tissue
analyze: 50 | 200 | 1000 results
Sizes of the terms below reflect their relevance to your search. Click on a term to refine your search.
AIRE APOB BCR Bmnx BRCA1 BRCA2 CCT chaper
CUL5 EGR2 EPAS1 FCRL3 FEM1B FGFR2 HPGD
multiple sclerosis PAX1 PML PPIL5 RARA RELA
STAT3 STAT5A STAT5B TCEB2 TSHR ubiquitin VHL
gene › Dmel_CG7235, Hsp60C, bs36d10.y1, CG7235
view complete details
gene
snp
proteins
No Summary available
Entrez Gene
mapping
type
33796/Dmel_CG7235gene
symbol
description
Dmel_CG7235
Hsp60C
17,413 publications
Understanding the cytochrome bc complexes by what they don't do. Th
Jonathan L Cape, Michael K Bowman, David M Kramer
The cytochrome (cyt) bc(1), b(6)f and related complexes are central components of th
chains. These complexes carry out an extraordinary sequence of electron and proton
Trends in plant science. 2006 Jan
Earliest date for milk use in the Near East and southeastern Europe link
Richard P Evershed, Sebastian Payne, Andrew G Sherratt, Mark S Copley, Jennifer
Mehmet Ozdoğan, Aslý E Ozdoğan, Olivier Nieuwenhuyse,...
The domestication of cattle, sheep and goats had already taken place in the Near Ea
have been considerable economic and nutritional gains from using these animals for their milk and other products from li...
Nature. 2008 Sep 25
Observation of the Bc meson in the exclusive decay Bc-->J/psipi. full text
V M Abazov, B Abbott, M Abolins, B S Acharya, M Adams, T Adams, E Aguilo, S H Ahn, M Ahsan, G D Alexeev,...
A fully reconstructed Bc-->J/psipi signal is observed with the D0 detector at the Fermilab Tevatron pp[over] collider using 1.3 fb(-1) of integrated luminosity. The signal consists of 54+/-12 candidates with a significance that exceeds 5 standard deviation...
Physical review letters. 2008 Jul 4

experiments(0) | literature(19) | clinical trials(0) | news(0) | more...

by relevance by date | hide filter

filter results

"chaperonin" filter clear

individual publication results for: BC in "chaperonin"

related terms: all | affiliation | author | biogroup | compound | disease | gene | tissue analyze: 50 | 200 | 1000 results

Sizes of the terms below reflect their relevance to your search. Click on a term to refine your search.

16S ABCA1 ABL2 ATP8A1 C07B5 3 C10orf28 C8orf4 CASP8 CCT CCT4 CD4 CD8A chaperonin CR40456 CTSL1 Dmel_CG4460 Dmel_CG4550 Dmel_CR31574 DNAJC5 epidermal growth factor eye HAND2 HDAC3 HSPA4 HSPD1 LPS Lyzs MKKS NCOR2 PHC2 PPP rhodopsin SLC10A7 SUB1 superoxide dismutase TCEB2 TCP1 TYR VDAC2 VHL

19 publications

Formation of the VHL-elongin BC tumor suppressor complex is mediated by the chaperonin TRiC. full text

D E Feldman, V Thulasiraman, R G Ferreyra, J Frydman

von Hippel-Lindau (VHL) disease is caused by loss of function of the VHL tumor suppressor protein. Here, we demonstrate that the folding and assembly of VHL into a complex with its partner proteins, elongin B and elongin C (herein, elongin BC), is directly...

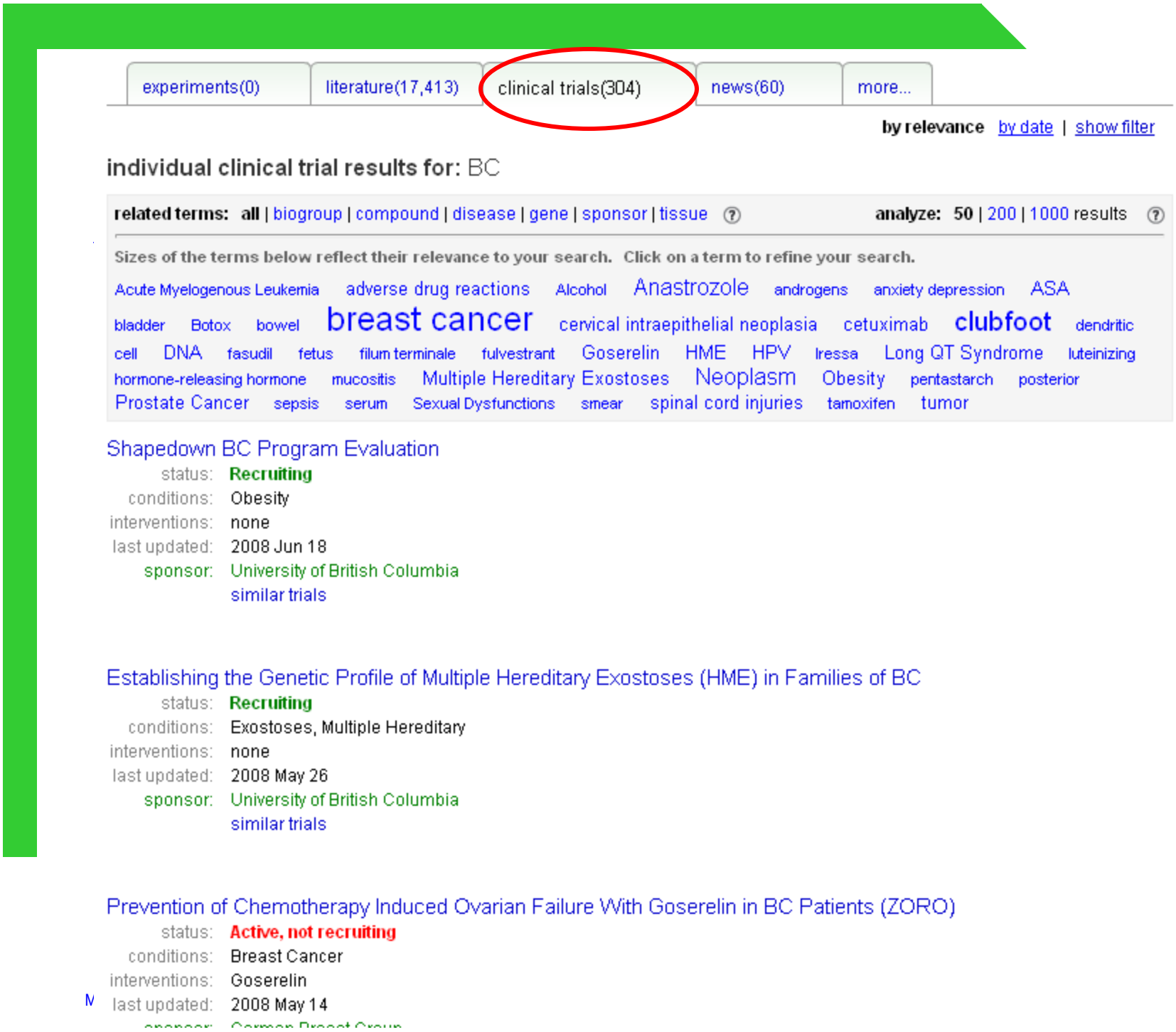
Molecular cell. 1999 Dec

Comparative analysis of structural diversity and sequence evolution in plant mitochondrial genes transferred to the nucleus. full text

Liu, Zhuang, Zhang, Adams

The transfer of functional mitochondrial genes to the nucleus is an ongoing process during plant evolution that has made a major impact on cyto-nuclear interactions and mitochondrial genome evolution. Analysis of evolutionarily recent transfers in plants p...

Molecular biology and evolution. 2009 Jan 23



experiments(0) | literature(17,413) | clinical trials(304) | news(60) | more...

by relevance by date | show filter

individual clinical trial results for: BC

related terms: all | biogroup | compound | disease | gene | sponsor | tissue ?

analyze: 50 | 200 | 1000 results ?

Sizes of the terms below reflect their relevance to your search. Click on a term to refine your search.

Acute Myelogenous Leukemia adverse drug reactions Alcohol Anastrozole androgens anxiety depression ASA bladder Botox bowel breast cancer cervical intraepithelial neoplasia cetuximab clubfoot dendritic cell DNA fasudil fetus filum terminale fulvestrant Goserelin HME HPV Iressa Long QT Syndrome luteinizing hormone-releasing hormone mucositis Multiple Hereditary Exostoses Neoplasm Obesity pentastarch posterior Prostate Cancer sepsis serum Sexual Dysfunctions smear spinal cord injuries tamoxifen tumor

Shapedown BC Program Evaluation

status: Recruiting
conditions: Obesity
interventions: none
last updated: 2008 Jun 18
sponsor: University of British Columbia
similar trials

Establishing the Genetic Profile of Multiple Hereditary Exostoses (HME) in Families of BC

status: Recruiting
conditions: Exostoses, Multiple Hereditary
interventions: none
last updated: 2008 May 26
sponsor: University of British Columbia
similar trials

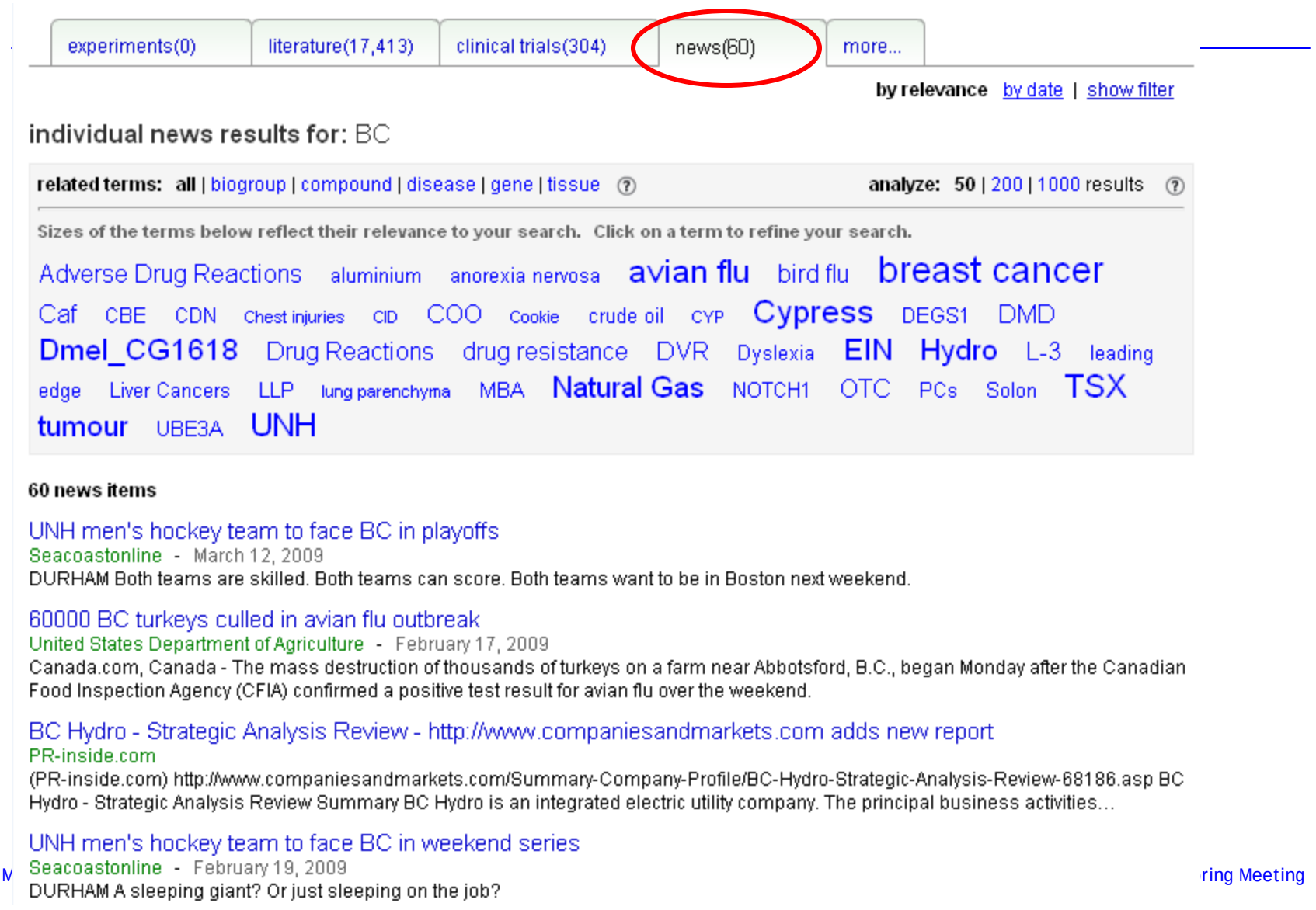
Prevention of Chemotherapy Induced Ovarian Failure With Goserelin in BC Patients (ZORO)

status: Active, not recruiting
conditions: Breast Cancer
interventions: Goserelin
last updated: 2008 May 14

M

ring Meeting

Oops ...


experiments(0)
literature(17,413)
clinical trials(304)
news(60)
more...
by relevance by date | show filter
individual news results for: BC
related terms: all | biogroup | compound | disease | gene | tissue
analyze: 50 | 200 | 1000 results
Sizes of the terms below reflect their relevance to your search. Click on a term to refine your search.
Adverse Drug Reactions aluminium anorexia nervosa avian flu bird flu breast cancer
Caf CBE CDN Chest injuries CID COO Cookie crude oil CYP Cypress DEGS1 DMD
Dmel_CG1618 Drug Reactions drug resistance DVR Dyslexia EIN Hydro L-3 leading
edge Liver Cancers LLP lung parenchyma MBA Natural Gas NOTCH1 OTC PCs Solon TSX
tumour UBE3A UNH
60 news items
UNH men's hockey team to face BC in playoffs
Seacoastonline - March 12, 2009
DURHAM Both teams are skilled. Both teams can score. Both teams want to be in Boston next weekend.
60000 BC turkeys culled in avian flu outbreak
United States Department of Agriculture - February 17, 2009
Canada.com, Canada - The mass destruction of thousands of turkeys on a farm near Abbotsford, B.C., began Monday after the Canadian Food Inspection Agency (CFIA) confirmed a positive test result for avian flu over the weekend.
BC Hydro - Strategic Analysis Review - http://www.companiesandmarkets.com adds new report
PR-inside.com
(PR-inside.com) http://www.companiesandmarkets.com/Summary-Company-Profile/BC-Hydro-Strategic-Analysis-Review-68186.asp BC Hydro - Strategic Analysis Review Summary BC Hydro is an integrated electric utility company. The principal business activities...
UNH men's hockey team to face BC in weekend series
Seacoastonline - February 19, 2009
DURHAM A sleeping giant? Or just sleeping on the job?

Faceted Navigation

Improving collection search interfaces

What we want to Achieve

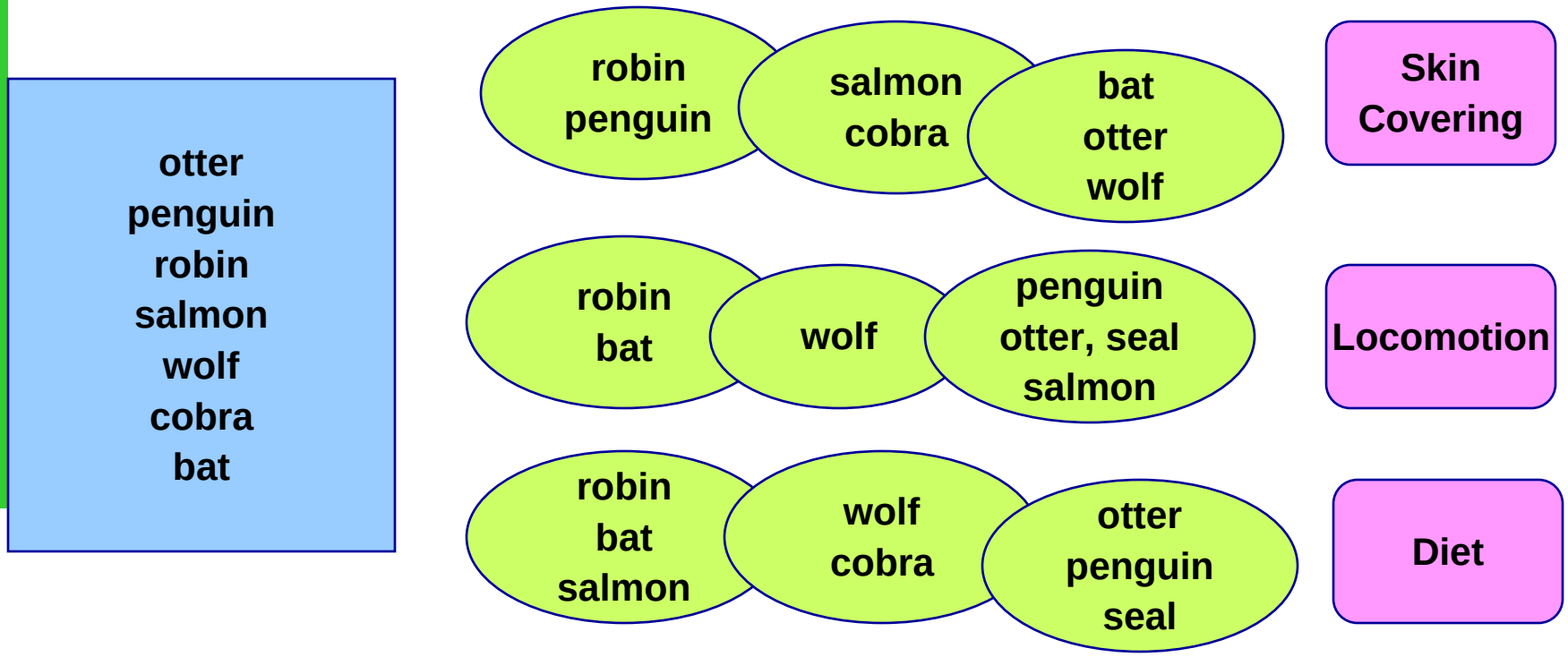
- Integrate browsing and searching seamlessly
- Support exploration and learning
- Avoid dead-ends, “pogo’ing”, and “lostness”

Main Idea

- Use hierarchical faceted metadata
- Design the interface to:
  - Allow flexible navigation
  - Provide previews of next steps
  - Organize results in a meaningful way
  - Support both expanding and refining the search

The Problem With Hierarchy

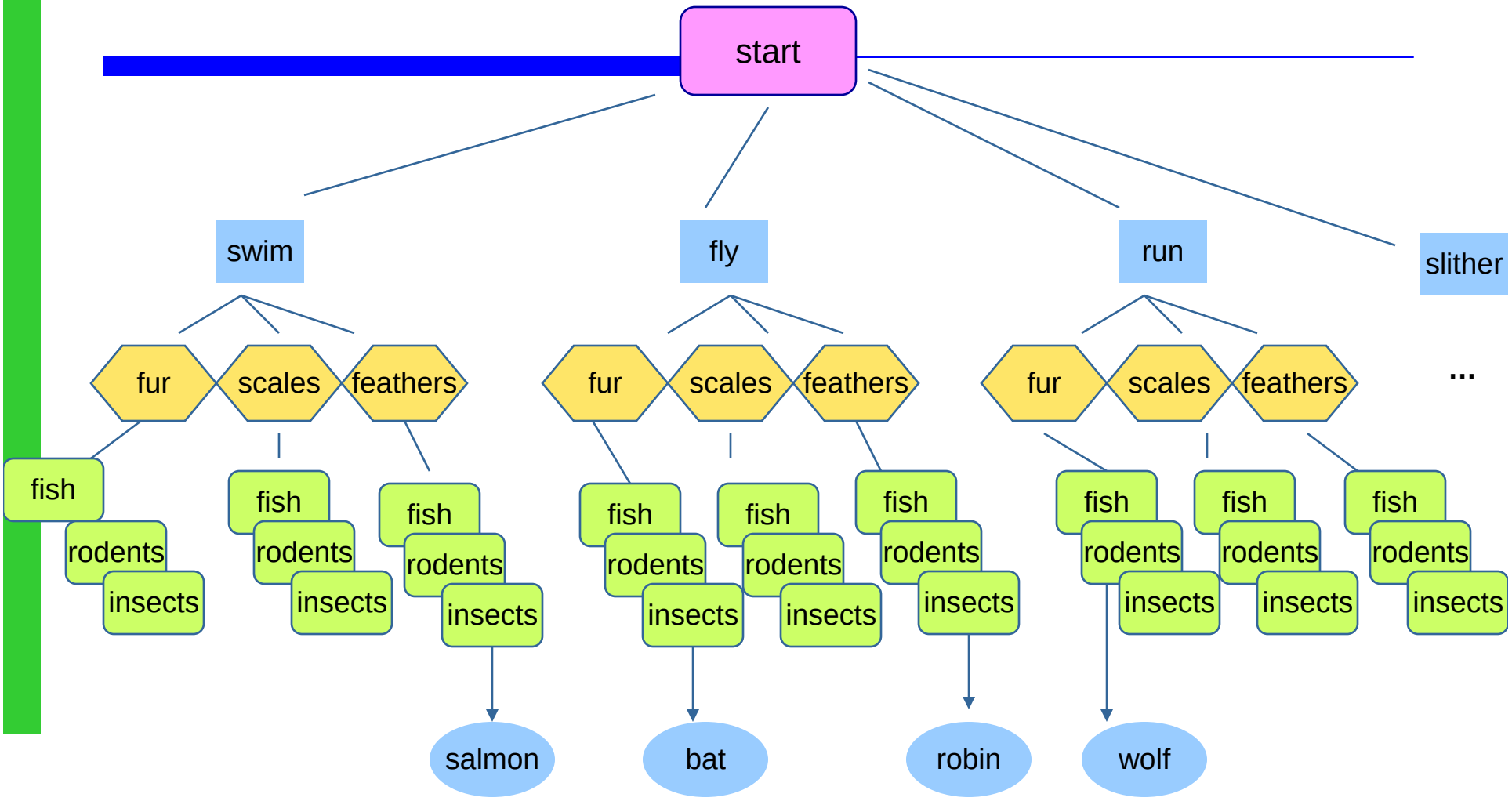
- Most things can be classified in more than one way.
- Most organizational systems do not handle this well.
- Example: Animal Classification



The Problem with Hierarchy

- Inflexible
  - Force the user to start with a particular category
  - What if I don't know the animal's diet, but the interface makes me start with that category?
- Wasteful
  - Have to repeat combinations of categories
  - Makes for extra clicking and extra coding
- Difficult to modify
  - To add a new category type, must duplicate it everywhere or change things everywhere

The Problem With Hierarchy

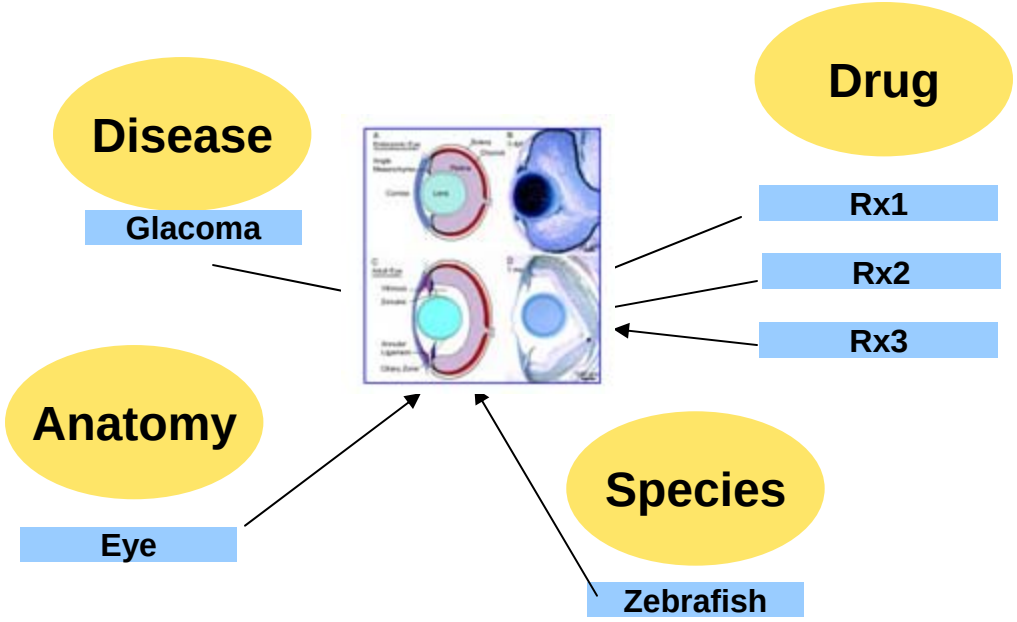


The Idea of Facets

- Facets are a way of labeling data
  - A kind of Metadata (data about data)
  - Can be thought of as properties of items
- Facets vs. Categories
  - Items are placed INTO a category system
  - Multiple facet labels are ASSIGNED TO items

The Idea of Facets

- Create INDEPENDENT categories (facets)
  - Each facet has labels (sometimes arranged in a hierarchy)
- Assign labels from the facets to every item
  - Example: bioscience journal articles



Example:
Nobel Prize Winners Collection (Before and After Facets)

Nobelprize.org

HOME SITE HELP ABOUT

NOBEL | PHYSICS | CHEMISTRY | MEDICINE | **LITERATURE** | PEACE | ECONOMICS

LAUREATES | ARTICLES | EDUCATIONAL

The Nobel Prize in Literature

The Nobel Prize in Literature has recognized the whole spectrum of literary works including poetry, novels, short stories, plays, essays and speeches. Starting off with the first prize in 1901 to the poet and philosopher Sully Prudhomme, author of *Stances et Poèmes* (1865), the Prize has distinguished the works of authors from different languages and cultural backgrounds. It has been awarded to unknown masters as well as authors acclaimed worldwide.

Laureates
Find out facts about all Nobel Prize Laureates in Literature through press releases, biographies, Nobel lectures, interviews, etc. »

Articles
Read articles written by Nobel Laureates and other invited authors. »

Educational
Listen to the Nobel Literature radio or play a game. »

- Prize-Awarding Institution: The Swedish Academy
- Nomination and Selection of Literature Laureates
- Nobel Symposia – Literature

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Get to know all 776 Prize Winners! »

Explore & Learn!
Games and Simulations »

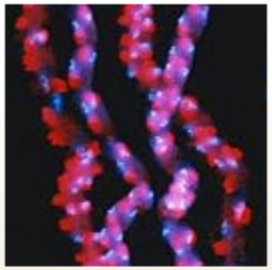
PLAY

Disarm the world of nuclear weapons! »

HOME | SITE HELP | ABOUT | SEARCH

Nobelprize.org

NOBEL | PHYSICS | CHEMISTRY | MEDICINE | LITERATURE | PEACE | ECONOMICS



SHORTCUTS

Press Room »

Alfred Nobel »

Nobel Foundation »

Nobel Media »

Nobel Museum »

Nobel Peace Center »

Prize Awarders »

Internet TV »

The Nobel Prize is an international award given yearly since 1901 for achievements in physics, chemistry, medicine, literature and for peace. In 1968, the Bank of Sweden instituted the Prize in Economic Sciences in Memory of Alfred Nobel, founder of the Nobel Prize.

The Prize Winners are announced in October every year. They receive their awards (a prize amount, a gold medal and a diploma) on December 10, the anniversary of Nobel's death. ■

YOUR QUESTION ON NOBEL MINDS!
Your question could be one of those answered by the Prize Winners participating in the SVT/BBCW production "Nobel Minds," broadcasted on BBC World December 17. »

776 NOBEL PRIZE WINNERS SO FAR
Who is the youngest Laureate ever? Has any individual or organization received the Nobel Prize more than once? More Prize Winner facts. »

NOBEL PRIZE WINNERS 2005

Read about the Prizes and listen to the newly announced Winners!

The Nobel Prize in Physics
Roy J. Glauber »
John L. Hall »
Theodor W. Hänsch »

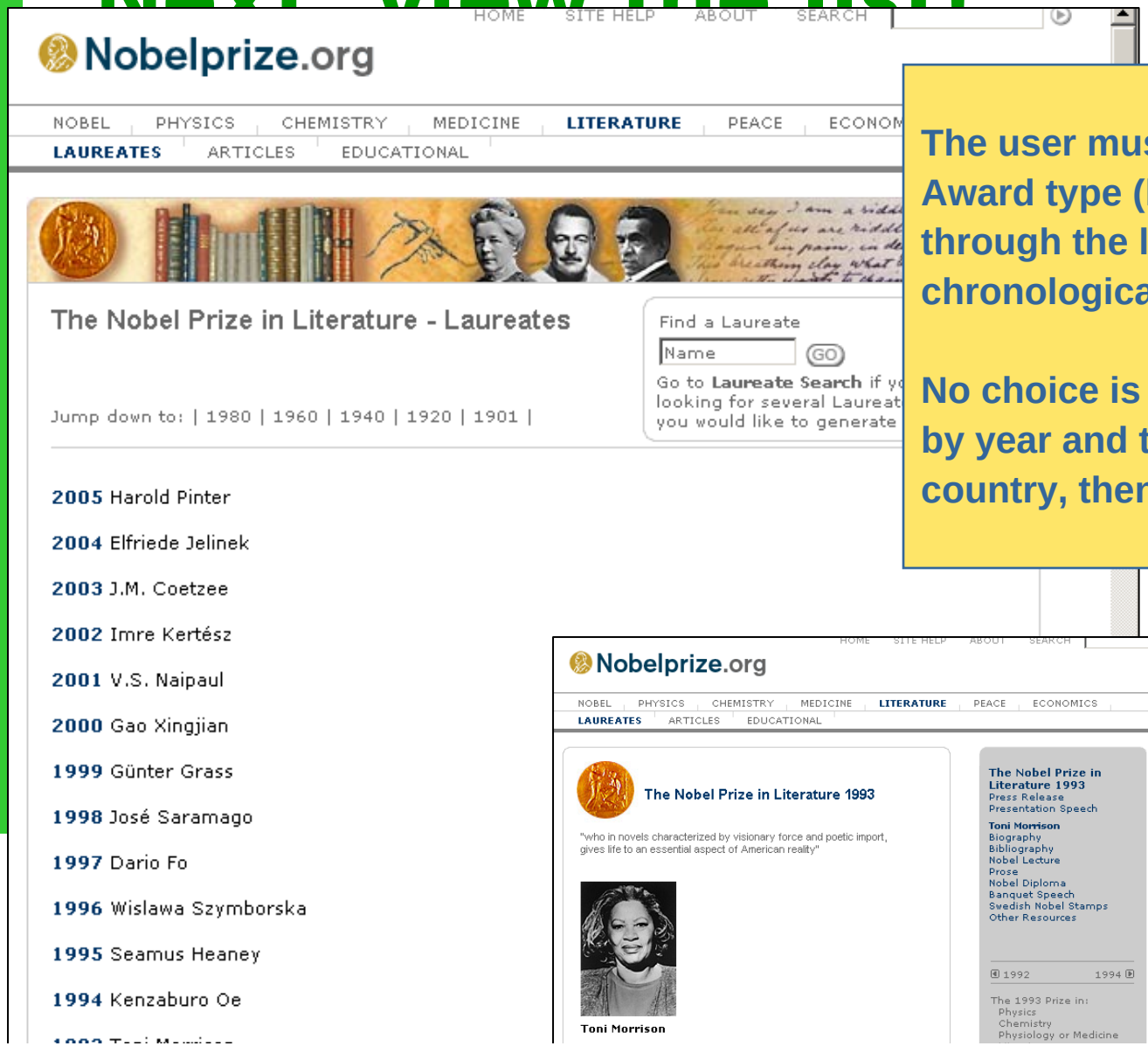
The Nobel Prize in Chemistry
Yves Chauvin »
Robert H. Grubbs »
Richard R. Schrock »

The Nobel Prize in Physiology or Medicine
Barry J. Marshall »

The Nobel Prize in Literature
Harold Pinter »

The Nobel Peace Prize

Next, view the list!

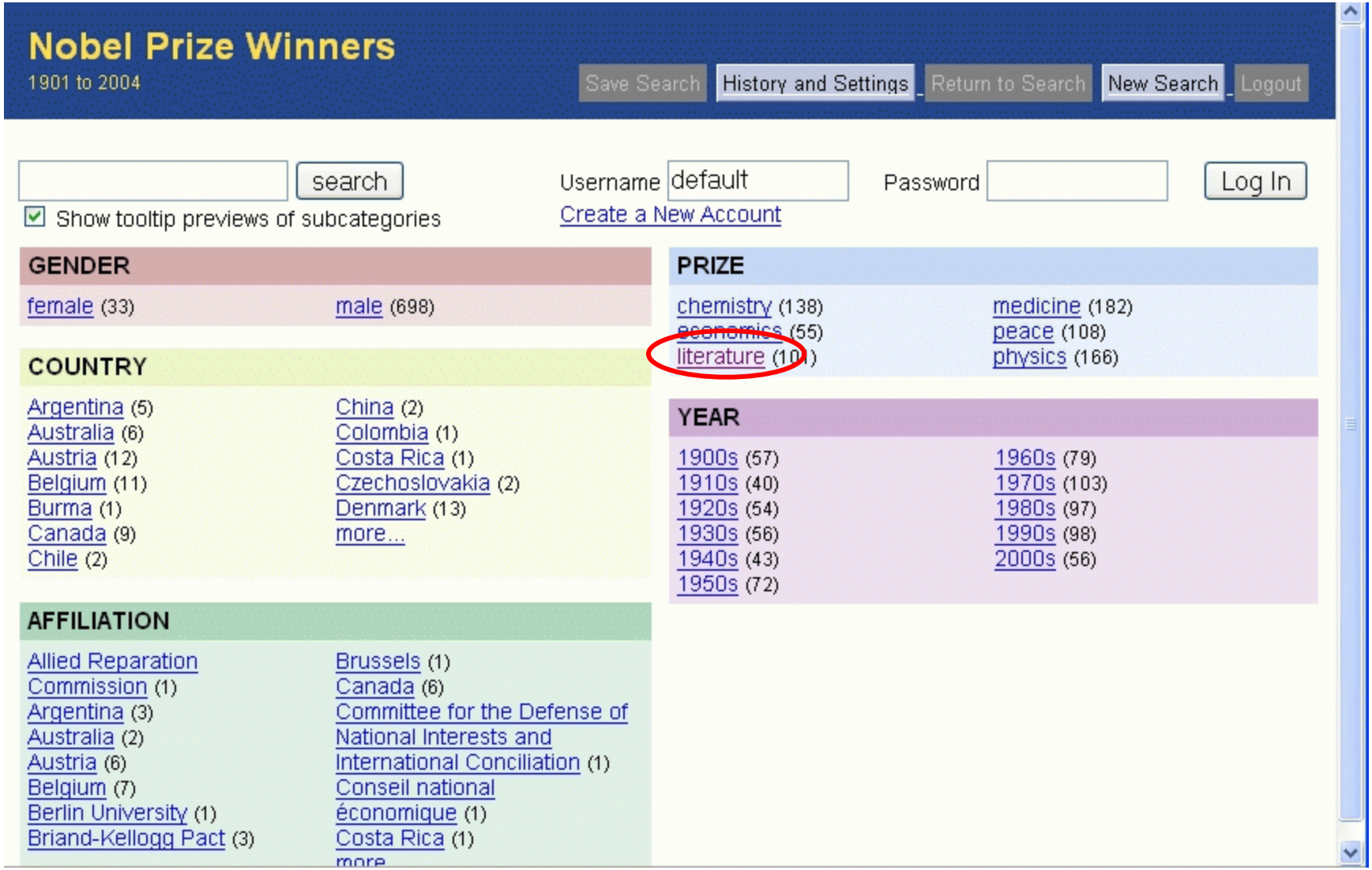


The user must first choose an Award type (literature), then browse through the laureates in chronological order.

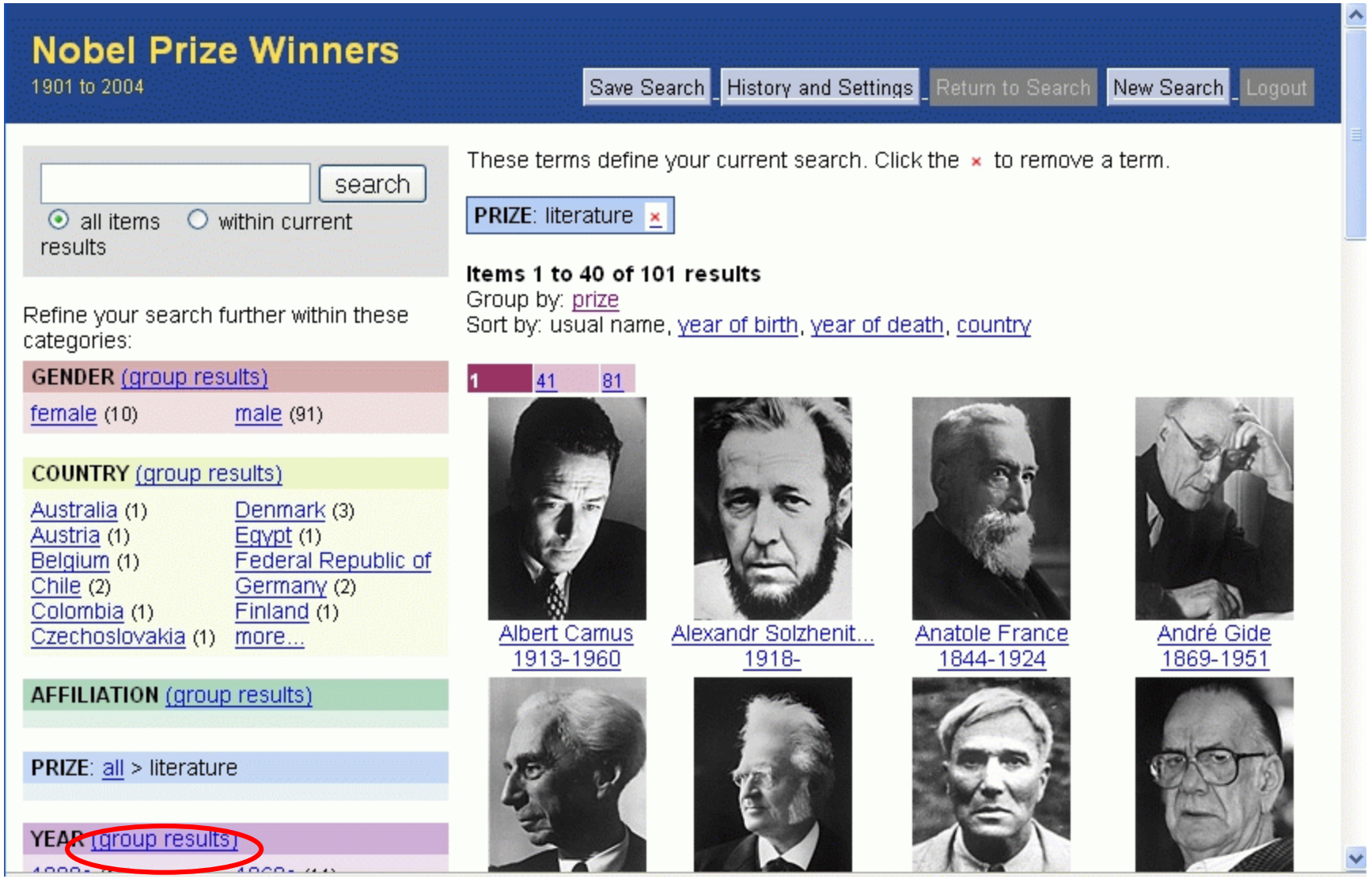
No choice is given to, say organize by year and then award, or by country, then decade, then award, etc.

Flamenco Interface: Using Hierarchical Faceted Metadata

Opening View
Select literature from PRIZE facet



Group results by YEAR facet



Select 1920's from YEAR facet

search

all items in current results

Refine your search within these categories:

GENDER (group results)

female (10) male (91)

COUNTRY (group results)

Australia (1) Denmark (3)
Austria (1) Egypt (1)
Belgium (1) Federal Republic of
Chile (2) Germany (2)
Colombia (1) Finland (1)
Czechoslovakia (1) more...

AFFILIATION

PRIZE: all > literature

YEAR

1900s (10) 1960s (11)
1910s (9) 1970s (11)
1920s (10) 1980s (10)
1930s (9) 1990s (10)
1940s (6) more...
1950s (10)

Recently Viewed Items
Go to Item History

PRIZE: literature ×

101 items, grouped by YEAR (view ungrouped items)

1900s (10)


Bjørnstjerne Bjørn...
1832-1910


Frédéric Mistral
1830-1914


Giosuè Carducci
1835-1907


Henryk Sienkiewicz
1846-1916

all 10 items...

1910s (9)


Carl Spitteler
1845-1924


Gerhart Hauptmann
1862-1946


Henrik Pontoppidan
1857-1943


Karl Gjellerup
1857-1919

all 9 items...

1920s (10)

Current query is PRIZE > literature AND YEAR: 1920's. Now remove PRIZE > literature

Nobel Prize Winners
1901 to 2004

Save Search | History and Settings | Return to Search | New Search | Logout

search
all items within current results

Refine your search further within these categories:

GENDER (group results)
female (2) male (8)

COUNTRY (group results)
France (2) Norway (2)
Germany (1) Poland (1)
Ireland (1) Spain (1)
Italy (1) United Kingdom (1)

AFFILIATION (group results)

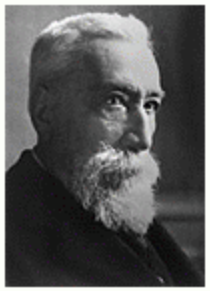
PRIZE: all > literature (group results)

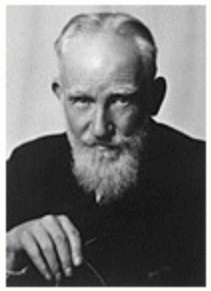
YEAR: all > 1920s (group results)
1920 (1) 1925 (1)
1921 (1) 1926 (1)
1922 (1) 1927 (1)

These terms define your current search. Click the × to remove a term.

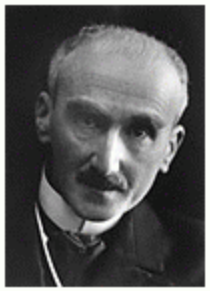
PRIZE: literature ×
YEAR: 1920s ×

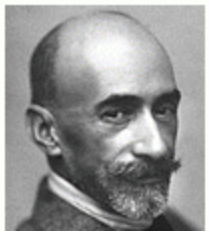
10 results
Group by: prize, year
Sort by: usual name, year of birth, year of death, country


Anatole France
1844-1924

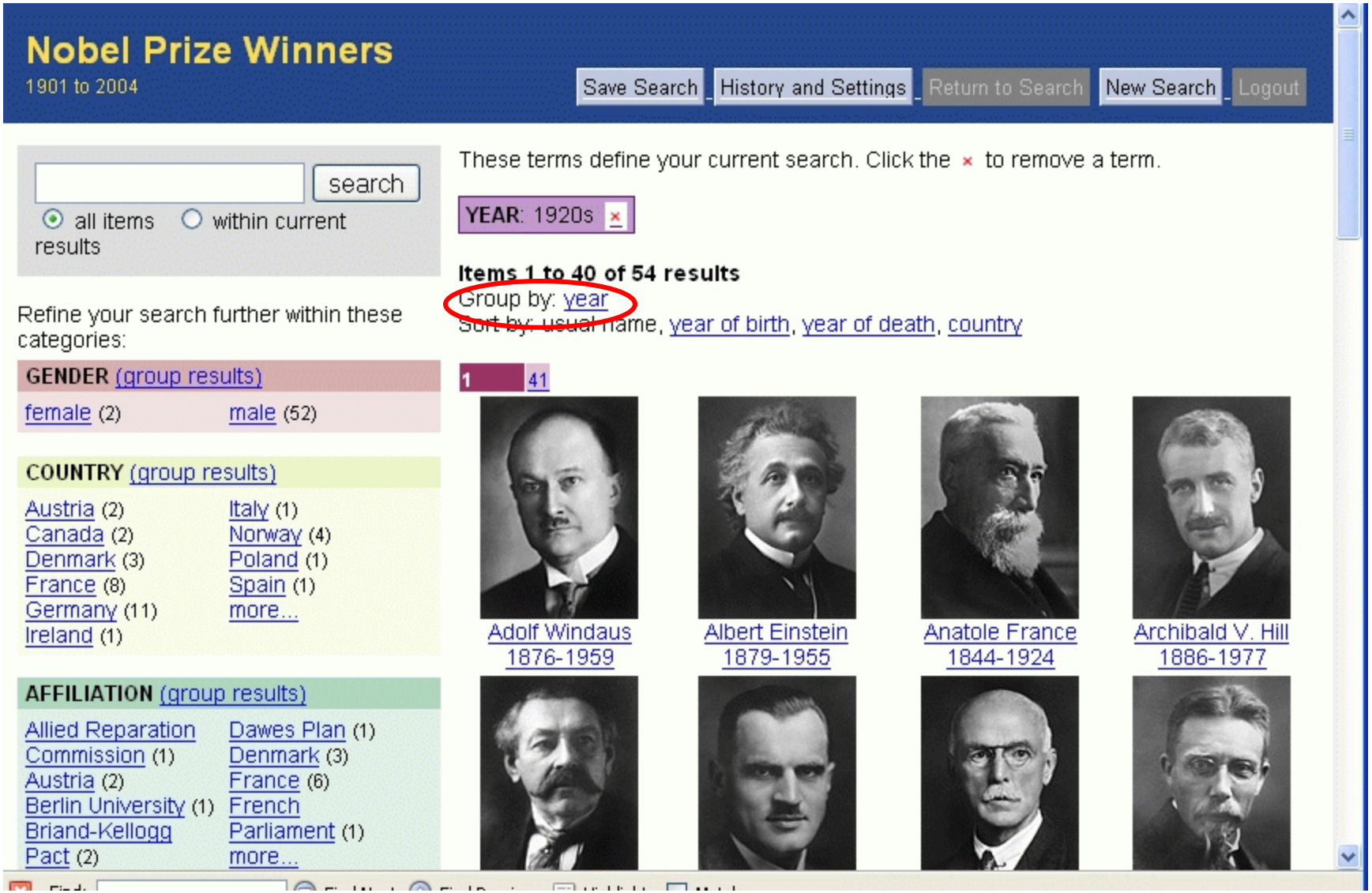

George Bernard Shaw
1856-1950


Grazia Deledda
1871-1936


Henri Bergson
1859-1941



Now Group By YEAR > 1920's



Hierarchy Traversal:
Group By YEAR > 1920's, and drill down to 19

Nobel Prize Winners

1901 to 2004

Save Search | History and Settings | Return to Search | New Search | Logout

search

all items in current results

Refine your search within these categories:

GENDER (group results)

female (2) male (52)

COUNTRY (group results)

Austria (2)
Canada (2)
Denmark (3)
France (8)
Germany (11)
Ireland (1)
Italy (1)
Norway (4)
Poland (1)
Spain (1)
more...

AFFILIATION (group results)

Allied Reparation Commission (1)
Austria (2)
Berlin University (1)
Briand-Kellogg Pact (2)
Brussels (1)
Canada (2)
Dawes Plan (1)
Denmark (3)
France (6)
French Parliament (1)
more...

PRIZE (group results)

chemistry (10)
literature (10)
medicine (11)
peace (11)
physics (12)

These terms define your current search. Click the × to remove a term.

YEAR: 1920s ×

54 items, grouped by YEAR (view ungrouped items)

1920 (5)


August Krogh
1874-1949


Charles Edouard Gu...
1861-1938


Knut Hamsun
1859-1952


Léon Bourgeois
1851-1925


Walther Nernst
1864-1941

1921 (5)

Select an individual item

Nobel Prize Winners

1901 to 2004

Save Search | History and Settings | Return to Search | New Search | Logout

search

all items in current results

Refine your search within these categories:

GENDER (group results)

male (5)

COUNTRY (group results)

France (1)
Germany (1)
Norway (1)
Sweden (1)
Switzerland (1)
United Kingdom (1)

AFFILIATION (group results)

Brussels (1)
Germany (1)
League of Nations (1)
Sweden (1)
United Kingdom (1)

PRIZE (group results)

chemistry (1)
literature (1)
peace (2)
physics (1)

YEAR: all > 1920s > 1921

Recently Viewed Items

Go to Item History

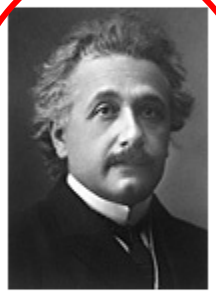
These terms define your current search. Click the × to remove a term.

YEAR: 1920s > 1921 ×

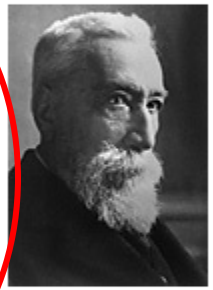
5 results

Group by: year

Sort by: usual name, year of birth, year of death, country



Albert Einstein
1879-1955



Anatole France
1844-1924

Christian Lange
1869-1938

Frederick Soddy
1877-1956

Hjalmar Branting
1860-1925

Use Endgame to expand out

Nobel Prize Winners

1901 to 2004

Save Item | History and Settings | Return to S

Item 1 of 4 (back to results)

next

Albert Einstein
1879-1955
Biography
Nobel Lecture

Current search:

COUNTRY: Switzerland ×

PRIZE: physics ×

Select any link to see items in a related category.

Find Similar Items

more general categories	information about this item	
GENDER	GENDER	
	male (698)	☐
COUNTRY	COUNTRY	
	Germany (44)	☐
	Switzerland (27)	☐
AFFILIATION	AFFILIATION	
Germany (41)		
Berlin (10)	Kaiser-Wilhelm-Institut für Physik (2)	☐
PRIZE	PRIZE	
	physics (166)	☐
YEAR	YEAR	
1920s (54)	1921 (5)	☐

USUAL NAME: Albert Einstein
LONG NAME: Albert Einstein
YEAR OF BIRTH: 1879
YEAR OF DEATH: 1955

Use Endgame to expand out

Nobel Prize Winners

1901 to 2004

Save Search | History and Settings | Return to Search | New Search | Logout

search

all items in current results

Refine your search within these categories:

GENDER (group results)

female (2) male (164)

COUNTRY (group results)

Austria (3)
Canada (1)
China (2)
Denmark (3)
Federal Republic of Germany (10)
France (11)
Germany (11)
India (1)
Ireland (1)
Italy (3)
more...

AFFILIATION (group results)

Austria (1)
Denmark (3)
Federal Republic of Germany (6)
France (12)
Germany (12)
India (1)
Ireland (1)
Italy (2)
Japan (3)
Russia (1)
more...

PRIZE: all > physics

These terms define your current search. Click the × to remove a term.

PRIZE: physics ×

Items 1 to 40 of 166 results

Group by: prize

Sort by: usual name, year of birth, year of death, country

1 41 81 121 161

Aage N. Bohr
1922-

Abdus Salam
1926-1996

Albert A. Michelson
1852-1931

Albert Einstein
1879-1955

Aleksandr M. Prokh...
1916-2002

Alexei A. Abrikosov
1928-

Alfred Kastler
1902-1984

Anthony J. Leggett
1938-

Or use "More like this" to find similar items

Nobel Prize Winners
1901 to 2004

Save Item | History and Settings | Return to Search

Item 1 of 5 (back to results)
next

Albert Einstein
1879-1955
Biography
Nobel Lecture

Current search:

YEAR: 1920s > 1921 ×

Select any link to see items in a related category.

Find Similar Items (4)

more general categories	information about this item	
GENDER	**GENDER**	
	male (698)	☐
COUNTRY	**COUNTRY**	
	Germany (44)	☐
	Switzerland (27)	☑
AFFILIATION	**AFFILIATION**	
Germany (41)		
Berlin (10)	Kaiser-Wilhelm-Institut für Physik (2)	☐
PRIZE	**PRIZE**	
	physics (166)	☑
YEAR	**YEAR**	
1920s (54)	1921 (5)	☐

USUAL NAME: Albert Einstein
LONG NAME: Albert Einstein
YEAR OF BIRTH: 1879
YEAR OF DEATH: 1955

Start a new search using keyword "California"

Nobel Prize Winners

1901 to 2004

Save Search | History and Settings | Return to Search | New Search | Logout

California search

all items in current results

Refine your search within these categories:

GENDER (group results)

male (4)

COUNTRY: all > Switzerland

AFFILIATION (group results)

France (1) Switzerland (2)
Germany (1)

PRIZE: all > physics

YEAR (group results)

1920s (2) 1980s (2)

Recently Viewed Items

Go to Item History

These terms define your current search. Click the × to remove a term.

COUNTRY: Switzerland ×

PRIZE: physics ×

4 results

Group by: country, prize

Sort by: usual name, year of birth, year of death, country

Albert Einstein
1879-1955

Charles Edouard Gu...
1861-1938

Heinrich Rohrer
1933-

K. Alex Müller
1927-

Note that category structure remains after the keyword search

"California" appears in these category names:

- **affiliation** > California
- **affiliation** > ... > Berkeley > University of California
- **affiliation** > ... > Irvine > University of California
- **affiliation** > ... > La Jolla > University of California
- **affiliation** > ... > University of California
- **affiliation** > ... > University of Southern California
- **affiliation** > ... > California Institute of Technology
- **affiliation** > ... > San Diego > University of California
- **affiliation** > ... > University of California
- **affiliation** > ... > University of California

search

all items in current results

Refine your search within these categories:

GENDER (group results)

female (1) male (64)

COUNTRY (group results)

Canada (1) Norway (1)
Egypt (1) United Kingdom (2)
Federal Republic of Germany (1) United States of America (60)

AFFILIATION (group results)

Federal Republic of Germany (1) United States of America (65)

PRIZE (group results)

chemistry (20) peace (1)
economics (8) physics (25)
medicine (12)

YEAR (group results)

1920s (1) 1970s (3)
1930s (3) 1980s (11)
1940s (1) 1990s (15)

These terms define your current search. Click the × to remove a term.

keyword "California" ×

Items 1 to 40 of 65 results

Sort by: usual name, year of birth, year of death, country

1 41


A. Michael Spence
1943-


Ahmed Zewail
1946-


Alan Heeger
1936-


Arthur Kornberg
1918-


Arthur L. Schawlow
1921-1999


Burton Richter
1931-


Carl D. Anderson
1905-1991


Clive W.J. Granger
1934-

The query is now a keyword ANDed with a facet subhierarchy

Nobel Prize Winners

1901 to 2004

Save Search | History and Settings | Return to Search | New Search | Logout

search

(•) all items ( ) in current results

Refine your search within these categories:

GENDER (group results)

male (8)

COUNTRY (group results)

Norway (1)
United Kingdom (1)
United States of America (6)

AFFILIATION (group results)

United States of America (8)

PRIZE: all > economics

YEAR (group results)

1980s (1)
1990s (2)
2000s (5)

Recently Viewed Items

Go to Item History

These terms define your current search. Click the × to remove a term.

keyword "California" ×

PRIZE: economics ×

8 results

Group by: prize

Sort by: usual name, year of birth, year of death, country

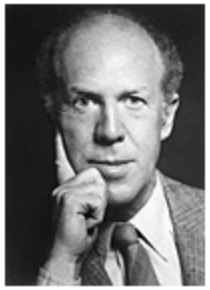
A. Michael Spence
1943-

Clive W.J. Granger
1934-

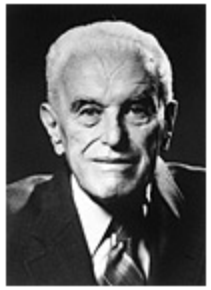
Daniel L. McFadden
1937-

Finn E. Kydland
1943-

George A. Akerlof
1940-



Gerard Debreu
1921-2004



John C. Harsanyi
1920-2000

William F. Sharpe
1934-

Advantages of Faceted Navigation

- Gives users control and flexibility
- Can't end up with empty results sets
  - (except with keyword search)
- Helps avoid feelings of being lost.
- Easier to explore the collection.
  - Helps users infer what kinds of things are in the collection.
  - Evokes a feeling of "browsing the shelves"
- Is preferred over standard search for collection browsing in usability studies.
  - (Interface must be designed properly)

Advantages of Faceted Metadata

- Helps alleviate the metadata wars:
  - Allows for both splitters and lumpers
    - Is this a bird or a robin
    - Doesn't matter, you can do both!
  - Allows for differing organizational views
    - Does NASCAR go under sports or entertainment?
    - Doesn't matter, you can do both!

MeSH (Medical Subject Headings)

- NLM's MeSH category labels are assigned to Medline Articles
- But it is hard to browse.
- We converted it to a faceted structure, but haven't used it yet.

Aquabrowser: Faceted Navigation in a DL

Shown on lens.lib.uchicago.edu

THE UNIVERSITY OF CHICAGO LIBRARY

lens.[redacted]lib.uchicago.edu

marti hearst | Search | Advanced search

Discover | Author

simeon
lectura
apostol
espíritu
fidel
rudolph
farabundo
miquel
escritor
patty
martti
hombre
discurso
martii
mitología
marti hearst
josé
randolph
leído
marty
malti
pensamiento
biográfico
phoebe
modernismo
editorial

Your query: marti hearst

Refine by Call Number Range

› P - Language and literature (3) › Q - Science (3)

Book

1. The Oxford handbook of computational linguistics / edited by Ruslan Mitkov.
Oxford [England] ; New York : Oxford University Press, 2003.
Found: Hearst (1) marti (1)
Regenstein, Bookstacks P98 .O95 2003
» Save or tag...

Book

2. WordNet : an electronic lexical database / edited by Christiane Fellbaum.
Cambridge, Mass : MIT Press, c1998.
Language, speech, and communication
Found: Hearst (1) marti (1)
Regenstein, Bookstacks P325.5.D38 W67 1998
» Save or tag...

Book

3. Natural language information retrieval / edited by Tomek Strzalkowski.
Dordrecht ; Boston : Kluwer Academic, c1999.
Text, speech, and language technology v. 7
Found: Hearst (1) marti (1)
Regenstein, Bookstacks P98 .N297 1999
» Save or tag...

Book

4. Corpus processing for lexical acquisition / edited by Branimir Boguraev and James Pustejovsky.

Author / Creator

Format
› Book (6)
› Library Website

Topic
› Computational lir
› WordNet (1)
› English language processing (1)
› Semantics Data
› Information stora systems (1)
› Machine learning
› Natural language (Computer scien
› Lexicology Data
› Artificial intelliger

Publication date
› In the last 3 year
› In the last 10 yea
› In the last 50 yea

Genre

Language
› English (6)

Series

THE UNIVERSITY OF CHICAGO LIBRARY

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bioinformatics | Search | Advanced search

Discover

recognition
compute
ontology
genomes
informatik
disinformation
geneticist
immunoinformatics
geoinformatics
Computational Biology
Information science
algorithm
bioinformatics
computational
genomics
Biology Data processing
genome
proteomics
informatien
wabi
ieee
computation
basics
informatics
bsb
sequence

Results 1 - 25 of 944 for **bioinformatics**, sorted by: relevance - link to this result page

Your query: bioinformatics

Refine by Call Number Range

- B - Philosophy. Psychology. Religion (4)
- G - Geography. Anthropology. Recreation (1)
- H - Social sciences (4)
- K - Law in general. Comparative and uniform law. Jurisprudence (3)
- P - Language and literature (5)
- Q - Science (493)
- R - Medicine (83)
- S - Agriculture (2)
- T - Technology. (26)
- U - Military science (Ge
- Y - Congressional Heari Prints (1)

Your query has been expanded with these terms:Bio-informatics, Biological informatics, Computational Biology

Book

1. Bioinformatics : genes, proteins and computers / edited by Christine Orengo, David Jones, Janet Thornton.
Oxford : BIOS Scientific ; New York : Distributed in the U.S. by Springer-Verlag, 2003.
Advanced text

Found: Bioinformatics (3) Biological (1) Biology (1) Computational (1)

Crerar, Bookstacks QH324.2 .B56 2003

» Save or tag...

Book

2. Bioinformatics : managing scientific data / edited by Zoé Lacroix and Terence Critchlow.
San Francisco : Morgan Kaufmann, c2003.
Morgan Kaufmann series in multimedia information and systems

Found: Bioinformatics (6) Biological (2)

Crerar, Bookstacks QH324.2 .B55 2003

Author / Creator

Format
- Book (676)
- E-Resource (353
- Electronic resou
- Serial (28)
- Library Website

Topic
- Bioinformatics (3
- Computer scienc
- Computational B
- Artificial intellige
- Artificial Intellige Robotics) (66)
- Algorithm Analys Complexity (65)
- Computer softwa
- Computation by

Results 1 - 4 of 4 for **bioinformatics**, sorted by: relevance - link to this result page

RSS FEEDS

Your query: bioinformatics | H - Social sciences

Remove

Keep

Refine by Call Number Range

- HD28-HD9999 Industries. Land use. Labor (1)
- HM401-HM1281 Sociology (General) (2)

Book

1. The global genome : biotechnology, politics, and culture / Eugene Thacker.

Thacker, Eugene.

Cambridge, Mass. : MIT Press, c2005.

Leonardo (Series) (Cambridge, Mass.)

Found: Bioinformatics (2) Bioinformatic (1)

Crerar, Bookstacks HD9999.B442 T453 2005

» Save or tag...

Book

2. The exploit : a theory of networks / Alexander R. Galloway and Eugene Thacker.

Galloway, Alexander R., 1974-

Minneapolis : University of Minnesota Press, c2007.

Electronic mediations ; v. 21

Found: Biology (2) Bioinformatics (1) Biological (1)

Regenstein, Bookstacks HM741 .G34 2007

» Save or tag...

Book

3. 2004 IEEE International Conference on e-Technology, e-Commerce, and e-Service : EEE 2004, Taipei, Taiwan, 28-31 March 2004 : proceedings / edited by Soe-tsyr Yuan and Jiming Liu.

IEEE International Conference on E-Technology, E-Commerce, and E-Service (2004 : Taipei, Taiwan)

Los Alamitos, Calif. : IEEE Computer Society, c2004.

Found: Bioinformatics (1) Computational (1)

- Author / Creator
- Topic
  - Bioinformatics (1)
  - Business intelligence Computer network resources (1)
  - Electronic commerce Security measures (1)
  - Globalization (1)
  - Information society Social aspects (1)
  - Internet (1)
  - Biotechnology industries (1)
  - Social networks (1)
  - Computer networks (1)
  - Sovereignty (1)
  - 8 more...
- Publication date
  - In the last 3 years (2)
- Genre
- Series
  - IFIP - International Federation for Information Processing (1)
  - International Federation for Information Processing (Series) (1)

eting

Book

1. Bioinformatics : genes, proteins and computers / edited by Christine Orengo, David Jones, Janet Thornton.

Oxford : BIOS Scientific ; New York : Distributed in the U.S. by Springer-Verlag, 2003.

Advanced text

Found: Bioinformatics (3) Biological (1) Biology (1) Computational (1)

Crerar, Bookstacks QH324.2 .B56 2003

» Save or tag...

Book

2. Bioinformatics : managing scientific data / edited by Zoé Lacroix and Terence Critchlow.

San Francisco : Morgan Kaufmann, c2003.

Morgan Kaufmann series in multimedia information and systems

Found: Bioinformatics (6) Biological (2)

Crerar, Bookstacks QH324.2 .B55 2003

» Save or tag...

Electronic resource

3. Bioinformatics [electronic resource] : Problem Solving Paradigms / by Volker Sperschneider.

Sperschneider, Volker.

Berlin, Heidelberg : Springer-Verlag Berlin Heidelberg, 2008.

Found: Bioinformatics (3) Biology (1) Computational (1)

Full text online

Book

4. Bioinformatics : sequence and genome analysis / David W. Mount.

Mount, David W.

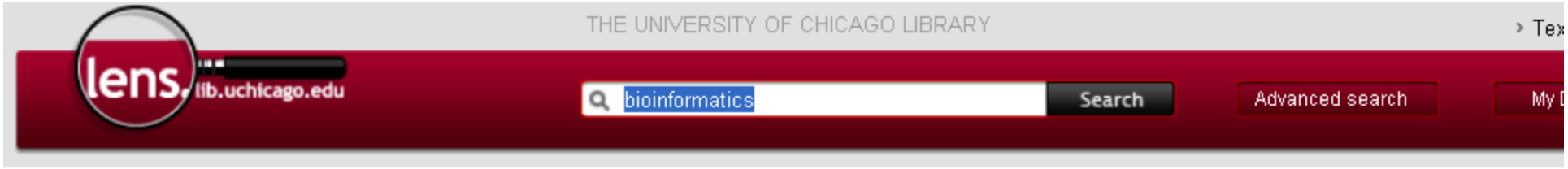
Cold Spring Harbor, N.Y. : Cold Spring Harbor Laboratory Press, c2004.

Found: Bioinformatics (3)

Crerar, Bookstacks QH441.2 .M68 2004

» Save or tag

- Author / Creator
- Format
- Topic
  - Bioinformatics (384)
  - Computer science (139)
  - Computational Biology (128)
  - Artificial intelligence (86)
  - Artificial Intelligence (incl. Robotics) (66)
  - Algorithm Analysis and Problem Complexity (65)
  - Computer software (65)
  - Computation by Abstract Devices (60)
  - Proteomics (58)
  - Genomics (58)
  - 1,201 more...
- Publication date
- Geographic Region
- Genre
- Time Period
- Language
  - English (904)
  - German (5)
  - unknown or invalid language (3)
  - French (2)
  - Italian (1)
- Series
- Location
  - Crerar (501)
  - Eckhart (101)
  - Regenstein (29)



Your Refine Options

Call Number Range (11) | Author / Creator (1,701) | Format (5) | Topic (1,211) | Publication date (5) | Geographic Region (2) | Genre (27) | Time Period (1)

Series (238) | Location (9) | New Books (1) | Availability (3) | Source (3)

Topic

- Bioinformatics **(384)**
- Computer science **(139)**
- Computational Biology **(128)**
- Artificial intelligence **(86)**
- Artificial Intelligence (incl. Robotics) **(66)**
- Algorithm Analysis and Problem Complexity **(65)**
- Computer software **(65)**
- Computation by Abstract Devices **(60)**
- Proteomics **(58)**
- Genomics **(50)**
- Database management **(50)**
- Computational Biology/Bioinformatics **(41)**
- Computational Biology methods **(38)**
- Biology Data processing **(38)**
- Computer Appl. in Life Sciences **(35)**
- Data mining **(32)**
- Information storage and retrieval systems **(32)**
- Computer simulation **(31)**
- Information Storage and Retrieval **(30)**
- Life sciences **(30)**
- Biomedical Engineering **(30)**
- Computational complexity **(29)**
- Molecular biology **(27)**
- Molecular biology Data processing **(26)**
- Pattern Recognition **(26)**
- Optical pattern recognition **(25)**
- Medical records Data processing **(2)**
- Pharmacy **(2)**
- Computer systems **(2)**
- Chemistry, Clinical **(2)**
- Drug Industry **(2)**
- Data Interpretation, Statistical **(2)**
- Molecular cloning **(2)**
- Microbiological Techniques **(2)**
- Variation (Genetics) **(2)**
- Biological systems Mathematical models **(2)**
- Mathematical statistics Data processing **(2)**
- Chaotic behavior in systems **(2)**
- Research Design **(2)**
- Clinical trials Statistical methods **(2)**
- Chemistry, Pharmaceutical **(2)**
- Chemistry Mathematics **(2)**
- Programming languages (Electronic computers) Semantics **(2)**
- Models, Theoretical **(2)**
- Knowledge acquisition (Expert systems) **(2)**
- Cytology Mathematical models **(2)**
- Pathogenic microorganisms **(2)**
- Medical microbiology **(2)**
- Drugs Testing **(2)**
- Wildlife conservation **(2)**
- Neoplasms **(2)**
- Biotechnology International cooperation Congresses **(1)**
- Biotechnology Government policy Congresses **(1)**
- Fuzzy logic **(1)**
- Messenger RNA **(1)**
- Transgenic mice **(1)**
- Genetic vectors **(1)**
- Genetic translation **(1)**
- Neuromuscular diseases Patients Rehabilitation **(1)**
- Myoelectric prosthesis **(1)**
- Medical genetics Social aspects **(1)**
- Medical care Technological innovations **(1)**
- Ovary physiology **(1)**
- Cancer Diagnosis Data processing **(1)**
- Palliative Care methods **(1)**
- Software protection Law and legislation **(1)**
- Medical Oncology **(1)**
- Exobiology **(1)**
- Algorithmes **(1)**
- Glioma **(1)**
- Fungi Classification **(1)**
- Drug Evaluation methods **(1)**
- Biotransformation **(1)**
- Hydrolases **(1)**
- Intellectual property Economic aspects **(1)**

Results after Refinement

Results 1 - 2 of 2 for **bioinformatics**, sorted by: relevance - link to this result page

RSS FEEDS

Your query: bioinformatics › Wildlife conservation

▾ Refine by Call Number Range

› Q - Science (1)

Electronic resource

1. NBII [electronic resource] : National **Biological** Information Infrastructure.

[Reston, Va.] : NBII National Program Office, [1998?]-

Found: Biological (8)

Full text online

Book

2. Bat **biology** and conservation / edited by Thomas H. Kunz and Paul A. Racey.

Washington : Smithsonian Institution Press, c1998.

Found: Biology (6) Bio (1) Computational (1)

Crerar, Bookstacks QL737.C5 B367 1998

» Save or tag...

Lens Home | Text-only | My Library Account | Feedback
Library Home | Library Catalog

powered by AquaBrowser Library®

▸ Author / Creator

▸ Format

▾ Topic

› Animal introduction Computer network resources (1)

› Biological diversity Computer network resources (1)

› Wildlife conservation Computer network resources (1)

› Biological diversity (1)

› Bats (1)

› Animal introduction (1)

▸ Genre

▾ Location

› Crerar (1)

▾ Availability

› Available (1)

› Available Online (1)

Time for a Break!

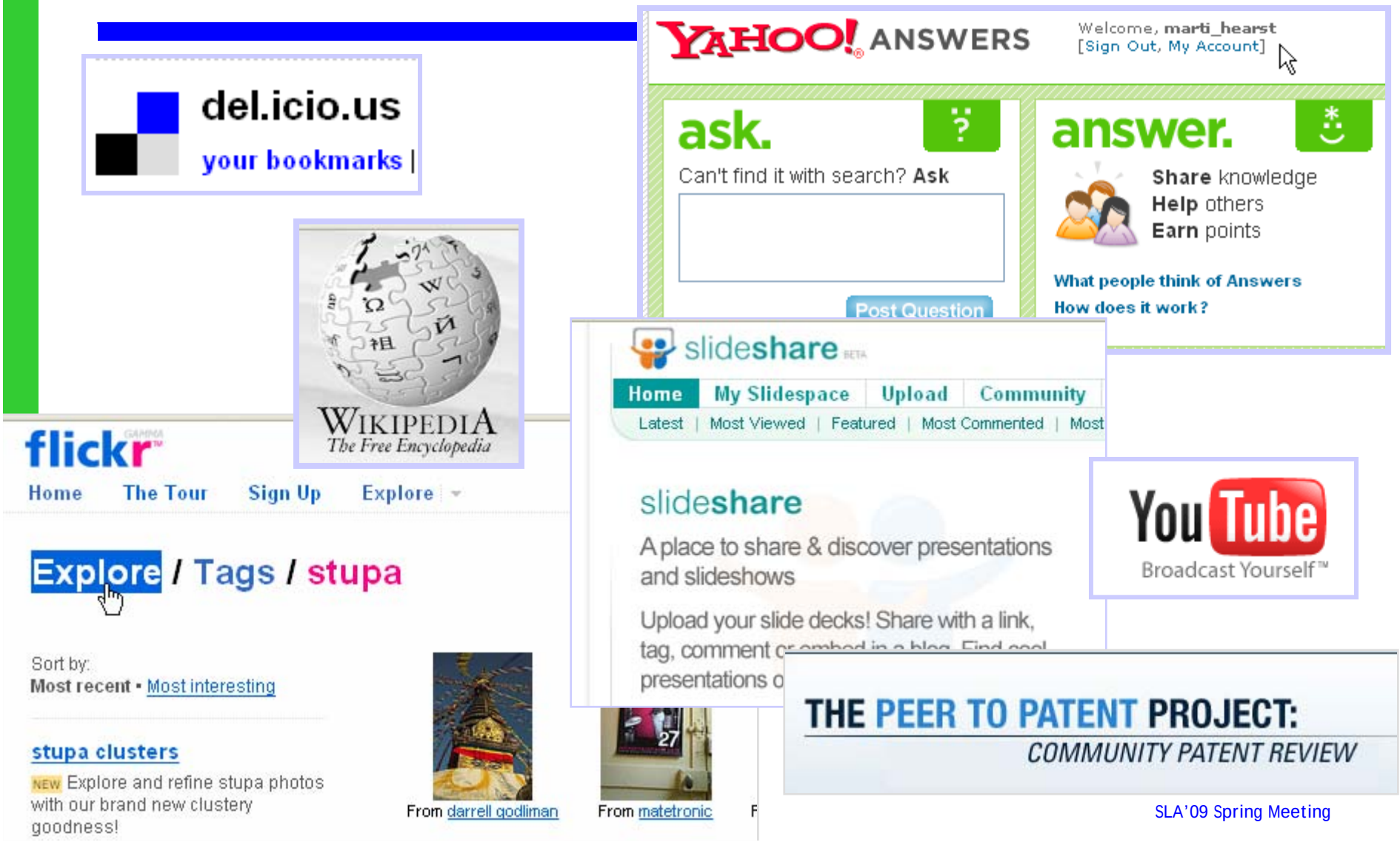
Tags and other Social Media

Two Main Points

1. Massive user behavior is aiding search algorithms in interesting ways.

2. Going deeper: An examination of social tagging:
   - The controversy
   - Research questions
   - Our work on automating creation of metadata structure

User-contributed content is exploding!



Social Information & Search

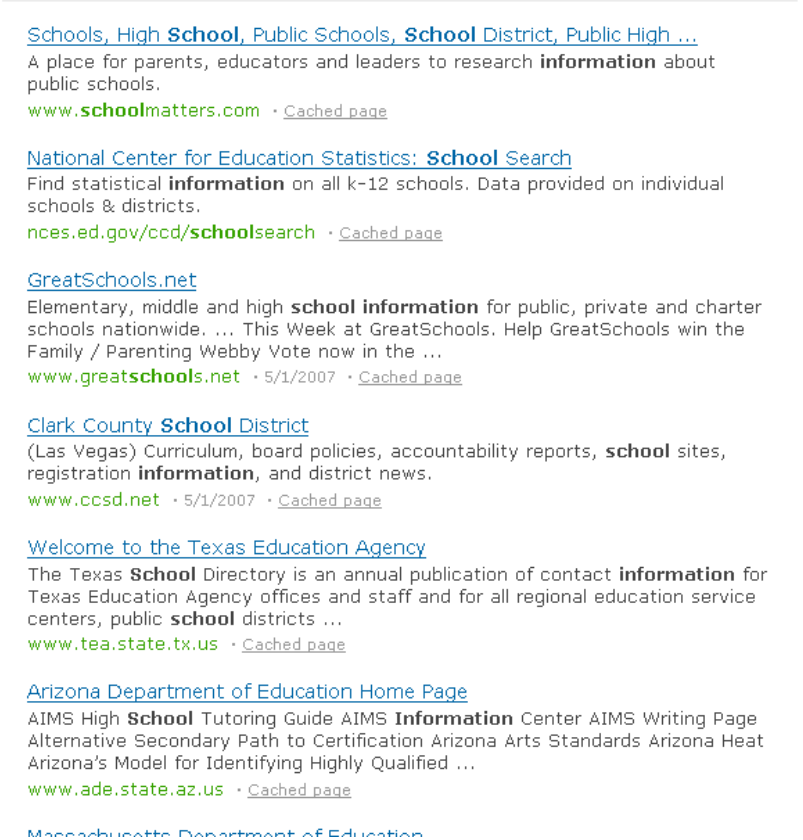
- Trend: human behavioral information is getting “baked in” to search algorithms.
- In many cases, the actions of the many is more useful than the actions of the individual.
- Three examples follow.

Actions of the Many vs. Individual

1. Anchor text for improved ranking.
   - vs author-supplied meta-tags

Actions of the Many vs. Individual

2. "Clickthrough" to improve ranking.
   - vs. an individual's prior clicks
   - Joachims et al. and Agichtein et al. found that human selections of links from search results could improve rankings for *popular* queries.
   - Some surprising rules:
     - Assign negative weight to an unclicked link that appears above and below a clicked link



Schools, High **School**, Public Schools, **School** District, Public High ...
A place for parents, educators and leaders to research **information** about public schools.
www.**school**matters.com · Cached page

National Center for Education Statistics: **School** Search
Find statistical **information** on all k-12 schools. Data provided on individual schools & districts.
nces.ed.gov/ccd/**school**search · Cached page

GreatSchools.net
Elementary, middle and high **school information** for public, private and charter schools nationwide. ... This Week at GreatSchools. Help GreatSchools win the Family / Parenting Webby Vote now in the ...
www.great**school**s.net · 5/1/2007 · Cached page

Clark County **School** District
(Las Vegas) Curriculum, board policies, accountability reports, **school** sites, registration **information**, and district news.
www.ccsd.net · 5/1/2007 · Cached page

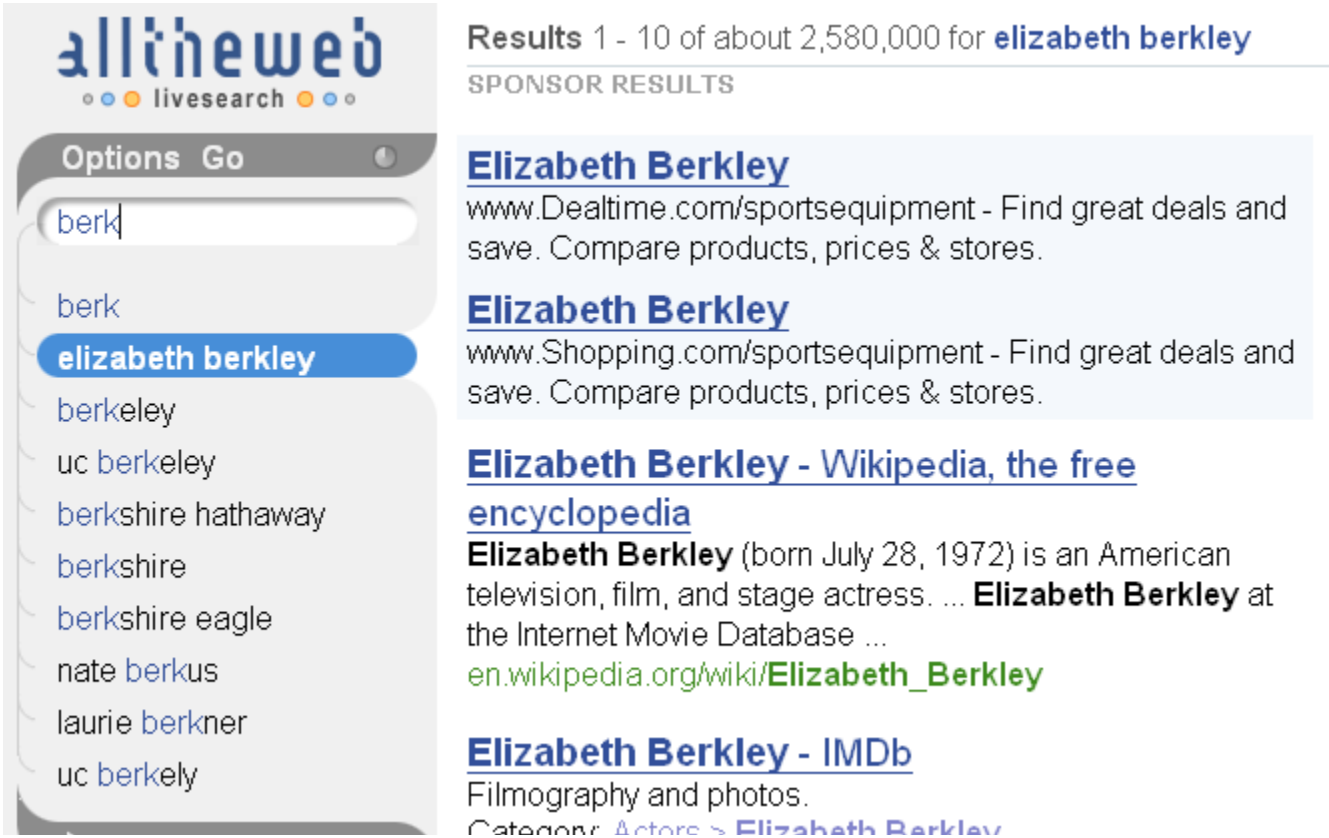
Welcome to the Texas Education Agency
The Texas **School** Directory is an annual publication of contact **information** for Texas Education Agency offices and staff and for all regional education service centers, public **school** districts ...
www.tea.state.tx.us · Cached page

Arizona Department of Education Home Page
AIMS High **School** Tutoring Guide AIMS **Information** Center AIMS Writing Page Alternative Secondary Path to Certification Arizona Arts Standards Arizona Heat Arizona's Model for Identifying Highly Qualified ...
www.ade.state.az.us · Cached page

Massachusetts Department of Education

Actions of the Many vs. the Individual

3. Query auto-suggest based on other users' queries
   - vs based on one one's prior queries alone



Social Tagging

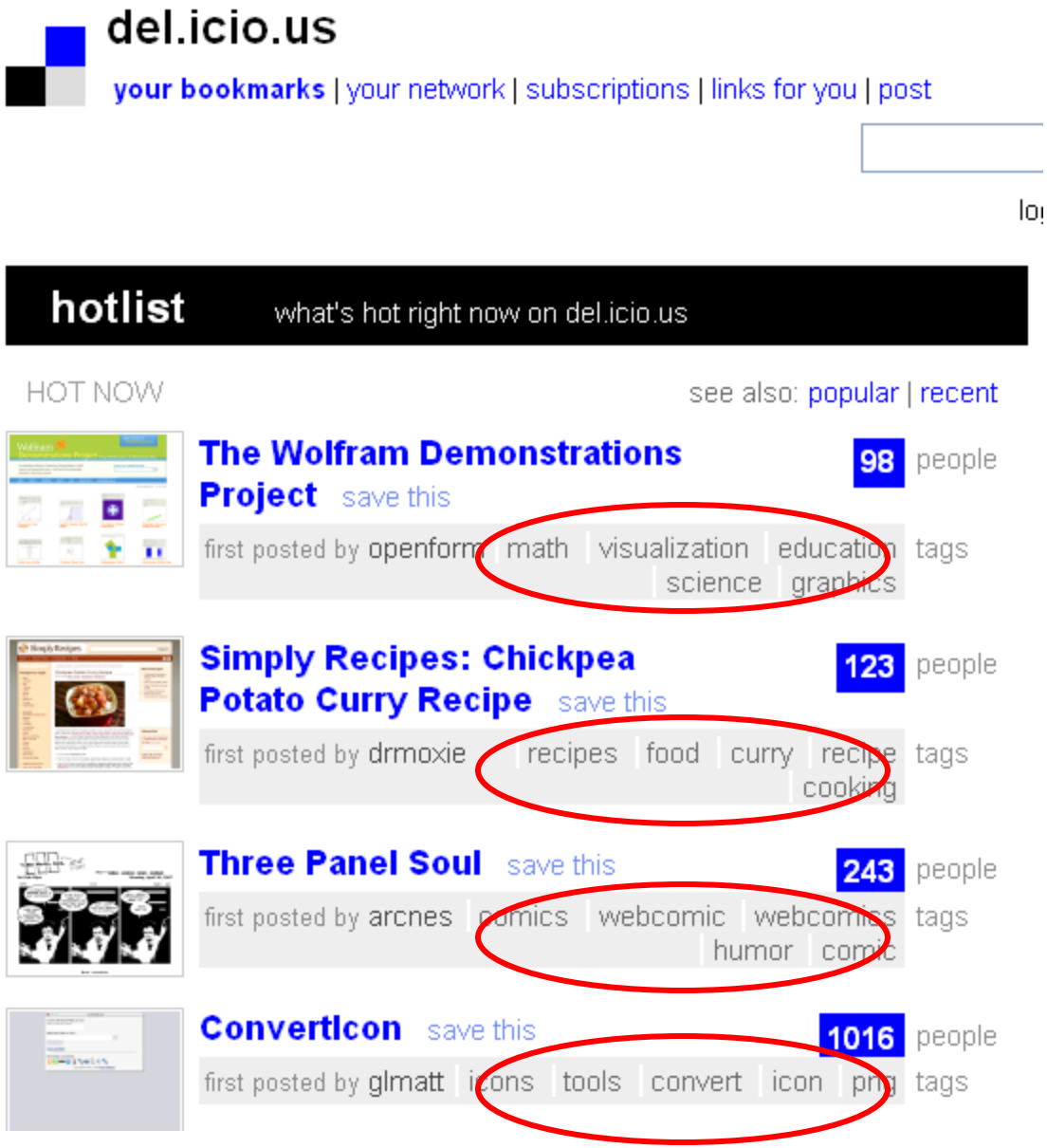
- Metadata assignment without all the bother
- Spontaneous, easy, low cognitive overhead
- Usually used in the context of social media

Uploaded on October 12, 2006
by **yorkie**

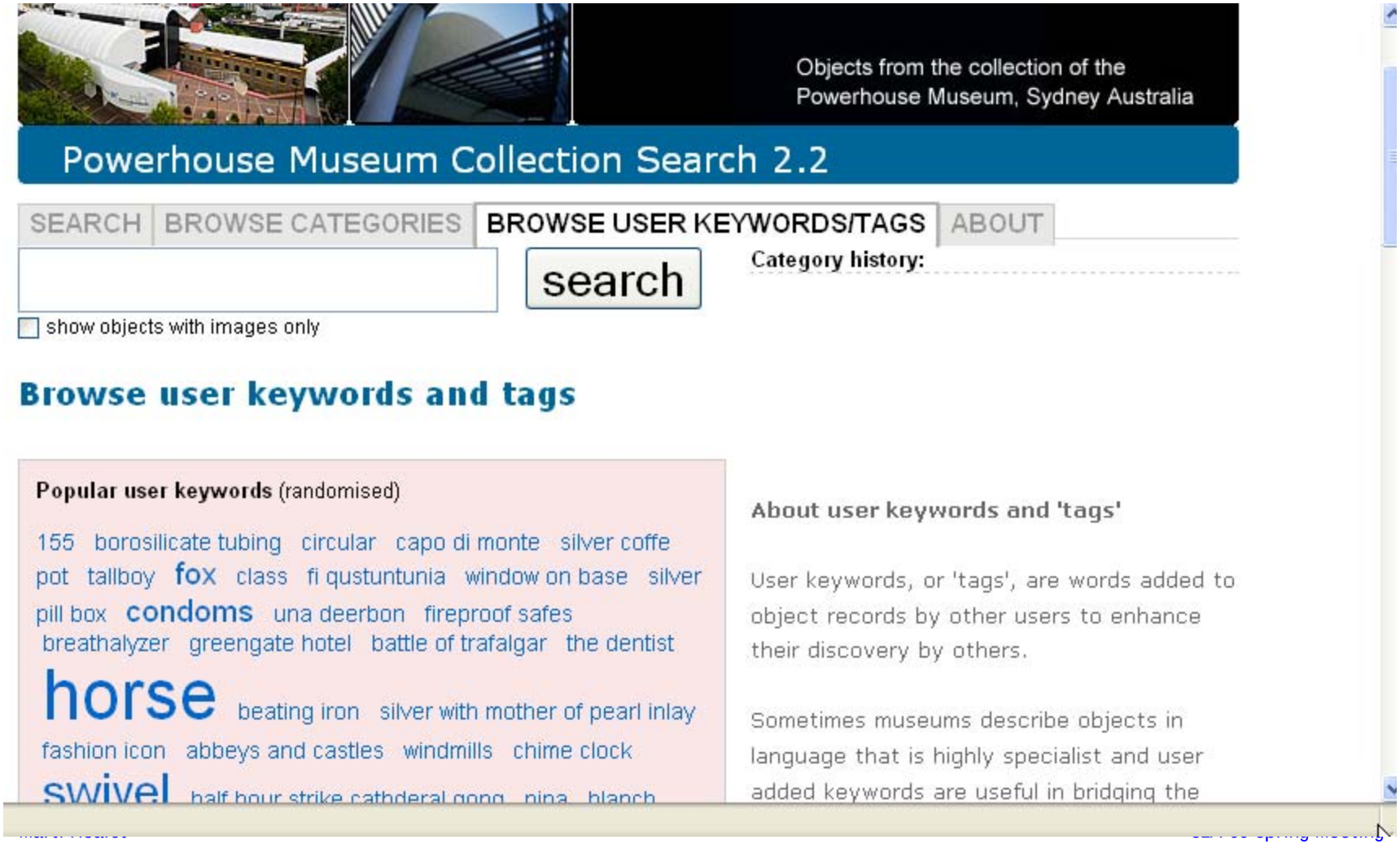
Tags

- fleetweek
- fleet
- week
- airraces
- aircraft
- air
- races
- airplane
- airplanes
- sanfrancisco
- san
- francisco
- sfbay
- sf
- redbull
- goldengatebridge
- goldengate

Popular pages on del.icio.us



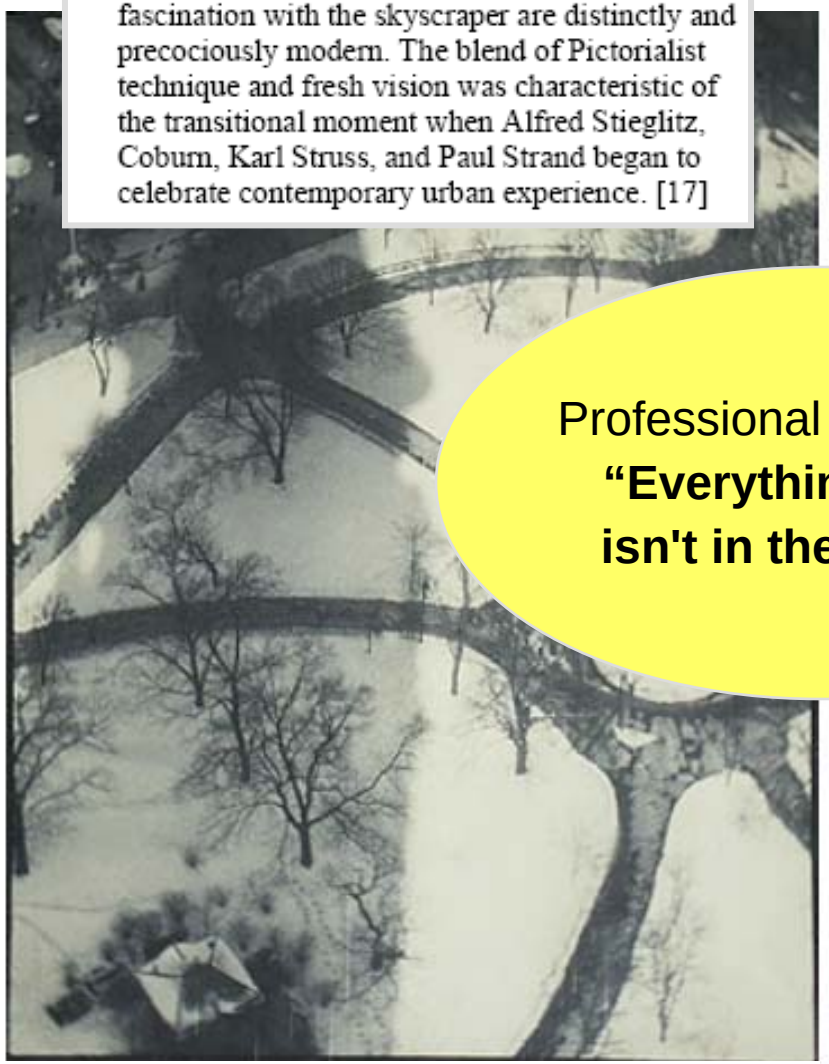
Visitor tagging at Powerhouse Museum



Tagging is Controversial!

- Sloppy!
- Disorganized!
- Incorrect!
- Power to the people!
- Easy!
- Cheap!

Couched in the soft velvety nap of the platinum paper, composed in the languid lines of Art Nouveau, and softly focused, this photograph of New York's Madison Square employs many elements of Pictorialism at its best. However, the dizzying effect of Coburn's aerial view and his fascination with the skyscraper are distinctly and precociously modern. The blend of Pictorialist technique and fresh vision was characteristic of the transitional moment when Alfred Stieglitz, Coburn, Karl Struss, and Paul Strand began to celebrate contemporary urban experience. [17]



Professional Cataloguer:
"Everything I know isn't in the picture!"

1. 20th century
2. abstract
3. abstraction
4. aerial
5. aerial topography
6. areal perspective
7. black and white
8. black and white contrast
9. cities
10. city
11. cityscape
12. cityscape in winter
13. Coldness
23. New York
24. New York City
25. New York City in winter
26. New York City winter
27. New Yorkers
28. NY
29. octopus
30. outdoors
31. park
32. park in winter
33. park-goers
34. parks
35. paths
36. pedestrians
37. photography (b/w)
38. public spaces
39. roads
40. shadow
41. shadow (tower)
42. shadows
43. sledders
44. Sledding
45. sleighs
46. snow
47. snowscape
48. street scene
49. street scenes
50. tower (shadow)
51. trees
52. urban
53. urban landscapes
54. view from a window
55. walking
56. Winter
57. winter

Table 1: Fifty-seven unique terms describing Figure 1 supplied by volunteers in a pre-test at The Metropolitan Museum of Art, December 2005.

Investigating social tagging and folksonomy in the art museumwith steve.museum", J. Trant, B. Wyman, WWW 2006 Collaborative Tagging Workshop

The Tagging Opportunity

- At last! Content-oriented metadata in the large!

- Attempts at metadata standardization always end up with something like the Dublin Core
  - author, date, publisher, ….

- I think the action is in the *subject* metadata, and have focused on how to navigate collections given such data.

The Tagging Opportunity

- Tags are inherently *faceted !*
  - *Multiple* labels are assigned to each item
    - Rather than placing them into a folder
    - Rather than placing them into a hierarchy
  - Concepts are assigned from many different content categories

Tagging Problems

- The haphazard assignments lead to problems with
  - Synonymy
  - Homonymy
  - Unpredictability

See how this author attempts to compensate:

Tags

- fleetweek
- fleet
- week
- airraces
- aircraft
- air
- races
- airplane
- airplanes
- sanfrancisco
- san
- francisco
- sfbay
- sf
- redbull
- goldengatebridge
- goldengate
- california

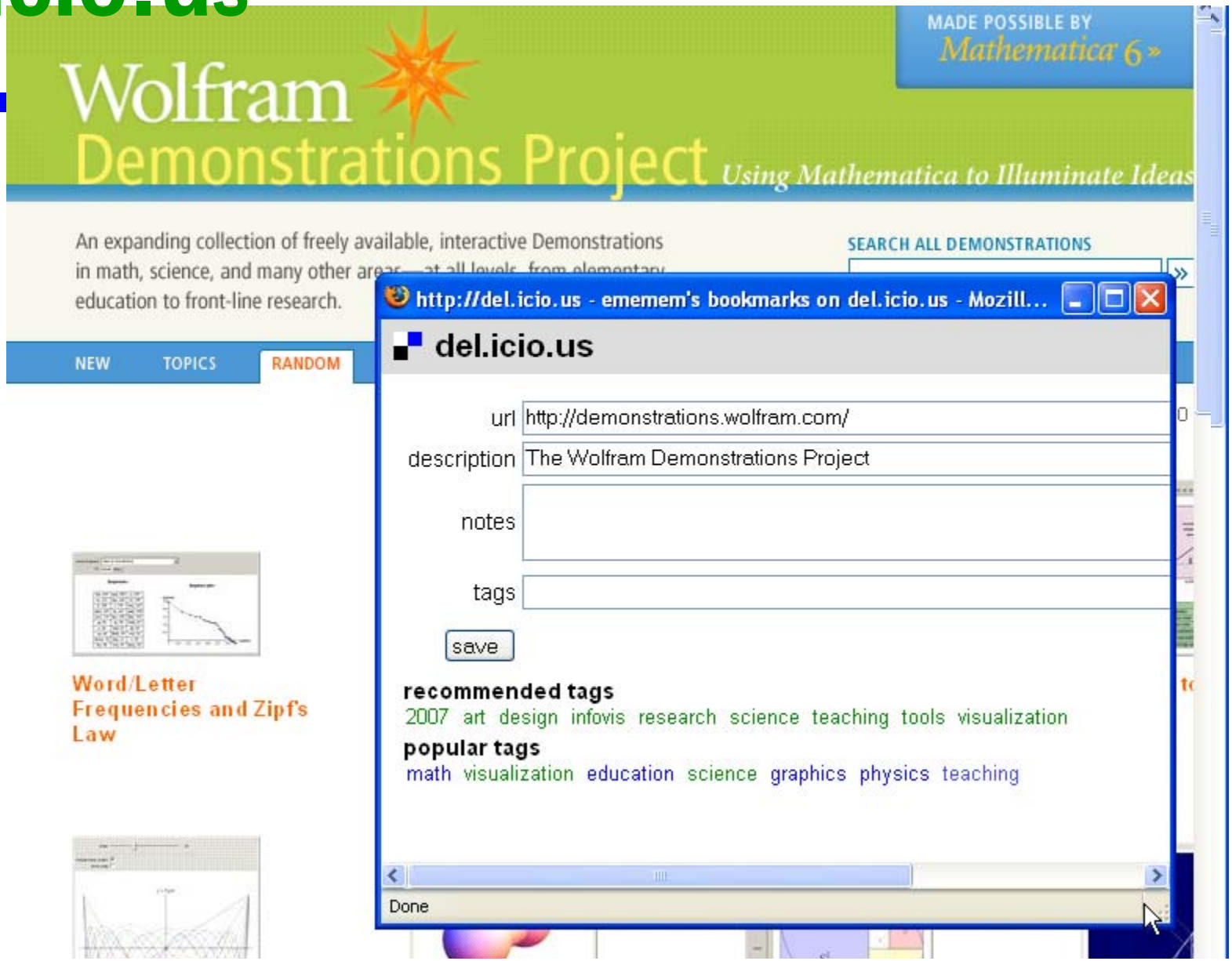
Tagging Problems

- Some tags are fleeting in meaning or too personal
  - toread todo
- Tags don't "cover" all the concepts
- Tags are disorganized
- Tags are not "professional"
  - (I personally don't think this matters)

Research Questions for Tags & Search

- How to improve tag convergence?
- How to group tags meaningfully? How to eliminate uninteresting tags?
  - What is the role of *user interface* on tag convergence?
    - Preliminary evidence suggests there is a big effect
    - There are some good ideas out there
    - More experimentation is needed.
  - What *algorithms* can we use to clean up the tags after they are assigned?
    - There is some work here, much more can be done.
      - TagAssist: Automatic Tag Suggestion for Blog Posts, Sood et al., ICWSM 2007

Interface for adding tags on del.icio.us



Effects of Interface

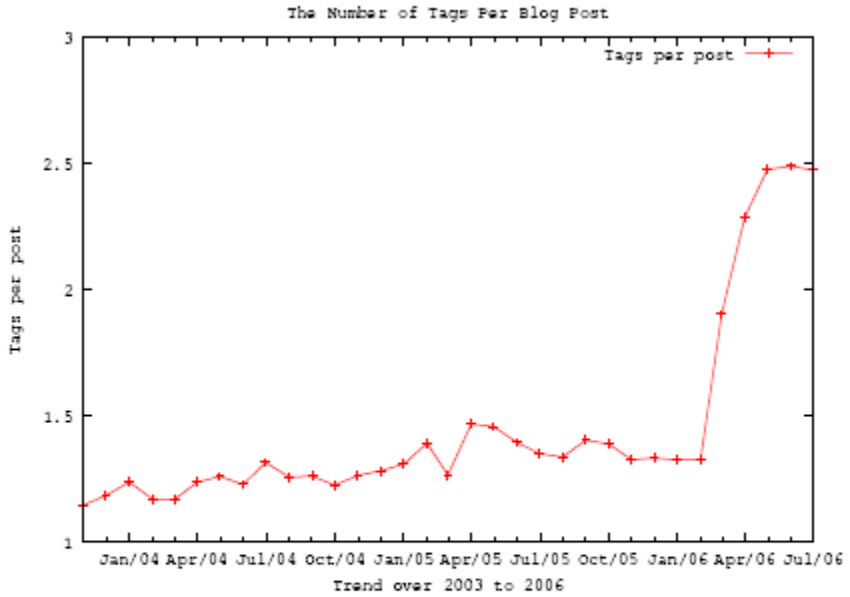


Fig. 6: *The number of tags used per post is increasing. The sharp rise is attributed to an upgrade in the internal blogging that encouraged tagging, and to the addition of "bookmark-it" feature that showed its value across folksonomies.*

On the Structure, Properties and Utility of Internal Corporate Blogs,Kolari et al. ICWSM 2007

Research Questions for Tags & Search

How to get tag expertise?

office desk plants windows shadows

Who will identify the plant species in this image?

Research Questions for Tags & Search

- What is the relationship of social tags to automated content extraction?

- Are tags more informative, or differently informative, than other labeling methods?

Research Questions for Tags & *Society*

- What motivates people to tag?
- Who owns the tags?
- Privacy and sharing of tags?

Research Questions for Tags & Search

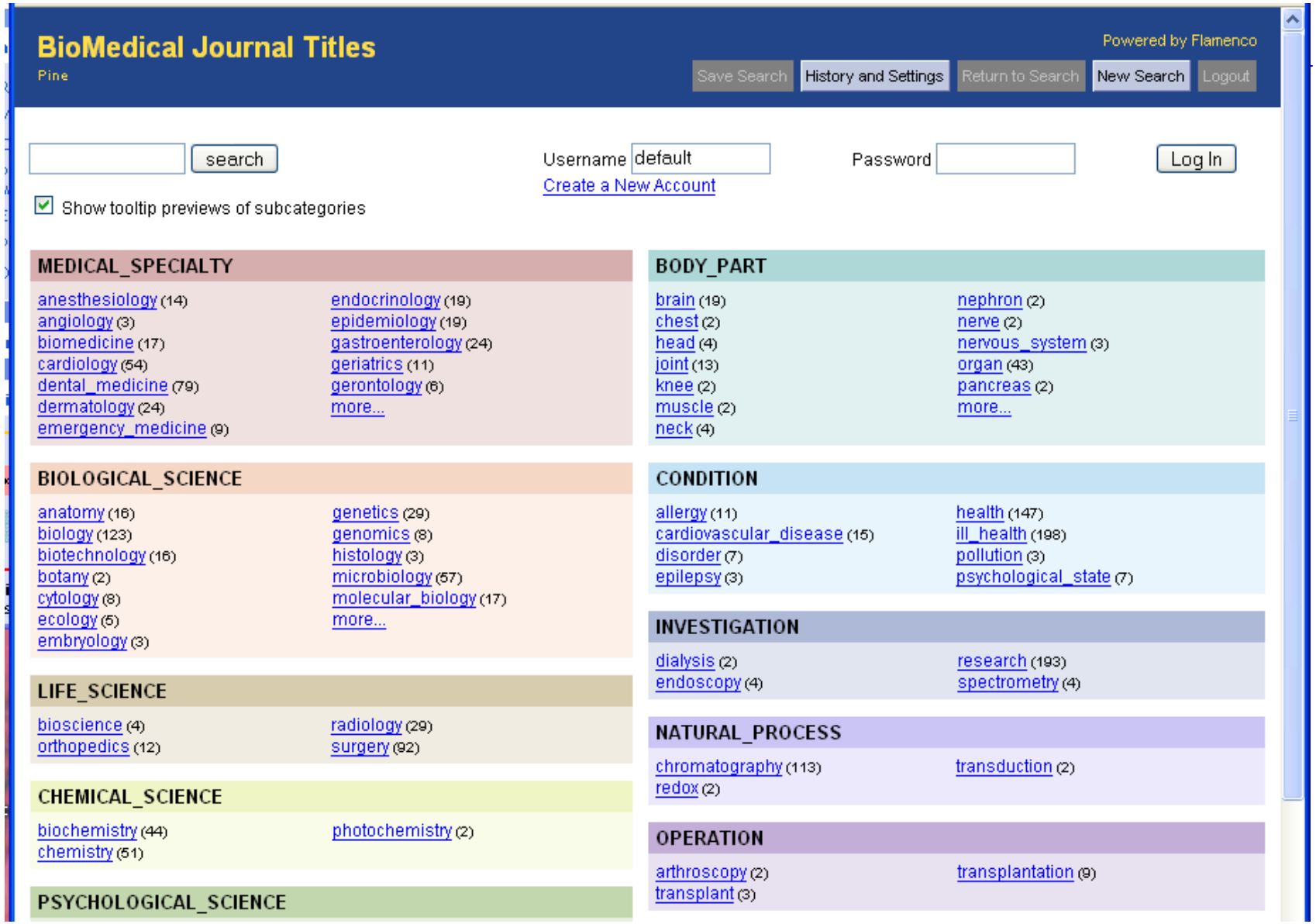
- How to use tags for browsing / navigation?
  - Currently most tags are used as a direct index into items
    - Click on tag, see items assigned to it, end of story
  - Grouping into small hierarchies is not usually done
    - del.icio.us now has bundles, but navigation isn't good
    - IBM's dogear comes the closest
- One solution: organize tags into faceted hierarchies, use faceted navigation.

How to Create Faceted Hierarchies?

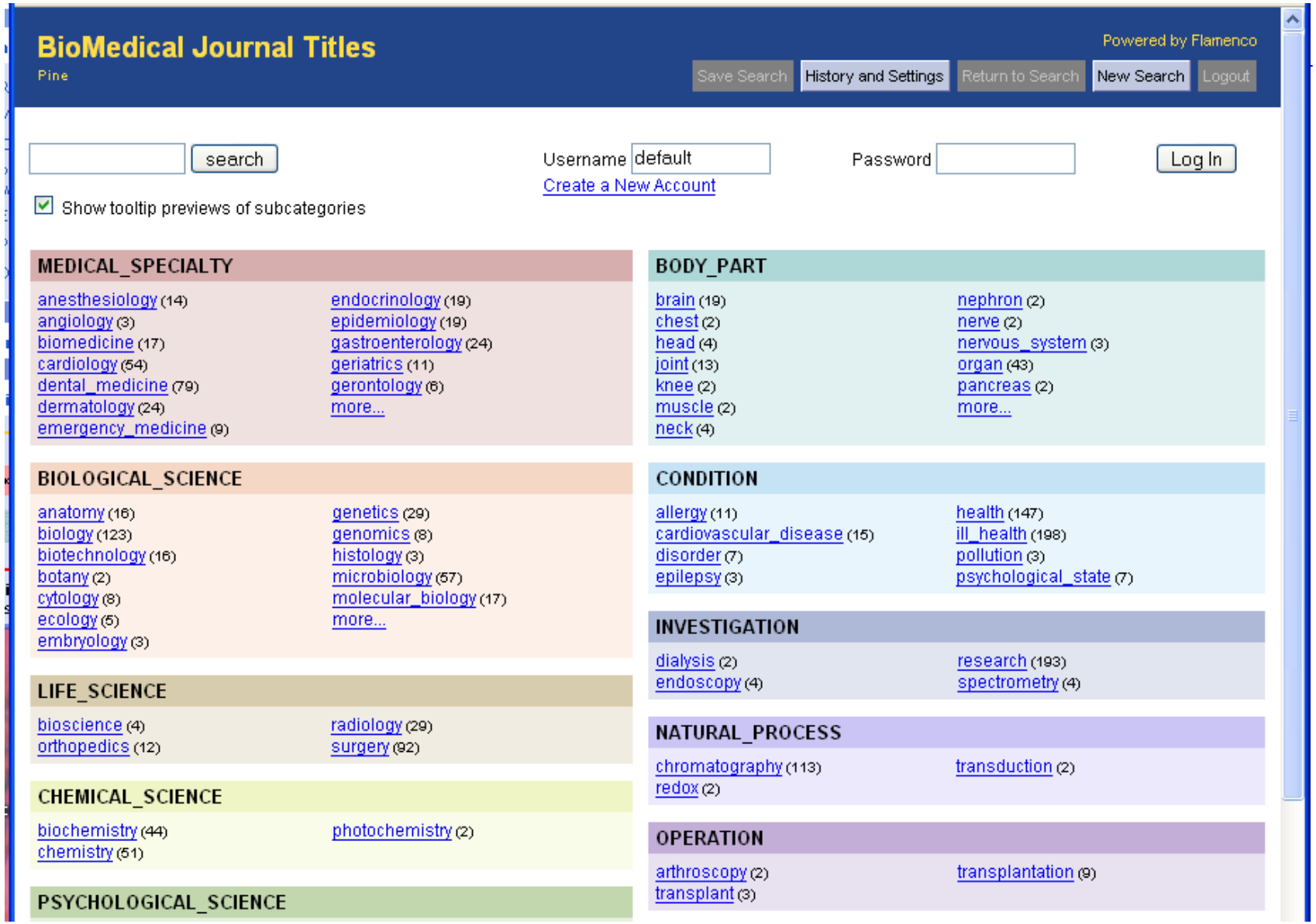
Our Approach: Castanet

(Stoica, Hearst, & Merichar, HLT-NAACL '07)

Example: Biology Journal Titles Castanet Output (shown in Flamenco)

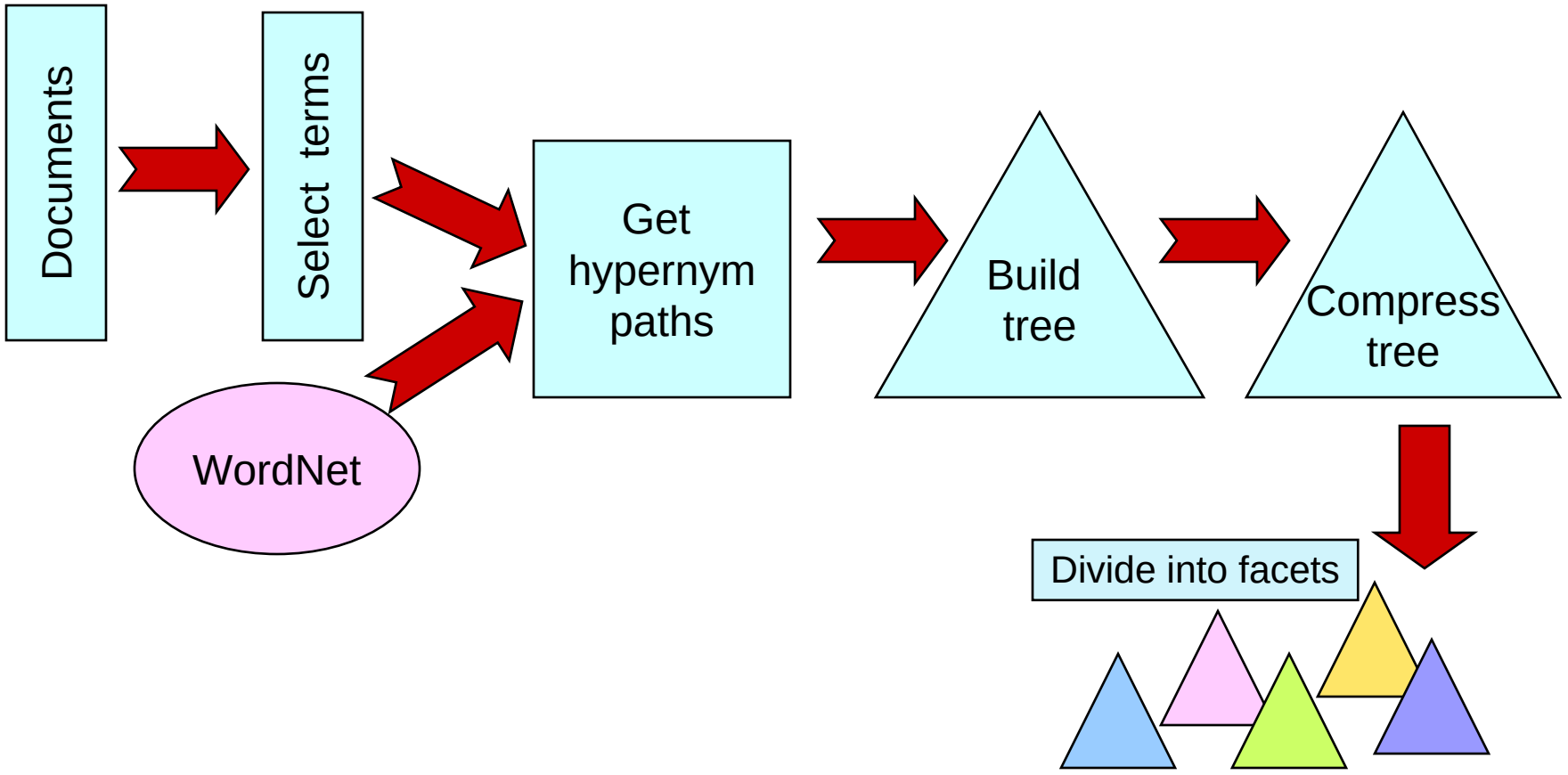


Example: Biology Journal Titles Castanet Output (shown in Flamenco)



Castanet Algorithm

- Leverage the structure of WordNet



Will Castanet Work on Tags?

- Class project by Simon King and Jeff Towle, 2004
- 1650 captions captured from mobile phones
- Wanted to organize them.
- Used the CastaNet algorithm
  - Had to first remove proper names

Example Photos & Captions
(King & Towle)

very scary x-mas tree

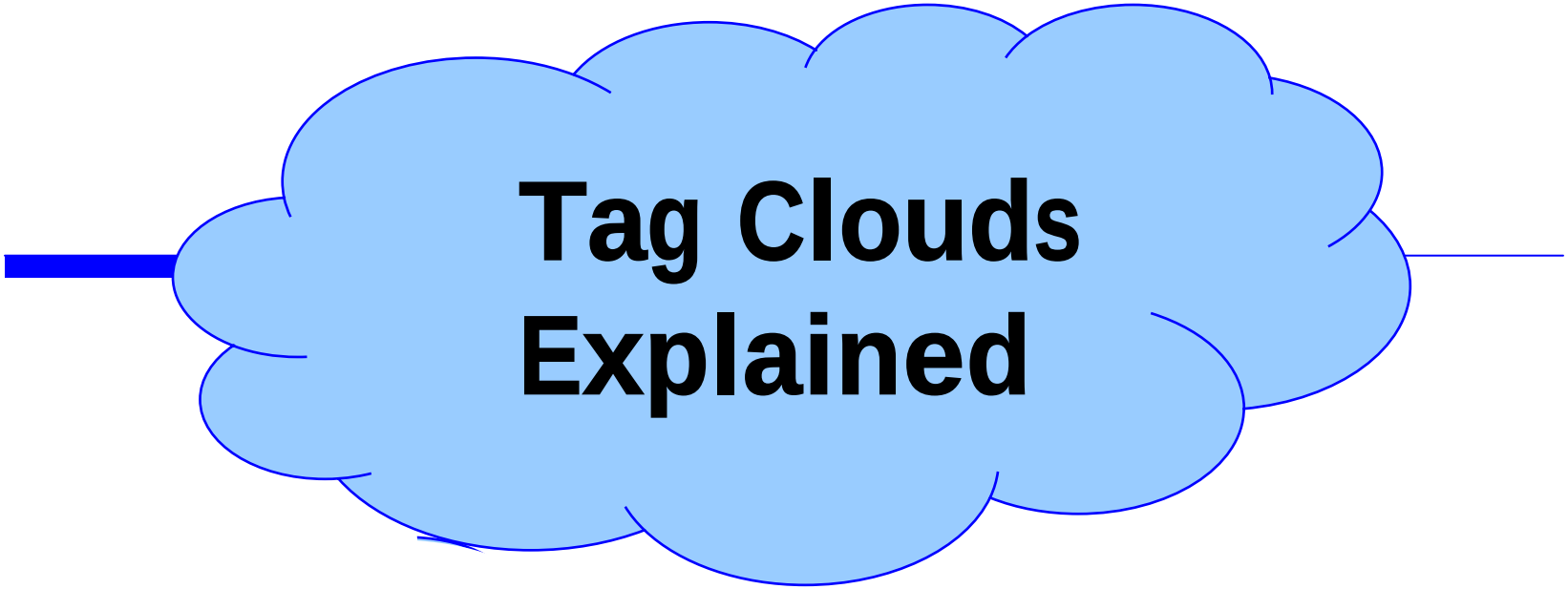
Hp presentation

chasing a cat in the dark

My cat

- instrumentality, (112)
  - vehicle (26)
    - car (9)
    - bike (8)
    - vessel, watercraft (4)
      - mayflower (2)
      - ferry (1)
      - gig (1)
    - truck (3)
    - airplane (2)
  - device (20)
    - machine (7)
    - [illegible]
  - container (16)
    - vessel (7)
      - bottle (5)
        - water_bottle (2)
        - jug (1)
        - pill_bottle (1)
      - bath (2)
      - bowl (1)
    - can (2)
    - backpack (1)
    - bumper (1)
    - empty (1)
    - salt_shaker (1)
  - furniture, piece of furniture, article of furniture (12)
    - seat (8)
      - bench (2)
      - chair (2)
      - couch (2)
      - lounge (1)
    - bed (4)
    - desk (1)

- game (8)
  - auction (1)
  - skittles (1)
- diversion, recreation (6)
  - athletic game (4)
    - baseball (1)
    - basketball (1)
    - football (1)
    - soccer (1)
  - playing (2)
  - frolic (1)


Tag Clouds
Explained

What does a typical tag cloud look like?

Definition

Tag Cloud: A visual representation of social tags, organized into paragraph-style layout, usually in alphabetical order, where the relative size and weight of the font for each tag corresponds to the relative frequency of its use.

Definition

Tag Cloud: A ***visual*** *representation of social* ***tags****, organized into* ***paragraph****-style* ***layout****, usually in* ***alphabetical*** *order, where the relative* ***size*** *and* ***weight*** *of the font for each* ***tag*** *corresponds to the relative frequency of its use.*

del.icio.us

This is a **tag cloud** - a list of tags where size reflects popularity.
sort: alphabetically | by size

.net ajax apple architecture art article articles audio bit200w07 blog blogs books business code comics community computer cooking cool css culture database design development diy download ebooks education entertainment environment fashion fic finance firefox flash flickr fonts food forum free freeware fun funny game games google graphics green gtd hardware health history home howto html humor illustration images imported inspiration internet it japan java javascript jobs language library lifehacks linux mac magazine maps marketing media mobile money movies mp3 music news online opensource osx photo photography photos photoshop php plugin podcast politics portfolio productivity programming python radio rails recipes reference religion research resources rss ruby rubyonrails science search security seo shopping slash social software sports tech technology tips tools toread travel tutorial tutorials tv twitter typography ubuntu video videos web web2.0 webdesign webdev wiki wikipedia windows wishlist wordpress writing youtube

(red tags are tags you share with everyone else)

del.icio.us

This is a **tag cloud** - a list of tags where size reflects popularity.
sort: alphabetically | by size

design blog software music webdesign web2.0 art reference tools programming linux video free web css news imported shopping travel photography tutorial howto blogs mac games books javascript education search food firefox opensource google flash tips business inspiration technology java windows online ajax development fun research politics security wordpress humor freeware ruby funny osx science apple community graphics toread bit200w07 php internet media finance ubuntu audio photo computer tv history rails health download mobile gtd youtube marketing home photoshop productivity entertainment twitter tutorials jobs recipes writing ebooks social python hardware tech diy slash article library money comics culture resources fashion fic mp3 fonts cool architecture language it rss portfolio lifehacks podcast movies sports images wiki webdev database cooking photos wishlist html wikipedia videos seo plugin illustration .net maps radio articles environment japan magazine code game typography rubyonrails flickr forum green religion

(red tags are tags you share with everyone else)

blogs


Tags on Pete Freitag's Blog
10g 2000 2005 37signals a9 accessibility acrobat action tagging
action tags activex adcenter adirondacks adlinks administration adobe
adsense adventure advertising adwords after aggregator agile
air conditioning ajax allaire alter table amazon amex
analytics apache apache modules api apis apple application.file
aprilfools architecture arrays ascii atom attachments attacks
attribute authentication autocomplete autodiscovery awards awstats
backpack backup badge bags bargains basecamp bash bat batch
bayes bayesian bea before best of best practices bg bike bike
to work day binary birthday bitwise bloch blockquote blog blogger
blogging bloglines blogs blosxonomy bluedragon bluedragon 6.2
bluetooth bondedsender bookmarketls bookmarklets bookmarks
books bootstrapping borland boston branding broken browse
browsers buffer overflows bugs builder bulk business bytes cache
caching calculator captcha cars carson central certificates cf
cfadministrator cfapplication cfargument cfc cfcontent cfcs
cfdirectory cfdocs cfdump cfeclipse cffunction cfguru cfheader
cfimap cfldap cflocation cfml cfmx cfobject cfoutput cfparam
cfquery cfqueryparam cfsavecontent cfsetting cfsilent cfug
cfunited cfw chairs char cheat cheatsheet cheatsheets
checkout chineseculture christine cinema classpath client cnet code
coldfusion coldfusion 7 color colors command
commands comment spam comments conference
configuration conservation contact content-type contrast contribute
conventions cookbooks cookies coop copy corfield createobject createuuid
creativity credit cards crossdomain cruise crypto csrf css css
cookbook cvs cycling dailymashup dashboard databases datasources
date dateformat db dealazon deals debugger debugging del.icio.us


Tag Cloud
20 2020 4things 4thofjuly activism
advertising aifia ale amazon
ambiguity apple architecture
argot army art attention_economy
baidu barcampnyc2 baudrillard bbc bio
blogging blogstreet books
boston boxes_and_arrows brand
building_blocks business
business20 call_centers cambridge
card_sorting career caricature
cartogram cartography cellphones china
classification collaboration
community complexity concept_maps
conferences conflict_aware_design
consulting content20
content_management
contextualization conways_law
cultural_systems culture
curiousities customer_experience
customer_relationships
cyberart cycles dashboard
deliverables design disney dlib
douglas_adams ecm economy
education eff email endeca
enteprise enterprise
enterprise20 environment environments
events
executive_dashboards
experience faceted_classification facets

Alternative: "Semantic" Layout

- Improving Tag-Clouds as Visual Information Retrieval Interfaces, Yusef Hassan-Monteroa, 1 and Víctor Herrero-Solana, InSciT2006

- Tags grouped by "similarity" based on clustering techniques and co-occurrence analysis"

Figure 1: Traditional Tag-Cloud. Tags have been selected and visually weighted according to its frequency of use.

4 Results

Figure 2: Improved Tag-Cloud. Tags have been selected and visually weighted according to function 1.

I was puzzled by the questions:

- What are designers and authors' intentions in creating or using tag clouds?
- How do they expect their readers to use them?

On the positive side:

- Compact
- Draws the eye towards the most frequent (important?) tags
- You get three dimensions simultaneously!
  - alphabetical order
  - size indicating importance
  - the tags themselves

Weirdnesses

- Initial encounters unencouraging
  - Some reports from industry:
    - Is the computer broken?
    - Is this a ransom note?

Violates Principles of Perceptual Design

- Eye moves around erratically
- Longer words grab more intention
- White space caused by ascenders & descenders aren't meaningful
- Proximity doesn't hold meaning
- Paragraph position has saliency effects
- Should allow for visual comparisons (Tufte)

Weirdnesses

- Meaningful associations are lost
  - Where are the different country names in this tag clouds?

Weirdnesses

Which operating systems are mentioned?

Two Studies of Use in Information Analysis

- Both found that the spatial organization and varying font sizes were inferior for:
  - Finding items in list
  - Getting the gist of the tags

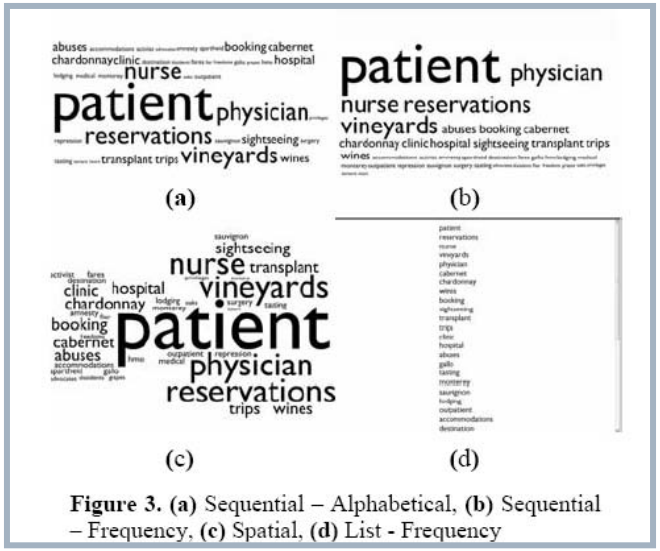


Figure 3. **(a)** Sequential – Alphabetical, **(b)** Sequential – Frequency, **(c)** Spatial, **(d)** List - Frequency

Table 1: Initial results from evaluation

Presentation Type	Number of Occurrences	Average Time
Alphabetical Cloud	319	2.94
Cloud	159	3.409
Alphabetical Horizontal List	155	2.887
Horizontal List	151	3.199
Alphabetical Vertical List	157	2.892
Vertical List	290	3.241

Tag Cloud Study (1)

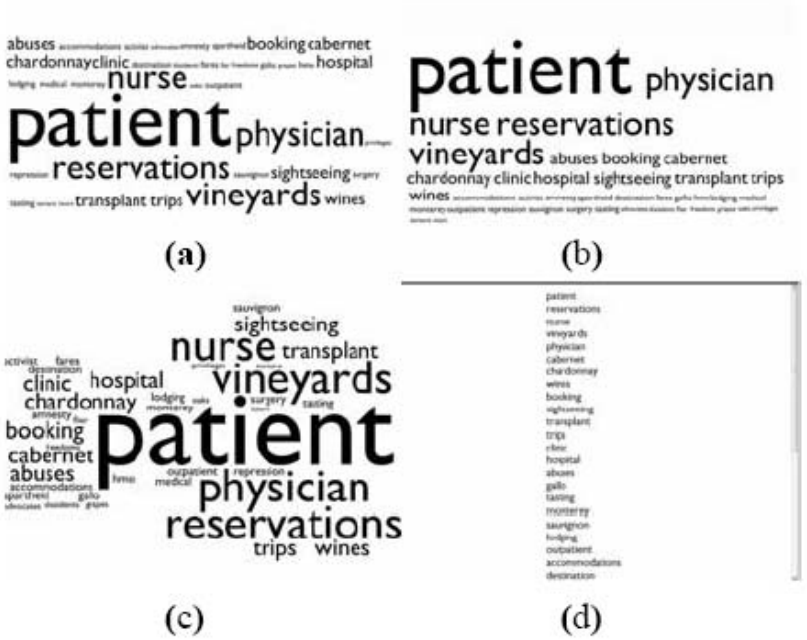


Figure 3. (a) Sequential – Alphabetical, **(b)** Sequential – Frequency, **(c)** Spatial, **(d)** List - Frequency

- First part compared tag cloud layouts
  - Independent Variables:
    - Tag size
    - Tag proximity to a large font
    - Tag quadrant position
  - Task: recall after a distractor task
  - 13 participants; effects for size ar quadrant
- Second part compared tag clouds to lists
  - 11 participants
  - Tested recognition (from a set of like words) and impression formation
    - Alphabetical lists were best for the

Getting our head in the clouds: Toward evaluation studies of tagclouds, Walkyria Rivadeneira Daniel M. Gruen Michael J. Muller David R. Millen, CHI 2007 note

Tag Cloud Study (2)

- 62 participants did a selection task
  - (find this country out of a list of 10 countries)
  - Independent Variables:
    - Horizontal list
    - Horizontal list, alphabetical
    - Vertical list
    - Vertical list, alphabetical
    - Spatial tag cloud
    - Spatial tag cloud, alphabetical
  - Order for non-alphabetical not described
  - Alphabetical fastest in all cases, lists faster than spatial
  - May have used poor clouds (some people couldn't see target font answers)

Table 1: Initial results from evaluation

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Vertical List	290	3.241

- An Assessment of Tag Presentation Techniques; Martin Halvey, Mark Keane, poster at WWW 2007.

Interviews

- I was really confused about tag clouds, so I decided to ask the people behind the puffs
  - 15 interviews, conducted at foocamp'06
    - Several web 2.0 leaders
  - 5 more interviews at Google and Berkeley

A Surprise

- 7 interviewees DID NOT REALIZE that alphabetical ordering is standard.
  - 2 of these people were in charge of such sites but had had others write the code
- What was the answer given to “what order are tags shown in?”
  - hadn’t thought about it
  - don’t think about tag clouds that way
  - random order
  - ordered by semantic similarity
- Suggests that perhaps people are too distracted by the layout to use the alphabetical ordering

Suggested main purposes:

- To signal the presence of tags on the site
- A good way to get the gist of the site
- An inviting and fun way to get people interacting with the site
- To show what kinds of information are on the site
  - Some of these said they are good for navigation
- Easy to implement

Tag Clouds as Self-Descriptions

- Several noted that a tag cloud showing one's own tags can be evocative
  - A good summary of what one is thinking and reading about
  - Useful for self-reflection
  - Useful for showing others one's thoughts
    - One example: comparing someone else's tags to own's one to see what you have in common, and what special interests differentiate you
    - Useful for tracking changes in friends' lives
      - Oh, a new girl's name has gotten larger; he must have a new girlfriend!

Tag Clouds as showing "Trends"

- Several people used this term, that tag clouds show trends in someone's behavior
  - Trends are usually patterns across time, which are not inherently visible in tag clouds
  - To note a trend using a tag cloud, one must remember what was there at an earlier time, and what changed
    - tracking the girls' names example
  - This suggests a reason for the importance of the large tags – draws one's attention to what is big now versus was used to be large.
  - Suggests also why it doesn't matter that you can't see small tags.

New Perspective: Tag Clouds are Social!

- It's not about the "information"!
- Not surprising in retrospect; tagging is in large part about the social aspect
  - Seems to work mainly when the tags can be seen by many
  - Even better when items can be tagged by many and seen by many
- What does this mean though when tag clouds are applied to non-social information?

Follow-up Study

- Informed by the interview results, we search for, read, and coded web pages that mentioned tag clouds.
  - Looked at about 140 discussions
  - Developed 21 codes
  - Looked at another 90 discussions
    - Used web queries: “tag clouds”, usability tag clouds, etc
    - Sampled every 10th url
      - 58% personal blogs
      - 20% commercial blogs
      - 10% commercial web pages
      - rest from group blogs and discussion lists
  - Doesn’t tell us what people who don’t write about tag clouds think

The Role of Popularity

- Popularity in the sense that tag clouds (and tagging) are trendy and popular.
  - Some people liked the visualization, but their popularity made them less appealing
    - Famous post: “Tag clouds are the new mullets”
    - Led to self-consciousness about liking them
  - Many complained about unaesthetic cloud designs
  - Little consensus on if they are a fad or have staying power
- Popularity also in the sense of the large font size for more popular tags
  - Many people like the prominence of large tags, but several commented on the tyranny of the popular

The Role of Navigation

- Opinions vary
  - Many simply state they are useful for navigation, but with no support for this claim
  - Some claim the compactness makes navigation easier than a vertical list
  - Some object to the varying font size on scannability
  - Others object to the lack of organization
  - Overall, there is no evidence either way that we could find in the blog community

Aesthetic Considerations

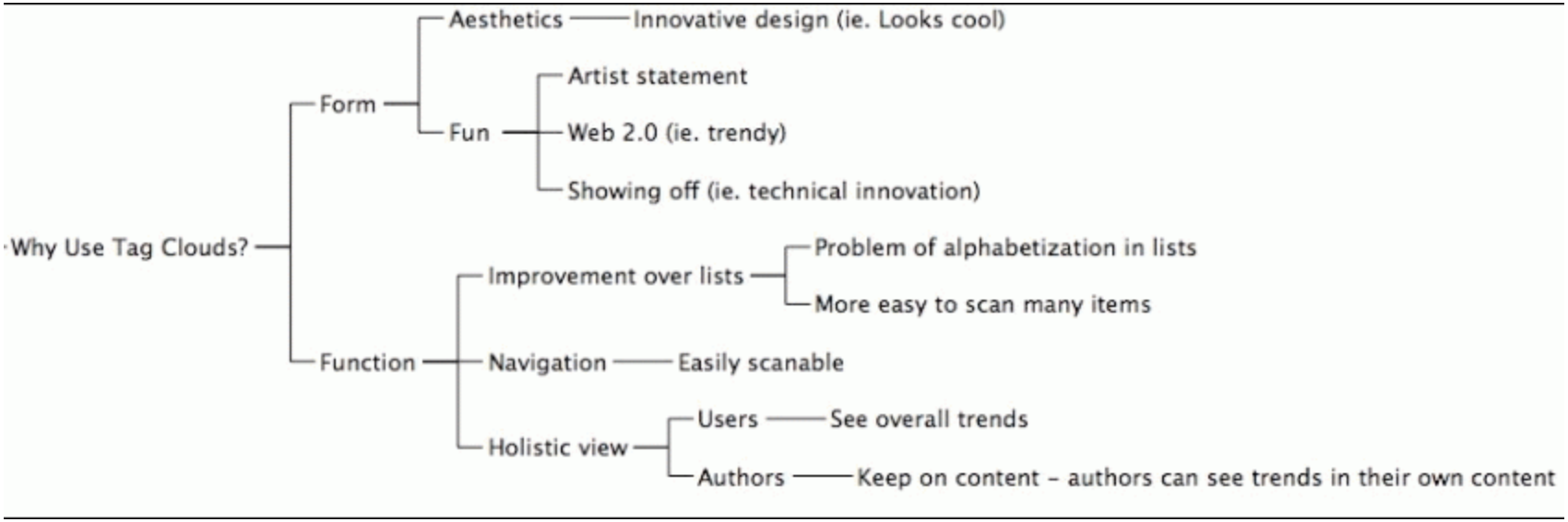
- Disagreement on the aesthetic and emotional appeal, especially for lay users.
- Those who like them find them fun and appealing
- Those who don't find them messy, strange, like a ransom note
- Informal reports with first time users who are not in the Web 2.0 community are negative

Trends again

- As in the interviews, the benefit of "trends" was mentioned many times.
- There is another sense of "trend" as "tendency or inclination," and this might be what people mean.

Summary of Stated Reasons for Tag Clouds

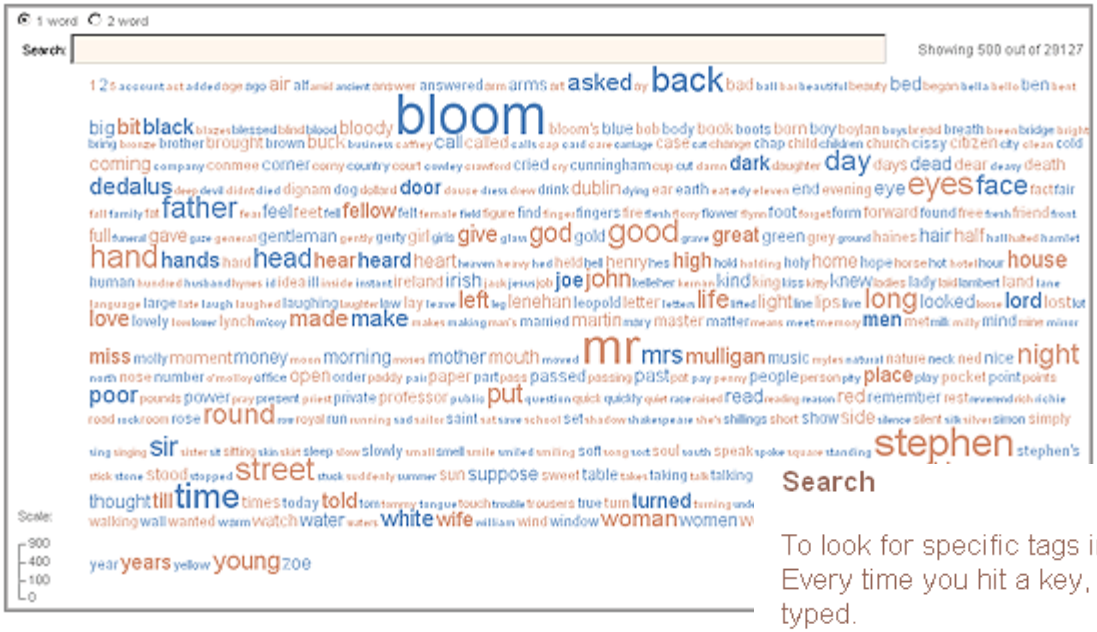
(Note: some refuted by studies)



Tag Clouds as Social Information

- An emphasis that tag clouds are meant to show human behavior.
- We found reports of people commenting on other uses that were invalid because they did not reflect live user input:
  - One blogger noted the incongruity of an online library using keyword frequencies in a tag cloud rather than having it reflect patron's usage of the collection.
  - An online community noticed one site's cloud didn't change over time and realized the sizes were decided by marketing. This was greated

What about IBM's many eyes project??



Search

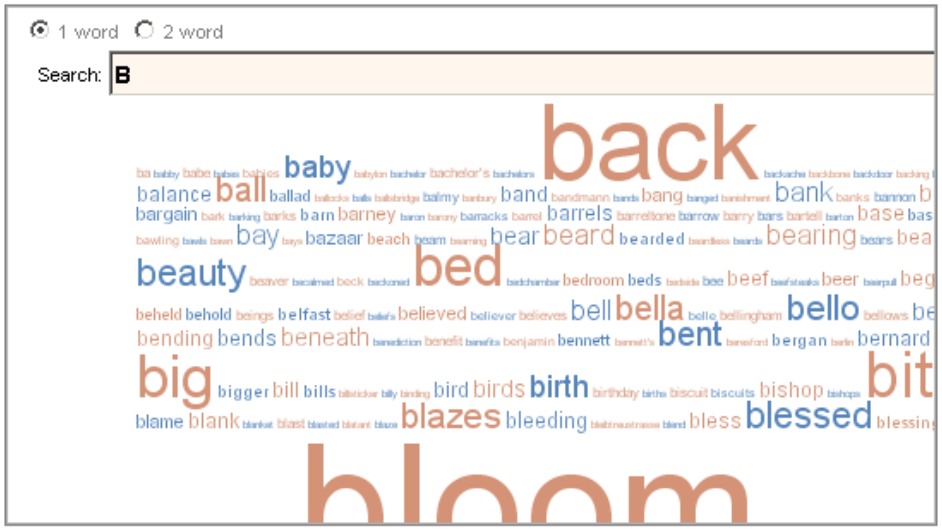
To look for specific tags in the tag cloud, click on the search box and start typing Every time you hit a key, the cloud shows the tags that start with the letters you'v typed.

How our tag cloud works

The Many Eyes tag cloud can show one of two kinds of data: free text, numbers.

If you choose to use free text, the tag cloud will strip out punctuation, c draw the word at a size that is based on its frequency. The tag cloud v languages, such as the word "the" in English.

Whenever the mouse is over a word, information about the occurrenc used in will be shown in a tooltip.



Implications

- Assume tag clouds are meant to reflect human mental activity (individual or group)
- Then what might seem design flaws from an information conveyance perspective may not be
- A large part of the appeal is the fun and liveliness.
  - The informality of the layout reflects the human activity beneath it.

Conclusions on Tagging

- Social tagging is, in my view, a terrific way to get good content metadata.
- I think automated techniques can do a lot to help clean them up and organize them.
- They are an inherently social phenomenon, part of social media, which is a really exciting area.
- The socialness of social media can yield surprises, like tag clouds.