

Christopher Manning
Pandu Nayak

Introduction to **Information Retrieval**

CS276: Information Retrieval and Web Search
Lecture 19: Web Question Answering

“Information retrieval”

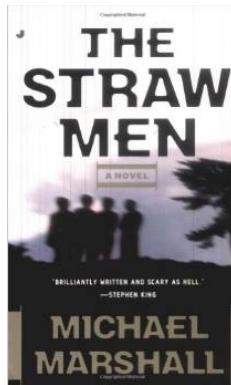
The name **information retrieval** is standard, but as traditionally practiced, it's not really right

All you get is **document retrieval**, and beyond that the job is up to you

Getting information

The common person's view? [From a novel]

"I like the Internet. Really, I do. Any time I need a piece of shareware or I want to find out the weather in Bogota ... I'm the first guy to get the modem humming. But as a source of information, it sucks. You got a billion pieces of data, struggling to be heard and seen and downloaded, and anything I want to know seems to get trampled underfoot in the crowd."



Michael Marshall. *The Straw Men*. HarperCollins, 2002.

Web Search in 2025?

The web, it is a changing.

What will people do in 2025?

- Type key words into a search box?
- Use the Semantic Web?
- Ask questions to their computer in natural language?
- Use social or “human powered” search?

What do we know that's happening?

- Much of what is going on is in the products of companies, and there isn't exactly careful research explaining or evaluating it
- So most of this is my own meandering observations giving voice over to slides from others

Google

What's been happening? 2013–2019

- Many updates a year ... and 3rd party sites try to track them
 - e.g., <https://moz.com/google-algorithm-change> by & aimed at SEOs
- I just mention a few changes here
- New search index at Google: “Hummingbird” (2013)
 - <http://www.forbes.com/sites/roberthof/2013/09/26/google-just-revamped-search-to-handle-your-long-questions/>
 - Answering long, “natural language” questions better
 - Partly to deal with spoken queries on mobile
- More use of the Google Knowledge Graph (2014)
 - Concepts versus words
- RankBrain (second half of 2015):
 - A neural net helps in document matching for the long tail

Google

What's been happening? 2013–2019

- “Pigeon” update (July 2014):
 - More use of distance and location in ranking signals
- “Mobilegeddon” (Apr 21, 2015):
 - “Mobile friendliness” as a major ranking signal
- “App Indexing” (Android, iOS support May 2015)
 - Search results can take you to an app
- Mobile-friendly 2 (May 12, 2016):
 - About half of all searches are now from mobile
- “Fred” (1st quarter 2017)
 - Various changes discounting spammy, clickbaity, fake? sites

Google

What's been happening? 2013–2019

- Longer snippets in results pages (Nov 2017)
- Mobile-first Index (Mar 2018)
 - Index mobile version of websites in preference to desktop!
- Revert snippet length in results pages (May 2018)
- “Medic” update (Aug 2018)
 - More emphasis on expertise, authoritativeness, trust
 - Big changes for diet, nutrition, medical products sites
- Core Algorithm Update (Mar 2019)
 - Seems kind of like “Medic 2”
- 2019 seems to have been kinda quiet so far ...

The role of knowledge bases

- Google Knowledge Graph
- Facebook Graph Search
- Bing's Satori
- Things like Wolfram Alpha

Common theme: Doing graph search over structured knowledge rather than traditional text search

What's been happening

- More semi-structured information embedded in web pages
 - schema.org

The screenshot shows the homepage of The New York Times. At the top, there are sections for SPORTS, HOME, SEARCH, and various news categories like ON TENNIS, ON HOCKEY, and RANGERS. A central news article is titled "After Nadal and Ferrer, Spanish Tennis Talent Pool Looks Thin". Below the article, there's a promotional banner for Chromecast. The page also includes a sidebar for "TENNIS" and a photo of a tennis player.

```

275 <p class="byline-column">
276   On Tennis
277 <p class="byline">By
278   itemtype="http://schema.org/Person"
279   itemid="http://topics.nytimes.com/top/reference/timestopics/people/c/christopher_clarey/index.html">
280     <a href="http://topics.nytimes.com/top/reference/timestopics/people/c/christopher_clarey/index.html" rel="author"
281       title="More Articles by CHRISTOPHER CLAREY">
282         <span class="byline-author" data-byline-
283           name="Christopher Clarey" itemprop="name">CHRISTOPHER CLAREY</span>
284       </a>
285     </span>
286   </p>
287 
```

Mobile

Move to mobile favors a move to **speech** which favors **natural language information search**

- Will we move to a time when over half of searches are spoken?



Mobile

- Mobile proved importance of NLU/QA
- [What is the best time for wildflowers in the bay area]

[Where to See Wildflowers in the Bay Area - Bay Area Parent](#)

www.bayareaparent.com/Article/Where-to-See-Wildflowers-in-the-Bay-Area/ ▾

This is a great time of year to find wildflowers in the Bay Area. Call parks ... Loop Trail, known for being flat, moderate in difficulty and best for viewing the blooms.

[Best Bay Area hikes into wildflower country - Bay Nature](#)

baynature.org/article/best-bay-area-hikes-into-wildflower-country/ ▾ Bay Nature ▾

Mar 28, 2013 - It's spring, and all you nature lovers know what that means ... time to go see wildflowers! You've probably already noticed them popping in little ...

[Bay Area Wildflower Hikes | EveryTrail](#)

www.everytrail.com/guide/bay-area-wildflower-hikes ▾

★★★★★ Rating: 5 - 2 votes

Download the Bay Area Wildflower Hikes mobile travel guide to your iPhone or ... Even in lean years, wildflower season offers hikers beautiful reminders of the The best bloom is on the Chisnantuk Peak Trail, which is deep in the park and ...

Information quality

- There have always been concerns about **information provenance** (the source) and **information reliability**, especially among “information professionals” (reporters, lawyers, spies, ...)
- It wasn’t ignored on the web: ideas like PageRank were meant to find good content, and there has been a decade of work targeting link farms, etc.
- However, a lot of recent events have shown the limited effectiveness of that work, and how “fake” information easily gets upvoted and spreads

Towards intelligent agents

Two goals

- Things not strings
- Inference not search

Two paradigms for question answering

- Text-based approaches
 - TREC QA, IBM Watson, DrQA
- Structured knowledge-based approaches
 - Apple Siri, Wolfram Alpha, Facebook Graph Search

(And, of course, there are hybrids, including some of the above.)

At the moment, structured knowledge is back in fashion, but it may or may not last

Example from Fernando Pereira (GOOG)

A screenshot of a search interface. At the top, there is a search bar containing the text "painkillers that don't thin blood". To the right of the search bar are a blue 'X' button and a grey "Search" button. Below the search bar, a list of suggestions is displayed in a light blue background box:

- painkillers that don't thin blood
- painkillers that don't **thin blood**
- painkillers that don't **cause constipation**
- painkillers that don't **cause nausea**
- painkillers that don't upset stomach** frequent query
- painkillers that don't

At the bottom left, the text "About 89,300 results (0.14 seconds)" is shown. At the bottom right, there is a link "Advanced search". A red oval highlights the suggestion "painkillers that don't upset stomach", and the word "frequent query" is written in red next to it.

painkillers that don't upset stomach



Search

About 29,700 results (0.15 seconds)

[Advanced search](#)

► [Symptoms of Crohn's](#)

Sponsored link

www.crohnsonline.com Do You Know the Signs of Crohn's? Read About Symptoms and More Now.

[Best Pain Reliever, Over the Counter Pain Relievers, Prescription ...](#)

For **stomach upset**, eating or drinking milk before you take a painkiller can help. ... **Don't expect painkillers** to relieve all your pain, but the best pain ...

www.healthblurbs.com/best-pain-reliever-over-the-counter-pain-relievers-prescription-analgesic-painkillers/ - Cached - Similar

[Why do painkillers make your stomach hurt? - Yahoo! Answers](#)

Aug 30, 2008 ... **stomach upset**, reflux/indigestion, or if severe ulcers ... I often take **painkillers** FOR stomach aches lol. **Don't** do this again. 2 years ago ...

answers.yahoo.com › Health › Other - Health - Cached - Similar

[How are painkillers bad for you?](#) - Apr 13, 2010

[What effect do painkillers have on you?](#) - Sep 30, 2009

[What's the difference between OTC painkillers? \(Advil, Aleve ...\)](#) - Nov 19, 2008

[Is it bad to take painkillers on an empty stomach ?](#) - Aug 20, 2008

[More results from answers.yahoo.com »](#)

[Phys Ed: Does Ibuprofen Help or Hurt During Exercise? - NYTimes.com](#)

Sep 1, 2009 ... When are ibuprofen and other anti-inflammatory **painkillers** justified? ... Can't take NSAIDS due to **upset stomach**. — bonemri ... Perhaps part of the problem is that you **don't** always have the option to rest your injury if ...

well.blogs.nytimes.com/.../phys-ed-does-ibuprofen-help-or-hurt-during-exercise/ -

Cached - Similar

class negation synonyms

painkillers that don't upset stomach



Search

About 29,700 results (0.15 seconds)

[Advanced search](#)

Symptoms of Crohn's

[Sponsored link](#)

www.crohnsonline.com Do You Know the Signs of Crohn's? Read About Symptoms and More Now.

Best Pain Reliever, Over the Counter Pain Relievers, Prescription ...

For **stomach upset**, eating or drinking milk before you take a painkiller can help. ... Don't expect **painkillers** to relieve all your pain, but the best pain ...

www.healthblurbs.com/best-pain-reliever-over-the-counter-pain-relievers-prescription-analgesic-painkillers/ - Cached - Similar

Why do **painkillers** make your **stomach** hurt? - Yahoo! Answers

Aug 30, 2008 ... **stomach upset**, reflux/indigestion, or if severe ulcers ... I often take **painkillers** FOR **stomach** aches lol. **Don't** do this again. 2 years ago ...

[answers.yahoo.com > Health > Other - Health](http://answers.yahoo.com/Health/Other-Health) - Cached - Similar

[How are **painkillers** bad for you?](#) - Apr 13, 2010

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[What's the difference between OTC **painkillers**? \(Advil, Aleve ...\)](#) - Nov 19, 2008

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[More results from answers.yahoo.com »](#)

Phys Ed: Does Ibuprofen Help or Hurt During Exercise? - NYTimes.com

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well.blogs.nytimes.com/.../phys-ed-does-ibuprofen-help-or-hurt-during-exercise/ -
Cached - Similar



Search

"painkillers such as * tylenol"

About 19,200 results (0.21 seconds)

[Advanced search](#)

[TYLENOL ® Official Site](#)

Sponsored link

Tylenol.com Pain Relief from TYLENOL. Get Information and Coupons Here.
Head & Body Pain - Arthritis Pain - Sinus - Cold & Flu

[Ovarian hyperstimulation syndrome \(OHSS\): Treatments and drugs ...](#)

To ease abdominal discomfort, take over-the-counter painkillers such as acetaminophen
Tylenol others) or ibuprofen (Advil, Motrin, others). ...

www.mayoclinic.com/.../DSECTION=treatments-and-drugs - Cached - Similar

tylenol ⇒ painkiller



Search

painkiller "adverse effects include" stomach

About 266,000 results (0.14 seconds)

[Advanced search](#)

Painkiller Comparison Chart

Oct 31, 2008 ... Chart showing prescription and non-prescription **painkillers** and what they are used for. ... menstrual pain, fever, Common **adverse effects include**: nausea, ... asthma, upset **stomach**, not for last pregnancy trimester. ...

www.disabled-world.com/.../painkiller-chart.shtml - Cached - Similar

[PDF] List of Painkillers and what they are used for: Over the Counter ...

File Format: PDF/Adobe Acrobat - [Quick View](#)

Common **adverse effects include**: nausea, dyspepsia, gastrointestinal ulceration/bleeding. ... upset **stomach**, not for last pregnancy trimester. Individuals ...

healingwithsoftlasers.com/.../Painkiller%20side%20effects%20chart%20.pdf

upset stomach \Rightarrow adverse effect (on stomach)

[tylenol stomach](#)



Search

About 1,390,000 results (0.28 seconds)

[Advanced search](#)

Pain Relievers And Upset Stomach - Tylenol Extra Strength Pain ...

Tylenol Extra Strength Pain Reliever Fever Reducer 100 Caplets - User Rating: 5 stars.

Review Summary: Taking the wrong pain reliever can cause you stomach ...

www.epinions.com › [Wellness & Beauty](#) › [Health Aids - Cached - Similar](#)

Treatment: Pain: Merck Manual Home Edition

TYLENOL has virtually no useful anti-inflammatory activity, does not affect the blood's ability to clot, and has almost no adverse effects on the stomach....

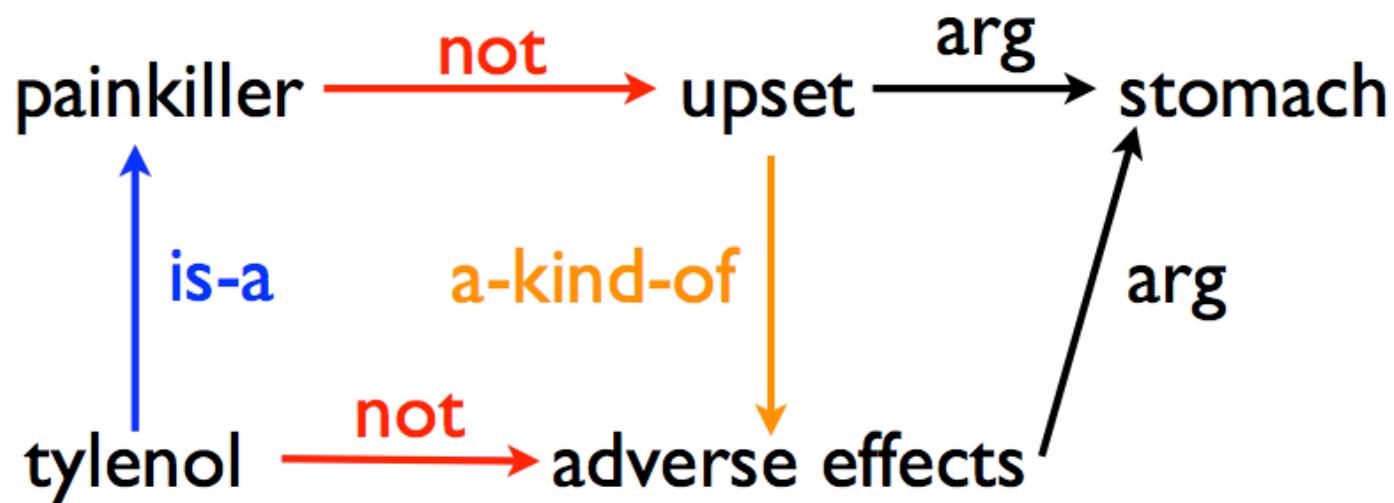
www.merck.com/mmhe/sec06/ch078/ch078d.html - Cached - Similar

tylenol ⇒ no adverse effects (on stomach)
⇒ no upset stomach

painkiller

upset

stomach



“Things, not strings”

From	To	Requires
Term	Concept	Parsing, disambiguation, coreference
Term identity	Entailment	Concept relations
Co-occurrence	Syntactic relation	Document structure, parsing
Term index	Semantic index	Concept disambiguation, inference

Slides from Patrick Pantel (MSFT)

Entity Detection

Structured Recommendations

Seven Samurai

82,800,000 result

WEB IMAGES VIDEO SHOPPING BLOGS MORE

Also try: [seven samurai movie](#), [seven samurai remake](#), [more...](#)

Seven Samurai (1954)
[movies.yahoo.com](#)
Yahoos B+ A Japanese farming village, constantly besieged and pillaged by an army of bandits, recruits seven independent... [more](#)

Running Time: 2 hr 40 min
Directed by: [Akira Kurosawa](#)
Starring: [Takashi Shimura](#), [Toshiro Mifune](#), [Yoshio Inaba](#), [Seiji Miyaguchi](#), ... [more](#)

Play trailer

Structured Data

RELATED MOVIES

- Dreams
- Ran
- Dersu Uzala
- Throne of Blood
- Yojimbo
- Stray Dog

The screenshot shows the Bing Travel interface. At the top, the search query "flights to maui" is entered in the search bar, with a magnifying glass icon to its right. Below the search bar, there are three tabs: "Web" (highlighted in orange), "Flights" (in blue), and "More" (with a dropdown arrow). The main content area displays flight information for "Flights from Seattle, WA to Maui, HI". It includes fields for "FROM" (Seattle, WA (SEA) - Seatt), "TO" (Kahului, HI (OGG) - Kahul), "LEAVE" (set to 03/23/2012), "RETURN" (set to 03/25/2012), and a "Find flights" button. At the bottom left, a red callout box points to the search bar with the text "task completion". On the right side, a red box highlights the "Price prediction" section, which lists weekend estimates: "\$639 Depart March 09", "\$748 Depart March 16", and "\$649 Depart March 23".

flights to maui

Web Flights More▼

Flights from Seattle, WA to Maui, HI

FROM TO

Seattle, WA (SEA) - Seatt Kahului, HI (OGG) - Kahul

LEAVE RETURN

03/23/2012 03/25/2012 Find flights

task completion

Price prediction

WEEKEND ESTIMATES

- ↗ \$639 Depart March 09
- ↘ \$748 Depart March 16
- ↘ \$649 Depart March 23

bing™

royal lahaina resort 

Web Web Hotels Images More▼

[Royal Lahaina Resort - Bing Travel](#)

 2780 Kekaa Dr · Lahaina
(808) 661-9469
[Details](#) · [Photos](#) · [Amenities](#) · [Directions](#) · [Website](#)
★★★★★ (12)
Sample rate: \$230

Aggregate ratings

Compare rates from major travel sites
CHECK IN CHECK OUT
03/15/2012  03/17/2012  Find rate

sk completion 

bing.com/travel/hotels/search?q=royal+lahaina+resort

bing mel gibson movies

Web Images Videos Maps News More

9 Sign in

Mel Gibson - movies All genres Popular first

The Expendables 3 (2014) ★★★★
Mad Max (1980) ★★★★★
Braveheart (1995) ★★★★★
Mad Max 2: The Road Warrior (1982) ★★★★★
Get the Gringo (2012) ★★★★★
Edge of Darkness (2010) ★★★★★
The Passion of the Christ (2004) ★★★★★
Apocalypto (2006) ★★★★★
Mad Max Beyond Thunderdome... (1981) ★★★★★
Left Behind (1995) ★★★★★

Mel Gibson - IMDb

www.imdb.com/name/nm0000154 ▾

Born Jan 03, 1956 · 59 years old · 368 photos

Mel Gibson, Actor: **Braveheart**. Mel Columcille Gerard **Gibson** was born January 3, 1956 in Peekskill, New York, USA, as the sixth of eleven children of Hutton **Gibson**, a ...
[Biography](#) · [Awards](#) · [Films](#) · [News](#)

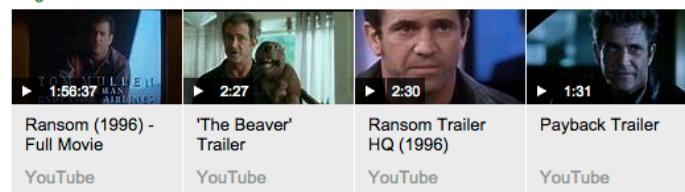
Mel Gibson Movies | Movies.com

www.movies.com/actors/mel-gibson/mel-gibson-movies/p181347 ▾

50 rows · Get the full list of all Mel Gibson movies. See who they starred with and ...
Linda Hunt · Beth Orton · Watch at Home · Contact Us · Bill Kerr · Mad Max

Videos of mel gibson movies

bing.com/videos



See more videos of mel gibson movies

Mel Gibson - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/Mel_Gibson ▾

Mel Colm-Cille Gerard **Gibson** AO (born January 3, 1956) is an American actor and filmmaker. He is most well known as an action hero, for roles such as Martin Riggs in ...
[Early life](#) · [Career](#) · [Film work](#) · [Prospective films](#) · [Personal life](#)

Mel Gibson filmography - Wikipedia, the free encyclopedia

Mel Gibson

American Actor



Mel Colm-Cille Gerard **Gibson** AO is an American actor and filmmaker. He is most well known as an action hero, for roles such as Martin Riggs in the Lethal Weapon buddy cop film series and Max Rockatansky in the first three films in the Ma... +



[Wikipedia](#)



[IMDb](#)



[Facebook](#)

Born: Jan 03, 1956 (age 59) · Peekskill

Height: 5' 10" (1.77 m)

Romance: [Oksana Grigorieva](#) · [Oksana Pochepa](#)

Spouse: [Robyn Moore Gibson](#) (1980 - 2011)

Children: [Hannah Gibson](#) (Daughter) · [Christian Gibson](#) (Son) · [Edward Gibson](#) (Son) · [Louis Gibson](#) (Son) · [William Gibson](#) (Son) +

Upcoming movies: [Hacksaw Ridge](#)

People also search for

[See all \(10+\)](#)



Oksana Grigorieva
Former partner



Sylvester Stallone



Harrison Ford



Arnold Schwarzenegger
Robert Downey Jr.

Google How old is mariah carey Search manning@stanford.edu

Web Images News Shopping Videos More Search tools Settings

About 102,000,000 results (0.55 seconds)

45 years (March 27, 1970)

Mariah Carey, Age

Direct Answer

 Madonna 56 years	 Nick Cannon Spouse 34 years	 Jennifer Lopez 45 years
---	---	--

Feedback



Mariah Carey Singer-songwriter

Ads Listen now Listen with free trial

 Google Play  Spotify Listen for free

Mariah Carey is an American singer, songwriter, record producer, and occasional actress. She rose to prominence after releasing her self-titled debut studio album Mariah Carey in 1990; it went multiplatinum ... [Wikipedia](#)

Born: March 27, 1970 (age 45), Huntington, NY
Height: 5' 9" (1.75 m)
Children: Moroccan Scott Cannon, Monroe Cannon
Spouse: Nick Cannon (m. 2008), Tommy Mottola (m. 1993–1998)

Songs

Without You	1993	Music Box
Hero	1993	Music Box
I Want to Know Wh...	2009	Memoirs of an I...
I'll Be There	1990	Mariah Carey
We Belong Together	2005	The Emancipatio...

Albums View 20+ more






Structured Data



how old is christopher manning



C

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Settings Tools

About 18,600,000 results (0.61 seconds)

Christopher D. Manning / Age

53 years

September 18, 1965



People also search for

Daniel Jurafsky
57 yearsPrabhakar
Raghavan
58 yearsDan Klein
43 years

Feedback

Christopher Manning, Stanford NLP - Stanford NLP Group

<https://nlp.stanford.edu/manning/> ▾

Jan 13, 2019 - Christopher Manning, Professor of Computer Science and Linguistics, ... is directed at students who have already been admitted to Stanford.

[Christopher Manning: Papers ...](#) · Christopher Manning and Ph ...

Christopher Manning's Profile | Stanford Profiles

<https://profiles.stanford.edu/chris-manning> ▾

Christopher Manning is part of Stanford Profiles, official site for faculty, postdocs, ... Chris Manning. SUNet ID(s): Chris.Manning. Christopher.Manning. manning ...

Christopher D Manning - Google Scholar Citations

<scholar.google.com/citations?user=1zmD0dwAAAAJ&hl=en> ▾

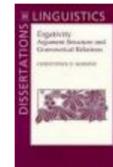
CD Manning, M Surdeanu, J Bauer, J Finkel, SJ Bethard, D McClosky ... Improved semantic representations from tree-structured long short-term memory ...

Christopher D. Manning

Computer scientist

h-index: 111

Books

Introduction
to
informatio...
2008Foundations
of
Statistical...
1999Ergativity:
Argument
Structure...
1996Complex
Predicates
and Infor...
1999

Publications

Introduction to Information Retrieval

CD Manning, P Raghavan, H Schütze
Cambridge: Cambridge University Press

2008

Foundations of statistical natural language processing

CD Manning, H Schütze
Cambridge, MA: MIT Press

1999

Profiles

Google
Scholar

Twitter



how old is pandu nayak



Christopher



All

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Maps

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Search tools



About 207,000 results (0.80 seconds)

Pandu Nayak

www.pandunayak.com/ ▾

About me. I am currently at Google, working on various aspects of Search Quality. I am particularly interested in query understanding and helping users ...

Pandu Nayak | LinkedIn

<https://www.linkedin.com/in/pandu-nayak-4790201> ▾

View Pandu Nayak's professional profile on LinkedIn. ... As a LinkedIn member, you'll join 400 million other professionals who are sharing connections, ideas, ...

Google Panda - Was it named after Pandu Nayak? - Quora

<https://www.quora.com/Google-Panda-Was-it-named-after-Pandu-Nayak> ▾ Quora ▾

Oct 27, 2015 - Pandu Nayak is the guy behind this famed search algo change. ... name of Navneet Panda along with Vladimir Ofitserov, who is the co-inventor ...

Patrick Pantel talk

(Then) Current experience

The screenshot shows a Bing search results page for the query "jetbeam rrt-0". The search bar contains the query, and the results page displays several search results. The first result is a link to a product page for the "JETBeam RRT-0 R5 with Infinite Ramping LED Flashlight ...". The second result is a link to a forum post about the JETBeam RRT-0. The third result is a link to a blog post about JETBeam flashlights. The sidebar on the left includes a "RELATED SEARCHES" section with links to "JETBeam RRT 0 Review", "JETBeam Flashlights", "JETBeam RRT-0 R5", "JETBeam Raptor", "JETBeam M1X", "JETBeam", "RRT-0 R5", and "240 Lumens". The "SEARCH HISTORY" section at the bottom left shows a history entry for "Search more to see your history" and links to "See all" and "Clear all - Turn off".

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Thomas Sign out Rewards

bing™ MS Beta

jetbeam rrt-0

Web Videos More▼

Web

RELATED SEARCHES

- JETBeam RRT 0 Review
- JETBeam Flashlights
- JETBeam RRT-0 R5
- JETBeam Raptor
- JETBeam M1X
- JETBeam
- RRT-0 R5
- 240 Lumens

ALL RESULTS

1-10 of 6,600 results · Advanced

JETBeam RRT-0 R5 with Infinite Ramping LED Flashlight ...

Going Gear JETBeam RRT-0 R5 with Infinite Ramping LED Flashlight [jetbeamrrt0r5] - The popular RRT-0 has been updated to be an even more versatile flashlight, ...
goinggear.com/index.php?main_page=product_info&cPath=14_22&products_id=438 · Mark as spam

Jetbeam RRT-0

Now In Stock! Model: RRT-0 (S2) Specially designed for Military, Law Enforcement, Self-defense, Hunting, Search & Rescue and General Outdoors The Rapid ...
www.jetbeamusa.com/products/RRT%2d0.html · Mark as spam

JETBeam RRT-0 Overview With Lots of Pictures

I got my JETBeam RRT-0 Raptor today. All I can say is to JETBeam! This thing is a ... PICTURES QUICKLY.... BEFORE MY HEAD EXPLODES!!! Ok... it didnt ...
323 replies since November 2009
www.candlepowerforums.com/vb/showthread.php?248375-JETBeam-RRT-0-Overview-With-Lots-of... · Mark as spam

JETBeam Flashlights

Specification: Model: JETBeam RRT-0(R2) Flashlight; Specially designed for Military, Law Enforcement, Self-defense, Hunting, Search & Rescue and Outdoorsman
jetbeamblog.com · Mark as spam

Desired experience: Towards actions

Actions easily accessible

Recognize entity in query

The screenshot shows the Bing search results for the query "jetbeam rrt-0". The search bar contains the query. Below it, there are tabs for "Web", "Videos", and "More". The main results section starts with an "ENTITY" result for "JETBeam RRT-0 Flashlight (Product)", which includes a thumbnail image of the flashlight and a brief description. This is followed by a "JETBeam RRT-0" product listing with a "Read Reviews" link. A sidebar on the left lists various actions such as "Read Reviews", "Watch Demo Video", and "Price Predictions". The results also include links to external sites like Amazon.com, CandlePowerForums, and FlashlightReviews.com, along with reviews and related searches like "JETBeam Flashlights".

Web Images Videos Shopping News Maps More | MSN Hotmail

Thomas Sign out Rewards

bing™ MS Beta

jetbeam rrt-0

Web Videos More

ENTITY

JETBeam RRT-0 Flashlight (Product)

ALL RESULTS 1-10 of 6,600 results · Advanced

[JETBeam RRT-0 R5 with Infinite Ramping LED Flashlight ...](#)
Going Gear JETBeam RRT-0 R5 with Infinite Ramping LED Flashlight [jetbeamrrt0r5] -
The popular RRT-0 has been updated to be an even more versatile flashlight, ...
goinggear.com/index.php?main_page=product_info&cPath=14_22&products_id=438 · Mark as spam

Jetbeam RRT-0

Now In Stock! Model: RRT-0 (S2) Specially designed for Military, Law Enforcement, ...
[Amazon.com](#) arch & Rescue and General Outdoors The Rapid ...
[CandlePowerForums](#) oducts/RRT%2d0.html · Mark as spam

[Epinions.com](#) /review With Lots of Pictures
[FlashlightReviews.com](#) I Raptor today. All I can say is to JETBeam! This thing is ...
more ...
323 replies since November 2009
www.candlepowerforums.com/vb/showthread.php?248375-JETBeam-RRT-0-Overview-With-Lots-of... · Mark as spam

RELATED SEARCHES

[JETBeam RRT 0 Review](#)
[JETBeam Flashlights](#)

JETBeam Flashlights

Specification: Model: JETBeam RRT-0(R2) Flashlight; Specially designed for Military, Law Enforcement, Self-defense, Hunting, Search & Rescue and Outdoorsman
[jetbeamblog.com](#) · Mark as spam

Politician

Actions easily accessible

Recognize entity in query

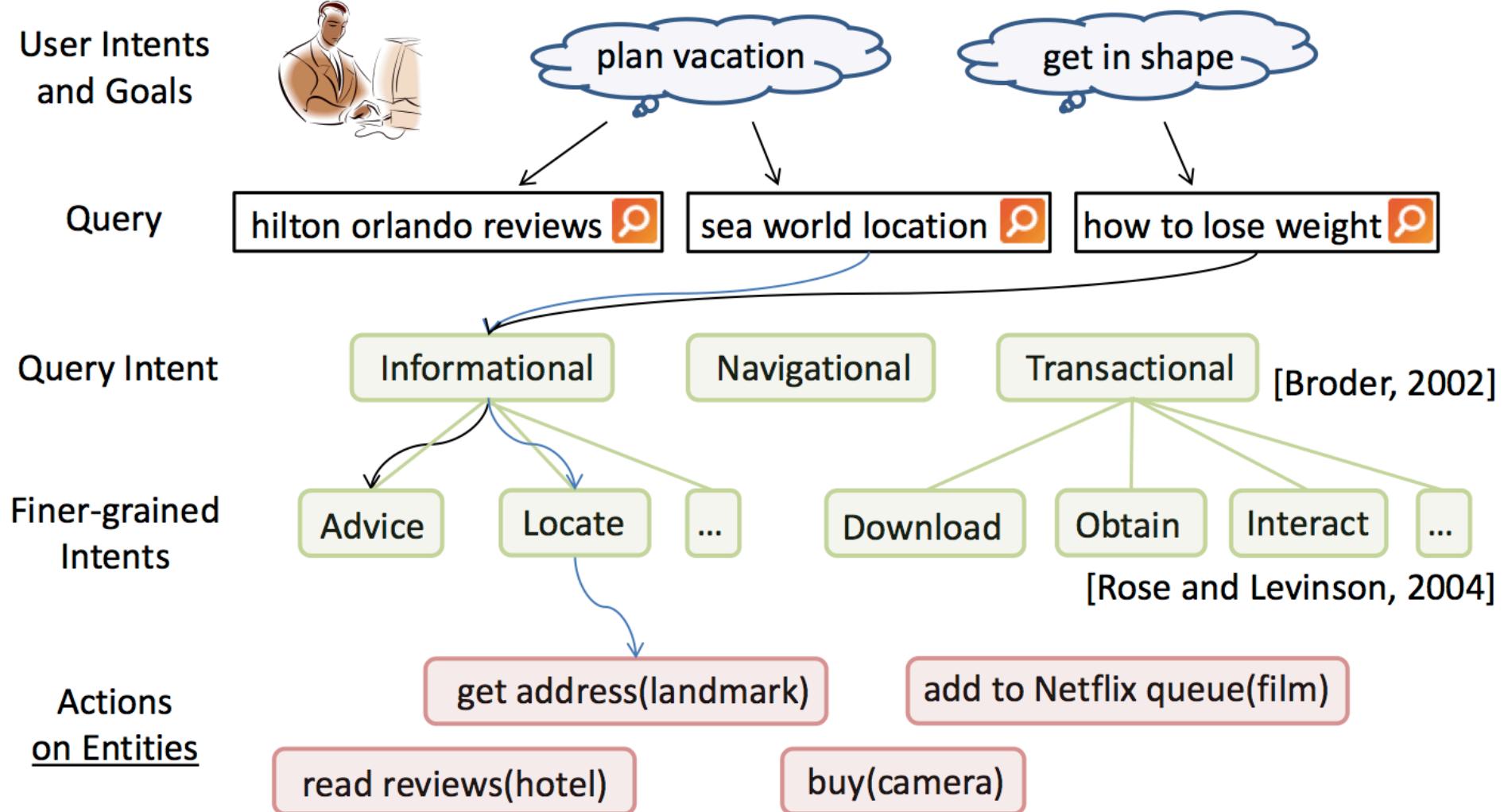
The screenshot shows a Bing search results page for the query "Obama". At the top, there's a navigation bar with links for Web, Images, Videos, Shopping, News, Maps, More, MSN, and Hotmail. On the right, there are user profile links for "Thomas" and "Sign out", along with a "Rewards" button. Below the navigation is the Bing logo and a search bar containing "Obama". Underneath the search bar is a secondary navigation bar with tabs for Web, Visual Search, News, Images, Videos, and More.

The main content area starts with a section titled "ENTITY" which features a portrait of Barack Obama and the text "Barack Obama (President)". Below this is a section titled "ACTIONS" with links to "Watch Weekly Address", "Follow Social Updates", "Read Biography", "View Approval Ratings", and "Support Candidacy".

The search results begin with an advertisement for the "Official Obama Website" (www.BarackObama.com), followed by a result for "Obama for America | 2012" (Barackobama.com). Further down are links to "Barack Obama - Wikipedia, the free encyclopedia" and "Barack Obama and other U.S. politicians by office, state, and branch of government".

On the right side of the page, there are social sharing options for Facebook, Twitter, LinkedIn, and MySpace, along with a "Mark as spam" link. A "Ronojoy Chakrabarti and Caroline Mackey like Barack Obama" message is also visible.

Actions vs. Intents



Learning actions from web usage logs

- Three months of us-en web logs
- Annotate with Freebase entities
- Keep queries with an entity in set of 21 types
- Filter out navigational queries
- Filter out clicked hosts that weren't clicked at least 100 times

2,164,579
(query, host) pairs
over 3 months 235,385 entities 21 types
129,088 contexts 58,123 hosts

get reviews

←

Orlando hotel reviews

read biography

Does Hope Solo have a boyfriend?

download software

Free Winzip download

watch shows online

watch family guy online

http://www.bing.com/se hannah montana - Bing

Web Images Videos Shopping News Maps More | MSN Hotmail Sign in ▾ Redmond, Washington Preferences

bing MS Beta hannah montana

Web Videos News TV Shopping Images More ▾

RELATED SEARCHES

- Miley Cyrus
- Billy Ray Cyrus
- Hannah Montana Games
- Hannah Montana Style
- Hannah Montana Sing
- Hannah Montana Information
- Hannah Montana Dress Up Games
- Disney Channel Hannah Montana

SEARCH HISTORY

Turn on search history to start remembering your searches.

Turn history on

ALL RESULTS 1-10 of 14,800,000 results · Advanced

Hannah Montana Forever | Disney Channel

Explore the **Hannah Montana** Forever home page for videos, full-length episodes, character bios, games, photos, downloads, music, and more!

tv.disney.go.com/disneychannel/hannahmontana · Mark as spam



- A hodgepodge of related strings
- Only actionable through search

NASHVILLE, Tenn. (AP) -- Billy Ray Cyrus says the Disney TV show "Hannah Montana" destroyed his family, causing his divorce and sending daughter Miley Cyrus spinning out of... [Yahoo Finance](#) · 10 hours ago

Miley Cyrus Angry With Dad Over **Hannah Montana** Slur [Entertainmentwise](#)
[PopObservations: Lady Gaga at the Grammys, HBO shows and Hannah Montana](#) [Florida Times-Union](#)

Hannah Montana - Wikipedia, the free encyclopedia

Production · Cast · Episodes · Films

Hannah Montana is an American television series, which debuted on March 24, 2006 on Disney Channel, and also airs Saturday mornings on ABC as part of the ABC Kids block.

en.wikipedia.org/wiki/Hannah_montana · Mark as spam

Character Bios | Hannah Montana Forever | Disney Channel

Meet Miley, Lilly, Oliver, Rico, and the rest of the gang from Disney Channel's **Hannah Montana** Forever!

tv.disney.go.com/disneychannel/hannahmontana/characters/index.html · Mark as spam

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 Pre-Order The Final Season Ultimate Fan Experience. Free Charm Set!
www.DisneyShoppingCart.com/Hannah

Watch TV Shows at Bing™
 Browse Video Clips and Popular Episodes at Bing Today!
bing.com/videos

Hannah Montana
 Free Shipping \$50 on 100,000 Items
 Shop **Hannah** etc. Online at Target.
www.Target.com

Hannah Montana Items
 We Have The **Hannah Montana** Items To Complete Any Fans Collection!
Hannah-Montana.BradfordExchange.com

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hannah montana - Bing

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hannah montana

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-  Girl Talk Game ★★★★
-  Hannah Montana Doll ★★★
-  Kids Rock Guitar ★★★★

RELATED PEOPLE

-  Billy Ray Cyrus
-  Aaron Kelly

RELATED MUSIC

-  Miley Cyrus: Soundtrack 2009
-  Taylor Swift: Our Song 2010

RELATED VIDEOS

-  Miley Cyrus Performs At Idol

ALL RESULTS

1-10 of 14,500,000 results · [Advanced](#)

Hannah Montana Forever | Disney Channel

Explore the **Hannah Montana Forever** home page for videos, full-length episodes, character bios, games, photos, downloads, music, and more!

tv.disney.go.com/disneychannel/hannahmontana · Mark as spam

Hannah Montana Games	Sonny With A Chance
Disney Channel Games	TV Shows
Good Luck Charlie	Phineas & Ferb
Fish Hooks	

Show more results from tv.disney.go.com

Entertainment News: hannah montana

 **Billy Ray Cyrus: 'Hannah Montana' destroyed family**
NASHVILLE, Tenn. (AP) -- Billy Ray Cyrus says the Disney TV show "Hannah Montana" destroyed his family, causing his divorce and sending daughter Miley Cyrus spinning out of... [Yahoo Finance](#) · 10 hours ago

Miley Cyrus Angry With Dad Over Hannah Montana Slur [Entertainmentwise](#)
Popversations: Lady Gaga at the Grammys, HBO shows and Hannah Montana [Florida Times-Union](#)

Hannah Montana - Wikipedia, the free encyclopedia

Production · Cast · Episodes · Films
Hannah Montana is an American television series, which debuted on March 24, 2006 on Disney Channel, and also airs Saturday mornings on ABC as part of the [The Disney Channel Block](#). en.wikipedia.org/wiki/Hannah_montana · Mark as spam

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Meet Miley, Lilly, Oliver, Rico, and the rest of the gang from Disney Channel's **Hannah Montana Forever!**

tv.disney.go.com/disneychannel/hannahmontana/characters/index.html · Mark as spam

Sponsored sites

Watch TV Shows at Bing 
Browse Video Clips and Popular Episodes at Bing Today!
bing.com/videos

Hannah Montana 
Free Shipping \$50 on 100,000 Items
Shop **Hannah** etc. Online at Target.
www.Target.com

Hannah Montana Items 
We Have The **Hannah Montana** Items To Complete Any Fans Collection!
Hannah-Montana.BradfordExchange.com

From Hannah Montana 
Compare Choices and Prices.
Everything You Want and Need!
Shopzilla.com

Hannah Montana Wigs 
15,000 Costumes - All Sizes & Styles.
Low Prices & Same Day Shipping!
www.BuyCostumes.com

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Internal preview Help improve Bing

http://www.bing.com/search?q=hannah

hannah montana - Bing

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Sign in Redmond, Washington Preferences

Big Wins

- Typed relations
- User Interface accesses structured data
- Click through experience can now leverage strongly-typed identifier

Show more results from tv.disney.go.com

Billy Ray Cyrus

Aaron Kelly

Miley Cyrus Soundtrack 2009

Taylor Swift Our Song 2010

Hannah Montana Slur Entertainmentwise

Hannah Montana Wigs

Montana.BradfordExchange.com

From Hannah Montana Compare Choices and Prices. Everything You Want and Need! Shopzilla.com

Hannah Montana Forever Disney Channel

Meet Miley, Lilly, Oliver, Rico, and the rest of the gang from Disney Channel's Hannah Montana Forever!

tv.disney.go.com/disneychannel/hannahmontana/characters/index.html

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Character Bios | Hannah Montana Forever | Disney Channel

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hannah montana

Web **Videos** **News** **TV** **Shopping**

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ALL RESULTS

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Hannah Montana Games	Sonny With A
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Entertainment News: Hannah Montana

Billy Ray Cyrus: 'Hannah Montana' de

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Flops: Lady Gaga at the Grammys, HBO shows and Hannah Montana Florida Times-Union

Play track

Hannah Montana - Wikipedia, the free encyclopedia

Production · Cast · Episodes · Films

Hannah Montana is an American television series, which debuted on March 24, 2006 on Disney Channel, and also airs Saturday mornings on ABC as part of the [The Disney Channel Block](#). en.wikipedia.org/wiki/Hannah_montana · Mark as spam

Character Bios | Hannah Montana Forever | Disney Channel

Meet Miley, Lilly, Oliver, Rico, and the rest of the gang from Disney Channel's **Hannah Montana Forever!**

tv.disney.go.com/disneychannel/hannahmontana/characters/index.html · Mark as spam

Big Wins

- Typed relations
- User Interface accesses structured data
- Click through experience can now leverage strongly-typed identifier
- Brokered Actions (one click conversions)**

Montana.BradfordExchange.com

[From Hannah Montana](#) Compare Choices and Prices. Everything You Want and Need! Shopzilla.com

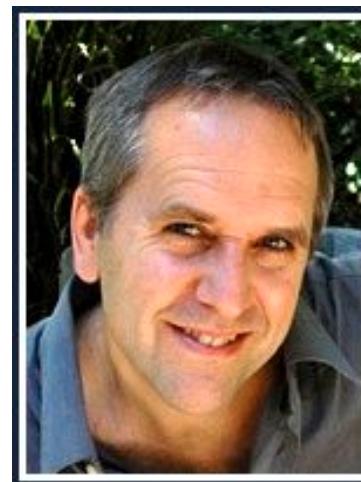
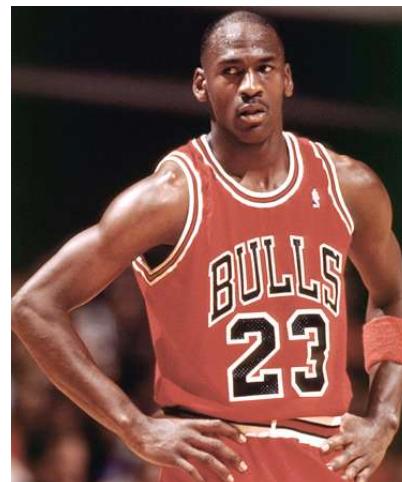
[Hannah Montana Wigs](#) 15,000 Costumes - All Sizes & Styles. Low Prices & Same Day Shipping! www.BuyCostumes.com

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Internal preview Help improve Bing

Entity disambiguation and linking

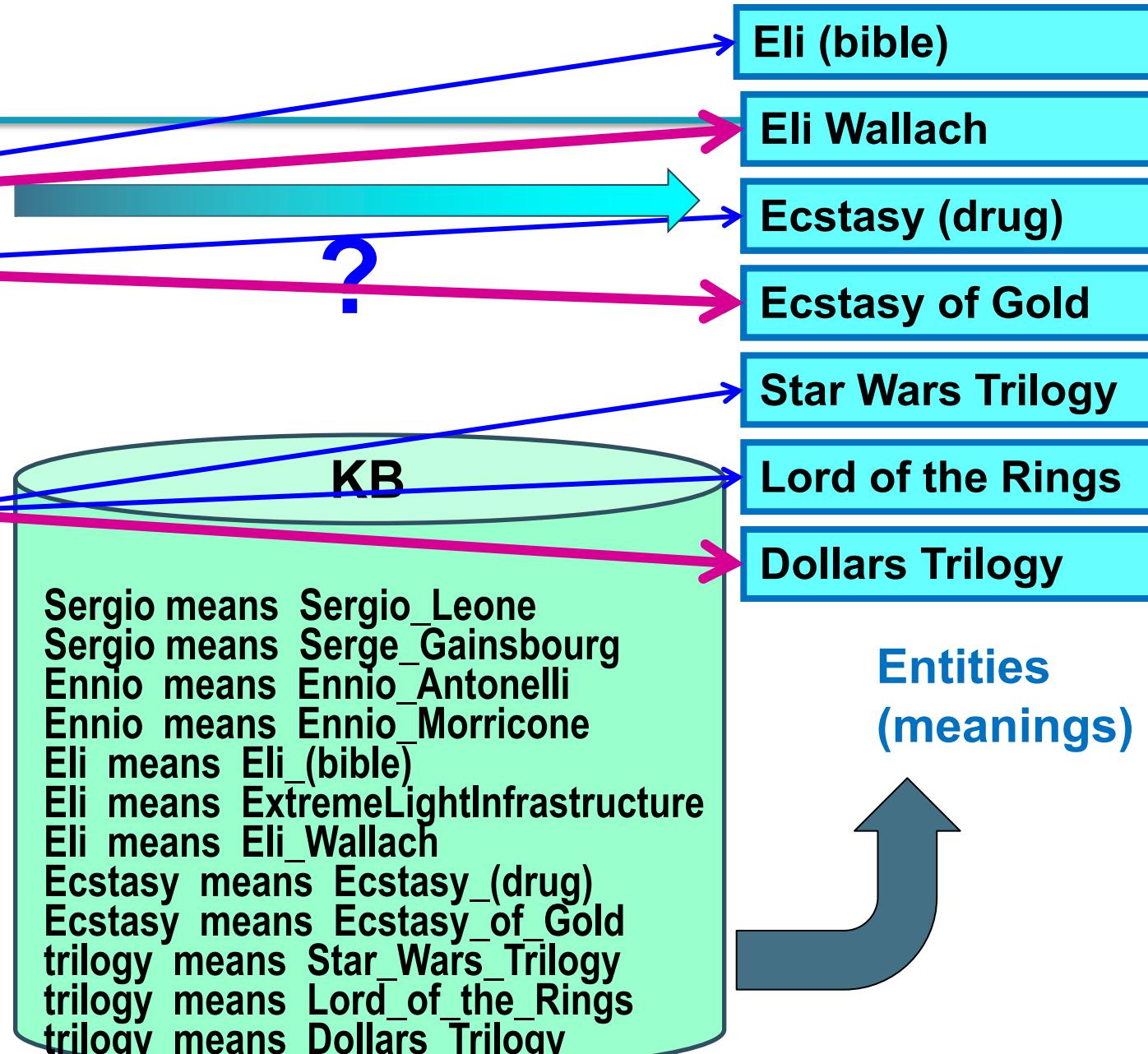
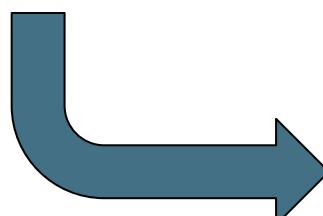
- Key requirement is that entities get identified
 - Named entity recognition (e.g., Stanford NER!)
- and disambiguated
 - Entity linking (or sometimes “Wikification”)
 - e.g., Michael Jordan the basketballer or the ML guy



Mentions, Meanings, Mappings [G. Weikum]

Sergio talked to
 Ennio about
 Eli's role in the
 Ecstasy scene.
 This sequence on
 the graveyard
 was a highlight in
 Sergio's trilogy
 of western films.

Mentions
(surface names)

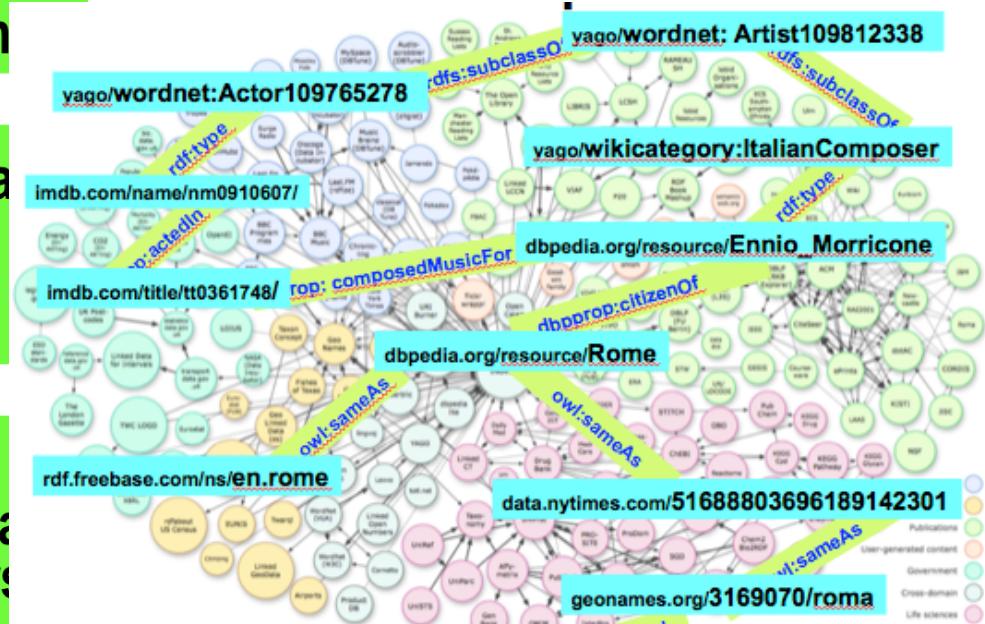


- and linked to a canonical reference
 - Freebase, dbpedia, Yago2, (WordNet)

http://.../wiki/Dollars_Triology
http://.../wiki/The_Good,_the_Bad,_the_Ugly
http://.../wiki/Clint_Eastwood
http://.../wiki/Honorary_Academy

http://.../wiki/The_Good,_the_Bad,_the_Ugly
<http://.../wiki/Metallica>
[http://.../wiki/Bellagio_\(casino\)](http://.../wiki/Bellagio_(casino))
http://.../wiki/Ennio_Morricone

http://.../wiki/Sergio_Leone
http://.../wiki/The_Good,_the_Bad,_the_Ugly
http://.../wiki/For_a_Few_Dollars_More
http://.../wiki/Ennio_Morricone



Understanding questions

Screenshot of a Google search results page for "third prime minister of australia".

Google search bar: third prime minister of australia

Search filters: Web, News, Images, Videos, Shopping, More, Search tools

Results count: About 34,400,000 results (0.34 seconds)

Result 1: Chris Watson - The 3rd Prime Minister of Australia

Image: A portrait of John Christian Watson, commonly known as Chris Watson.

Summary: John Christian Watson, commonly known as Chris Watson, was a Chilean Australian politician who served as the third Prime Minister of Australia. [Wikipedia](#)

Details: Born: April 9, 1867, Valparaíso, Chile; Died: November 18, 1941, Sydney, Australia; Party: Australian Labor Party; Previous offices: Member of the Australian Parliament (1906–1910), More

Result 2: List of Prime Ministers of Australia - Wikipedia, the free ...

People also search for: View 10+

Recent tabs: Socher-MVRNN-D12-....pdf, MarcPPT.pptx, Larry-Emmott-Social....pptx

Show All

2017 ...

A screenshot of a Google search results page. The search query is "australia's third prime minister". The results are as follows:

- Chris Watson - Wikipedia, the free encyclopedia**
en.wikipedia.org/wiki/Chris_Watson ▾ Wikipedia ▾
3rd Prime Minister of Australia ... He was the first prime minister from the Australian Labour Party, and the first prime minister from the labour movement in the ...
Early life - Union activities and colonial ... - Federation - Prime Minister in 1904
- List of Prime Ministers of Australia by time in office - Wikipedia**
en.wikipedia.org/.../List_of_Prime_Ministers_of_Australia_by... ▾ Wikipedia ▾
This is a list of Prime Ministers of Australia by time in office. The basis of ... Rank:
No: Prime Minister: Portrait: Party: District: Assumed Office 3rd, Chris Watson
- List of Prime Ministers of Australia - Wikipedia, the free ...**
en.wikipedia.org/wiki/List_of_Prime_Ministers_of_Australia ▾ Wikipedia ▾
Below is a list of Prime Ministers of the Commonwealth of Australia. The parties shown are those to which ... 17 February 1917, 9 February 1923, —, 3rd Hughes.
Edmund Barton - Protectionist Party - Longest serving Prime Ministers

At the bottom, there are tabs for other open documents: Socher-MVRNN-D12-....pdf, MarcPPT.pptx, Larry-Emmott-Social....pptx, and a button to "Show All".

2017 ...

The screenshot shows a Google search results page with the following details:

- Search Query:** `australia's 3rd prime minister`
- Number of Results:** About 712,000 results (0.50 seconds)
- Highlighted Result (Card View):**

24.	3rd	Chris Watson (1867–1941)	Labor	Bland, NSW (1901–1906)
-----	-----	-----------------------------	-------	---------------------------

36 more rows, 5 more columns

List of Prime Ministers of Australia by time in office - Wikipedia
en.wikipedia.org/w/index.php?title=List_of_Prime_Ministers_of_Australia_by_time_in_office&oldid=83311110 Wikipedia
- Feedback:** Feedback link at the bottom of the card view.
- Other Results:**
 - Chris Watson - Wikipedia, the free encyclopedia**
en.wikipedia.org/wiki/Chris_Watson Wikipedia
 - 3rd Prime Minister of Australia ...** He was the first prime minister from the Australian Labour Party, and the first prime minister from the labour movement in the ...
[Early life - Union activities and colonial ...](#) - Federation - Prime Minister in 1904
- Bottom Navigation:** Shows other open tabs: Socher-MVRNN-D12-....pdf, MarcPPT.pptx, Larry-Emmott-Social....pptx, and a Show All button.

2019

https://www.google.com/search?q=australia%27s+third+prime+minister&oq=australia%27s+third+prime+minister&aqs...

Google Microphone Search

All News Images Videos Maps More Settings Tools

About 11,000,000 results (0.83 seconds)

Prime Minister of Australia (3)

Chris Watson



People also search for [View 15+ more](#)

						
Andrew Fisher	Arthur Fadden	George Reid	Frank Forde	Billy Hughes	Edmund Barton	Joseph Cook

 [More about Chris Watson](#)

2019

australia's 3rd prime minister

All News Images Maps Videos More Settings Tools

About 1,560,000 results (0.92 seconds)

Prime Minister of Australia (3)

Chris Watson



People also search for

View 15+ more

						
Andrew Fisher	Arthur Fadden	George Reid	Frank Forde	Billy Hughes	Edmund Barton	Joseph Cook

More about Chris Watson

3 approaches to question answering: Knowledge-based approaches (Siri)

- Build a semantic representation of the query
 - Times, dates, locations, entities, numeric quantities
- Map from this semantics to query structured data or resources
 - Geospatial databases
 - Ontologies (Wikipedia infoboxes, dbpedia, WordNet, Yago)
 - Restaurant review sources and reservation services
 - Scientific databases
 - Wolfram Alpha

Text-based (mainly factoid) QA

- QUESTION PROCESSING
 - Detect **question type**, **answer type**, focus, relations
 - Formulate queries to send to a search engine
- PASSAGE RETRIEVAL
 - Retrieve ranked documents
 - Break into suitable passages and rerank
- ANSWER PROCESSING
 - Extract candidate answers (as named entities)
 - Rank candidates
 - using evidence from relations in the text and external sources

Hybrid approaches (IBM Watson)

- Build a shallow semantic representation of the query
- Generate answer candidates using IR methods
 - Augmented with ontologies and semi-structured data
- Score each candidate using richer knowledge sources
 - Geospatial databases
 - Temporal reasoning
 - Taxonomical classification



Texts are Knowledge

Knowledge: Jeremy Zawodny says ...



Is the goal to go from language to knowledge bases?

- For humans, going from the largely unstructured language on the web to actionable information is effortlessly easy
- But for computers, it's rather **difficult!**
- This has suggested to many that if we're going to produce the next generation of intelligent agents, which can make decisions on our behalf
 - Answering our routine email
 - Booking our next trip to Fiji

then we still first need to construct **knowledge bases**

- To go *from languages to information*
- But should we rather just have computers work with language?



Knowledge: Not just semantics but pragmatics

Pragmatics = taking account of context in determining meaning

A natural part of language understanding and use

Search engines are great because they inherently take into account pragmatics (“associations and contexts”)

- [the national] → The National (a band)
- [the national ohio] → The National - Bloodbuzz Ohio – YouTube
- [the national broadband] → www.broadband.gov

Who won the best actor Oscar in 1973?



Lemmon was awarded the [Best Supporting Actor Oscar](#) in 1956 for [Mister Roberts](#) (1955) and the [Best Actor Oscar](#) for [Save the Tiger](#) (1973), becoming the first actor to achieve this rare double...

Source: Jack Lemmon -- Wikipedia



Jack Lemmon



John Uhler "Jack" Lemmon III was an American actor and musician. He starred in more than 60 films including Som... + en.wikipedia.org

www.imdb.com

[Jack Lemmon - Wikipedia, the free encyclopedia](#)

Who won the best actor Oscar in 1973?



American actor and musician. He starred in more than 60 films including ...

Jack Lemmon - IMDb

www.imdb.com/name/nm00000493 ▾



Born Feb 08, 1925 · Died Jun 27, 2001 · [News](#) · [341 photos](#) · [Biography](#)

Actor: [The Apartment](#) (1960) · [Some Like It Hot](#) (1959) · [Glengarry Glen Ross](#) (1992) · [Grumpy Old Men](#) (1993). **Jack Lemmon's** father was the ...

Spouse: [Felicia Farr](#) (1962 - 2001) · [Cynthia Stone](#) (1950 - 1956)

Children: [Chris Lemmon](#) · [Courtney Lemmon](#)

Buried: [Westwood Village Memorial Park Cemetery](#)

Awards: [Academy Award for Actor in a Leading Role](#) +

Images of jack lemmmon

bing.com/images



Word Alignment for Question Answering

QA (1999-2005)

TREC

What is the fastest car in the world?

The Jaguar XJ220 is the dearest, fastest and most sought after car on the planet.

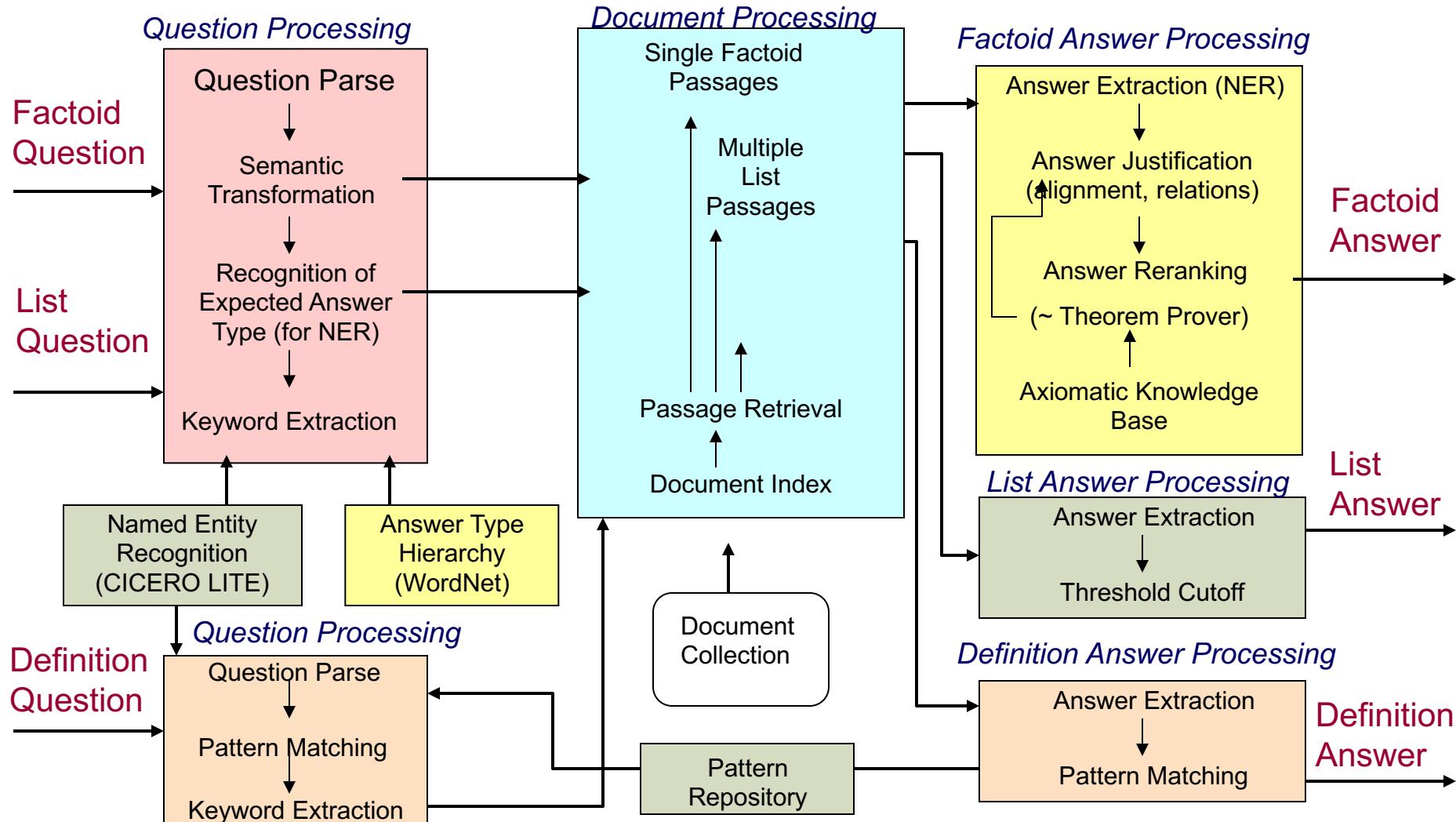
[Harabagiu & Moldovan, 2001]

- Assume that there is an underlying alignment
 - Describes which words in A and B can be associated

See if the (syntactic/semantic) relations support the answer

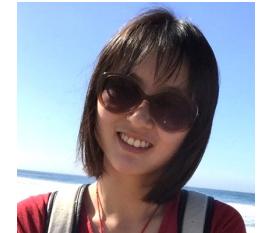
Full NLP QA: LCC (Harabagiu/Moldovan)

[below is the architecture of LCC's QA system circa 2003]



DrQA: Open-domain Question Answering

(Chen, et al. ACL 2017) <https://arxiv.org/abs/1704.00051>



ask me
anything

Open-domain Question Answering



WIKIPEDIA

SQuAD

Q: How many of Warsaw's inhabitants spoke Polish in 1933? **A:** 833,500

TREC

Q: What U.S. state's motto is “Live free or Die”? **A:** New Hampshire

WebQuestions (Berant et al, 2013) Freebase™

Q: What part of the atom did Chadwick discover? **A:** neutron

OMDb

WikiMovies (Miller et al, 2016)

Q: Who wrote the film Gigli? **A:** Martin Brest

Q: How many of Warsaw's inhabitants spoke Polish in 1933?



WIKIPEDIA

Document
Retriever



Article Talk Read Edit View history

Warsaw

From Wikipedia, the free encyclopedia

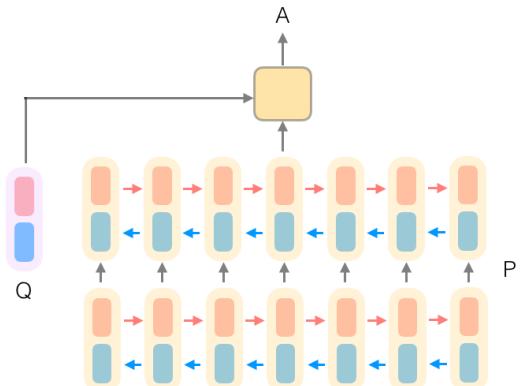
This article is about the Polish capital. For other uses, see [Warsaw \(disambiguation\)](#).
["Warszawa"](#) redirects here. For other uses, see [Warszawa \(disambiguation\)](#).
["City of Warsaw"](#) redirects here. For the Second World War fighter squadron, see [No. 316 Polish Fighter Squadron](#). F 1834, see [Adamowicz brothers](#).

Warsaw (Polish: [Warszawa](#) [varˈʂava] ([listen](#)); [see also other names](#)) is the capital and largest city of Poland. It stands on the Vistula River in the central part of the country, roughly 300 km (190 mi) from the Baltic Sea and 300 kilometers (190 mi) from the Carpathian Mountains. Its population is estimated at 1.750 million residents within a greater metropolitan area of 3.105 million residents, which makes Warsaw the 8th most populous capital city in the European Union.^{[3][4]} The city limits cover 516.9 square kilometres (199.6 sq mi), while the metropolitan area covers 6,100.43 square kilometres (2,355.39 sq mi).^[5]

In 2012 the Economist Intelligence Unit ranked Warsaw as the 32nd most liveable city in the world.^[6] It was also ranked as one of the most livable cities in Central Europe. Today Warsaw is considered an "Alpha+" global city, a major regional center of business, finance and trade. Due to its diverse economic hub, Warsaw's economy, by a wide variety of industries, is characterized by FDI, manufacturing, metal processing, steel and electronics manufacturing and food processing. The city is a significant centre of research and development, R&D, ITD, as well as of the Polish media industry. The Warsaw Stock Exchange is one of the largest and most important in Central and Eastern Europe.^[10] Frontex, the European Union agency for external border security, has its headquarters in Warsaw. It has been said that Warsaw, together with Frankfurt, London, Paris and Barcelona is one of the cities with the highest number of skyscrapers in the European Union.^[11] Warsaw has also been called "Eastern Europe's chic cultural capital with thriving art and club scenes and serious restaurants".^[12]

Document
Reader

833,500



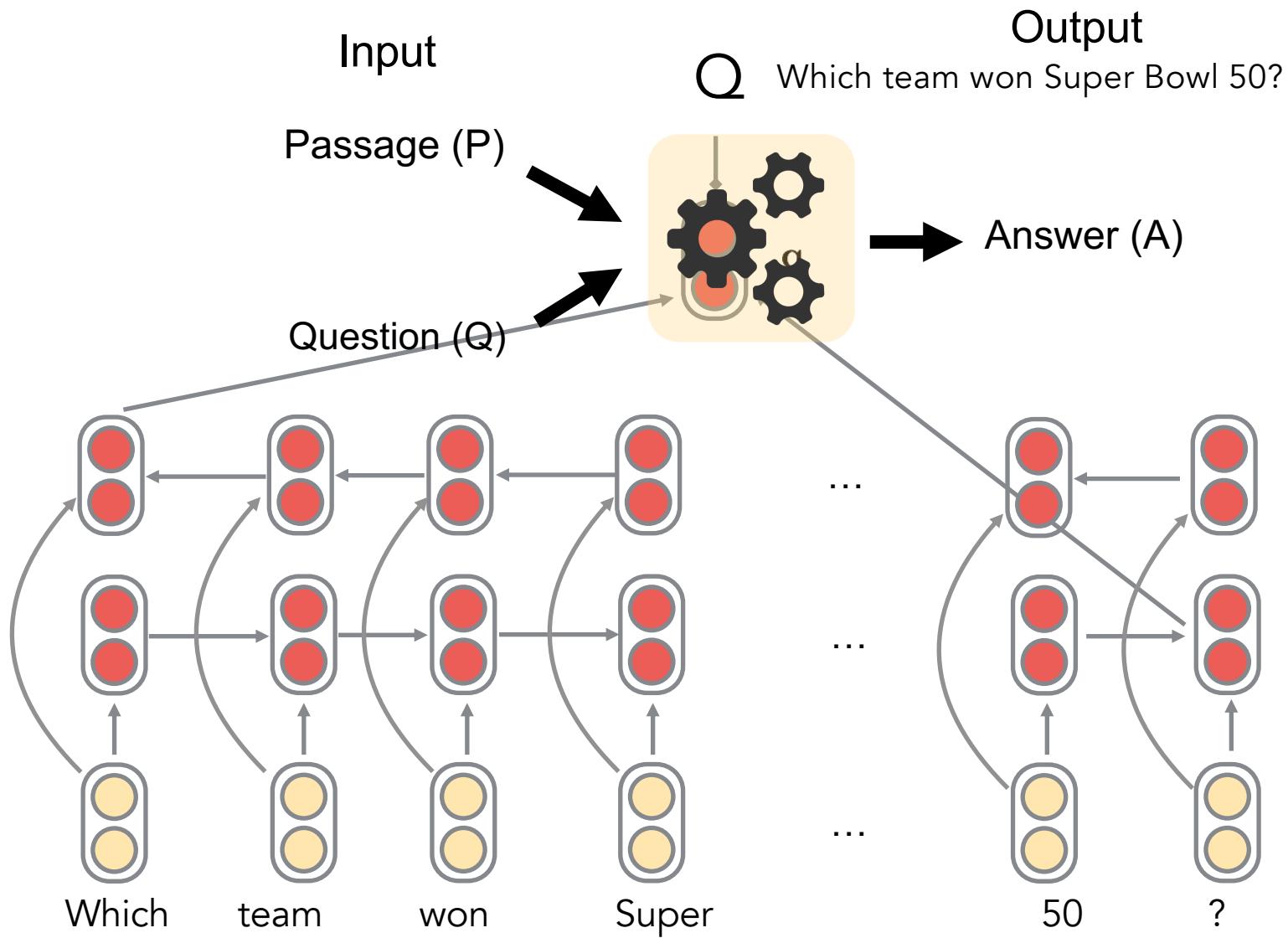
Document Retriever

Dataset	Wiki Search	Doc. plain	Retriever	
			+bigrams	
SQuAD	62.7	76.1	77.8	
CuratedTREC	81.0	85.2	86.0	
WebQuestions	73.7	75.5	74.4	
WikiMovies	61.7	54.4	70.3	

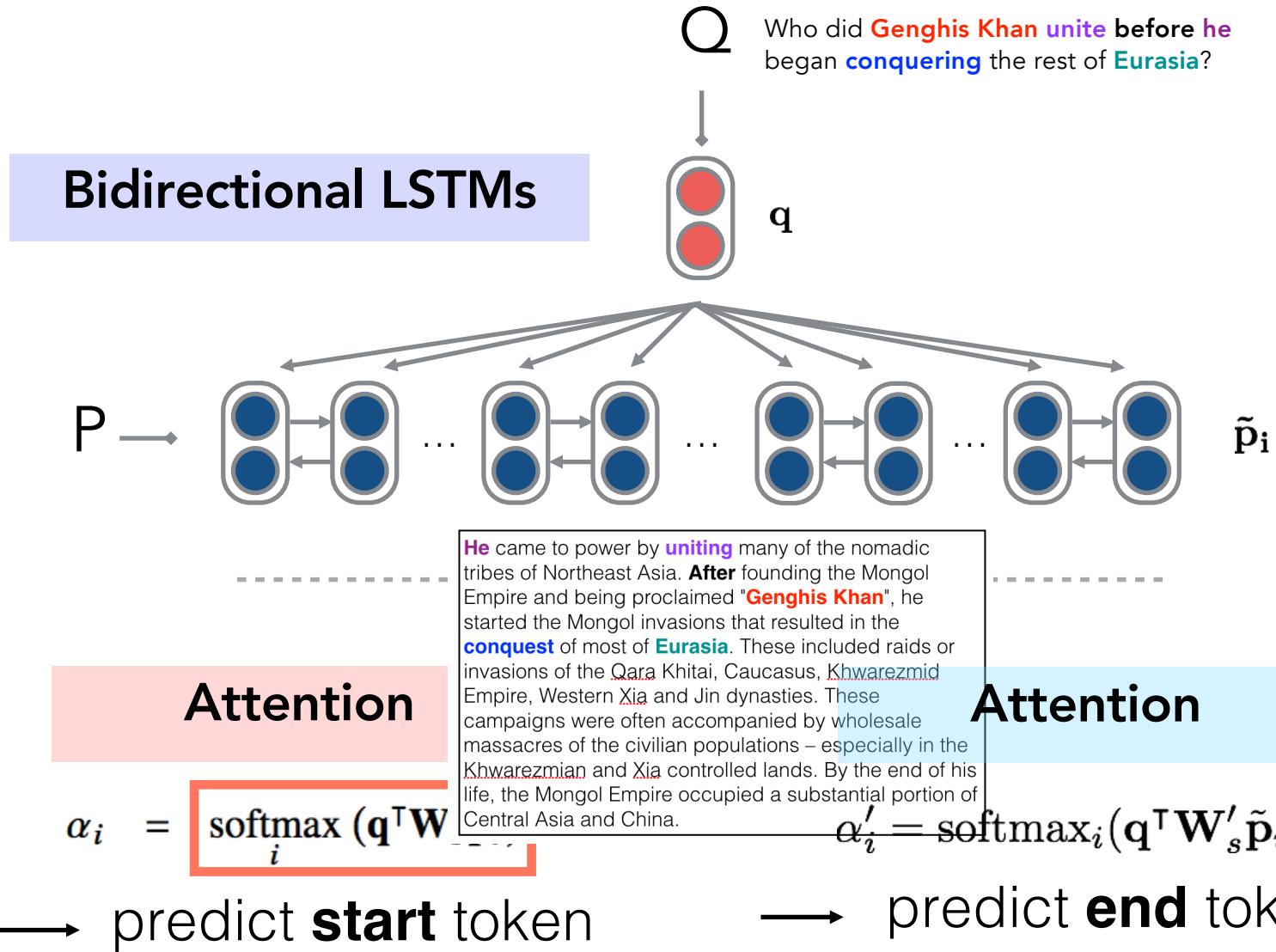
Traditional
tf.idf
inverted
index +
efficient
bigram
hash

70-86% of questions we have that the answer segment appears in the **top 5 articles**

Stanford Attentive Reader



Stanford Attentive Reader



SQuAD Results (single model)

	F1
Logistic regression	51.0
Fine-Grained Gating (Carnegie Mellon U)	73.3
Match-LSTM (Singapore Management U)	73.7
DCN (Salesforce)	75.9
BiDAF (UW & Allen Institute)	77.3
Multi-Perspective Matching (IBM)	78.7
ReasoNet (MSR Redmond)	79.4
DrQA (Chen et al. 2017)	79.4
r-net (MSR Asia) [Wang et al., ACL 2017]	79.7
Human performance	91.2

General questions

Combined with **Web search**, we can answer **57.5%** of **trivia questions** correctly



Q: The Dodecanese Campaign of WWII that was an attempt by the Allied forces to capture islands in the Aegean Sea was the inspiration for which acclaimed 1961 commando film?

A: The Guns of Navarone

Q: American Callan Pinckney's eponymously named system became a best-selling (1980s-2000s) book/video franchise in what genre?

A: Fitness

Demo

Hi!



Hello! Please ask a question.

What is question answering?



a computer science discipline within the fields of information retrieval and natural language processing

Who was the winning pitcher in the 1956 World Series?



Don Larsen

What is the answer to life, the universe, and everything?



42

66