

In Search of the Single Search Box: Building a "First-step" Library Search Tool

DLF Spring Forum 2005
Tito Sierra and Steven Morris

Problems with Library Search

Systems Perspective

- The non-integrated library system
 - Patchwork of library systems
 - Diversity of interfaces
 - Variety of content formats
- Locally stored versus hosted content
- Metasearch not there yet

Problems with Library Search

User Perspective

- Desire for a single search box that searches everything
- User needs that extend beyond collection specific searches
- Confusion over our library website information architecture (or lack thereof)
- No subject based access integration

Solutions?

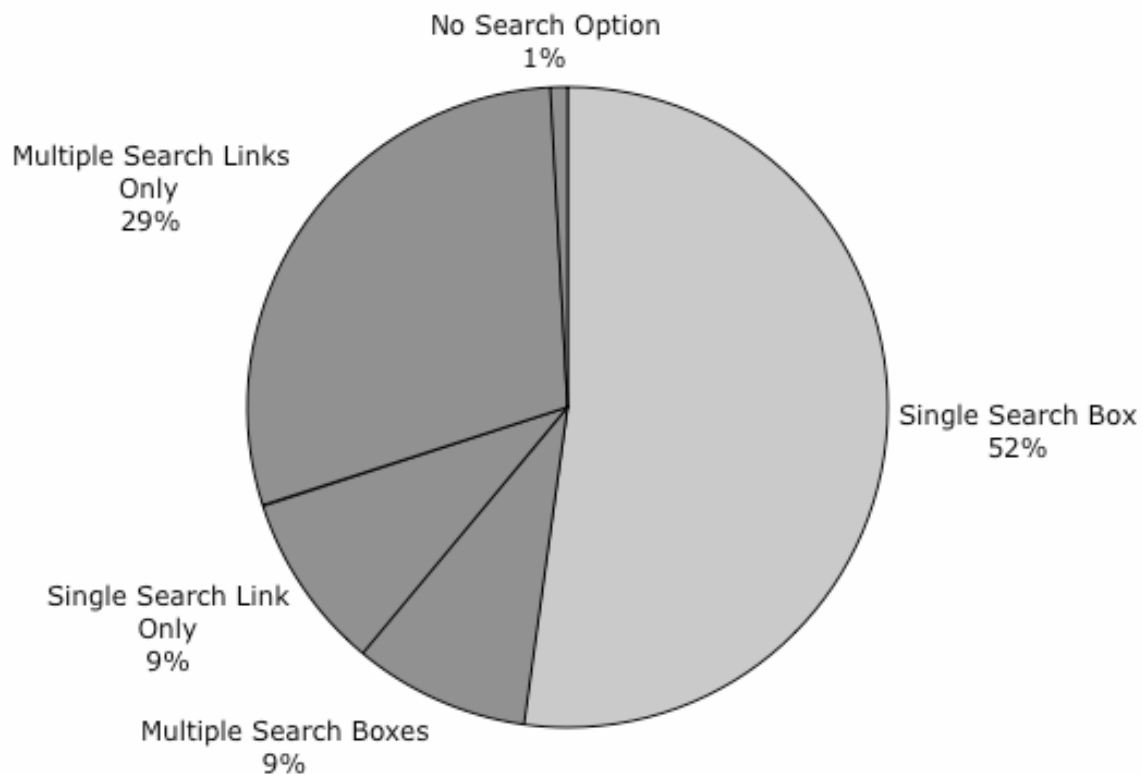
- Provide a single search box as a “first-step” in the library search process
- Develop a search tool that responds to a broader range of search needs
- Begin to “interact” with the user in the search space the way we do in reference spaces
- Informally educate our users about our information architecture, tools, and services

Why a Single Search Box?

- Why a *search box*?
 - Evidence of users ignoring text cues
 - 1/2 of users search dominant, 1/5 link dominant (Jakob Nielsen)
 - “Where is the little box where I can type”
- Why a *single search box*?
 - “Competing homepage search boxes are confusing, and advanced search should be relegated to a secondary position inside the site to avoid seducing users away from the simple search, which they’re more likely to use correctly.” (Jakob Nielsen)

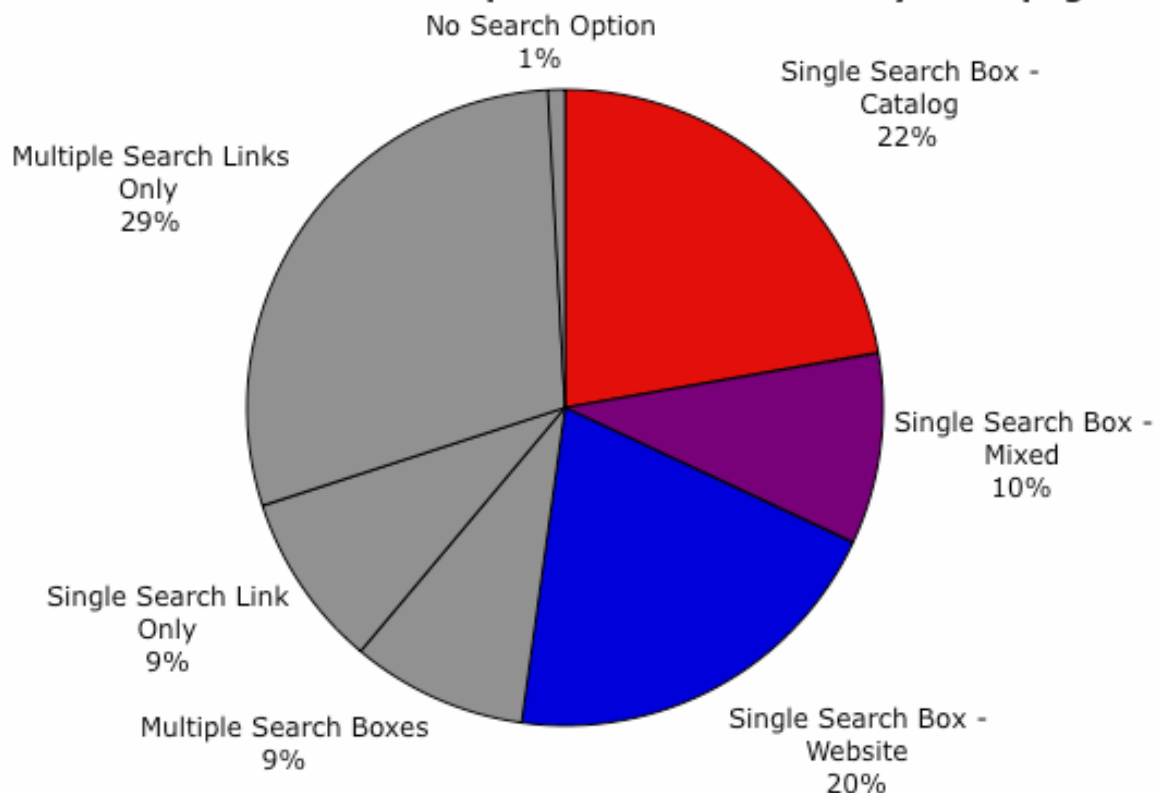
Search Options: ARL Environmental Scan

Most Prominent Search Option on 113 ARL Library Homepages

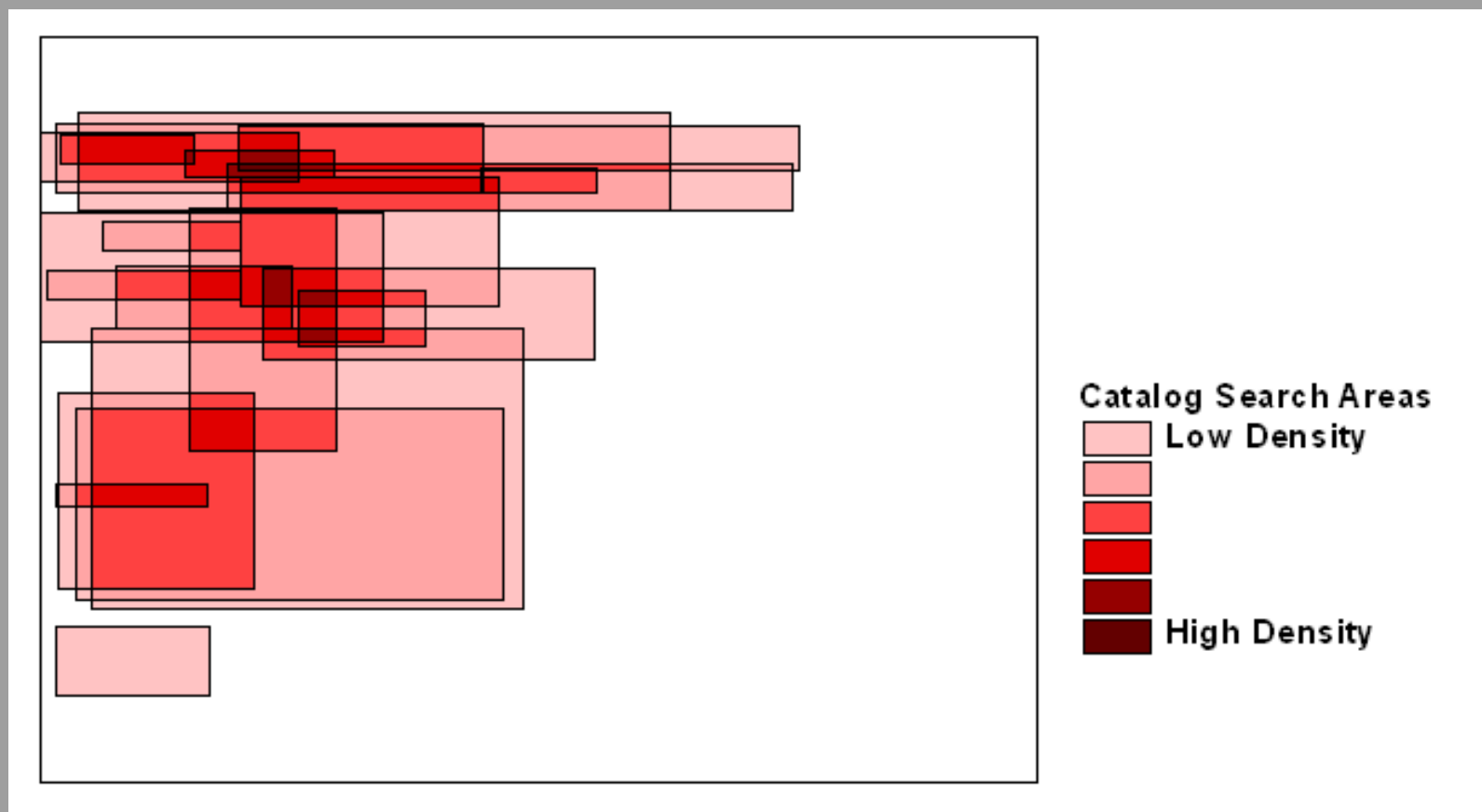


Search Options: ARL Environmental Scan

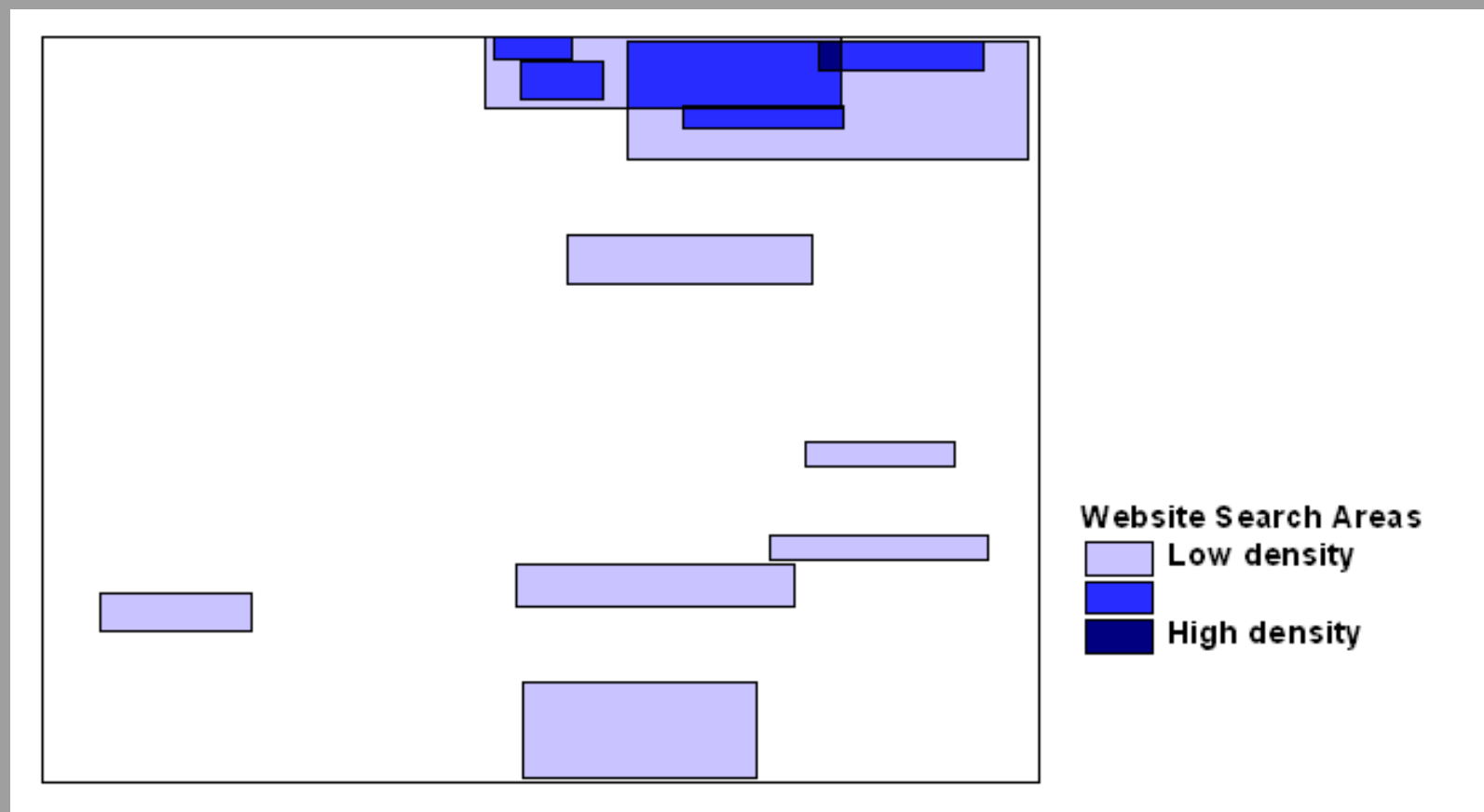
Most Prominent Search Option on 113 ARL Library Homepages



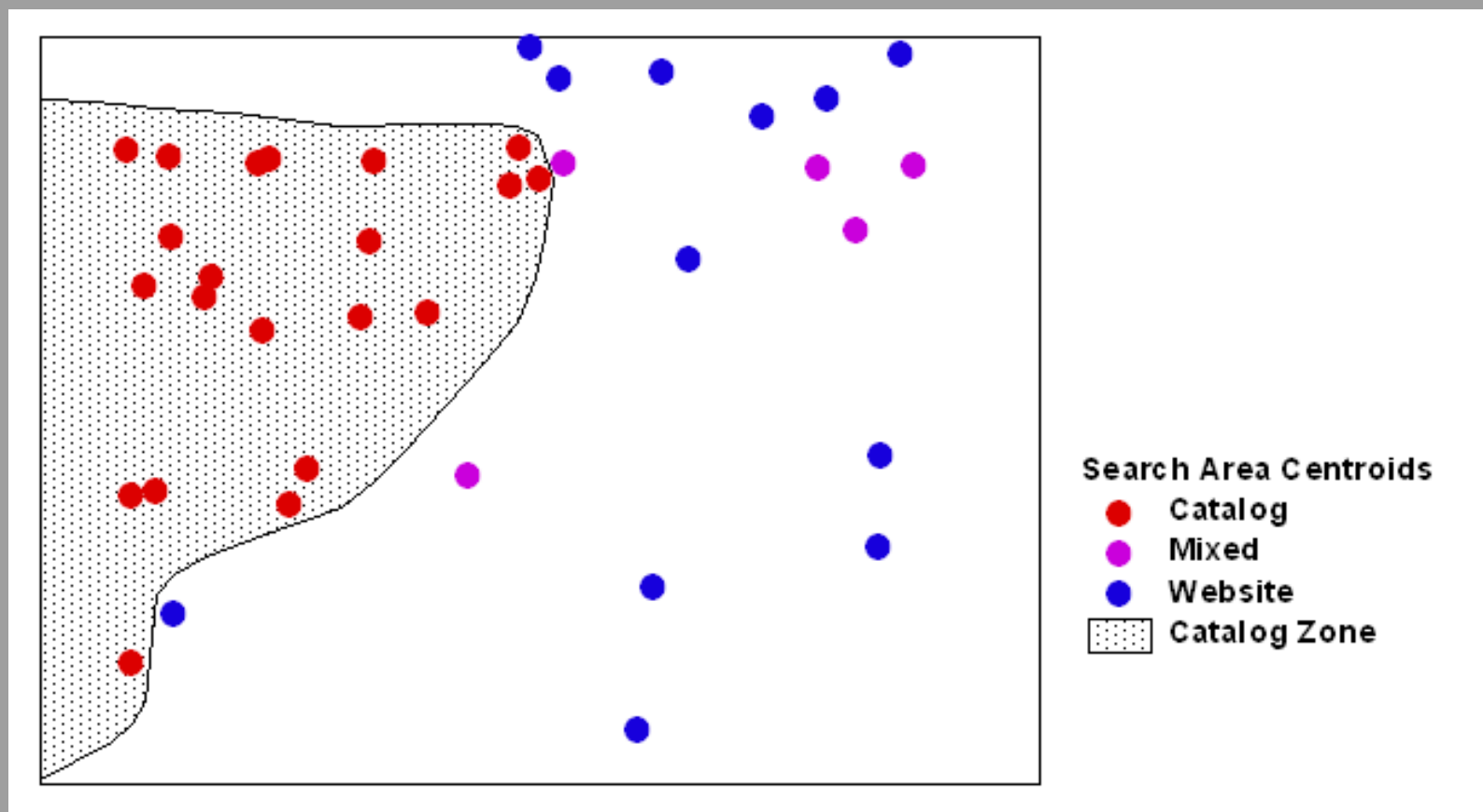
Search Placement: Peer Analysis



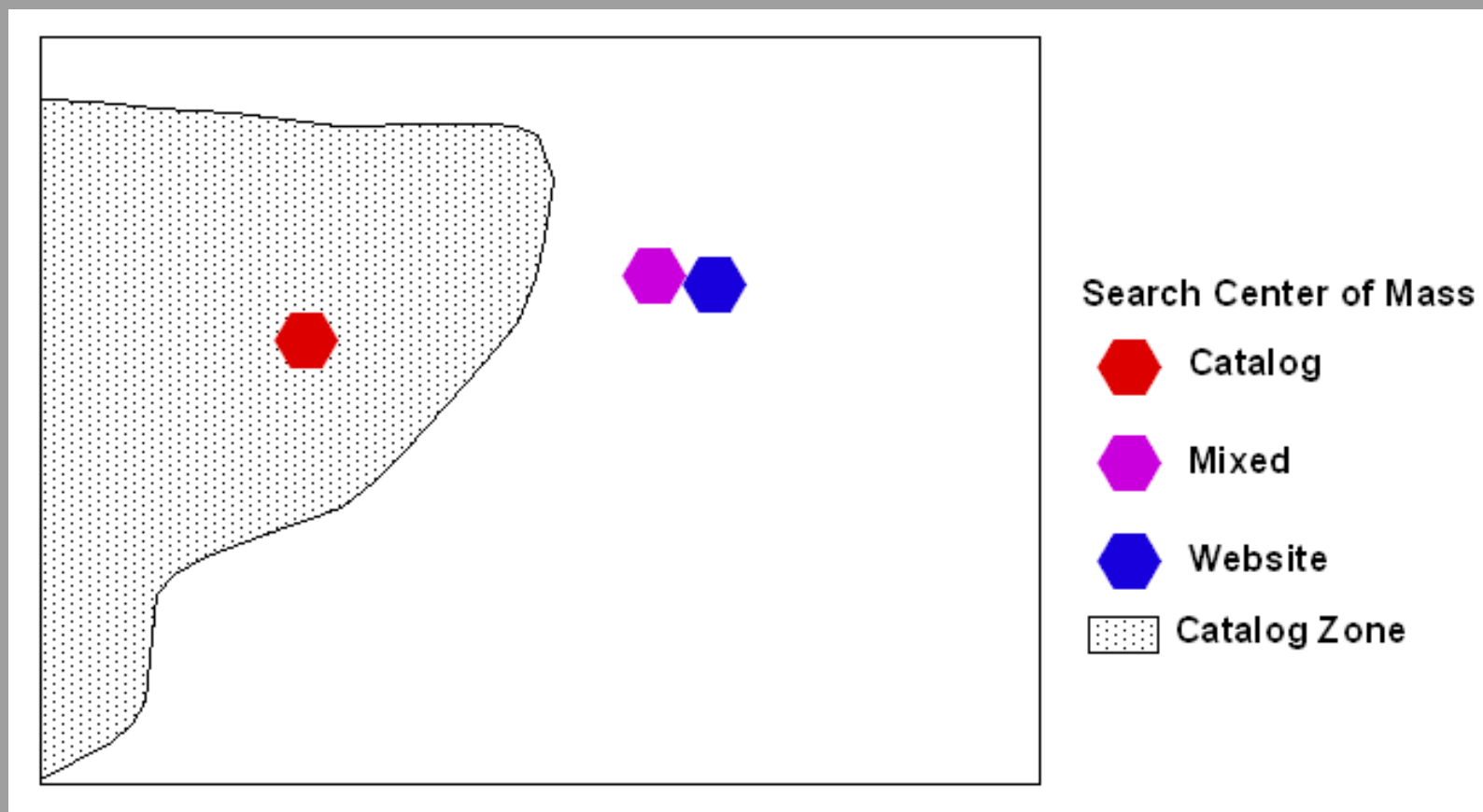
Search Placement: Peer Analysis



Search Placement: Peer Analysis



Search Placement: Peer Analysis



Search Placement Analysis: Outcome

- Eye-track studies suggest upper-left screen area as prime real estate
- Current practice: Catalog in prime location, but is it representative of library content/services?
- Technically not yet able to develop a comprehensive “upper-left” search tool
- Near-term goal: Develop “upper-right” (lower confidence) tool that is more than website search, but less than full metasearch



- ▼ SEARCH THE COLLECTION
- ▼ BROWSE BY SUBJECT
- ▼ SERVICES
- ▼ LIBRARY INFORMATION
- ▼ COMMUNITY
- ▼ NEWS & EVENTS



MY LIBRARY: Library Account | MyCourses | MyLinks | Alerts

Login | Logout



Most Used



FAQ | Site Index

Search

GO!



Search the Collection

Lorem ipsum dolor sit amet, elit. Lorem ipsum dolor sit amet, consectetur elit, sed diam nibh euismod tincidunt ut laoreet.



Lorem ipsum dolor sit amet, elit. Lorem ipsum dolor sit amet, elit, sed diam nibh euismod tincidunt ut laoreet.



Browse by Subject

Lorem ipsum dolor sit amet, elit. Lorem ipsum dolor sit amet, consectetur elit, sed diam nibh euismod tincidunt ut laoreet.

Lorem ipsum dolor sit amet, elit. Lorem ipsum dolor sit amet, elit, sed diam nibh euismod tincidunt ut laoreet.



Services

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Library Information

Lorem dolor sit amet, consectetur adipiscing elit. Lorem ipsum sit amet, adipiscing elit.

Hours



Community

Lorem dolor sit amet, consectetur adipiscing elit. Lorem ipsum sit amet, adipiscing elit, sed diam nibh euismod tincidunt ut laoreet. Lorem ipsum dolor sit amet, adipiscing elit, sed diam nibh euismod tincidunt ut laoreet.



News | Events

10/20/05 Lorem ipsum dolor sit amet, consectetur elit.

10/20/05 Dolor sit



Library “Quick Search” Tool

- Goals
- Video demo
- Architectural overview
- Description of components
- Challenges
- Future development

Quick Search: Are you looking for [Media Center \(videos, DVDs, etc.\)?](#)

Frequently Asked Questions

- [Where is the microforms room?](#)
- [Where are the Erdahl-Cloyd Theater and the Mini-Theater?](#)
- [How can I find videos, DVDs, films, or movies?](#)

Library Webpages

Results 1 - 10 of 110 for **film**

[NCSU Audio-Visual Collection](#)

... alumni, and some **film** was even rescued from a ...
http://www.lib.ncsu.edu/archives/collections/html/ua24_9.html -
[Cached](#)

[Memorandum from Arthur Waltner to Clifford K. Beck](#)

... makes use of **film** badges and pocket ...
<http://www.lib.ncsu.edu/archives/etext/engineering/reactor/murray/M...751.html> - [Cached](#)

[Unicorn MFHD fixed field material codes](#)

... Microform Microopaque mc Motion picture **Film** cartridge mf Motion picture Film ...
<http://www.lib.ncsu.edu/cataloging/Unicorn/MFHDmaterialCodes.htm> - [Cached](#)

[LOBO2 - Keyword Builder](#)

... of a word like **film** and **film** s . The problem ... be simplified to: (...

Search the Collection

Find results for **film** in:

- [Catalog](#) (books & more)
- [Quick article search](#) in Academic Search Elite
- [Advanced article search](#)
- [Journal titles](#)
- [E-Reference sources](#)
- [Google Scholar](#) ([what's this?](#))

Browse Subjects

- [Communication & Media](#)
- [Film Studies](#)
- [Linguistics](#)
- [Literature](#)
- [Chemistry](#)
- [Materials Science](#)
- [Astronomy & Astrophysics](#)
- [Mathematics, Science & Technology Education](#)
- [Physics](#)
- [Computer Science](#)

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- [Literature](#)
- [Chemistry](#)
- [Materials Science](#)
- [Astronomy & Astrophysics](#)
- [Mathematics, Science & Technology Education](#)
- [Physics](#)
- [Computer Science](#)

Quick Search Goals

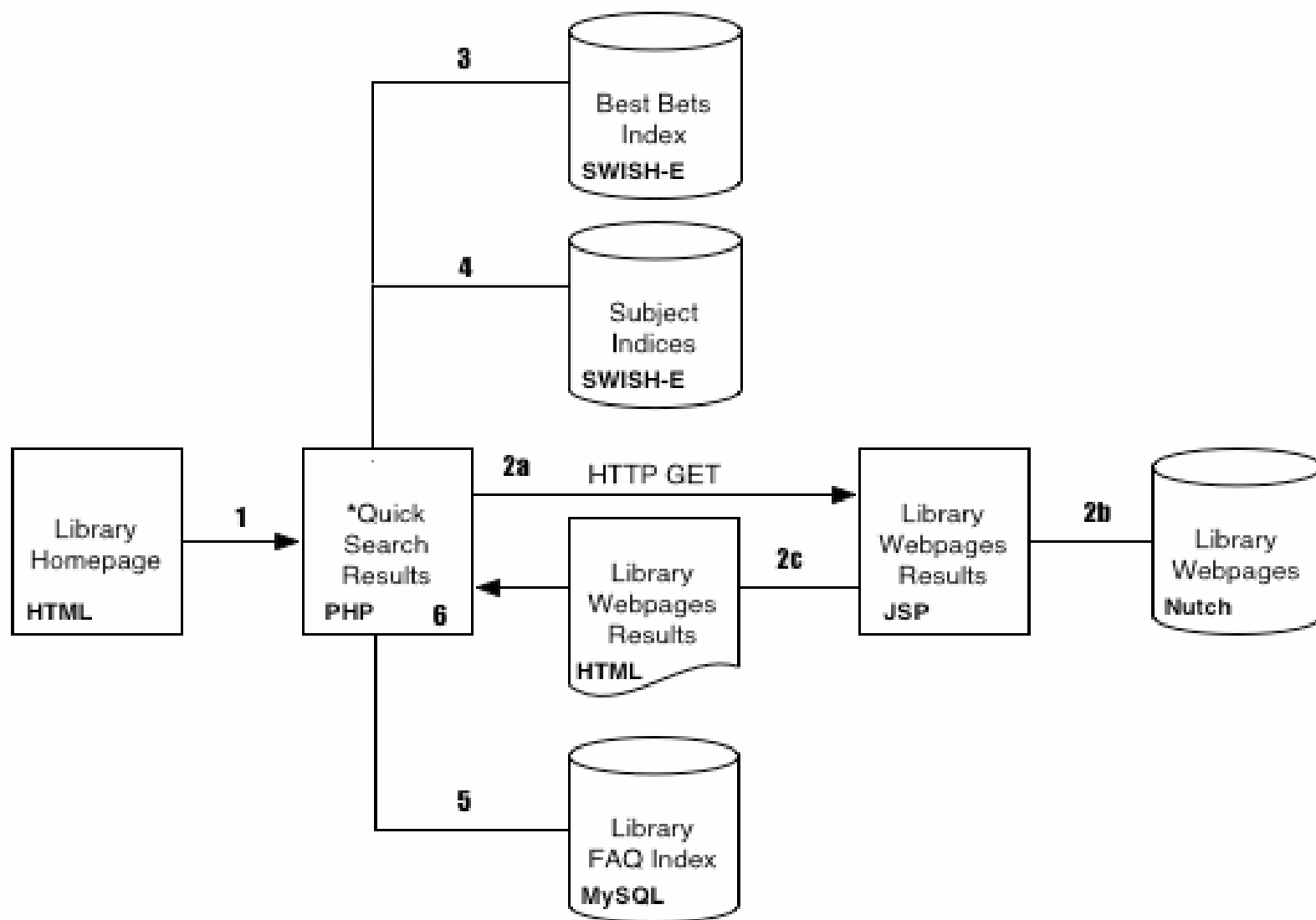
- Develop a useful “first-step” library search tool that gets users to the right place (without authentication)
- Make it quick and comfortable to use
- Create a platform that allows us to better understand user search behavior
- Contextual presentation of subject based access tools

Video Demo

(7 min)

Quick Search Architecture

- Homegrown application using open source tools (PHP, Nutch, SWISH-E)
- Single query run against multiple specialized indexes
- Locally stored indexes for high performance response
- Modular presentation interface



Quick Search Components in Initial Release

- Library Web Pages
- Frequently Asked Questions
- Search the Collection
- Best Bets
- Smart Subjects

Library Web Pages

- Similar to existing Google site search
- A results set rather than a destination
- No advertising
- Transparent and configurable indexing criteria

Quick Search:

Library Webpages

Results 1 - 10 of 218 for **senate bibliographies**

[U.S. Senate Bibliographies](#)
... U.S. **Senate Bibliographies** | House Meetings
Committee Meetings Index ... Contact Us | Home U.S. **SENATE
BIBLIOGRAPHIES** Comprehensive Lists of Hearings ...
<http://www.lib.ncsu.edu/stacks/senatebibs/origsbib.htm> - [Cached](#)

[U.S. Congressional Bibliographies](#)
... U.S. Congressional **Bibliographies** | House
Meetings | Committee Meetings Index ... Home The U.S. Congressional
Bibliographies enumerate and describe ...
<http://www.lib.ncsu.edu/stacks/senatebibs/> - [Cached](#)

[U.S. Senate Bibliographies: Printed and Unprinted Hearings](#)
... Top of Page **Senate Bibliographies** | Congressional **Bibliographies** ..
U.S. **Senate Bibliographies: Printed and Unprinted**

Frequently Asked Questions

- Institutional and instructional focus
- Increase visibility and use of existing library FAQ content
- FAQ component displays only if there are keyword matches

Quick Search:

Frequently Asked Questions

- [What are the options for using computers at D. H. Hill Library for guests?](#)
- [What are the options for using computers at D. H. Hill Library for NCSU students, faculty, staff?](#)
- [Where is the Unity Lab in D.H. Hill Library?](#)

[See all 7 FAQ results](#)

Search the Collection

- Research and collection focus
- Stealth instruction about available tools for doing research
- Canned search links
- Low-cost / low-value integration

Search the Collection

Find results for **moby dick** in:

- [Catalog](#) (books & more)
- [Quick article search](#) in Academic Search Elite
- [Advanced article search](#)
- [Journal titles](#)
- [E-Reference sources](#)
- [Google Scholar](#) ([what's this?](#))

Best Bets

- Featured links to **very** popular content
- Cross functional use
- Responds to alternative spellings and misspellings
- Similar to “sponsored links”, but used as an internal navigation aid

Quick Search:

Are you looking for [LexisNexis Academic](#)?

Library Webpages

Your search - **lexus nexus** - did not match any library web pages.

Best Bets Implementation

- Lightweight XML files sources
- Tightly controlled keyword matching to minimize false positives
- Keyword-based retrieval returns the single most relevant Best Bet “ad”, if any

LexisNexis:

```
<?xml version="1.0"?>
<ad id="lexisnexis" class="resource">
  <title>LexisNexis Academic</title>
  <url>http://www.lib.ncsu.edu/cgi-
    bin/proxy.pl?server=www.lexis-
    nexis.com/cis&resource=LexisNexis+Acad-
    emic</url>
  <keywords>lexis, nexis, lexis nexis, lexis nexus,
    lexis nexis, lexis-nexis, lexisnexis, lexis,
    nexus, lexis nexus, lexis-nexus, lexisnexus,
    lexis nexis, lexis nexis, lexis nexis, lexis
    nexis</keywords>
</ad>
```

Best Bets Challenges

- Sensible expansion
 - Criteria for creation of new Best Bet
- Keyword conflict resolution
 - Competing “ads” for similar keywords
 - ‘map’ - library map or map collection?
- Keyword optimization
 - Google AdWords as a model?

Smart Subjects

- Contextual subject links based on user keyword(s)
- An attempt to make new subject based access infrastructure more relevant to the user
- Not really AI, but a contextually filtered view of 96 possible subject nodes
- Subject node landing pages provide subject gateway into metasearch, among other things

Browse Subjects

- [Genetics Genomics](#)
- [Ecology](#)
- [Soil Science](#)
- [Entomology](#)
- [Plant Biology](#)
- [Plant Pathology](#)
- [Environmental Science](#)
- [Forestry](#)
- [Biochemistry](#)
- [Chemistry](#)
- [Horticulture](#)
- [Agriculture](#)

[See all subjects](#)

Quick Search:

Library Webpages

Results 1 - 3 of 3 for **bonds stocks**

[Business Information Network News](#)

... they mean for **stocks, bonds**, interest rates, currencies... your portfolio ...
<http://www.lib.ncsu.edu/news/business> - [Cached](#)

[Business Information Network News](#)

... they mean for **stocks, bonds**, interest rates, currencies... your portfolio ...
<http://www.lib.ncsu.edu/news/business/> - [Cached](#)

[Jack McGeachy's Investment Bookmarks](#)

... Stock Market Chicago Mercantile Exchange **Bonds Bonds** Online BradyNet: Home
Page Discount ... Your Retirement Plan Money.com: **Stocks ...**
<http://www.lib.ncsu.edu/staff/jmcgeachy/invest3.htm> - [Cached](#)

Tip: You may also [Search NC State](#) for **bonds stocks**

Search the Collection

Find results for **bonds stocks**
in:

- ◆ [Catalog](#) (books & more)
- ◆ [Quick article search](#) in
Academic Search Elite
- ◆ [Advanced article search](#)
- ◆ [Journal titles](#)
- ◆ [E-Reference sources](#)
- ◆ [Google Scholar](#) ([what's this?](#))

Browse Subjects

- ◆ [Accounting & Finance](#)
- ◆ [Business &
Management](#)
- ◆ [Economics](#)
- ◆ [Agricultural Economics](#)
- ◆ [Biochemistry](#)
- ◆ [Chemical Engineering](#)
- ◆ [Chemistry](#)
- ◆ [Animal Science](#)
- ◆ [Biology](#)

NCSU LIBRARIES

- SEARCH THE COLLECTION
- BROWSE SUBJECTS
- SERVICES
- LIBRARY INFORMATION
- COMMUNITY
- NEWS & EVENTS

MYLIBRARY: [About](#) | [My Courses](#) | [My Links](#) | [Alerts](#)

[LOGIN](#) | [LOGOUT](#)



Most Used

[FAQ](#) | [Site Index](#) | [Search](#)

GO!

Browse Subjects

Get Answers Now

Related Links:

The Business Information
Network
NCSU GIS Data

Select a Subject Area:

Agriculture
Design
Education
Engineering
Humanities
Life Sciences
Management
 Accounting & Finance
 Agricultural Economics
 Economics
Business & Management
 Operations Research
 Public Administration
 Sports Management
 Textile & Apparel
 Management
Mathematics
Natural Resources
Physical Sciences
Social Sciences
Textiles

Business & Management

[Summary](#) [Books & More](#) [Databases & Articles](#) [Journals](#) [E-Reference Tools](#)

Books on Business & Management

Business, Management, Total Quality Management

[More Books...](#)

Databases for Business & Management

EBSCO Business Source Elite
Proquest ABI/INFORM Global

[More Databases...](#)

Selected Journals in Business & Management

Information and Organization, Management Accounting Quarterly, Business Week, Business Horizons, Harvard Business Review

[More Journals...](#)

Business & Management E-Reference Tools

Collins German Dictionary, Roget's II: The New Thesaurus, Collins Dictionary of Biology, Penguin

How Contextual Subject Links are Generated

- Subject related content used as index fodder
- Journal article titles, course descriptions as surrogates for subject content
- Index fodder stores organized by campus curricula, or by subject nodes directly
- Simple keyword-based retrieval to return the most relevant subject nodes
- Interesting by-product: institutional bias

Smart Subjects Index Fodder

- Unstructured text dumps of content used as index fodder
- Index fodder generated from multiple sources for subject triangulation and increased keyword coverage
- Shared curriculum code or subject node identifiers tie multiple sources together
- Index fodder stores organized by curriculum require curriculum to subject node crosswalk during retrieval

‘Biochemistry’ (extract from Faculty Pubs DB index fodder source):

1-substituted cyclopropenes: Effective blocking agents for ethylene action in plants Abnormal lignin in a Loblolly pine mutant **Absence of association between genetic variation in the promoter of the microsomal triglyceride transfer protein gene and plasma lipoproteins in the Framingham Offspring Study** Accurate translation of the genetic code depends on tRNA modified nucleosides Action spectra for UV-light induced RNA-RNA crosslinking in 16S ribosomal RNA in the ribosome Acute

...blah, blah, blah

Smart Subjects Challenges

- Increase opportunities for contextual subject link generation (reduce instances of zero hits)
- Improve relevance ranking of generated subject links
- Optimize the presentation of subject links in the Quick Search environment

Broader Quick Search Challenges

- Maintaining a usable interface as the scope of the tool expands
- Sensible integration
- Keeping Quick Search *quick*
- Evolving tool to satisfy changing user needs

Future Development

- New search components
 - Embedded journal title matches
 - Embedded catalog results summaries
 - Finding articles / metasearch integration (this is really hard)
- Tool refinement based on observed use
 - Search query log review post-launch
 - Comparative clickthrough stats analysis

Future Development

- Improved index fodder for Smart Subjects
 - Journal TOCs data from Ingenta
 - NCSU ETDs and other campus content
 - Metasearch and/or Google Scholar harvesting?
 - Open Access subject content?
- Make search tool more comfortable to use
 - Smarter “zero hits” response for all components
 - Query expansion for some components (Wordnet)
 - Spelling suggestion feature (Aspell or Google API)

Summary

NCSU Libraries Quick Search

- A “first-step” library search tool
- Our initial attempt towards developing an interactive search space
- A platform for learning about the search needs and behavior of our user community
- Evolving product
- Available Fall 2005, or earlier in beta mode

Questions?

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