

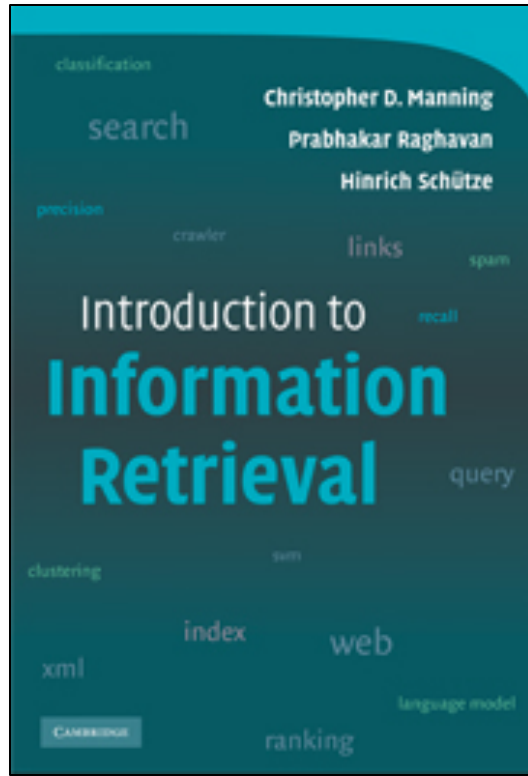
INF3800/INF4800

Søketeknologi

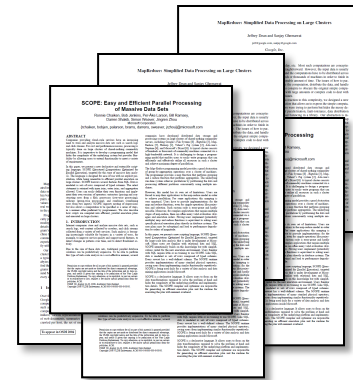
2015.01.19

Pensum

<http://nlp.stanford.edu/IR-book/information-retrieval-book.html>

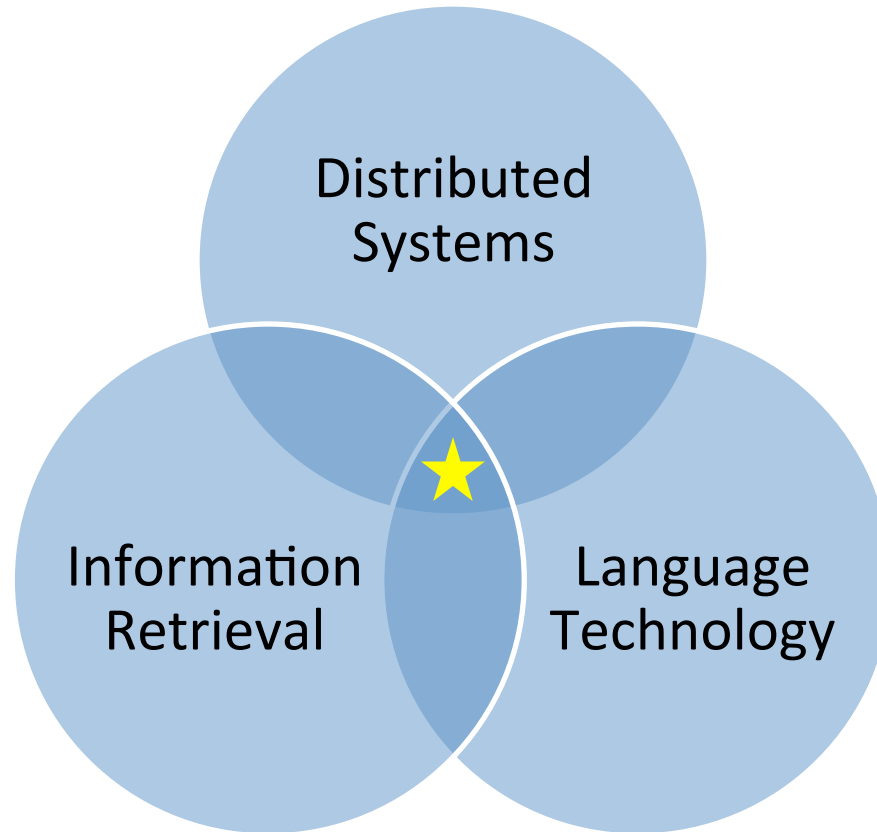


+



Introduksjon

The Sweetspot



Web Search

Plan 9 from Outer Space - Bing - Windows Internet Explorer

http://www.bing.com/search?q=Plan+9+from+Outer+Space&FORM=RSFD4

Plan 9 from Outer Space

ALL RESULTS 1-19 of 4,030,000 results

Images of Plan 9 from Outer Space

Videos of Plan 9 from Outer Space

Plan 9 from Outer Space - Wikipedia, the free encyclopedia

Plan 9 from Outer Space (originally titled as Grave Robbers from Outer Space) is a 1959 science fiction / horror film written, and directed by Edward D. Wood, Jr. Synopsis · Cast · History and development · Mistakes

Plan 9 from Outer Space (1959)

Aliens resurrect dead humans as zombies and vampires to stop human kind from creating the Solaranite (a sort of sun-driven bomb).

PLAN 9

Enter Site Copyright © 2009 Darkstone Entertainment. All rights reserved. plan9movie.com

Videos of Plan 9 from Outer Space

plan 9 from outer space (part one) Dailymotion 10:01

plan 9 from outer space (part three) Dailymotion 10:07

plan 9 from outer space (part two) Dailymotion 9:59

Plan 9 from outer space part 8 DailyMotion 6:21

elvis costello - Google Search - Windows Internet Explorer

http://www.google.com/search?hl=en&q=elvis%20costello

elvis costello

News results for elvis costello

Costello's poses nothing short of sublime - 3 hours ago

Not only is **Elvis Costello** one of rock 'n' roll's revered misfits, Sunday's gig was also dedicated to raising money for the Fort Edmonton Foundation and its ...

Spectacle Elvis Costello with ...

Official site with Island Records includes news, biography, sound and video clips, appearance schedule, "Ask Elvis" feature, message board and desktop ...

Elvis Costello - Wikipedia, the free encyclopedia

Declan Patrick MacManus (born 25 August 1954), known by the stage name **Elvis Costello**, is an English singer-songwriter of Irish heritage. ...

The Elvis Costello Home Page - The Elvis Costello Home Page

This is the site to visit for everything concerning **Elvis Costello**. Extensive information about forthcoming events, complete concert listing, discography of ...

Image results for elvis costello - Report images

Elvis Costello on MySpace Music - Free Streaming MP3s, Pictures ...

MySpace Music profile for **Elvis Costello**. Download **Elvis Costello** Rock // music singles, watch music videos, listen to free streaming mp3s, & read Elvis ...

Elvis Costello Guide - Discography | Setlists | Songs | Lyrics ...

Elvis Costello Guide - Complete Costello resource with discography, set lists, web sites list, pictures, photos, recordings, CDs, books, movies, videos, ...

Elvis Costello - Discover music, videos, concerts, & pictures at ...

Watch videos & listen to **Elvis Costello**. Alison, Pump N' In, & more... plus 46 pictures. Da'lan

lost - Yahoo! Search Results - Windows Internet Explorer

http://search.yahoo.com/search_yjsA0geu4zXFLyOQ4m5Xllyo4TpeIost3f2-sb-top3f2ryfp-t-

lost

U.S. markets make up lost ground

NEW YORK, Feb. 9 (UPI) -- U.S. markets swung higher Tuesday, recovering ground lost during a three-week trend that has investors concerned a 10 percent downward... full story

Lost party at The Knitting Factory - New York Post - 1 hour ago

Got Lost plans tonight? Also: Dharma love thrives in Peru - USA Today - 2 hours ago

TV Review: 'Lost,' 'Kate' expectations - Entertainment Weekly - 9 hours ago

Lost - ABC

Official ABC site for **Lost**, the survival drama telling the story of plane crash survivors who find themselves stranded on a mysterious desert island. ...

ABC.com - Lost - Episode Guide

Get caught up on the ABC show **Lost**. Read a full recap of the "LA X (Parts 1 and 2)" from Season 6 of the show.

Lost - Wikipedia

Production | Cast and characters | Season synopsis | Matheson

Lost is an American serial drama television series. It follows the lives of plane crash survivors on a mysterious tropical island, after a commercial passenger jet flying between Sydney ...

Lost - IMDb

Cast and crew information about **Lost**, the ABC TV drama, with plot outline, trivia, and user comments.

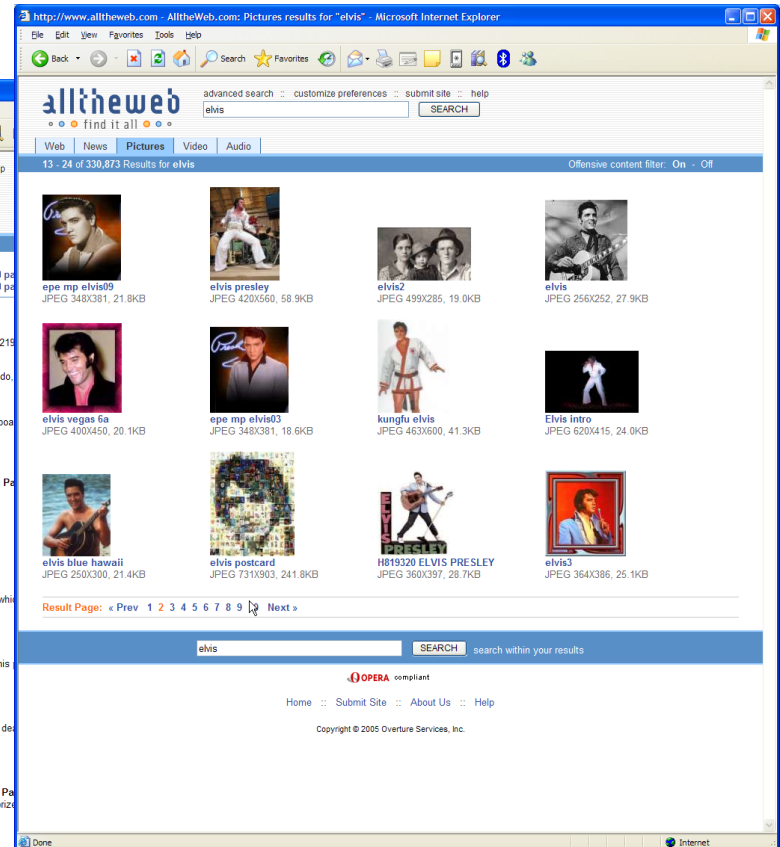
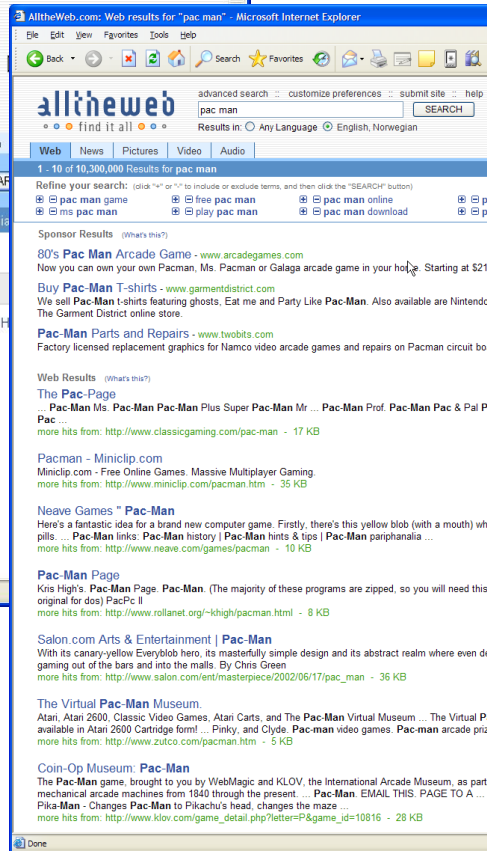
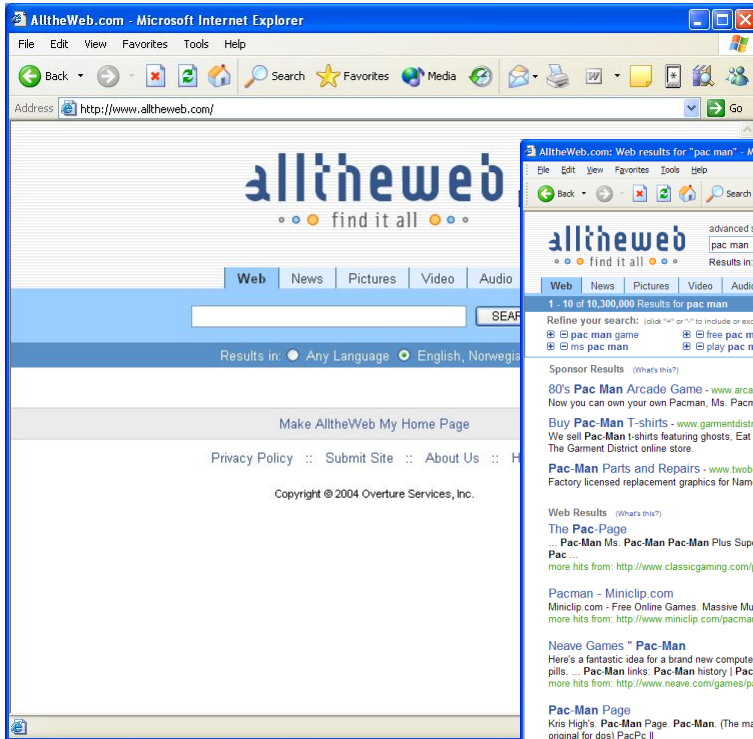
Lostpedia

Encyclopedia wiki fan site keeps track of mysteries, facts, and theories surrounding the ABC TV series, **LOST**. With spoilers, news, and discussion forums.

Lost - TV.com

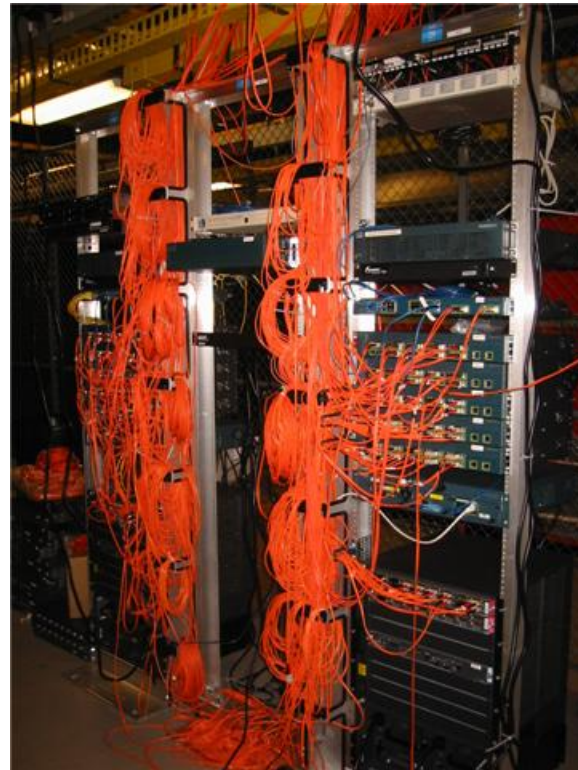
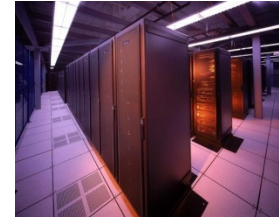
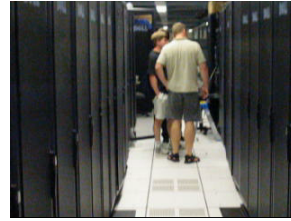
alltheweb.com

1999-2003



Data Centers

alltheweb.com 2000



Data Centers

Microsoft 2010



<http://www.youtube.com/watch?v=K3b5Ca6lzqE>

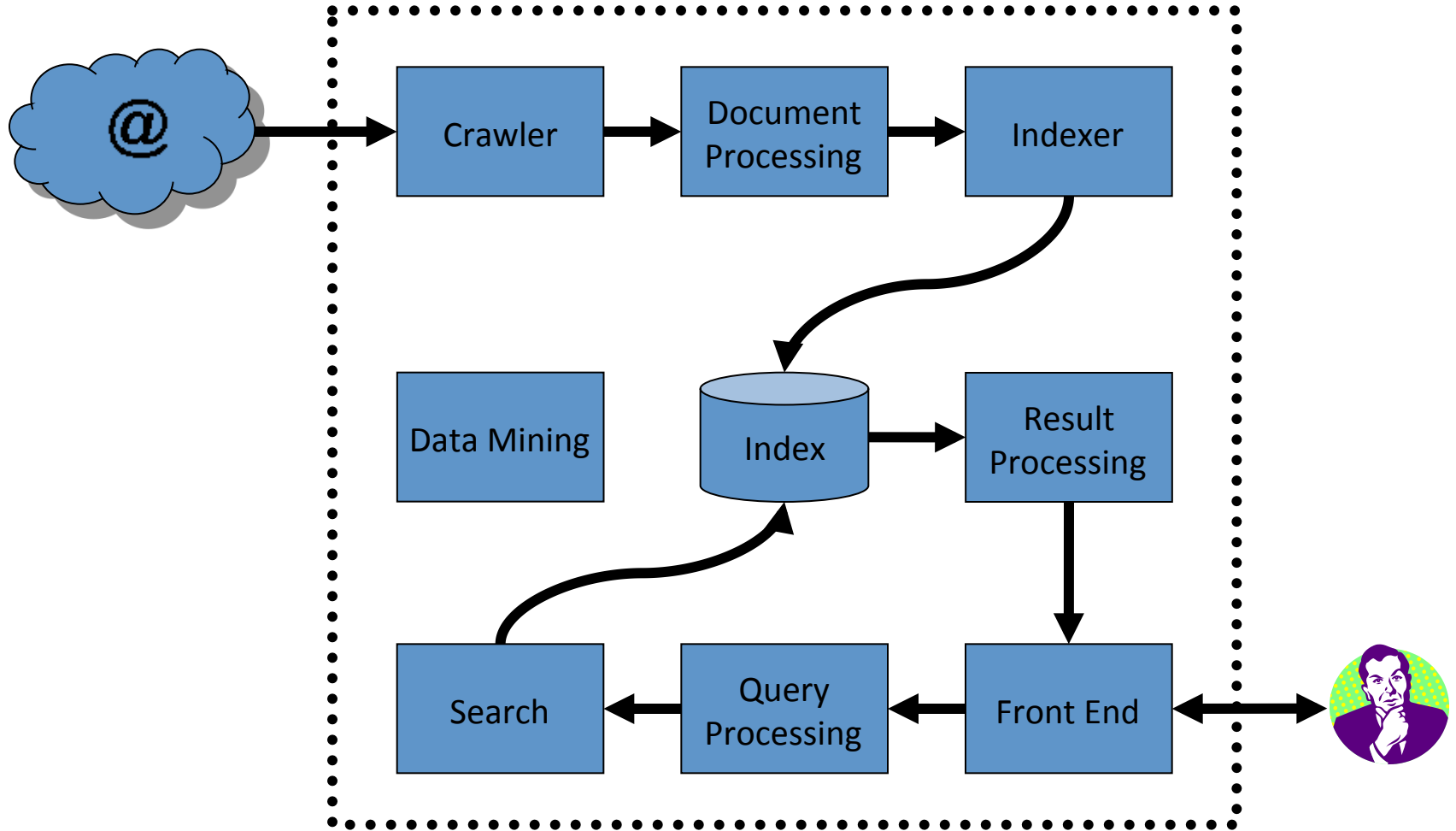
A screenshot of a YouTube search results page. The search bar contains the text "microsoft data centers". Below the search bar, there are several search results. The first result is titled "Microsoft Data Centers" and is a sponsored link from "it-service-managementtechweb.com". The second result is titled "Microsoft OS Cloud Windows Azure Data Center - Google and Amazon" and has a video thumbnail showing a server rack. The third result is titled "Microsoft Generation 4.0 Data Center Vision" and has a video thumbnail showing a data center interior. The page also includes navigation links for "Home", "Videos", and "Channels", and a "Search options" link.



<http://www.youtube.com/watch?v=PPnoKb9fTka>

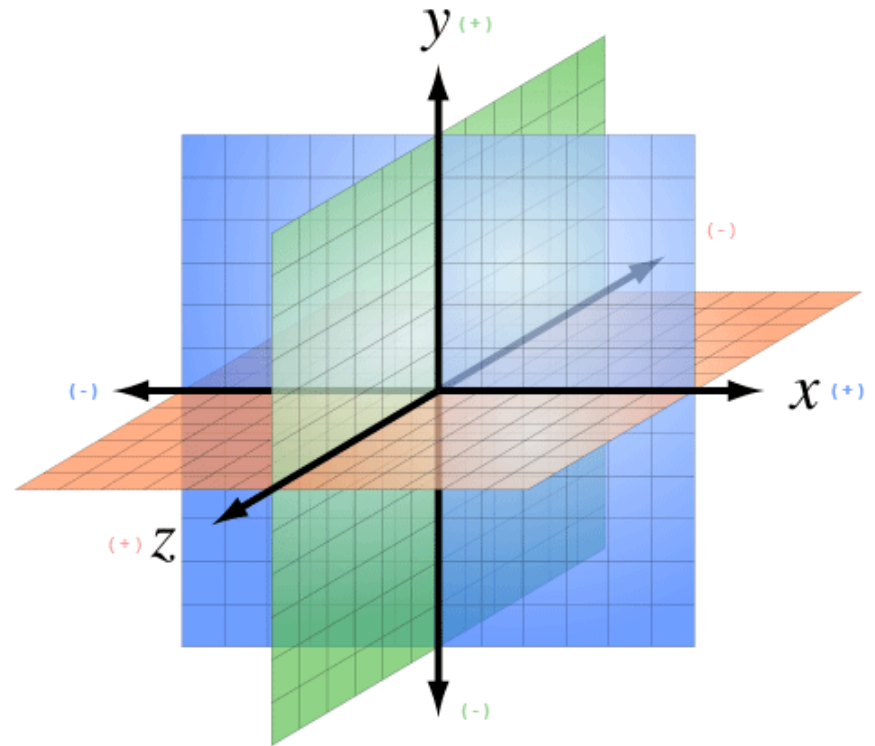
Search Platform Anatomy

The 50,000 Foot View



Scaling

- **Content Volume**
 - How many documents are there?
 - How large are the documents?
- **Content Complexity**
 - How many fields does each document have?
 - How complex are the field structures?
- **Query Traffic**
 - How many queries per second are there?
 - What is the latency per query?
- **Update Frequency**
 - How often does the content change?
- **Indexing Latency**
 - How quickly must new data become searchable?
- **Query Complexity**
 - How many query terms are there?
 - What is the type and structure of the query terms?

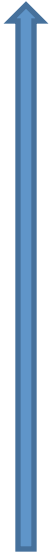


Scaling



Query Traffic

Scale through replicating the partitions



Content Volume

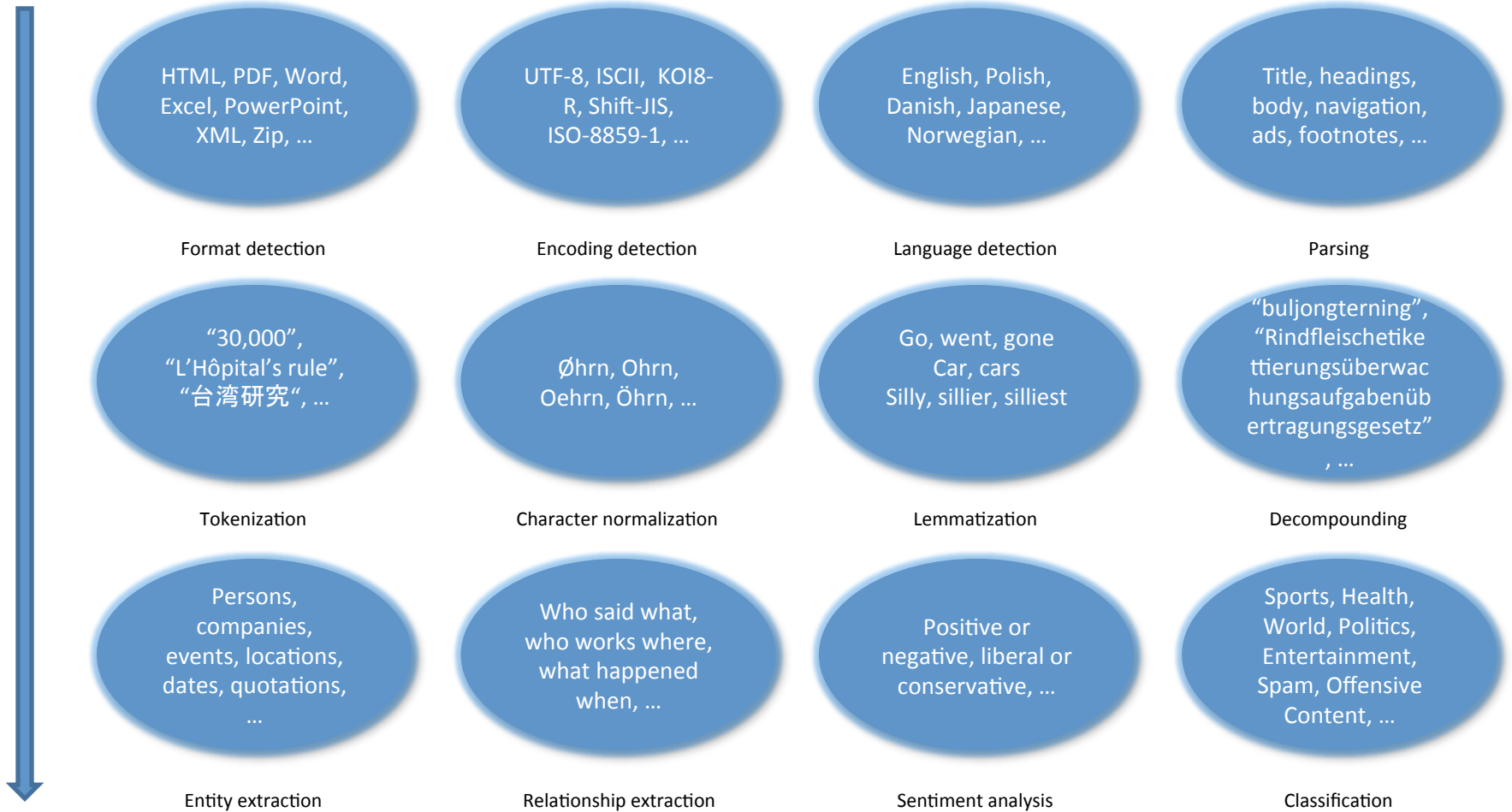
Scale through partitioning the data



Crawling The Web



Processing The Content



Creating The Index



| Word | Document | Position |
|---------|----------|----------|
| tea | 4 | 22 |
| | 4 | 32 |
| | 4 | 76 |
| | 8 | 3 |
| teacart | 8 | 7 |
| teach | 2 | 102 |
| | 2 | 233 |
| | 8 | 77 |
| teacher | 2 | 57 |

Processing The Query

"LED TVs between
\$1000 and \$2000"

"I am looking for
fish restaurants
near Majorstua"



"hphotos-snc3
fbcdn"

"brintney speers
pics"

"23445 + 43213"

Searching The Content

Introduction to Information Retrieval | Sec. 2.3

Recall basic merge

- Walk through the two postings simultaneously, in time linear in the total number of postings entries

2 → 8 ← [2 → 4 → 8 → 41 → 48 → 64 → 128] Brutus
[1 → 2 → 3 → 8 → 11 → 17 → 21 → 31] Caesar

If the list lengths are m and n , the merge takes $O(m+n)$ operations.

Can we do better?
Yes (if index isn't changing too fast).

Introduction to Information Retrieval | Sec. 2.3

Augment postings with skip pointers (at indexing time)

41 → 128
2 → 4 → 8 → 41 → 48 → 64 → 128

11 → 31
1 → 2 → 3 → 8 → 11 → 17 → 21 → 31

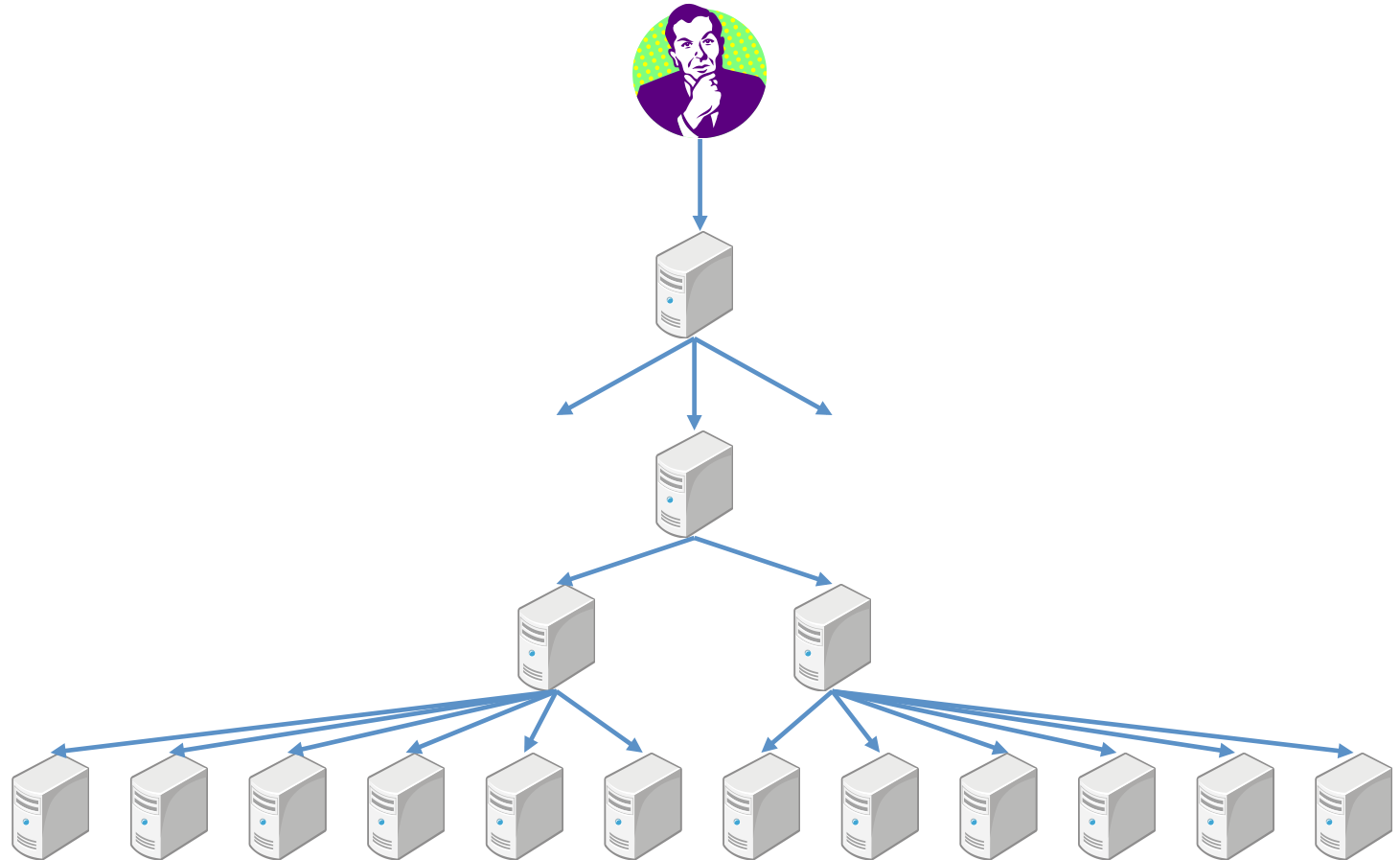
- Why?
- To skip postings that will not figure in the search results.
- How?
- Where do we place skip pointers?

<http://www.stanford.edu/class/cs276/handouts/lecture2-dictionary.pdf>



Assess relevancy as we go along

Searching The Content



Federation
Query processing
Result processing

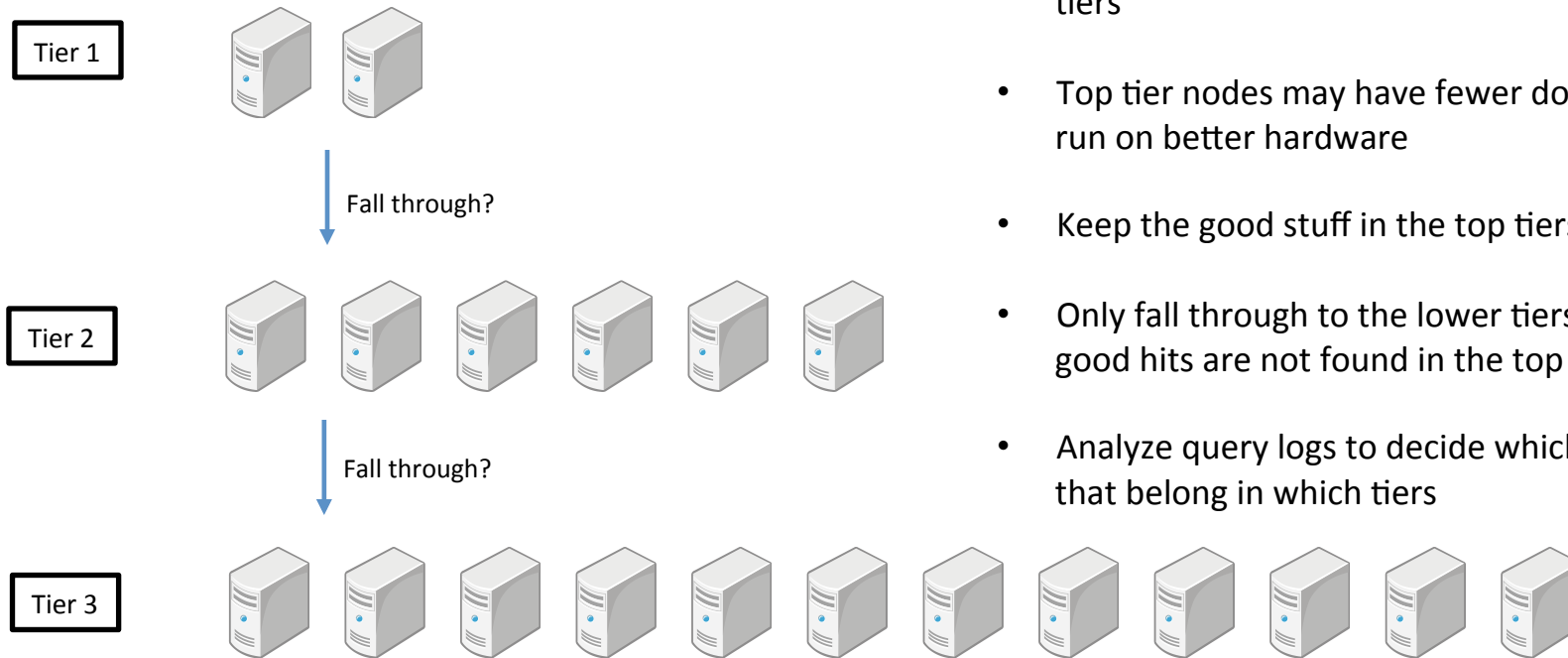
Dispatching
Merging

Searching
Caption generation

“Divide and conquer”

Searching The Content

Tiering

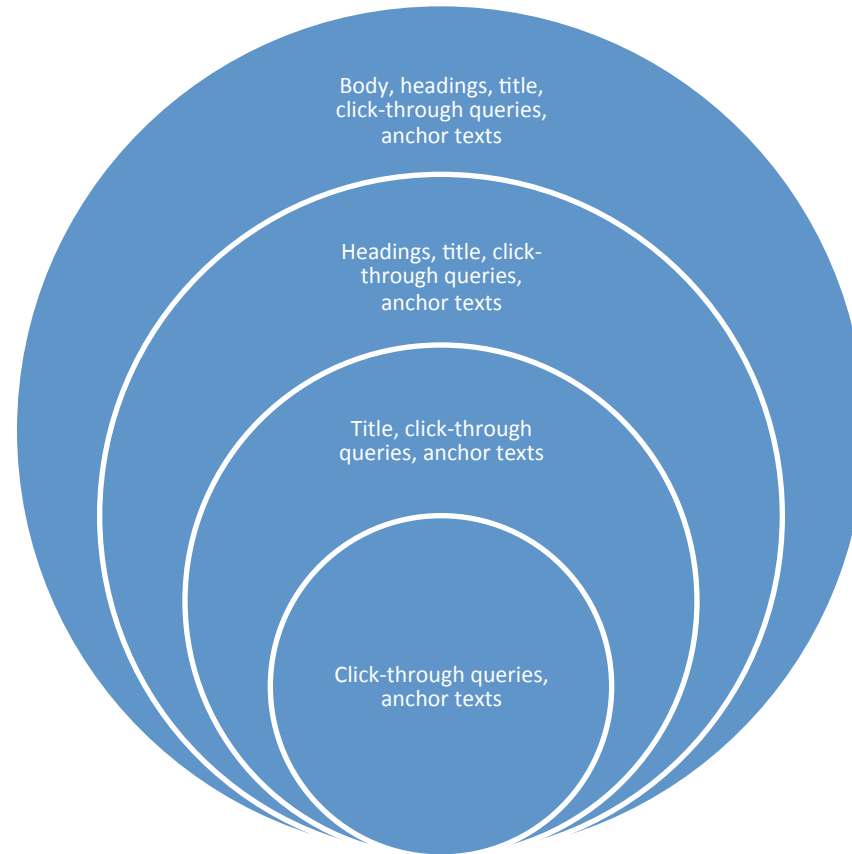


- Organize the search nodes in a row into multiple tiers
- Top tier nodes may have fewer documents and run on better hardware
- Keep the good stuff in the top tiers
- Only fall through to the lower tiers if not enough good hits are not found in the top tiers
- Analyze query logs to decide which documents that belong in which tiers

“All search nodes are equal, but some are more equal than others”

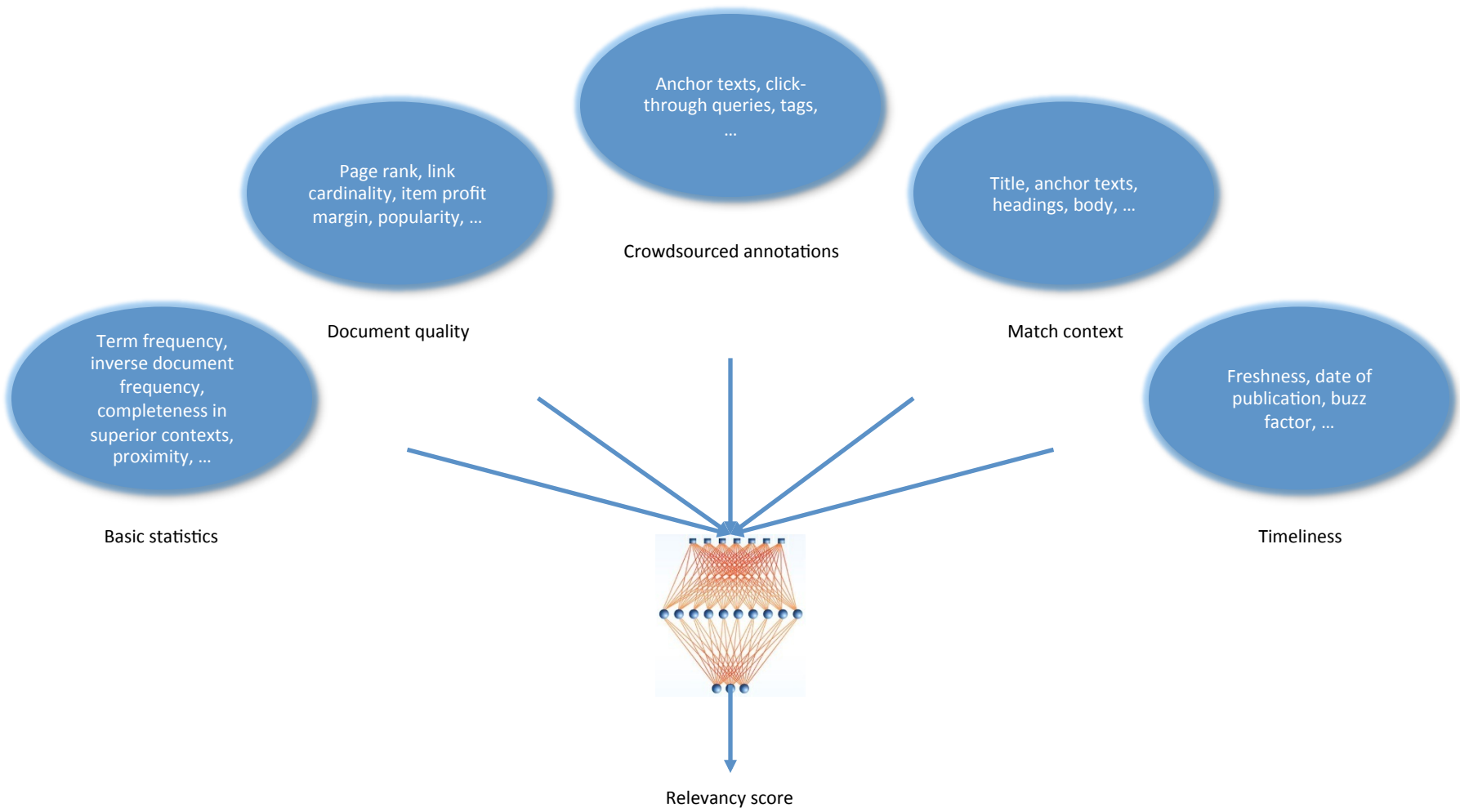
Searching The Content

Context Drilling



“If the result set is too large, only consider the superior contexts”

Relevancy



“Maximize the normalized discounted cumulative gain (NDCG)”

Processing The Results

- **Faceted browsing**
 - What are the distributions of data across the various document fields?
 - “Local” versus “global” meta data
- **Result arbitration**
 - Which results from which sources should be displayed in a federation setting?
 - How should the SERP layout be rendered?
- **Unsupervised clustering**
 - Can we automatically organize the results set by grouping similar items together?
- **Last-minute security trimming**
 - Does the user still have access to each result?

The screenshot displays a search engine interface with several key components:

- Refine Results Panel:** Located at the top, it includes filters for Source Title, Author Name, Year, Document Type, and Index Terms. A 'Company:' section lists various firms like Lockheed Martin, Aerotek, and Titan Corporation with their respective result counts.
- Refine your search Panel:** A sidebar on the left containing a list of search terms such as 'albert einstein', 'theory of relativity', and 'speed of light'.
- Main Search Results:** The central area shows a search for 'deer' with a Bing logo, a line graph, and a table of financial data for 'Deer Consumer Products Inc (US:DEER)'. It also includes related searches and snippets from Wikipedia and other sources.
- Clustering Panel:** On the right, a 'clusters' sidebar shows a hierarchical list of categories like 'All Results (259)', 'Deer Hunting (34)', 'Mule, Hunts (30)', 'Family (19)', 'Wildlife (18)', 'Fish and Wildlife (4)', 'White-tailed (3)', 'Other Topics (1)', 'Feeding, Regulations (2)', 'Department Of Wildlife (2)', 'Tennessee Wildlife Resources Agency (2)', 'Canada, UK Columbia (2)', 'Odocoileus virginianus (2)', 'Other Topics (4)', 'Management (23)', 'Park (20)', 'Animals (16)', 'Red Deer (13)', 'Control (10)', and 'Odocoileus virginianus (9)'. A 'remix' button and a search box are also present.

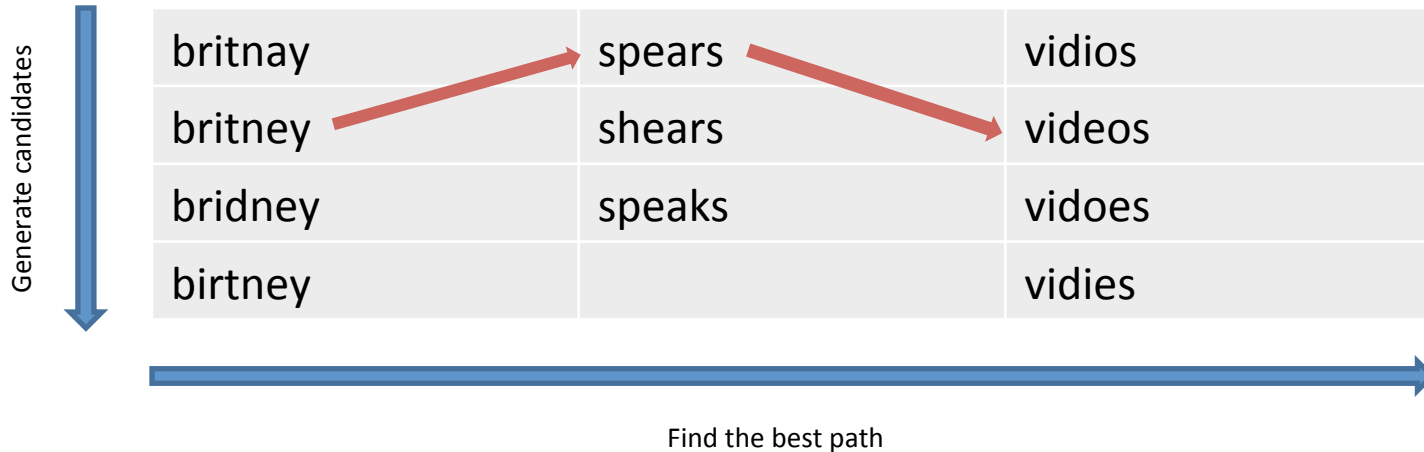
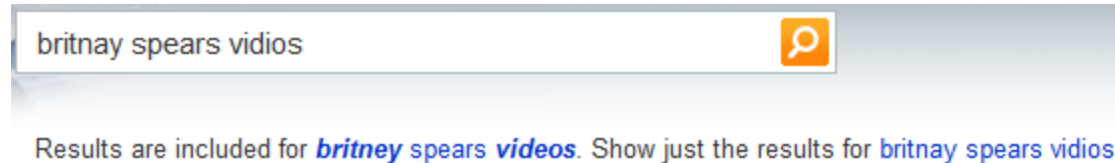
Applications

Spellchecking

| | | | | | | | | | | | |
|--------|-------------------|----|--------------------|---|--------------------|---|--------------------|---|-------------------|---|-------------------|
| 488941 | britney spears | 29 | britent spears | 9 | brinttany spears | 5 | brney spears | 3 | britiy spears | 2 | brirreny spears |
| 40134 | brittany spears | 29 | britttany spears | 9 | britanay spears | 5 | broitney spears | 3 | britmeny spears | 2 | brittany spears |
| 36315 | brittney spears | 29 | brittttany spears | 9 | britaniny spears | 5 | brotny spears | 3 | britneeyy spears | 2 | brirtttany spears |
| 24342 | britany spears | 29 | btiney spears | 9 | britn spears | 5 | bruteny spears | 3 | britnehy spears | 2 | brirtttney spears |
| 7331 | britny spears | 26 | birttney spears | 9 | britne spears | 5 | brtiyney spears | 3 | britnely spears | 2 | britain spears |
| 6633 | briteny spears | 26 | breitney spears | 9 | britneyn spears | 5 | brirttney spears | 3 | britnesy spears | 2 | britane spears |
| 2696 | britteny spears | 26 | brinity spears | 9 | britrney spears | 5 | gritney spears | 3 | britnetty spears | 2 | britaneny spears |
| 1807 | briney spears | 26 | britenay spears | 9 | brtiny spears | 5 | spritney spears | 3 | britnex spears | 2 | britania spears |
| 1635 | brittny spears | 26 | britneyt spears | 9 | britttney spears | 4 | bittny spears | 3 | britneyxxx spears | 2 | britann spears |
| 1479 | brintey spears | 26 | brittan spears | 9 | brtny spears | 4 | bnritney spears | 3 | britnity spears | 2 | britanna spears |
| 1479 | britanny spears | 26 | brittne spears | 9 | brytny spears | 4 | brandy spears | 3 | britntey spears | 2 | britannie spears |
| 1338 | britiny spears | 26 | britttany spears | 9 | rbittny spears | 4 | brbrittney spears | 3 | britnyey spears | 2 | britannt spears |
| 1211 | britnet spears | 24 | beitney spears | 8 | birtiny spears | 4 | breatiny spears | 3 | brittterny spears | 2 | britannu spears |
| 1096 | britiney spears | 24 | birteny spears | 8 | bithney spears | 4 | breetney spears | 3 | brittneey spears | 2 | britanyl spears |
| 991 | britaney spears | 24 | brightney spears | 8 | brattney spears | 4 | breitney spears | 3 | britttney spears | 2 | britanyt spears |
| 991 | brityay spears | 24 | brintiny spears | 8 | breitny spears | 4 | brfitney spears | 3 | brittnyey spears | 2 | briteeny spears |
| 811 | brithney spears | 24 | brityany spears | 8 | breteny spears | 4 | briattany spears | 3 | brityen spears | 2 | britenay spears |
| 811 | brityey spears | 24 | brittenny spears | 8 | brightny spears | 4 | brityny spears | 3 | briytney spears | 2 | britenet spears |
| 664 | birtney spears | 24 | brityni spears | 8 | brintay spears | 4 | brityy spears | 3 | brityney spears | 2 | briteniy spears |
| 664 | brintney spears | 24 | brityny spears | 8 | brinttey spears | 4 | brityty spears | 3 | broteny spears | 2 | britenys spears |
| 664 | briteney spears | 24 | brittni spears | 8 | briotney spears | 4 | britttany spears | 3 | brtaney spears | 2 | britaney spears |
| 601 | bitney spears | 24 | brittnie spears | 8 | britanys spears | 4 | brinie spears | 3 | brtiiany spears | 2 | britin spears |
| 601 | brinty spears | 21 | biritney spears | 8 | britley spears | 4 | brinteney spears | 3 | brtinay spears | 2 | britynary spears |
| 544 | brittaney spears | 21 | birtany spears | 8 | brityneyb spears | 4 | brintne spears | 3 | brtinney spears | 2 | britym spears |
| 544 | brittany spears | 21 | biteny spears | 8 | brityny spears | 4 | brityby spears | 3 | brityany spears | 2 | brittaney spears |
| 364 | britye spears | 21 | bratney spears | 8 | brityty spears | 4 | brityay spears | 3 | brityeny spears | 2 | britatn spears |
| 364 | brittiny spears | 21 | brityni spears | 8 | brittner spears | 4 | brityaney spears | 3 | brtney spears | 2 | britynby spears |
| 329 | brtney spears | 21 | brityanie spears | 8 | brottany spears | 4 | britynie spears | 3 | brytyny spears | 2 | brityndy spears |
| 269 | brtney spears | 21 | brityany spears | 7 | brityney spears | 4 | britynney spears | 3 | btney spears | 2 | brityneh spears |
| 269 | brityneys spears | 21 | britytay spears | 7 | birtney spears | 4 | britymney spears | 3 | dritytney spears | 2 | brityneny spears |
| 244 | brityne spears | 21 | brityttany spears | 7 | biteney spears | 4 | britynar spears | 3 | pretney spears | 2 | brityney6 spears |
| 244 | brytney spears | 21 | brtany spears | 7 | bitiny spears | 4 | britynel spears | 3 | zbrityney spears | 2 | brityneye spears |
| 220 | breatney spears | 21 | brityany spears | 7 | breateny spears | 4 | brityneuy spears | 2 | barittany spears | 2 | brityneym spears |
| 220 | brityany spears | 19 | brityny spears | 7 | brianty spears | 4 | brityneyy spears | 2 | bbbrityney spears | 2 | brityneym spears |
| 199 | britynney spears | 19 | brityrtney spears | 7 | britynty spears | 4 | britymney spears | 2 | bbityney spears | 2 | brityneyyy spears |
| 163 | brityny spears | 19 | britynaey spears | 7 | britytianny spears | 4 | brityttaby spears | 2 | bbritny spears | 2 | britynhey spears |
| 147 | breatny spears | 19 | britynee spears | 7 | brityty spears | 4 | brityttery spears | 2 | bbrittany spears | 2 | britynhey spears |
| 147 | britytney spears | 19 | brityony spears | 7 | britytnej spears | 4 | britytthey spears | 2 | beityany spears | 2 | britytne spears |
| 147 | brityty spears | 19 | brityttany spears | 7 | britytneyy spears | 4 | brityttaney spears | 2 | beityny spears | 2 | brityttany spears |
| 147 | britytney spears | 19 | britytttney spears | 7 | brityttney spears | 4 | brityttatn spears | 2 | beritney spears | 2 | brityttany spears |
| 147 | britytney spears | 17 | britytny spears | 7 | brityttany spears | 4 | britytttney spears | 2 | beritny spears | 2 | brityttany spears |
| 133 | britytney spears | 17 | brityny spears | 7 | brityttian spears | 4 | brityttney spears | 2 | betney spears | 2 | brityttany spears |
| 133 | brityny spears | 17 | brityny spears | 7 | britytyny spears | 4 | britytttney spears | 2 | betny spears | 2 | brityty spears |
| 121 | brityany spears | 17 | britythy spears | 7 | brityttany spears | 4 | brityttney spears | 2 | bhriney spears | 2 | brityttany spears |
| 121 | brityney spears | 17 | brityttania spears | 7 | britytney spears | 4 | britytyny spears | 2 | biney spears | 2 | brityttany spears |
| 121 | britytany spears | 15 | britynny spears | 7 | britytney spears | 4 | brityny spears | 2 | brityny spears | 2 | brityttany spears |
| 121 | britytney spears | 15 | brityten spears | 7 | brityttany spears | 4 | britytney spears | 2 | biretny spears | 2 | brityttany spears |
| 109 | britytney spears | 15 | britytteny spears | 7 | brityttany spears | 4 | brityttany spears | 2 | britytany spears | 2 | brityttany spears |
| 109 | britytney spears | 15 | britytteny spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 109 | britytney spears | 15 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 109 | brityttany spears | 15 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 98 | britytney spears | 15 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 98 | britytney spears | 15 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 98 | brityttany spears | 15 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 98 | brityttany spears | 15 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 14 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 14 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 14 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 14 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 12 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 12 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |
| 89 | brityttany spears | 12 | brityttany spears | 6 | brityttany spears | 4 | brityttany spears | 2 | brityttany spears | 2 | brityttany spears |

<http://www.google.com/jobs/briney.html>

Spellchecking



1. Generate a set of candidates per query term using approximate matching techniques. Score each candidate according to, e.g., “distance” from the query term and usage frequency.
2. Find the best path in the lattice using the Viterbi algorithm. Use, e.g., candidate scores and bigram statistics to guide the search.

Entity Extraction

Levels of abstraction ↑

| | | | | |
|----------|------------|------|-----|------------|
| ... | ... | ... | ... | ... |
| MAN | | | | FOOD |
| N/proper | V/past/eat | DET | ADJ | N/singular |
| Richard | ate | some | bad | curry |

1. Logically annotate the text with zero or more computed layers of meta data. The original surface form of the text can be viewed as trivial meta data.
2. Apply a pattern matcher or grammar over selected layers. Use, e.g., handcrafted rules or machine-trained models. Extract the surface forms that correspond to the matching patterns.

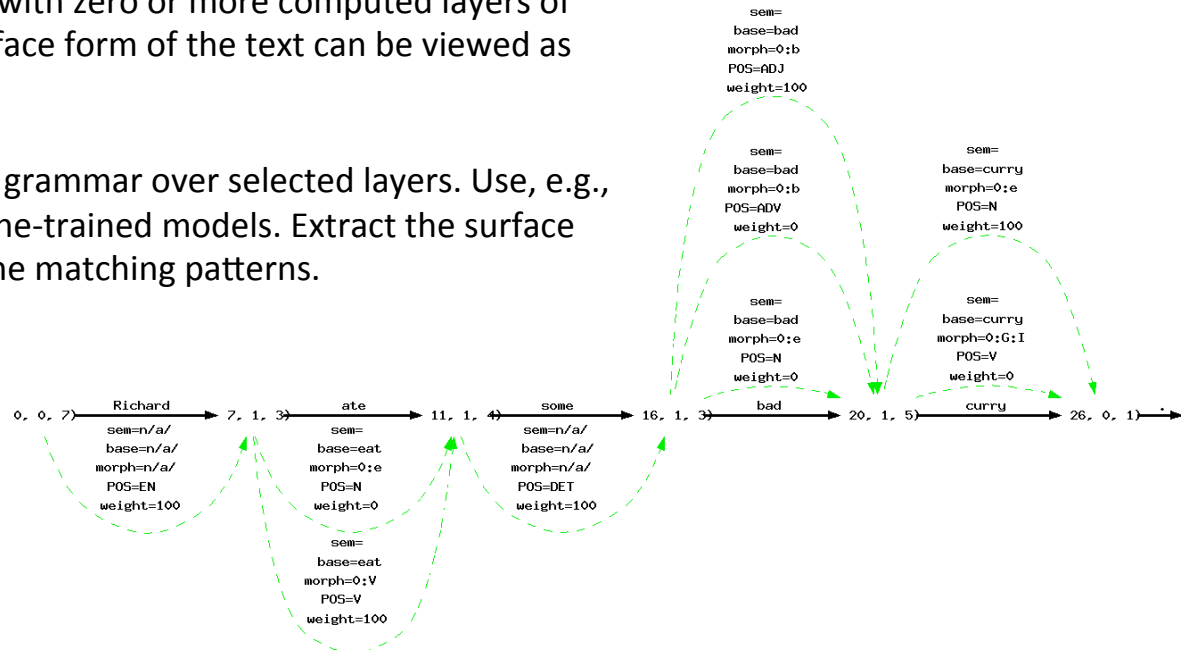
People

- Roger Federer (58)
- Andy Roddick (51)
- Lindsay Davenport (5)
- Andre Agassi (48)
- Maria Sharapova (45)
- Serena Williams (45)
- Alicia Molik (36)
- Marat Safin (34)
- Nikolay Davydenko (2)
- Joachim Johansson (2)
- Svetlana Kuznetsova

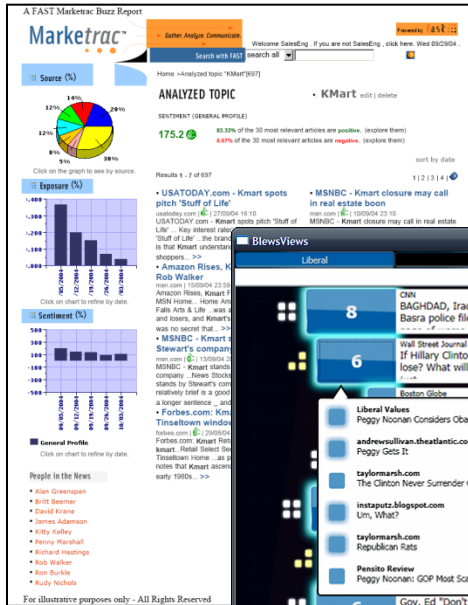
Refine your search

- albert einstein
- theory of relativity
- general theory of relativity
- bose einstein condensation
- physicists
- photoelectric effect
- special theory of relativity
- condensation
- speed of light
- bose-einstein condensation

[more >](#)



Sentiment Analysis



A screenshot of a TripAdvisor review for the Jurys Boston Hotel. The review is from a member named 'Member, Chicago, IL, TripAdvisor.com'. The review text reads: "We spent 3 nights at Jurys' beginning on the 4th of July, they had just opened on the 2nd.... Beautiful New Jurys Hotel from a TripAdvisor Member, Portsmouth, RI, TripAdvisor.com. Very impressed with this new hotel. Loved the decor - rooms were spacious and very clean. One of... It would be a crime to stay anywhere else! from a TripAdvisor Member, New York, NY, TripAdvisor.com. My company suggested I stay at Jurys on a red Boston. What a surprise. For an Irish... Could not have been any better... from a TripAdvisor Member, Montreal, Quebec, TripAdvisor.com. I went down to Boston from the 19th to 25th and stayed at the wonderful... Verdict is in from a TripAdvisor Member, TripAdvisor.com. I visited Boston July 31 to August 3 and had a great stay at Jurys. The room was beautifully...". The review includes a star rating of 4.5 and a price range of £126 - £190*.

"What is the current perception of my brand?"

"I want to stay at a hotel whose user reviews have a definite positive tone."

"What are the most emotionally charged issues in American politics right now?"



1. To construct a sentiment vocabulary, start by defining a small seed set of known polar opposites.
2. Expand the vocabulary by, e.g., looking at the context around the seeds in a training corpus.
3. Use the expanded vocabulary to build a classifier. Apply special heuristics to take care of, e.g., negations and irony.

<http://research.microsoft.com/en-us/projects/blows/>

Contextual Search



“Sentences where someone says something positive about Adidas.”

`xml:sentence:(“adidas” and sentiment:@degree:>0)`

“Dates and locations related to D-Day.”

`xml:sentence:(“d-day” and (scope(date) or scope(location)))`

“Paragraphs that discuss a company merger or acquisition.”

`xml:paragraph:(string(“merger”, linguistics=“on”) and scope(company) and scope(price))`

“Paragraphs that contain quotations by Alan Greenspan, where he mentions a monetary amount.”

`xml:paragraph:quotation:(@speaker:“greenspan” and scope(price))`

“Sentences where the acronym MIT is defined.”

`xml:sentence:acronym:(@base:“mit” and scope(@definition))`

Persons that appear in **documents** that contain the word {soccer}



| person@base |
|--------------------------|
| Jack Nicklaus (~10.0%) |
| Fred Davis (~10.0%) |
| Billie Jean King (~8.0%) |
| Richard Nixon (~8.0%) |
| John Wayne (~7.0%) |
| Margaret Smith (~7.0%) |
| Joe Frazier (~7.0%) |
| Irina Rodnina (~7.0%) |
| Mao Zedong (~6.0%) |
| Gordie Howe (~6.0%) |
| Richard M. Nixon (~6.0%) |

[More...](#)

Example from Wikipedia

| person@base |
|--------------------------|
| Diego Maradona (~4.0%) |
| David Beckham (~4.0%) |
| Alan Shearer (~3.0%) |
| Michelle Akers (~3.0%) |
| Mia Hamm (~3.0%) |
| Eric Wynalda (~3.0%) |
| Freddy Adu (~3.0%) |
| Michel Platini (~2.0%) |
| Stanley Matthews (~2.0%) |
| Oliver Neuville (~2.0%) |
| Bobby Moore (~2.0%) |

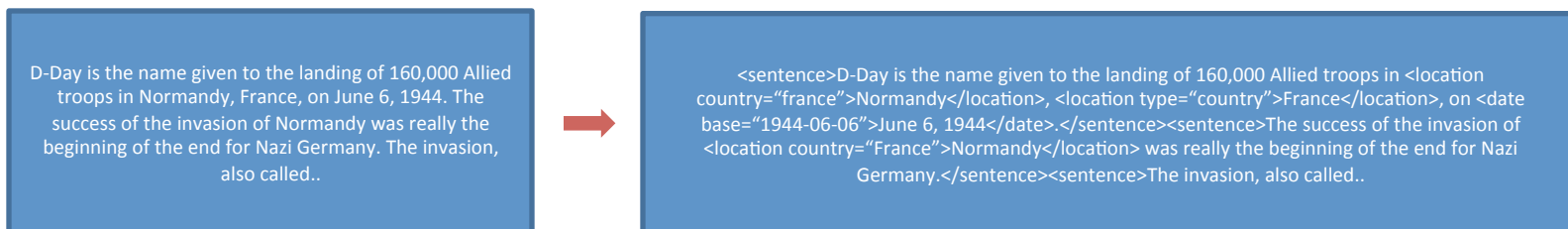
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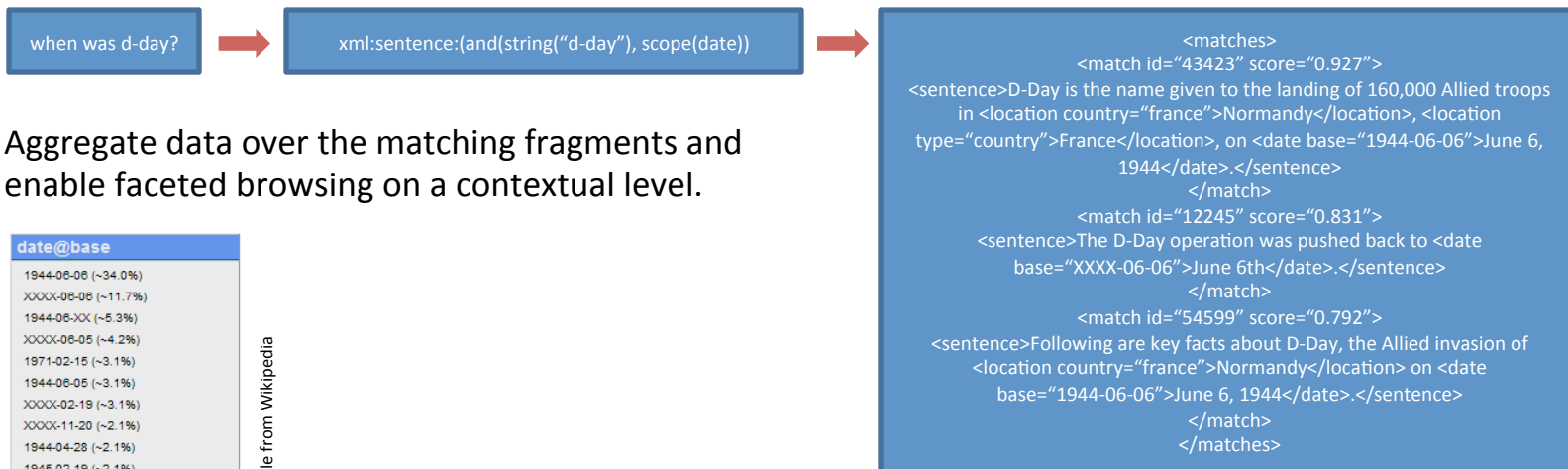
Persons that appear in **paragraphs** that contain the word {soccer}

Contextual Search

1. During content processing, identify structural and semantic regions of interest. Mark them up in context, possibly decorated with meta data.



2. Make all the marked-up data fully searchable in a way that preserves context and where retrieval can be constrained on both structure and content. Possibly translate natural language queries into suitable system queries.



3. Aggregate data over the matching fragments and enable faceted browsing on a contextual level.

| date@base |
|---------------------|
| 1944-06-06 (~34.0%) |
| XXXX-06-06 (~11.7%) |
| 1944-06-XX (~6.3%) |
| XXXX-06-05 (~4.2%) |
| 1971-02-15 (~3.1%) |
| 1944-06-05 (~3.1%) |
| XXXX-02-19 (~3.1%) |
| XXXX-11-20 (~2.1%) |
| 1944-04-28 (~2.1%) |
| 1945-02-19 (~2.1%) |
| XXXX-09-15 (~2.1%) |

Example from Wikipedia

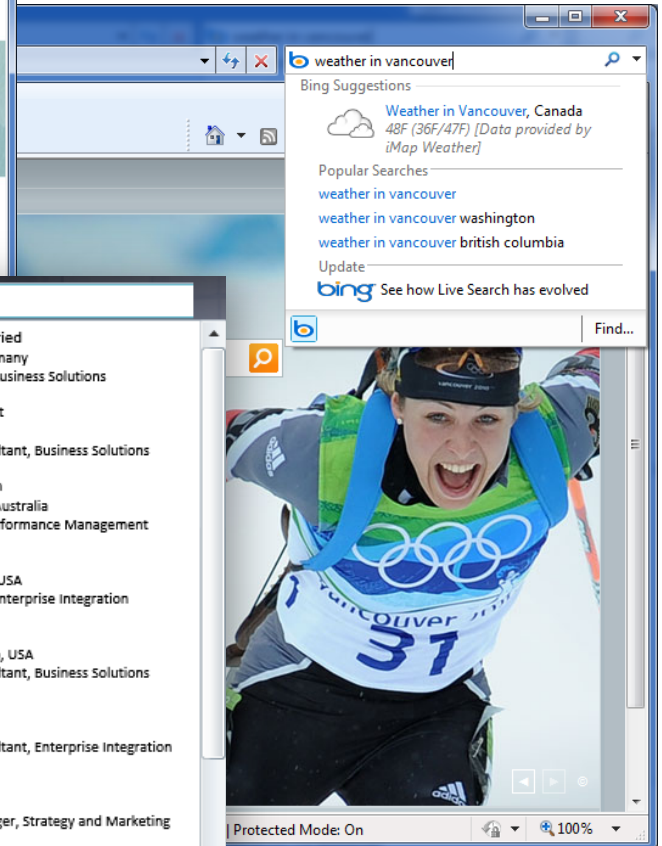
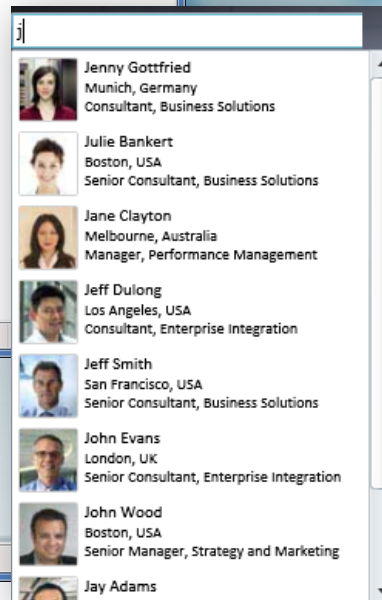
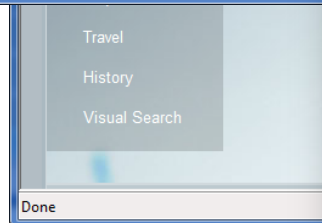
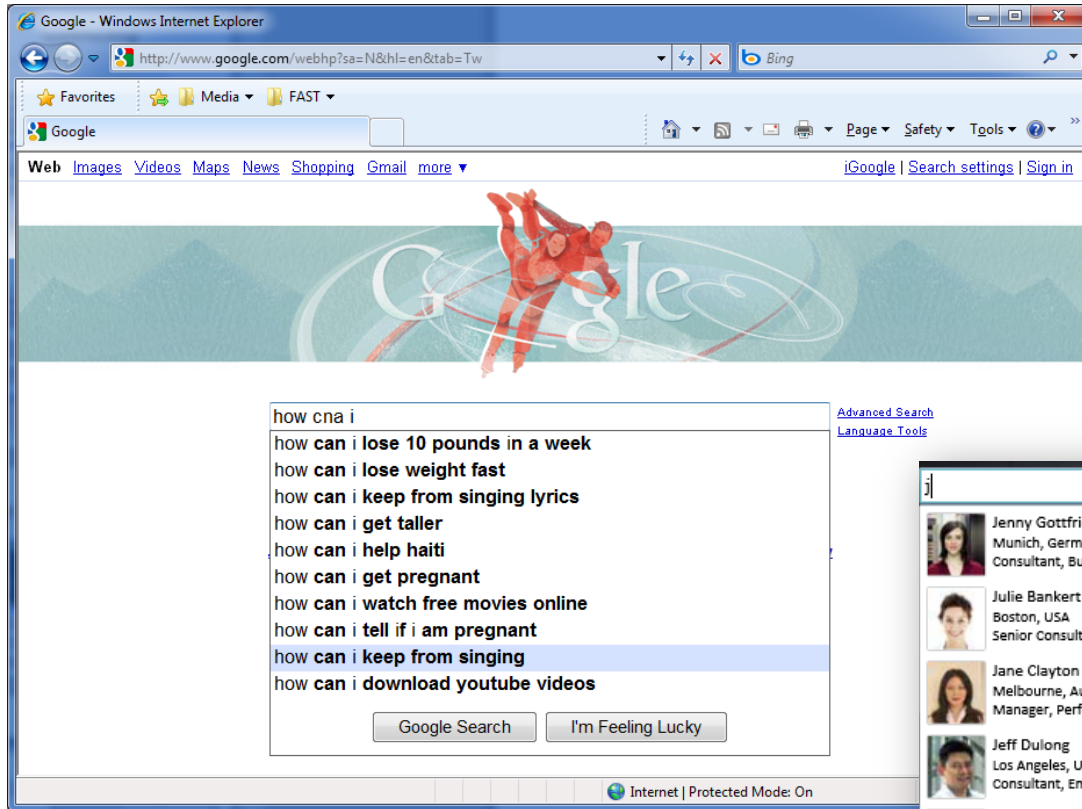
More...

Machine Translation

The screenshot shows the Bing Translator website. At the top, there are navigation links for 'Web', 'Images', 'News', 'More', 'MSN', and 'Hotmail', along with 'Sign in', 'Norway', and 'Preferences'. The Bing logo is on the left, and the word 'Translator' is in the center. Below the logo, there are links for 'Home', 'Tools', and 'Help'. The main area features two language dropdown menus: 'English' and 'Danish', with a 'Translate' button between them. Below the language selection, there is a text input field containing the English text: 'The University of Oslo is Norway's largest and oldest institution of higher education. It was founded in 1811 when Norway was still under Danish rule. Today the University of Oslo has approx. 27 700 students and 5 900 employees. Four Nobel Prize winners indicates the quality of the research at the University.' To the right of this input field, the translated Danish text is displayed: 'Universitetet i Oslo er Norges største og ældste institution af de videregående uddannelser. Det blev grundlagt i 1811 hvor Norge var stadig under dansk regel. Universitetet i Oslo har i dag ca. 27 700 studerende og 5 900 medarbejdere. Fire Nobelprisen vindere angiver kvaliteten af forskningen på universitetet.'

The screenshot shows the Google Translate website. At the top, there are navigation links for 'Web', 'Images', 'Videos', 'Maps', 'News', 'Shopping', 'Gmail', and 'more'. The Google Translate logo is prominent. Below the logo, there is a section titled 'Translate text, webpages and documents' with a sub-header 'Enter text or a webpage URL, or upload a document.' The text input field contains the same English text as in the Bing screenshot. Below the input field, there are dropdown menus for 'Translate from: English' and 'Translate into: Danish', with a 'Translate' button to the right. The translated Danish text is displayed below the input field: 'Universitetet i Oslo er Norges største og ældste institution for videregående uddannelse. Det blev grundlagt i 1811, da Norge stadig var under dansk styre. I dag Universitetet i Oslo har ca. 27 700 studerende og 5 900 ansatte. Fire nobelpristagere angiver kvaliteten af forskningen på universitetet.'

Query Completion



Caption Generation

- **Intra-document search**
 - Locate and rank relevant document fragments
 - But do it fast!
- **Perceived relevancy**
 - First impressions count
 - Can make or break a service
- **Trends towards richer captions**
 - Format-specific interactivity
 - Actionable elements

Web Images Videos Maps News Shopping Gmail more ▾

Google why should i avoid sans serif fonts? Search Advanced Search

Web Show options... Results 1 - 10 of about 123,000 for why should i avoid sans serif fonts?. (0.07 seconds)

[How to Select Fonts for Your Website](#)
However, **sans serif fonts** can also be viewed as cold and impersonal. ... You can **avoid** this by choosing a font common to both operating systems. ... Your site's overall design **should** help you decide which style is best for your site.
[www.pallasweb.com/fonts.html](#) - [Cached](#) - [Similar](#)

Fonts
Glyphs in **sans-serif fonts**, as the term is used in CSS, have stroke endings a UA applying these guidelines **should** nevertheless **avoid** creating font-size ...
[www.w3.org/TR/CSS2/fonts.html](#) - [Cached](#) - [Similar](#)

[Credit Card Processing Experts - 5 Extra Credit Card Processing ...](#)
<p style="margin-bottom: 0in"><font To **avoid** paying these extra fees, you **should** know the terms of your credit card ...
[www.creditcardprocessingexperts.com/5_extra_credit_card_processing_charges_merchants_can_avoid.html](#) - [Cached](#)

Sans Serif Fonts
Avoid setting long passages of text in a light-weight **sans serif font**. Apart from lacking colour, continuous blocks of light text are hard to read. ...
[www.slideshare.net/mcmrbt/sans-serif-fonts](#) - [Cached](#) - [Similar](#)

[Web Design: TCR - Design Demos: Text: Serif vs. San-Serif](#)
A **sans-serif font**, such as Arial, lacks these tails. ... they **should** be used at a size large enough to **avoid** the problems shown below. ...
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