



# The Future of Information Discovery

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Founding Director (1983-2000), Human-Computer Interaction Lab  
Professor, Department of Computer Science  
Member, Institute for Advanced Computer Studies



UNIVERSITY OF  
MARYLAND





2:00pm - 3:30pm: Plenary Session:

# **The Future of Information Discovery**

Ben Shneiderman, Professor, Computer Science and  
Founding Director of the Human-Computer Interaction Laboratory,  
University of Maryland

Randy Marcinko, President and CEO, Groxis  
Visualizing Search Results from Multiple Databases

Susan Dumais, Senior Researcher, Microsoft Researcher  
Search and Context

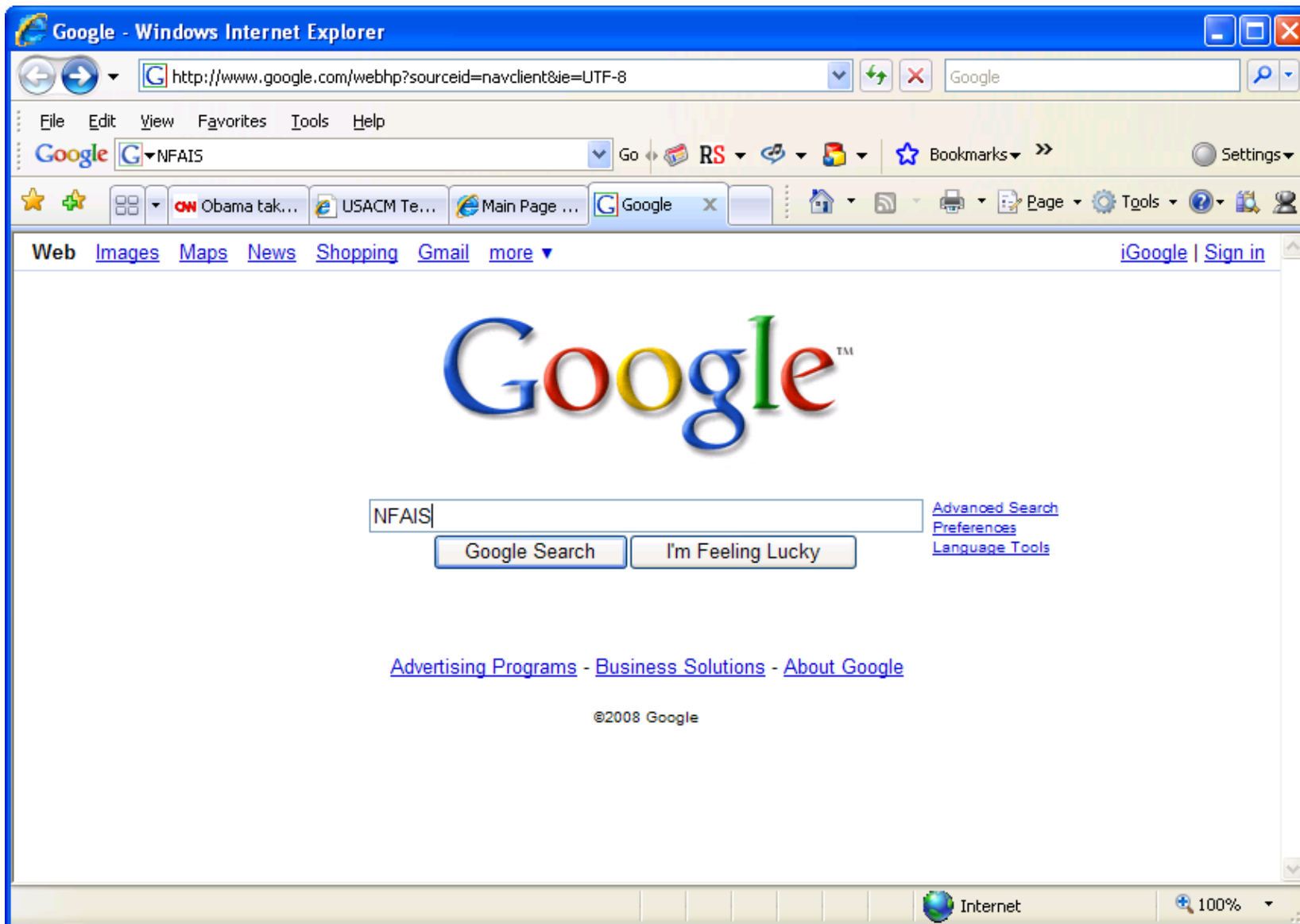


Interdisciplinary research community

- Computer Science & Info Studies
- Psych, Socio, Poli Sci & MITH

([www.cs.umd.edu/hcil](http://www.cs.umd.edu/hcil))







NFAIS

Search

[Advanced Search](#)  
[Preferences](#)

Web

Results 1 - 10 of about 16,600 for NFAIS. (0.14 seconds)

### Welcome to NFAIS

The **National Federation of Abstracting and Information Services** (NFAIS -- a membership organization made up of producers and distributors of digital ...

[www.nfaais.org/](http://www.nfaais.org/) - 16k - [Cached](#) - [Similar pages](#)

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[Events](#)

[Information Community News](#)

[Read details](#)

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[Announces Name Change](#)

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[2008 Annual Conference](#)

[More results from nfaais.org »](#)

### Events

The 50th **NFAIS** Annual Conference will discuss these issues and more. No matter what role you play in the information community - content or technology ...

[www.nfaais.org/events/event\\_details.cfm?id=44](http://www.nfaais.org/events/event_details.cfm?id=44) - 12k - [Cached](#) - [Similar pages](#)

### nfaais: Blogs, Photos, Videos and more on Technorati

The Future of Bibliographic Control: A Time of Transition February 19th, 2008 This is an interesting sounding event hosted by **NFAIS** at PALINET headquarters: ...

[technorati.com/tag/nfaais](http://technorati.com/tag/nfaais) - 31k - [Cached](#) - [Similar pages](#)

### NFAIS/CENDI Search Workshop 2007

This is a workshop jointly sponsored by CENDI and **NFAIS** to be held at the U.S. Government Printing Office, 732 N. Capitol Street, NW, Washington, ...

[cendievents.infointl.com/search\\_workshop\\_111407/](http://cendievents.infointl.com/search_workshop_111407/) - 6k - [Cached](#) - [Similar pages](#)





on what day was Barack Obama born?

Search

[Advanced Search](#)  
[Preferences](#)

Web [Video](#)

Results 1 - 10 of about 4,400,000 for on what [day](#) was Barack Obama [born](#)?. (0.24 seconds)

### [Barack Obama](#) - [Wikipedia, the free encyclopedia](#)

**Obama** was **born** on August 4, 1961 in Honolulu, Hawaii to **Barack Hussein Obama**, .....

[103] On October 2, 2002, the **day** Bush and Congress agreed on the joint ...

[en.wikipedia.org/wiki/Barack\\_Obama](http://en.wikipedia.org/wiki/Barack_Obama) - 467k - [Cached](#) - [Similar pages](#)

### [The Biography Channel](#) - [Born on this Day](#)

SIGN UP FOR EMAIL: Start your **day** with **Born On This Day!** ... Election 2008: **Barack**

**Obama** » Election 2008: Hillary Clinton » Election 2008: Rudy Guiliani ...

[www.biography.com/search/botd.do](http://www.biography.com/search/botd.do) - 33k - [Cached](#) - [Similar pages](#)

### [Barack Obama Biography](#) - [Biography.com](#)

**Barack Hussein Obama** was **born** Aug. 4, 1961, in Honolulu , Hawaii . His father, **Barack Obama**, Sr., was **born** of Luo ethnicity in Nyanza Province , Kenya . ...

[www.biography.com/search/article.do?id=12782369](http://www.biography.com/search/article.do?id=12782369) - 34k - [Cached](#) - [Similar pages](#)



### [YouTube](#) - [Barack Obama: South Carolina Victory Speech](#)

On election **day** we need foot canvassers. This means sign up ...

[Watch video](#) - 17 min - ★★★★★

[www.youtube.com/watch?v=i8mG5qfDXL4](http://www.youtube.com/watch?v=i8mG5qfDXL4)

### [Posted Stories: BARACK OBAMA WAS BORN ON THIS DAY](#)

**BARACK OBAMA WAS BORN ON THIS DAY.** 4 August 1961. **Barack Hussein Obama** is a United States Senator from Illinois and a leading candidate for the Democratic ...

[postedstories.blogspot.com/2008/02/barack-obama-was-born-on-this-day.html](http://postedstories.blogspot.com/2008/02/barack-obama-was-born-on-this-day.html) - 99k -

[Cached](#) - [Similar pages](#)

# Discovery Process: Task Analysis



## **Specific fact finding (known-item search)**

On what day was Barack Obama born?

<Google succeeds>

# Discovery Process: Task Analysis



## **Specific fact finding (known-item search)**

On what day was Barack Obama born?      <Google succeeds>

## **Extended fact finding (vague query)**

What cities did John McCain live in since he became a Senator?

## **Exploration of availability (vague result request)**

What genealogical information on Barack Obama is at the National Archives?



# Discovery Process: Task Analysis

## **Specific fact finding (known-item search)**

On what day was Barack Obama born?      <Google succeeds>

## **Extended fact finding (vague query)**

What cities did John McCain live in since he became a Senator?

## **Exploration of availability (vague result request)**

What genealogical information on Barack Obama is at the National Archives?

## **Open-ended browsing and problem analysis (hidden assumptions)**

How has John McCain's position on the environment changed since 2001?

## **Mismatch with metadata (requires exhaustive search)**

How has Barack Obama's choice of clothing changed during his campaign?

# Discovery Process: Task Analysis



known-item search

vague query

vague result request

hidden assumptions

requires exhaustive search

# Discovery Process: Task Analysis

1-minute

known-item search

---

vague query

Weeks  
&  
Months

vague result request

hidden assumptions

requires exhaustive search

# Discovery Process: Design Challenges



Enrich query formulation

Expand result management

Enable long-term effort

Enhance collaboration

Deal with special cases:

- Legal, patent & medical searches require thoroughness
- Proving non-existence is difficult
- Outlier items can be critical
- Bridging items can be critical

# Discovery Process: Design Challenges



Enrich query formulation

Expand result management

Enable long-term effort

Enhance collaboration

# Discovery Process: Design Possibilities



Enrich query formulation

Expand result management

Enable long-term effort

Enhance collaboration

# Discovery Process: Design Possibilities

**Enrich query formulation** →

Expand result management

Enable long-term effort

Enhance collaboration

**Previous & Similar  
Structured input**

**Spell check**

**Query previews**

**Finding Aids**

**Limit:**

**Time**

**Geography**

**Language**

**Sources**

**Media**

**. . .**

# Discovery Process: Design Possibilities

Enrich query formulation

**Expand result management** →

Enable long-term effort

Enhance collaboration

**Ranking**  
**Snippets**  
**Highlighting**

**Clustering:**  
**Dynamic generation**  
**Meaningful & Stable**

**Visualization:**  
**By attributes**

**Summarization**



# Discovery Process: Design Possibilities

Enrich query formulation

Expand result management

**Enable long-term effort**

Enhance collaboration



**Save & Replay**

**Edit & Grab**

**Mark & Annotate**

**Compare**

**Notebooks**

**History-keeping**

**Systematic Yet  
Flexible Strategies**

# Discovery Process: Design Possibilities

Enrich query formulation

Expand result management

Enable long-term effort

**Enhance collaboration**



**Send email**

**Announce, publish...**

**Export: web, slides...**

**Record video**

**Comment, blog...**

**Wiki**

**Share screen**

**Tagging & voting**

**Feedback to search**

# Discovery Process: Design Possibilities



Enrich query formulation

Expand result management

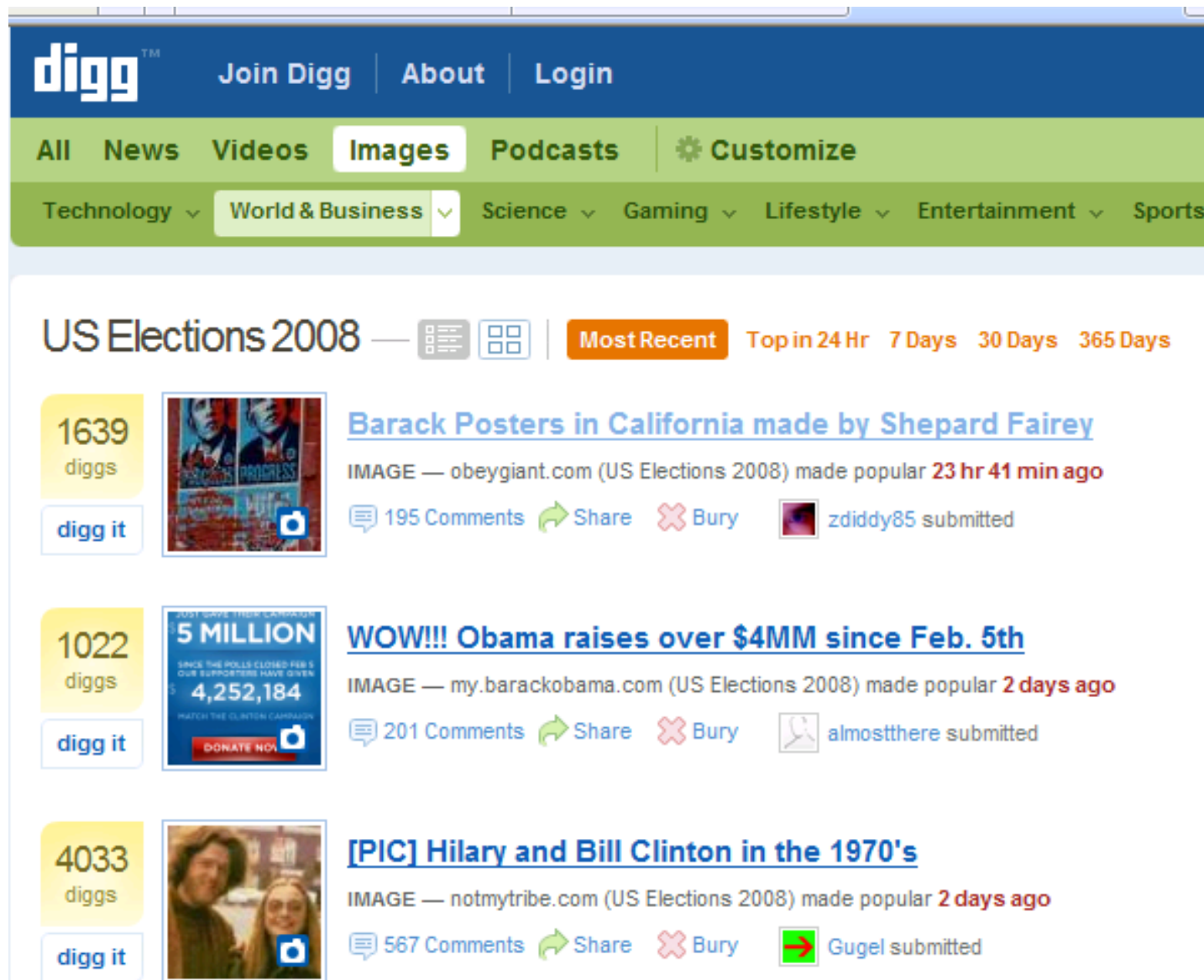
Enable long-term effort

Enhance collaboration

## **Deal with special cases:**

- **Legal, patent & medical searches require thoroughness**
- **Proving non-existence is difficult**
- **Outlier items can be critical**
- **Bridging items can be critical**

# Collaboration: Tagging & voting



The screenshot shows the Digg website interface. At the top is a blue navigation bar with the 'digg' logo and links for 'Join Digg', 'About', and 'Login'. Below this is a green bar with category links: 'All', 'News', 'Videos', 'Images' (which is highlighted), 'Podcasts', and 'Customize'. A secondary green bar lists sub-categories: 'Technology', 'World & Business' (highlighted), 'Science', 'Gaming', 'Lifestyle', 'Entertainment', and 'Sports'. The main content area is titled 'US Elections 2008' and includes sorting options: 'Most Recent' (selected), 'Top in 24 Hr', '7 Days', '30 Days', and '365 Days'. Three items are listed:

- Item 1:** 'Barack Posters in California made by Shepard Fairey'. It has 1639 diggs. The image shows a collage of posters. The description says it was made popular 23 hours and 41 minutes ago. It has 195 comments and was submitted by 'zdiddy85'.
- Item 2:** 'WOW!!! Obama raises over \$4MM since Feb. 5th'. It has 1022 diggs. The image shows a campaign graphic with '5 MILLION' and '4,252,184'. The description says it was made popular 2 days ago. It has 201 comments and was submitted by 'almostthere'.
- Item 3:** '[PIC] Hilary and Bill Clinton in the 1970's'. It has 4033 diggs. The image shows a photo of Hilary and Bill Clinton. The description says it was made popular 2 days ago. It has 567 comments and was submitted by 'Gugel'.

# Treemap: Digg Overview

[TRY IT NOW](#)[HOME](#)[SOLUTIONS](#)[USABILITY](#)[GALLERY](#)[NEWS](#)[COMPANY](#)

## [Digg's](#) Most Popular Stories

[Back](#)[Learn More](#)[+ Bookmark](#)[Help](#)

### Controls

Group by:

5. Main &amp; Sub Topics

Size by:

A. Diggs

Color Represents:

2. Diggs/min

low

high

n/a

### World & Business

#### US Elections 2008

Jon Stewart's Farewell to Mitt Romney: F\*ck Y%u US Elections 2008  
Diggs: 3,408, 2,049/min  
Comments: 447

'We Are Acting Too Much Like Democrats,' Says Ron Paul US Elections...

Ron Paul Does Not Exist (WA state phone poll) US Elections...

Democrats' Nightmare: Elite Superdelega...

Barack Posters in California made by Shepard...

Obama Outshines...

Anal... Clint... US Elect... Diggs... Com...

MSNBC's...

### Other

#### Other

College really isn't necessary Educational  
Diggs: 4,332, 1,539/min  
Comments: 789

Advice: Hide Sex Toys in Bedroom Before Newspaper Interview People  
Diggs: 3,020,...

100 Year Old Tortoise Acts As Mom To Baby Hippo [PICS] Pets & Animals

Why a Geek Will Steal Your Girlfriend in 2008

Insane Weapons Of War Odd Stuff

### Political News

Would it be torture if Iran used waterboarding on Americans? Political News

EXPOSED: FBI program preparing businesses for...

Last chance to stop immunity and warrantless...

Kucinich Under Fire Political News

Bush: Cheney is the "best vice...

Daily Show: Romney never recovered from being a...

McCain Sponsored S. 1003,...

Breaking: Washington...

### Political Opinion

Homeless vet to Bill O'Reilly: "That guy is an asshole."

Mrs. Clinton is losing this thing. Political Opinion  
Diggs: 1,641,...

Why Can't America Vote Right?

### World News

I am a Muslim. Kill me and call it. World News  
Diggs: 3,286, 2,183/min  
Comments: 893

Newsweek: The Passion of Anonymous World News  
Diggs: 2,256,...

Man Kills City Council After Receiving... Corporations deny ties to Scientology

Business & Fin... End of... 20+ Ways to Get Rid of Your...

### Health

Wall Street Journal notes strength of...

17 Fitness Truths To Get You In...

20... Hea... Dig... 14... US...

### Technology

#### Tech Industry News

TorrentFree dom Offers 100% Anon and...

Who... Tech... Diggs... Com...

The Pirate Bay and Filesharers Backed by...

Cont... Tech... Diggs... Com...

RIA A preside... Facebo...

Virtu... Linu... Diggs... Com...

69 Linux/Unix cheat sheets - The ultimate collection

Wine... Linu... Diggs... Com...

Magic Cube... AMD...

Software Ot...

### Science

#### General Science

Spectacular (Almost Surreal) Shot Of Volcanic...

Proof That Evolution Works...

Tra... Gen...

#### Environment

Google to Outspend US Governme nt on Environm...

Space Space... Cosmi...

Other

### Entertainment

#### Movies

Recreating Hitchcock Movies

Cool Stuff: Trippy 3D...

Officially Cool: Vanity...

WAL... Movies Dig...

#### Other

Mininov a...

Top six...

3 great...

### Gaming

#### Other

New Street Fighter IV Screens Reveal...

Gaming Indu... Play...

Blizzard Has Canceled More...

#### Sports

##### Other

Skateboarder Risks Life to Ollie Moving Carl Holy Shift! Extreme  
Diggs: 2,684,...

Other Sports

### Filters

☒ Diggs:

0 2000 4000 6000 6,000

☐ Diggs/min:

0 2.5 5 7.5 10 12.5 15 15

☐ Comments:

19 890 890

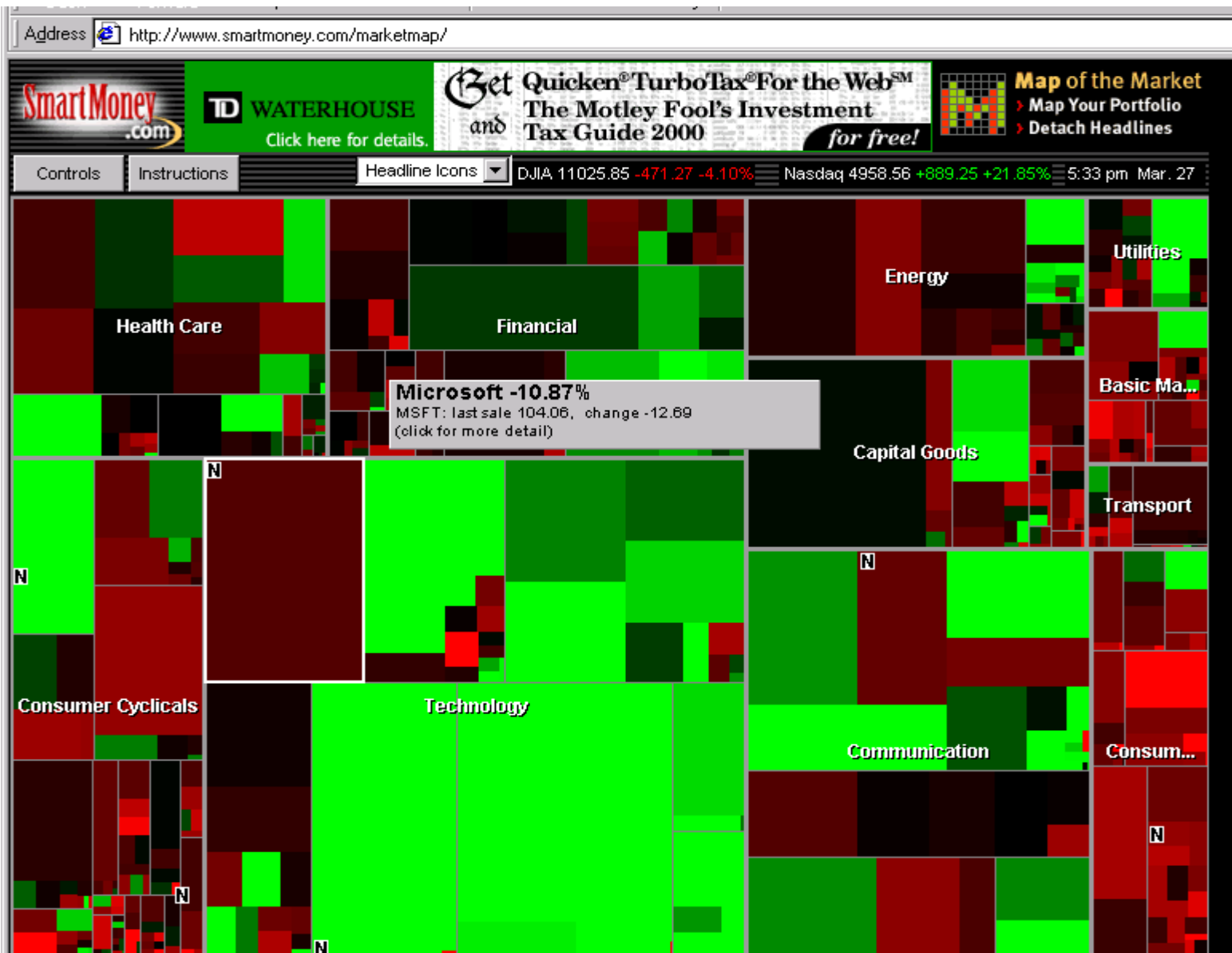
☐ Age:

N/A now 1hr 5hr 12hr 1day 86,400

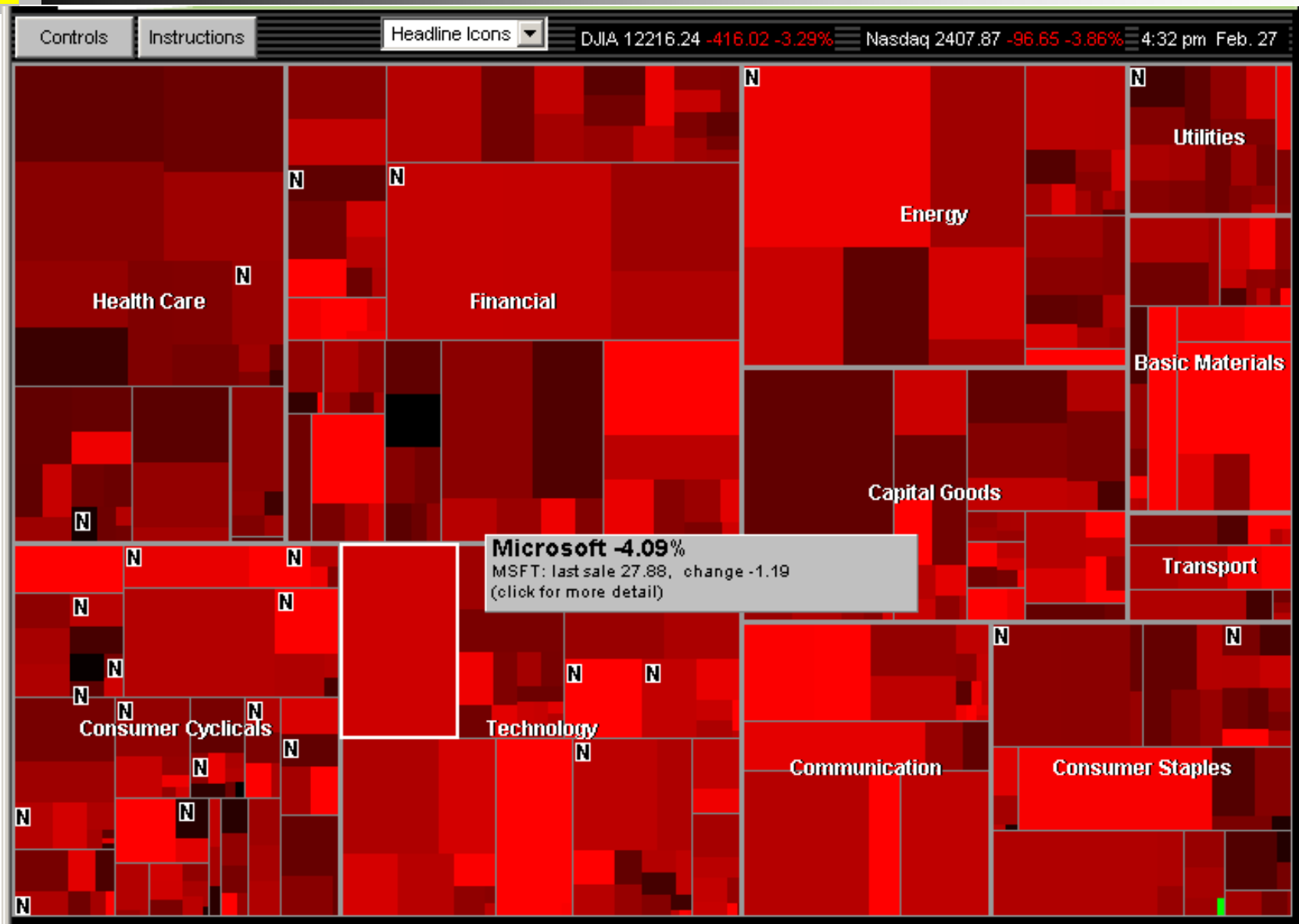
☐ Sub Topics:

- Deselect All -  
Apple  
Basketball  
Business & Finance  
Celebrity  
Comedy Videos  
Design  
Environment  
Gadgets

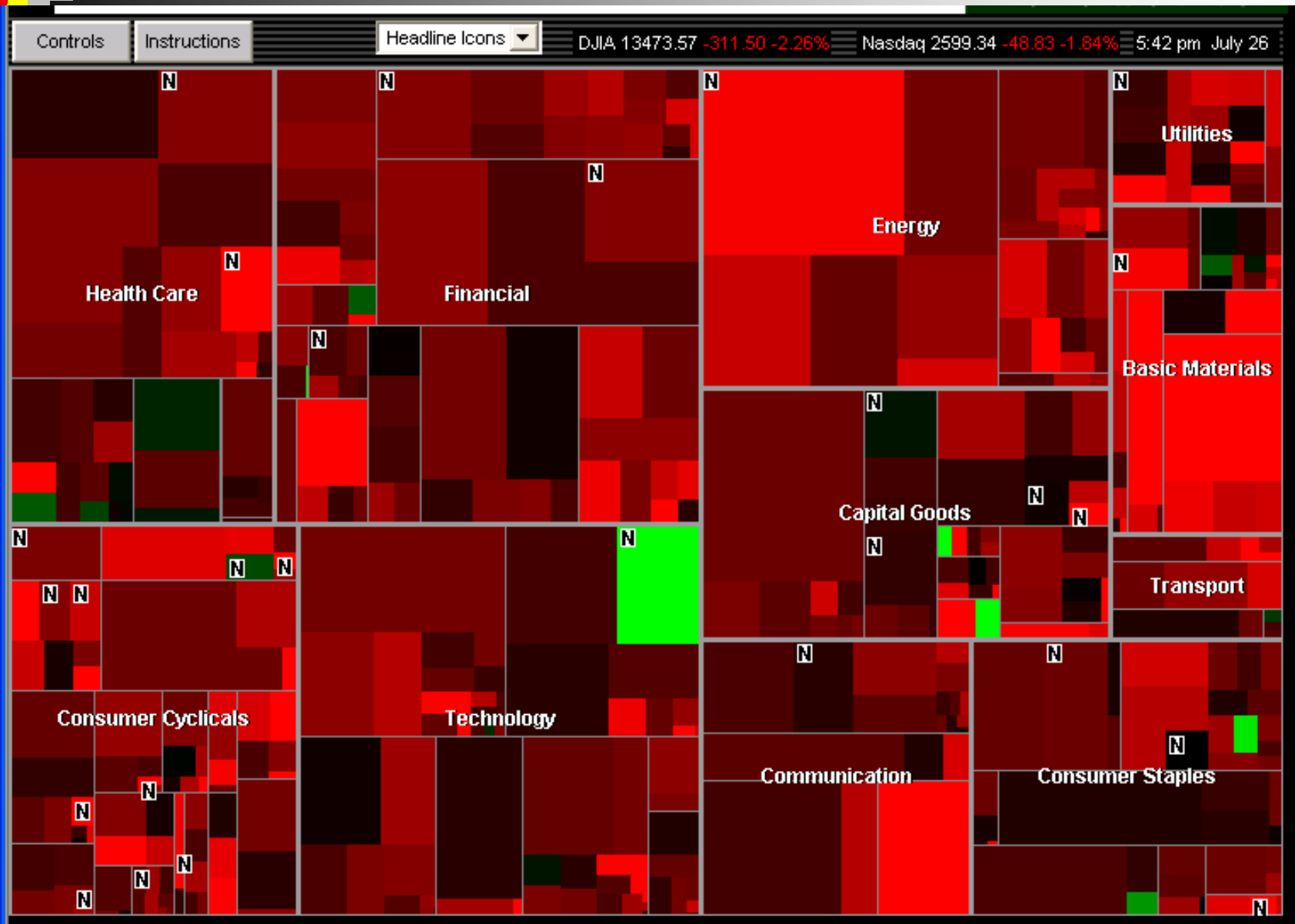
# Treemap: Stock market, clustered by industry



# Market falls steeply Feb 27, 2007, with one exception



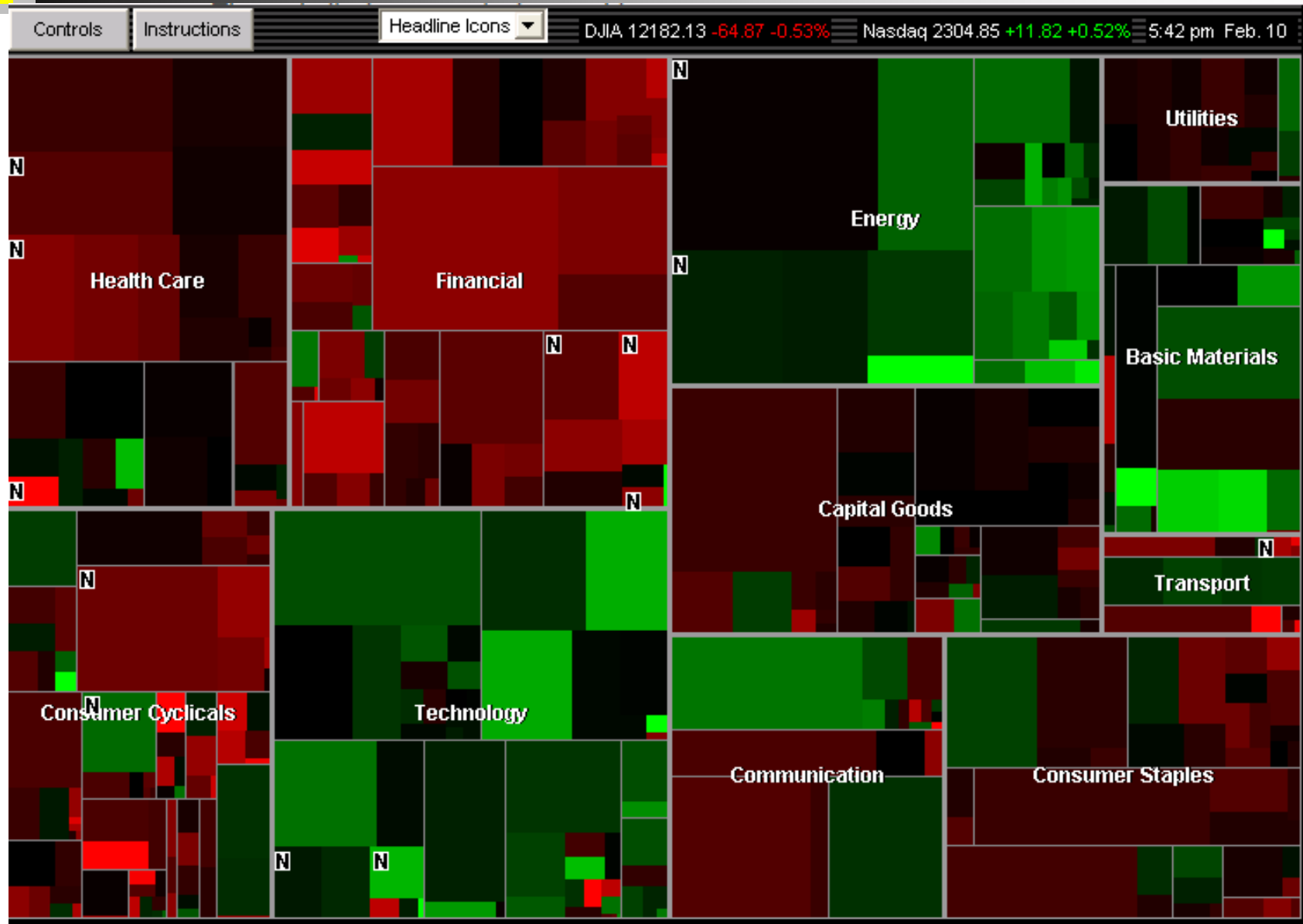
# Market falls 311 points July 26, 2007, with a few exceptions



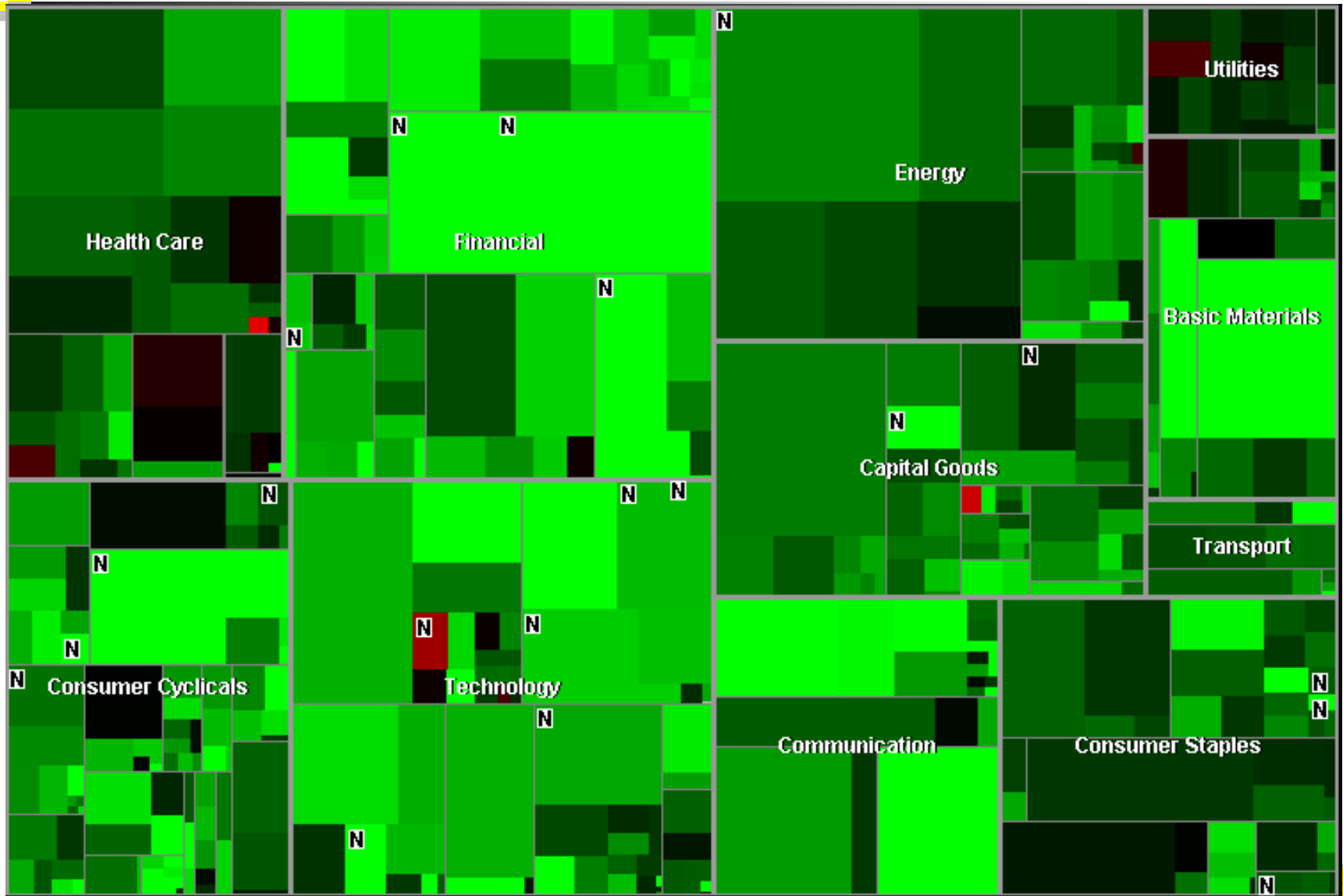


# Market mixed, February 8, 2008

## Energy & Technology up, Financial & Health Care down



# Market rises 319 points, November 13, 2007, with 5 exceptions

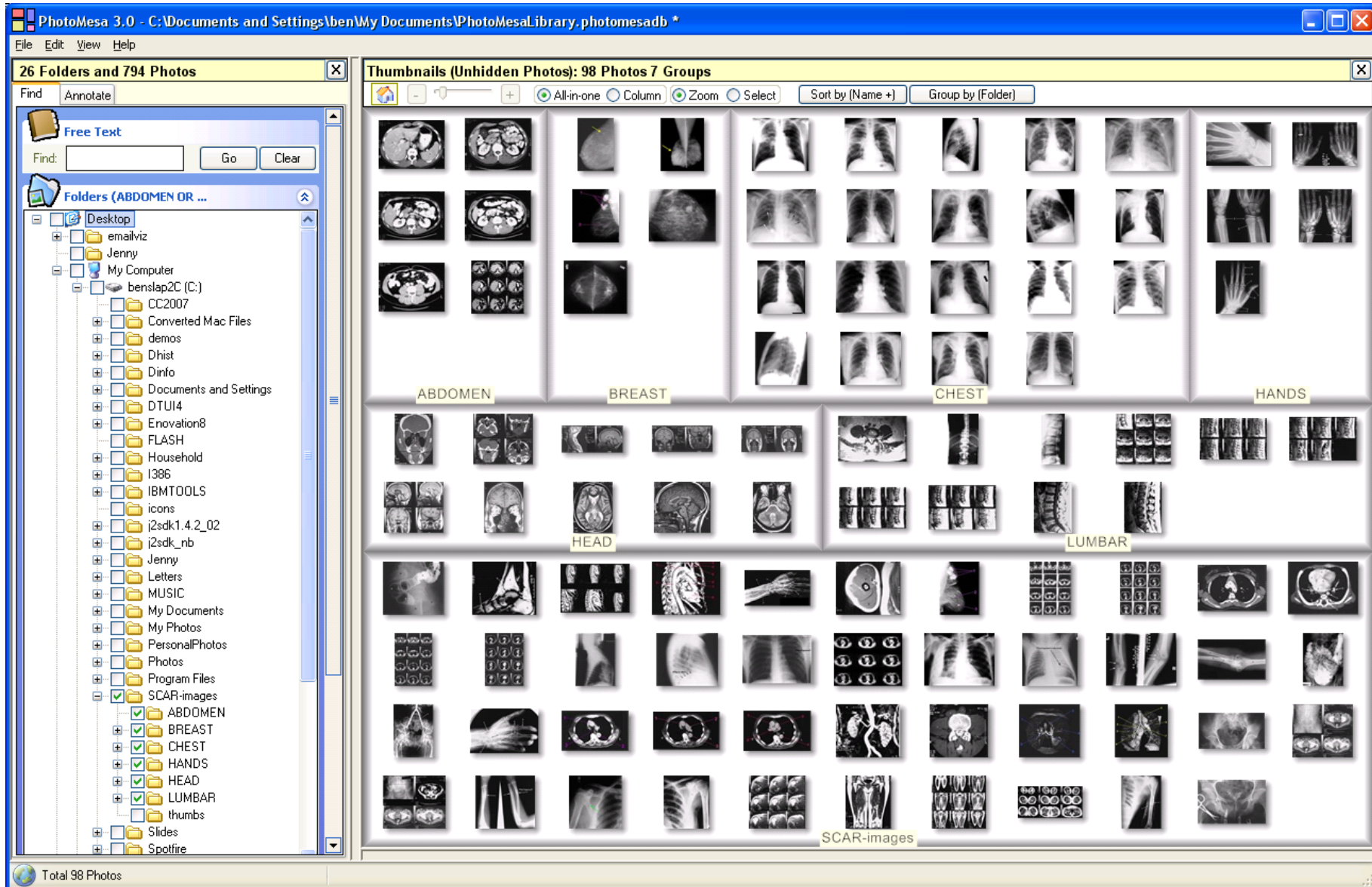


# Treemap: Newsmap





# PhotoMesa: Zooming Exploration





PUNCHSTOCK

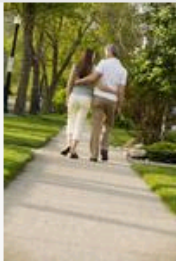
Rights Managed Royalty Free  
CD Store Promotions ValueLine

New image search   ☐ Within  
☒ Images ☐ CDs | Options ▶

All Results Royalty Free Rights Managed ValueLine

132,460 results 20 per page Sort by Relevance Page 1 of 6623 preview balloons are on

RF 1804920



RF SB10063101R-001



RF 76415495



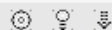
RF GWG114081



RF GWT174005



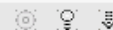
RF 572045



RF GWG114039



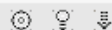
RF SEF00011



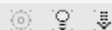
RF KS129649



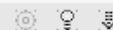
RF PER022



RF GWT216006



RF PH170\_280



You Searched For:

tree

Guided Search

People

- + Number of People 79282
- + Activity 65490
- + Age 47276
- + Ethnicity 40725
- + Appearance 39764
- + Gender 32277
- + Emotion 28549
- + Relationships 19649
- + Role 18933
- + Occupation 5976

Concepts

- + Idea 90252
- + Topic 46168
- + Industry 39119
- + Lifestyles 31842

Style

- + Composition 63745
- + Viewpoint 46775
- + Image Technique 16546
- + Image Type 13122
- + Color Manipulation 5132

Setting

- + Location 116604
- + Buildings And Architecture 36481
- + Places 23730
- + Event 10838

Things

- + Everyday Things 35367
- + Clothing And Accessories 34152
- + Professional Equipment 19170
- + Foods And Drink 10358
- + Vehicles 10047
- + Number of Things 8844

Nature

- + Plants And Vegetation 119874
- + Natural Phenomenon 92823
- + Animals And Wildlife 12536



# Discovery Process: Strategies



[about](#) | [products](#) | [solutions](#) | [press](#) | [partners](#) | [support](#)

john mccain the Web **Search** [Advanced Search](#) [Help](#)

NEW search the [Wikipedia](#) at [Clusty.com](#)

## Clustered Results

Top 185 results of at least 9,163,000 retrieved for the query **john mccain**  
([Details](#))

### ▶ [john mccain](#) (187)

- ▶ [Website of John McCain's 2008 Campaign for President](#) (38)
- ▶ [Candidate](#) (23)
- ▶ [Vote](#) (9)
- ▶ [Presidential campaign](#) (6)
- ▶ [Review](#) (8)
- ▶ [Photos](#) (6)
- ▶ [John Sidney McCain III](#) (6)
- ▶ [Arizona Senator John McCain](#) (6)
- ▶ [War hero](#) (5)
- ▶ [Navy](#) (5)

[More](#)

Find in clusters:

[Go](#)

### [John McCain 2008](#)

Sponsored Link

Get Involved and Support Senator **John McCain**  
[JohnMcCain.com](#) - Sponsored Listings 1

### [Who Should Be President?](#)

Sponsored Link

Candidate Quiz! Will you vote for the right candidate in 2008?  
[QuizRocket.com/who-should-i-vote](#) - Sponsored Listings 2

### 1. [United States Senator John McCain :: Home ::](#)

[\[new window\]](#) [\[frame\]](#) [\[cache\]](#) [\[preview\]](#) [\[clusters\]](#)

Official site features his biography, issue positions, legislation, speeches, constituent services, calendar and information about Arizona. Includes pork barrel section, audio ...  
[mccain.senate.gov](#) - *Open Directory 1, Gigablast 1, Ask 2, Gigablast 3, Live 3*

### 2. [John McCain 2008 - John McCain for President](#)

[\[new window\]](#) [\[frame\]](#) [\[preview\]](#) [\[clusters\]](#)

Official presidential campaign site provides news, issue positions, speeches, biography, and information for volunteers and making donations.  
[www.johnmccain.com](#) - *Ask 1, Open Directory 2, Live 2*

### 3. [John McCain 2008 - John McCain for President](#)

[\[new window\]](#) [\[frame\]](#) [\[cache\]](#) [\[preview\]](#) [\[clusters\]](#)

**John McCain** 2008 - The Official Website of **John McCain's** 2008 Campaign for President  
[www.exploremccain.com](#) - *Live 1, Ask 5, Live 5, Gigablast 6, Live 9,*



# Vivisimo & Exalead: Dynamic overviews

 **Vivisimo**  
search.vivisimo.com

about | products | solutions | press | partners | support

john mccain the Web

NEW search the [Wikipedia](#) at [Clusty.com](#)

**Clustered Results**

▶ **john mccain (187)**

- ▶ [Website of John McCain's 2008 Campaign for President \(38\)](#)
- ▶ [Candidate \(23\)](#)
- ▶ [Vote \(9\)](#)
- ▶ [Presidential campaign \(6\)](#)
- ▶ [Review \(8\)](#)
- ▶ [Photos \(6\)](#)
- ▶ [John Sidney McCain III \(6\)](#)
- ▶ [Arizona Senator John McCain \(6\)](#)
- ▶ [War hero \(5\)](#)
- ▶ [Navy \(5\)](#)
- ▶ [More](#)

Find in clusters:  
Enter Keywords

**Top 185 results of at least 9,163,000 retrieved for the (Details)**

**John McCain 2008**  
Get Involved and Support Senator **John McCain**  
[JohnMcCain.com](#) - Sponsored Listings 1

**Who Should Be President?**  
Candidate Quiz! Will you vote for the right candidate in 2008?  
[QuizRocket.com/who-should-i-vote](#) - Sponsored

- United States Senator John McCain**  
[new window] [frame] [cache] [preview] [clusters]  
Official site features his biography, issue positions, speeches, constituent services, calendar and information. Includes pork barrel section, audio ...  
[mccain.senate.gov](#) - Open Directory 1, Gigablast 3, Live 3
- John McCain 2008 - John McCain**  
[new window] [frame] [cache] [preview] [clusters]  
Official presidential campaign site provides new speeches, biography, and information for volunteer donations.  
[www.johnmccain.com](#) - Ask 1, Open Directory 1
- John McCain 2008 - John McCain**  
[new window] [frame] [cache] [preview] [clusters]  
**John McCain 2008** - The Official Website of John McCain's 2008 Campaign for President  
[www.exploremccain.com](#) - Live 1, Ask 5, Live 1

 **exalead**  
Customize your homepage

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john mccain

Results 1-10 of about 1,975,010 for john mccain

All results - [Only recent results](#) | View:

 Do you want [audio results](#) for **john mccain** ?

**John McCain 2008** SPONSORED RESULTS  
Learn more about John McCain. Get involved today.  
[www.JohnMcCain.com](#)

 **Political Poll - John McCain**  
Political Quiz! Cast your vote and get a FREE T-Shirt. Act Now.  
[2008presidentialelection.com](#)

 **John McCain 2008 Store**  
McCain Bumper Stickers, Hats, Shirts, Buttons and More.  
[www.FreedomHQ.com](#)

 <http://mccain.senate.gov/>  
[mccain.senate.gov](#) - [Add to shortcuts](#) - [More results from this site »](#)

 **John McCain 2008 - John McCain for President**  
**John McCain 2008** - The Official Website of John McCain's 2008 Campaign for President ... Upcoming Events Get your McCain Gear Register to Vote A Cause ...  
[www.johnmccain.com](#) - 103k - [Add to shortcuts](#) - [More results from this site »](#)

**Narrow your search**

**Related terms**

- [Senator John McCain](#)
- [Arizona Republican](#)
- [Arizona senator](#)
- [Senator John](#)
- [Mitt Romney](#)

**Site type** BETA

- [Blog](#)
- [Forum](#)

**Multimedia**

- [Audio](#)
- [Video](#)

**Languages**

- [English](#)
- [French](#)

**Directory**

- [Society and Culture](#)
- [Opposing Views](#)
- [Government](#)

**File types**

- [Acrobat \(.pdf\)](#)
- [Text \(.txt\)](#)
- [Word \(.doc\)](#)

# SERVICE: Categorized Overviews

Query:   [Help](#)

Click below to filter results

**Topic Category**

- News (48)
- Society (22)
- Arts (16)
- Business (6)
- Computers (6)
- Science (6)
- Shopping (4)
- Reference (2)
- Kids and Teens (2)

---

**Geography**

- North America (32)
- Europe (10)
- Middle East (4)
- Caribbean (2)
- Africa (2)

---

**US Government**

- US Senate (2)

---

**Top 200 results containing Obama**

[News results for obama](#)  
Republican adviser declares interest in **Obama**  
[news.google.com/news?q=obama&filter=1&um=1&ie=UTF-8](https://news.google.com/news?q=obama&filter=1&um=1&ie=UTF-8)

[News results for obama](#)  
Republican adviser declares interest in **Obama**  
[news.google.com/news?q=obama&filter=1&um=1&ie=UTF-8](https://news.google.com/news?q=obama&filter=1&um=1&ie=UTF-8)

[Welcome to Obama for America](#)  
Official site for the presidential campaign featuring...  
[www.barackobama.com/](http://www.barackobama.com/)

[Welcome to Obama for America](#)  
Official site for the presidential campaign featuring...  
[www.barackobama.com/](http://www.barackobama.com/)

[Barack Obama | Change We Can Believe In](#)  
Barack **Obama** understands the immense challenges facing our country.  
[www.barackobama.com/issues/technology/](http://www.barackobama.com/issues/technology/)

[Barack Obama | Change We Can Believe In](#)  
Barack **Obama** understands the immense challenges facing our country.  
[www.barackobama.com/issues/technology/](http://www.barackobama.com/issues/technology/)

[Barack Obama - Wikipedia, the free encyclopedia](#)  
Hyperlinked encyclopedia entry provides an extensive overview of Barack Obama.  
[en.wikipedia.org/wiki/Barack\\_Obama](http://en.wikipedia.org/wiki/Barack_Obama)

[Barack Obama - Wikipedia, the free encyclopedia](#)  
Hyperlinked encyclopedia entry provides an extensive overview of Barack Obama.  
[en.wikipedia.org/wiki/Barack\\_Obama](http://en.wikipedia.org/wiki/Barack_Obama)

Query:   [Help](#)

Click below to filter results

**Topic Category**

- News (23)
- Society (9)
- Arts (8)
- Business (5)
- Science (5)
- Computers (3)
- Shopping (1)
- Reference (1)
- Kids and Teens (1)

---

**Geography**

- North America (14)
- Europe (4)

---

**US Government**

- US Senate (1)

---

**Top 100 results containing McCain**

[News results for McCain](#)  
**McCain's** Focus Is on General Election - **McCain**  
[news.google.com/news?q=McCain&filter=1&um=1&ie=UTF-8](https://news.google.com/news?q=McCain&filter=1&um=1&ie=UTF-8)

[John McCain 2008 - John McCain](#)  
John **McCain** 2008 - The Official Website  
[www.johnmccain.com/](http://www.johnmccain.com/)

[john mccain](#)  
John **McCain** - Donate Today - Click Here  
[www.johnmccain.com/landing/?sid=gorganic](http://www.johnmccain.com/landing/?sid=gorganic)

[John McCain - Wikipedia, the free encyclopedia](#)  
John Sidney **McCain** III (born August 29, 1936)  
[en.wikipedia.org/wiki/John\\_McCain](http://en.wikipedia.org/wiki/John_McCain)

[US Senator John McCain](#)  
Official site features his biography, issue positions, and more.  
[mccain.senate.gov/](http://mccain.senate.gov/)

[MySpace.com - John McCain - 71](#)  
MySpace profile for John **McCain** with pictures and more.  
[www.myspace.com/johnmccain](http://www.myspace.com/johnmccain)


[Primary Choices: John McCain - N](#)  
Jan 25, 2008 ... The senator from Arizona  
[www.nytimes.com/2008/01/25/opinion/25fri2.html](http://www.nytimes.com/2008/01/25/opinion/25fri2.html)



# Grokker: Overviews & Maps

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Yahoo!, Wikipedia

[GROK](#) [Search Options](#)

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[View your list](#)

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☐ [Export Outline...](#)

Search within the outline:  
by keyword  
  
☐ Exclude

by date  
  
all most recent

by source  
<All sources>

by domain  
<All domains>

[Hide Tools](#)

**Outline View** **Map View** 250 total results

[Expand Outline](#) | [Collapse Outline](#)

**barack obama (250 results)**

- General (27)
- Senator from Illinois (22)
- Presidential Candidate (16)
- Barack Obama's (15)
- Barack Obama News (14)
- Sponsored Legislation (14)
- State Senate (14)
- Community Organizer (13)
- Hawaii to Barack Obama (13)
- U.S. Senate (13)
- Democratic Presidential (12)
- Law School (12)
- New York (12)
- Presidential Campaign (11)
- Born in Nyanza Province (10)
- Harvard Law (10)
- Iraq War (10)
- 110th Congress (9)
- United States (9)
- Hillary Clinton (8)
- State Legislator (8)
- Votes (8)
- Columbia University (7)
- Democratic Primary Run (7)
- Photos (7)
- Democratic Primary (6)

**Detail: Less Medium More**

**barack obama**

[George W. Bush's first term as President of the United States](#)  
[Add to Working List](#) | [Post to del.icio.us](#) | [Bookmark](#) | [Email](#)  
...Questioning the Bush administration's management of the Iraq War, Obama spoke of an enlisted Marine, Corporal Seamus Ahern from...  
[http://en.wikipedia.org/wiki/George\\_W.\\_Bush%27s\\_first\\_term\\_as\\_Presi...](http://en.wikipedia.org/wiki/George_W._Bush%27s_first_term_as_Presi...) - Wednesday, February 13, 2008  
Source: Wikipedia

[Barack Obama - Wikipedia, the free encyclopedia](#)  
[Add to Working List](#) | [Post to del.icio.us](#) | [Bookmark](#) | [Email](#)  
Hyperlinked biography of Barack Obama, Democratic U.S. Senator from Illinois and candidate for the 2008 Democratic Presidential nomination.  
[http://en.wikipedia.org/wiki/Barack\\_Obama](http://en.wikipedia.org/wiki/Barack_Obama) - 478k - Tuesday, February 12, 2008  
Source: Yahoo!

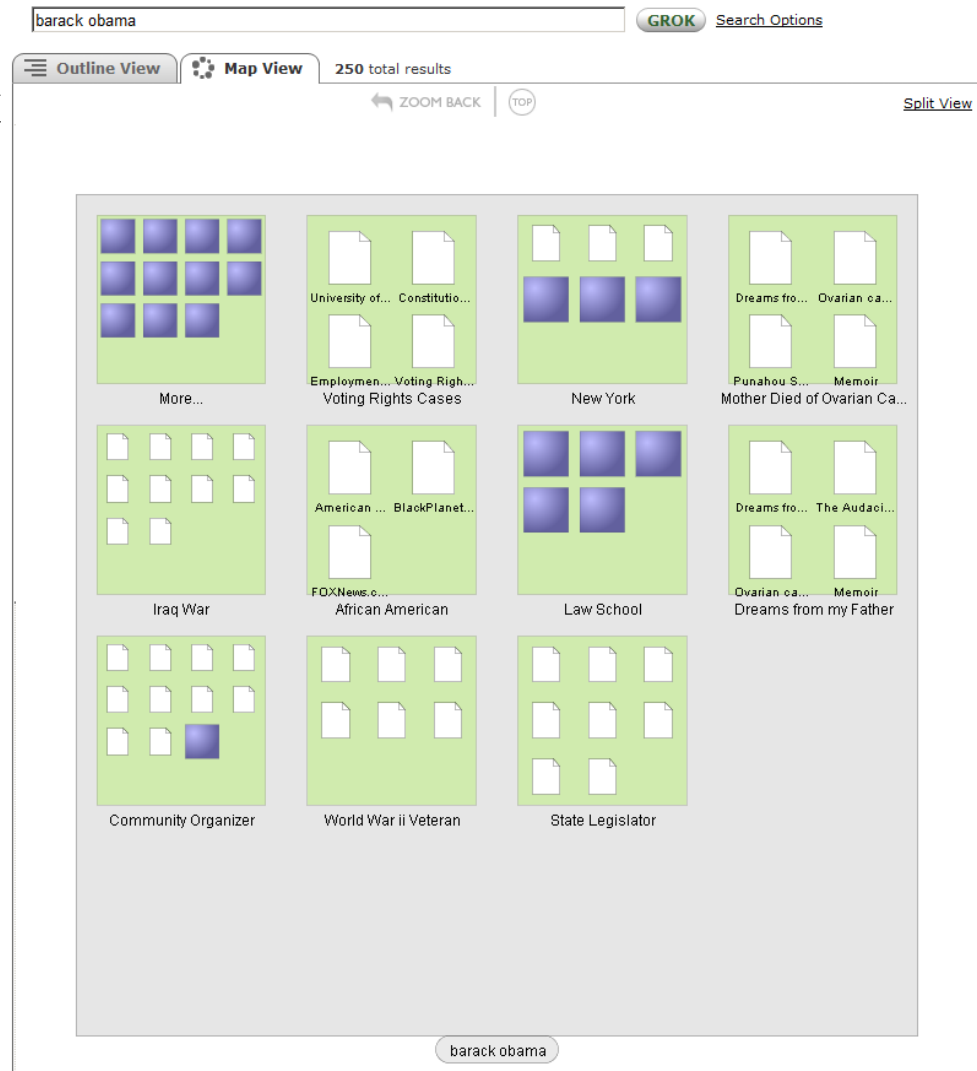
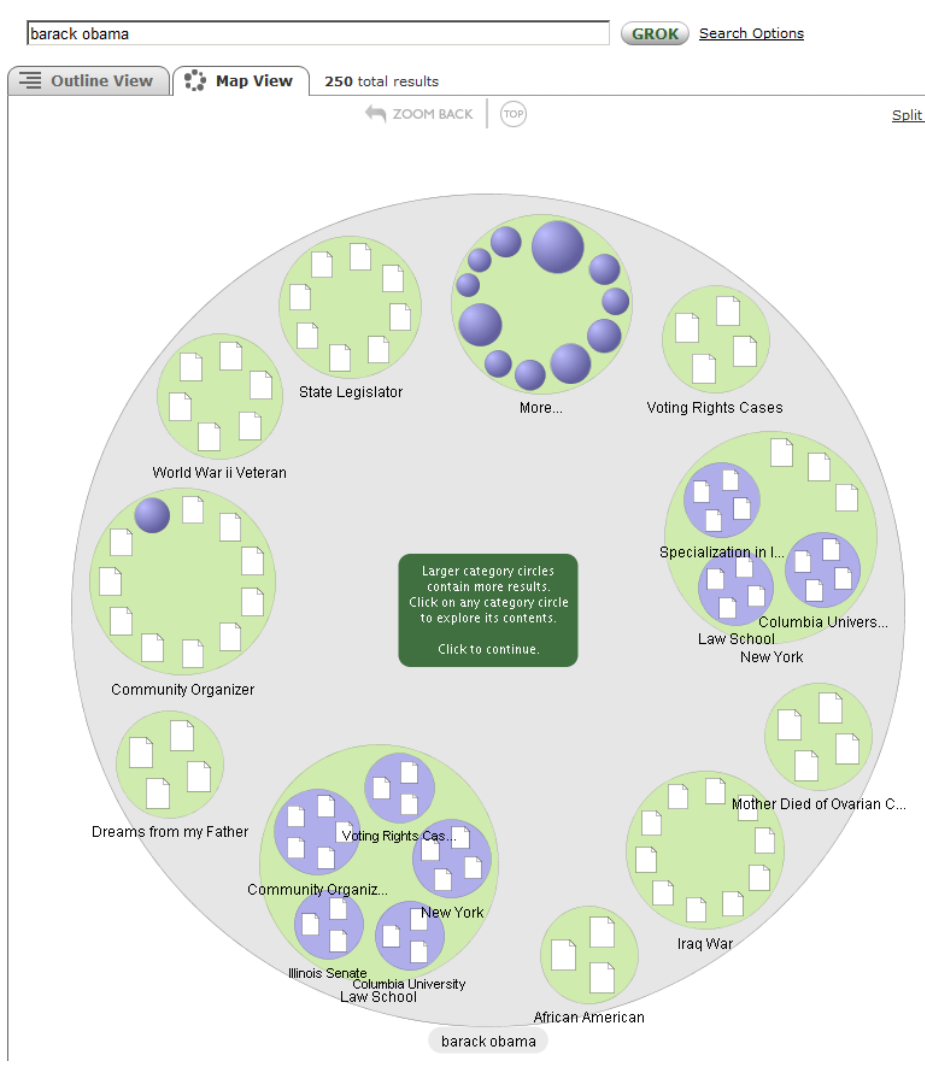
[University of Chicago](#)  
[Add to Working List](#) | [Post to del.icio.us](#) | [Bookmark](#) | [Email](#)  
...discrimination claims, and voting rights cases.[29] He was a lecturer of constitutional law at the University of Chicago Law School from 1993 until his election to the U.S. Senate in 2004. [30]...  
[http://en.wikipedia.org/wiki/University\\_of\\_Chicago](http://en.wikipedia.org/wiki/University_of_Chicago) - Wednesday, February 13, 2008  
Source: Wikipedia

[Barack Obama - U.S. Senator for Illinois](#)  
[Add to Working List](#) | [Post to del.icio.us](#) | [Bookmark](#) | [Email](#)  
Official U.S. Senate site for Barack Obama, Democratic senator from Illinois.  
<http://obama.senate.gov/> - 15k - Tuesday, February 12, 2008  
Source: Yahoo!

[Constitutional law](#)  
[Add to Working List](#) | [Post to del.icio.us](#) | [Bookmark](#) | [Email](#)  
...he represented community organizers, discrimination claims, and voting rights cases.[29] He was a lecturer of constitutional law at the University of Chicago Law School from 1993 until his election to the U.S....  
[http://en.wikipedia.org/wiki/Constitutional\\_law](http://en.wikipedia.org/wiki/Constitutional_law) - Wednesday, February 13, 2008  
Source: Wikipedia

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# Grokker: Overviews & Maps







# Discovery Process: Combinformation

[untitled] combinformation

File Edit View Agent Debug

"McCain must be sweating bullets."

He put his finger to his lips signaling for me to be quiet, and then loosened my ropes to relieve my pain.

John McCain believes Roe

Character Is Destiny: Inspiring Stories Every Person Should Know and Every Adult Should Remember by John McCain, Mark Salter (Random House, October 2005) ISBN 1400064120

Stanton Peele, McCain's Double Standard: Hawk In The Drug War, Yet His Wife Got No Penalty "Los Angeles Times February 14, 2008

Wood Goldman ITZER November 14, 2007

Eugene Marans

O'Connor and E.

The ascendancy of the thecons is already causing fault lines to emerge within the Republican Party.

CINNAMON S FLIP FLOP SHOW

The foremost political players in this drama President Bush Tom Delay and Bill Frist bring a pungent mix of raw ambition, blatant agendas and inconsistencies on the issues in question that taint their flowery speeches with a distinctly fishy odor.

Michael Rubin, "Sanctions on Iraq: A Valid Anti-American Grievance?"

Drury, Leo Strauss and the American Right Palgrave Macmillan, February 1999. Quiz: Are you a neoconservative?

Send donations or submit quotations to FLIP FLOP Presents Irving Kristol, Neo-conservatism The Autobiography of an Idea Ivan R.

Douglas Feith was not only the CEO of IAI but also its only stockholder rather disparagingly dubbed palooza.

Excerpts from natives' critique Books by and conservatives for about 2008: too liberal and too candidates, rationalist.

havaianas surfer chinele sandalia flipflop

Commercial vehicle brands include Mercedes-Benz, Freightliner, Sterling, Western Star, Setra, Mitsubishi Fuso, Thomas Built Buses and Orion.

Leo Strauss and the American Right is the title of a book by Shadia Drury

Most recent quotations Archive of books Debates Pop-up Grid Issue Candidate Matching Quiz

John McCain Mitt Romney Bob Beckel Rich Galen Fox News Friends

Barack Obama's experience August 2007 Bachstelzen

Shira Teplitz and Marc Ambinder, "Exclusive: McCain's 00:10 From monzcas Eisenberg as a major donor.

me Today Obama campaign rally at the Auditorium Bangor, Ma

Obama's De Richardson's Frank 2007 Debates

Josh BenzoAsif, "The Sure, He Clinton Top 100: Likes McCain Where Are They Now. Now?

A Libertarian Critique of John McCain Comando "Everyday" more less middle school washington state caucus part totaltrekkie barack obama grassroots politics

pot brownies republican

roy yuanti joint mccain tom tancredo

Obama'08

JOHN MCCAIN READY TO LEAD ON DAY ONE + Why John McCain

Location: http://www.sourcewatch.org/index.php?title=Fred\_Zeidman Title: Fred Zeidman SourceWatch Location:

Verdana 11

Thom Shanker and Steven R.

Amy Klobuchar currently serves as the junior senator for the state of Minnesota

More info - says-mormons-caused-2002-olympic-scandals-5-d

MEREDITH N. omer

Subcommittee Members: Marsha Blackburn and

Senators Tom Chuck Hagel and Barack Obama (D-IL) today introduced major legislation aimed at preventing suicide among active duty members of the military.

Carmelo anthony allen ulver iverson denver nuggets

video and n the road

LEAVE

February 9th, editorial writer, and

The Audacity of Hope: Thoughts on Reclaiming the American Dream by Barack Obama

YOU got me tearin

Centristly Clittricity The state or quality of being centrist, Dardanis, Hadley (D-

Spending in Recent Elections

That is an irresponsible, insensitive and unacceptable way to say.

Amity has addressed "Zeidman is the audiences at the Counter on Foreign Relations" Chairman of leading university, Zeidman, Inc. and the U. infamous Raimondo, Texan, Raimondo, "Beware the Tides of March" Hackery, Think

Work with Pakistan against Taliban and Al Qaida.

81 Joe Constantine have been glorified junkies How to

According to his Greenberg Training profile Zeidman is:

Ignoring the Chickenhawk's State of letter to General Schwarzkopf.

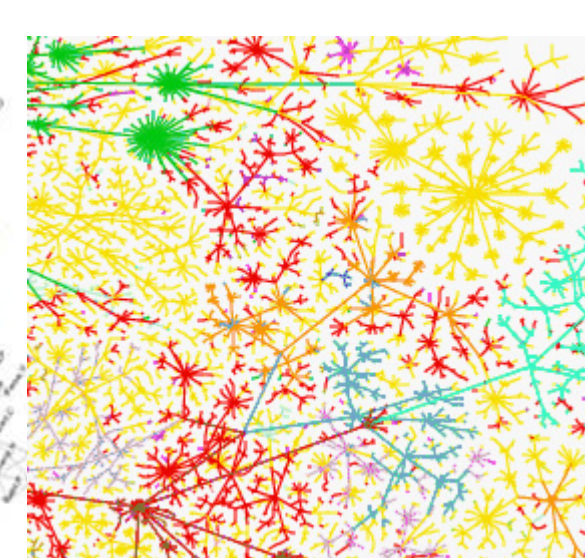
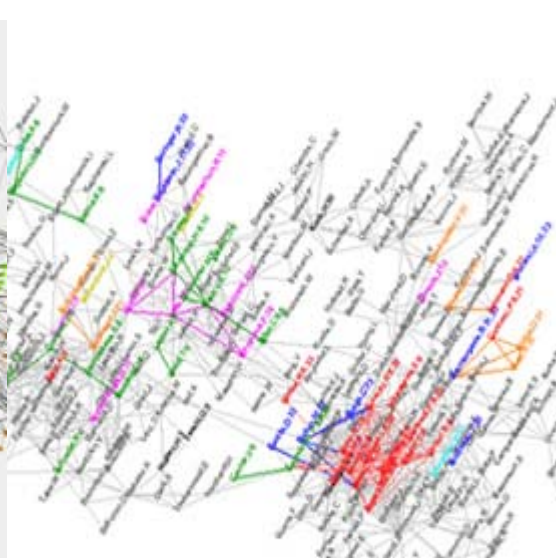
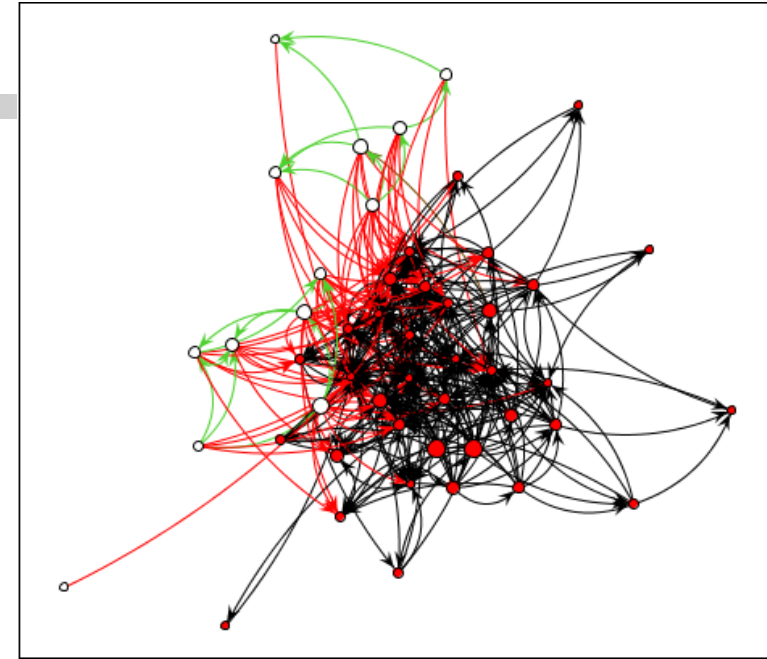
light mitt romney

Corporations and other organizations can pay for trips by members of Congress and their staff as long as it is related to official business (though some trips have been glorified junkies) How to

Download image: http://a802.ac-images.myspacecdn.com/images01/6/s\_0f76ddf7d366b792792575ae2a7eb419.jpg

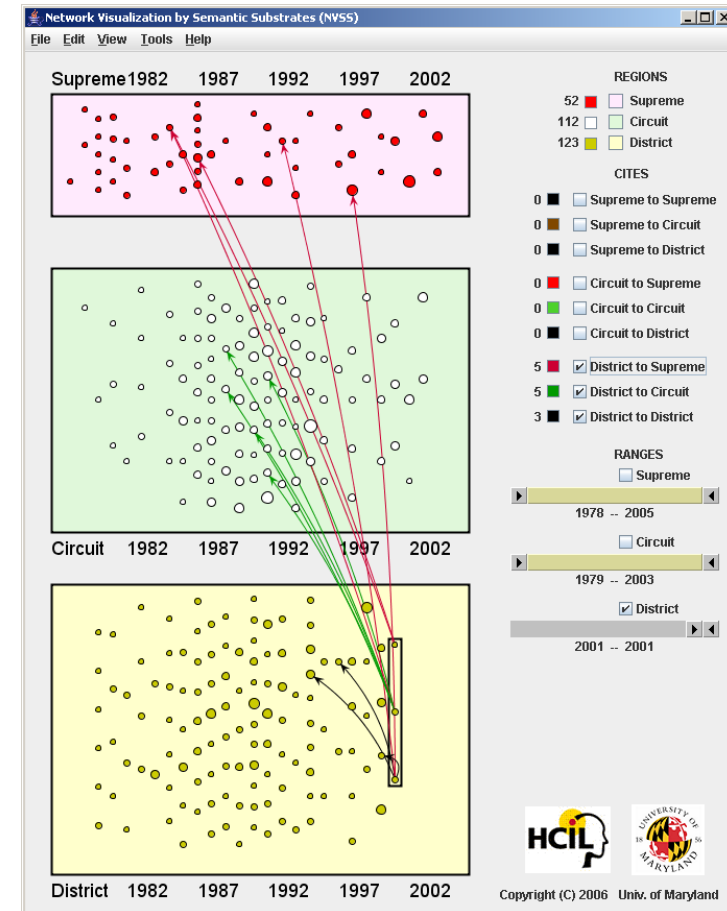
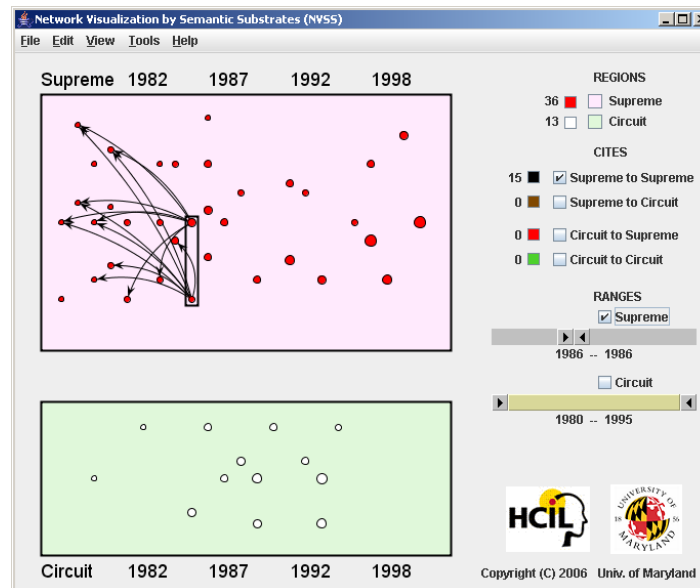
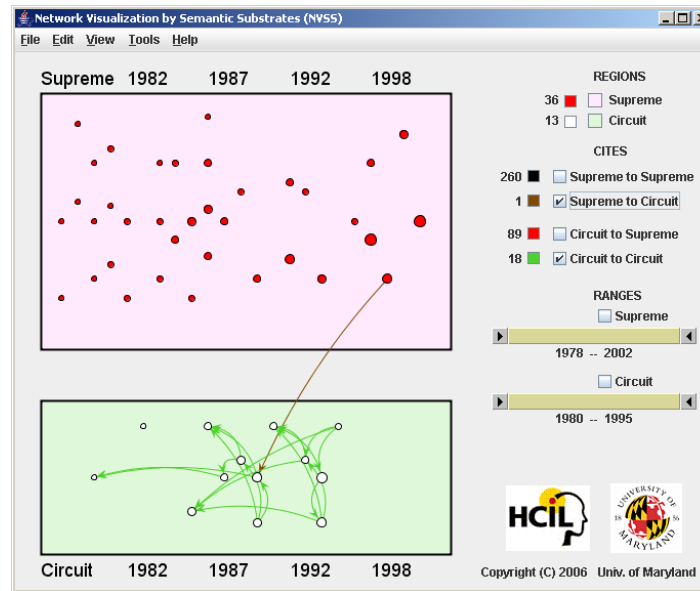
# Network Data

- Nodes & Links
  - Relationships & communication
  - Scientific/legal citations
- Difficult to complete tasks
  - Occlusion
  - Complexity



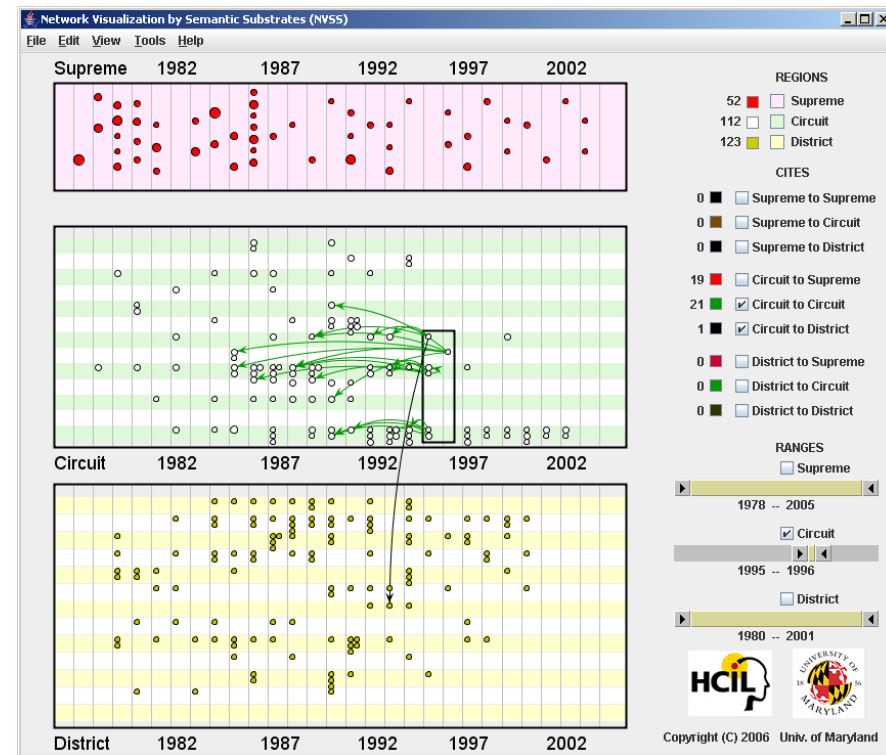
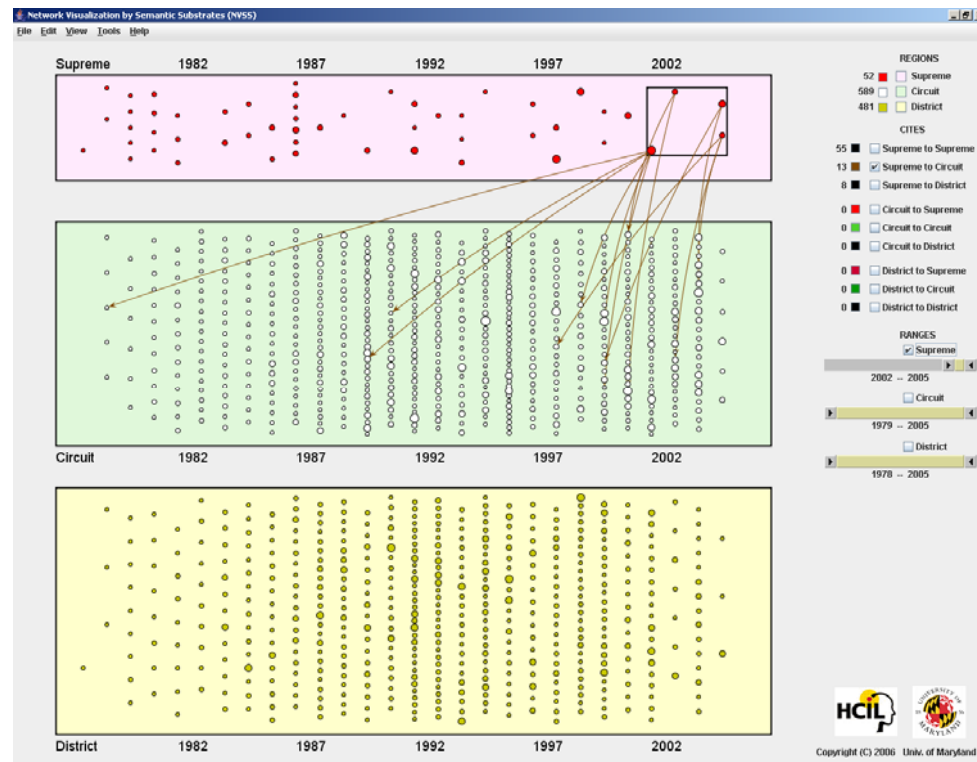
# Network Visualization with Semantic Substrates

- Meaningful layout of nodes
- User controlled visibility of links

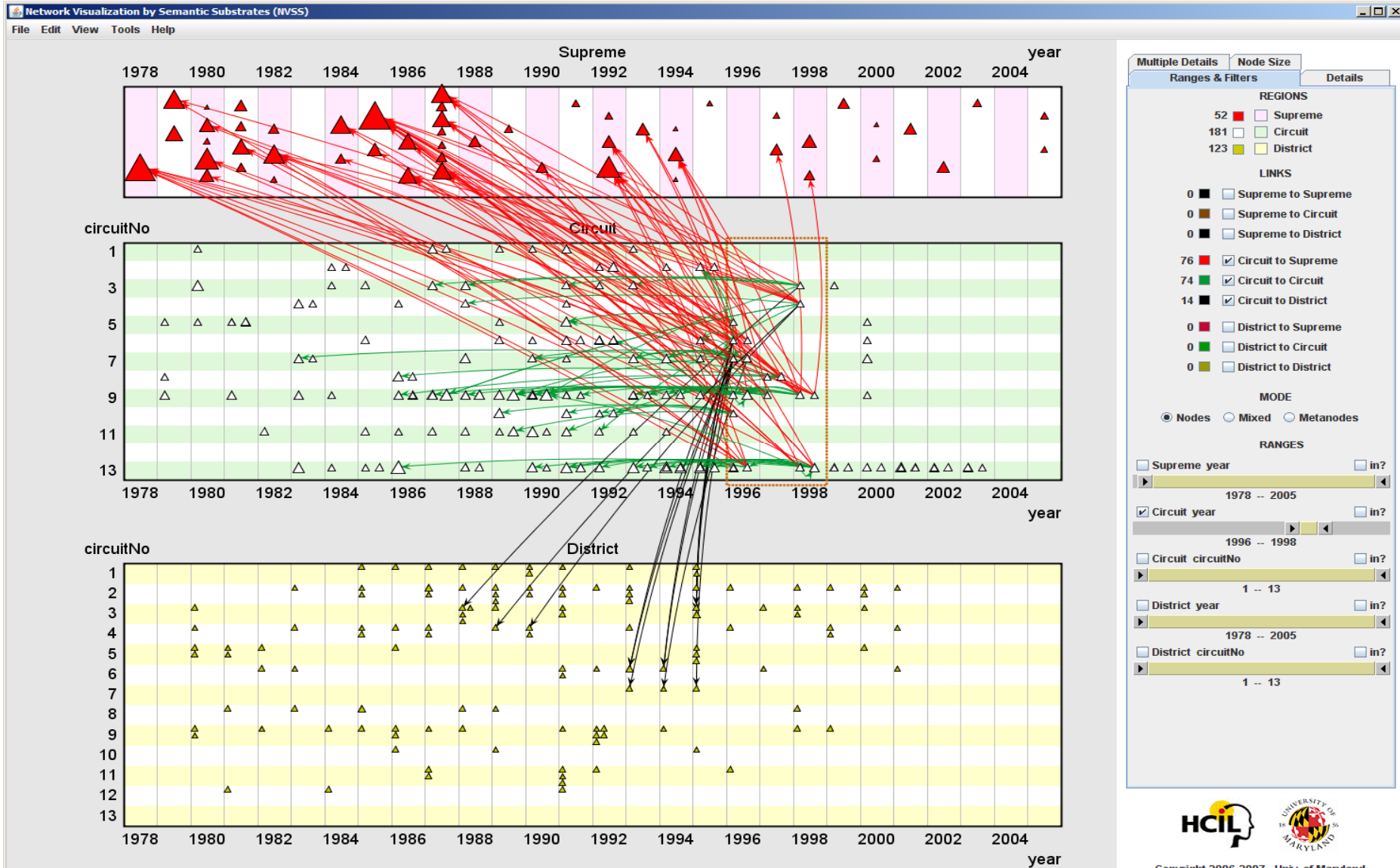




# Network Visualization with Semantic Substrates



# NVSS: Citation Historiographs





# Discovery Process: Design Possibilities



**Enrich query formulation**

**Expand result management**

**Enable long-term effort**

**Enhance collaboration**

**Deal with special cases:**

- Legal, patent & medical searches require thoroughness**
- Proving non-existence is difficult**
- Outlier items can be critical**
- Bridging items can be critical**

# Research Methods



Controlled experiments

Logging usage patterns

Multi-dimensional In-Depth Long-Term Case Studies  
(MILCs)

Domain experts doing their own work  
for weeks & months

# Research Methods



Controlled experiments

Logging usage patterns

Multi-dimensional In-Depth Long-Term Case Studies  
(MILCs)

Domain experts doing their own work  
for weeks & months

# Science 1.0

+

# Science 2.0

- |                          |   |              |
|--------------------------|---|--------------|
| • Reductionist           | → | Integrated   |
| • Controlled Experiments | → | Case Studies |
| • Replicability          | → | Validity     |
| • Laboratory             | → | Situated     |
| • Natural World          | → | Made World   |

# Science 1.0

+

# Science 2.0

- Reductionist → Integrated
- Controlled Experiments → Case Studies
- Replicability → Validity
- Laboratory → Situated
- Natural World → Made World


- Hypothesis Testing
- Predictive Theories
- Replications



**25<sup>th</sup> Anniversary Symposium**  
**May 29-30, 2008**

[www.cs.umd.edu/hcil](http://www.cs.umd.edu/hcil)





## 2:00pm - 3:30pm: Plenary Session: The Future of Information Discovery

User expectations are shaping the future of information discovery. And effective search strategies for Web-oriented databases and massive cloud computing resources have raised their expectations regarding the remarkable opportunities in exploratory search that can lead to productive discoveries. Collaborative searching techniques combined with social networking have the potential to harness collective intelligence so that domain experts and novices alike can make important discoveries across integrated databases. Designers of creativity support tools (demonstrations will be presented) are applying advanced visualizations in innovative ways to provide visual overviews with interactive tools that enable systematic yet flexible exploration. The best is yet to come!

### Speakers:

Dr. Ben Shneiderman, Professor, Computer Science and Founding Director of the Human-Computer Interaction Laboratory, University of Maryland

### Title: The Future of Information Discovery

**Abstract:** Effective search strategies for Web sites and databases have raised user expectations, but there are still great opportunities in supporting exploratory search that leads to productive discoveries. Collaborative searching techniques combined with social networking have the potential to harness collective intelligence so that domain experts and novices can make important discoveries. Designers of creativity support tools are applying advanced visualizations in innovative ways to provide overviews with tools that enable systematic yet flexible exploration. The best is yet to come.

Randy Marcinko, President and CEO, Groxis

### Title: Visualizing Search Results from Multiple Databases

**Abstract:** The presentation of search results is still almost exclusively a list, sometimes ranked by parameters such as relevance or date. Knowing that most end-users rarely surf beyond the first or second screen, a very small percentage of search results are ever seen or even considered by the end-user. Visualization, textually or graphically, is a viable solution to this problem, offering the end-user greater power to select those results that are most useful. Visualization also gives the content creator greater assurance that their work will be given a fair chance to be viewed. When searching on federated sources, it is even more important to put control of what is seen in the hands of the end-user. This talk will address the visualization of federated search results and include meaningful demos. The concept of visualization as an alternative to keyword search will be raised.

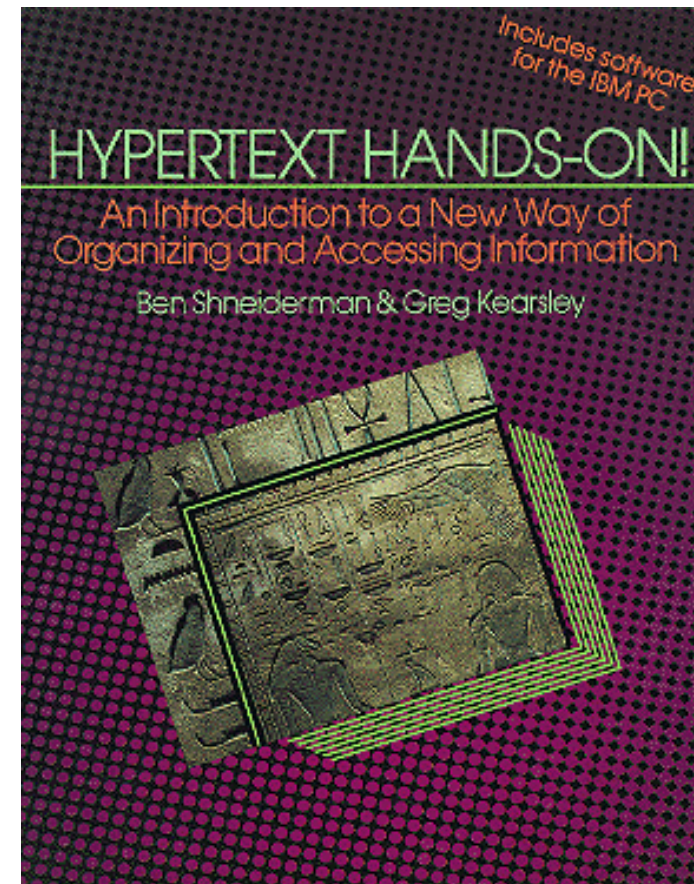
Susan Dumais, Senior Researcher, Microsoft Researcher

### Title: Search and Context

**Abstract:** Today most search systems treat queries in isolation, without regard to searchers previous queries and interactions. Context is a key to improving search by understanding searchers interests, the rich interrelationships among objects, and the larger task environments in which information needs arise. Understanding and incorporating these contextual variables into search algorithms and interfaces will dramatically change the information landscape in the next decade. Demos of systems that support rich metadata and tagging (Phlat) and personalization (PSearch) will be shown.

# World-Wide Web links

- Developed & tested embedded menus (1983) that became “hot spots” (Berners-Lee, 1989)
- First electronic book (1989):  
*Hypertext-Hands On*





# Hypertext on Hypertext – CACM July'88

## Hypertext on Hypertext

Special Section  
of the  
July, 1988  
Communications  
of the ACM

---

Prepared by the Human-Computer Interaction Laboratory, University of Maryland, College Park, Maryland.

© Association for Computing Machinery, Inc., 1988.  
ACM order number 217880

Hyperties™ © Cognetics Corporation and the University of Maryland.  
55 Princeton-Hightstown Road, Princeton Jct., NJ 08550

[Click mouse button to start (or press '?' for instructions)]

## communications of the acm

### Papers from the HYPERTEXT '87 workshop

**SPECIAL EDITION**

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INTRODUCTION PAGE 1 OF 3

COMMUNICATIONS OF THE ACM  
SPECIAL SECTION ( JULY 1988 )

Welcome to the Communications of the ACM July 1988 Special Section on Hypertext Systems. This Hyperties disk enables you to experience hypertext system by browsing our database (i.e. select the Table of Contents to get a guide to the entire issue).

You simply press the left and right arrow keys (or drag the Mouse if you have one) to move the selector box onto one of the highlighted words embedded in the text or the commands at the bottom of the screen. Try moving the selector box onto the NEXT PAGE command and then press ENTER.

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[Hypertext 87 Workshop](#) : Ben Shneiderman

[Hyperties](#) : An Overview

[ACM Press Database and Electronic Products](#)

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