

← 1/53 → *** 5:28:58

Query formulation

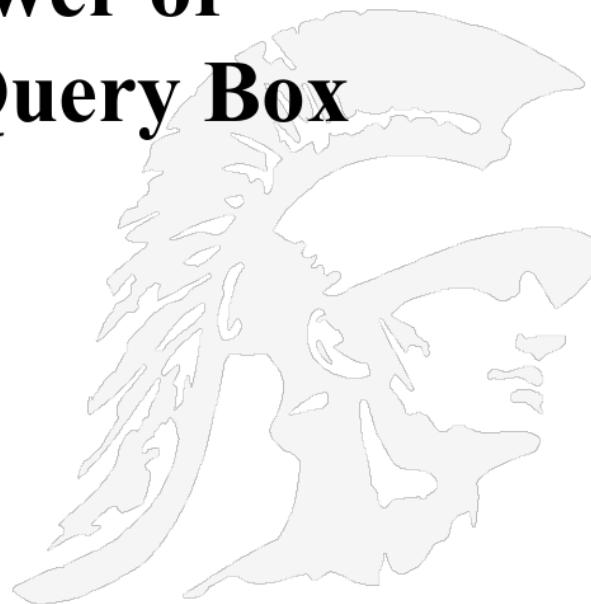
how to ask 'properly'

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The Power of Google's Query Box



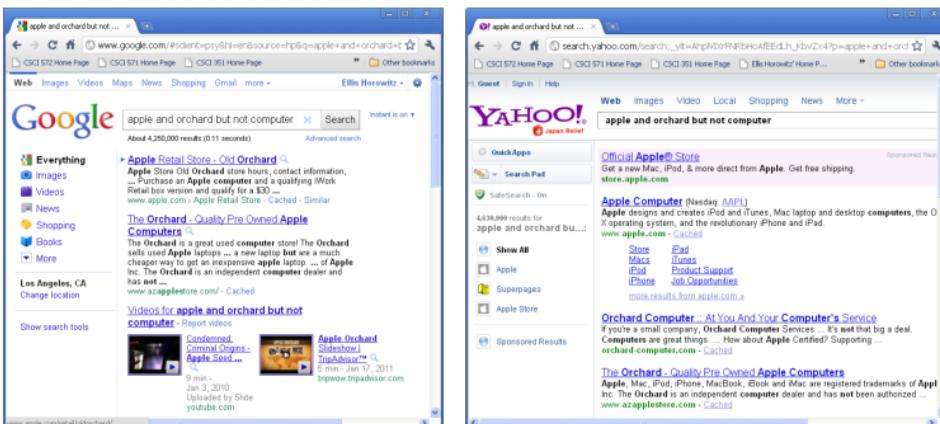
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Traditional Boolean Queries in a Search Box Don't Work As Expected

Query: “apple AND orchard BUT NOT computer” still returns Apple Computer results



Google search results for "apple and orchard but not computer".

Yahoo search results for "apple and orchard but not computer".

Bing search results for "apple and orchard but not computer".

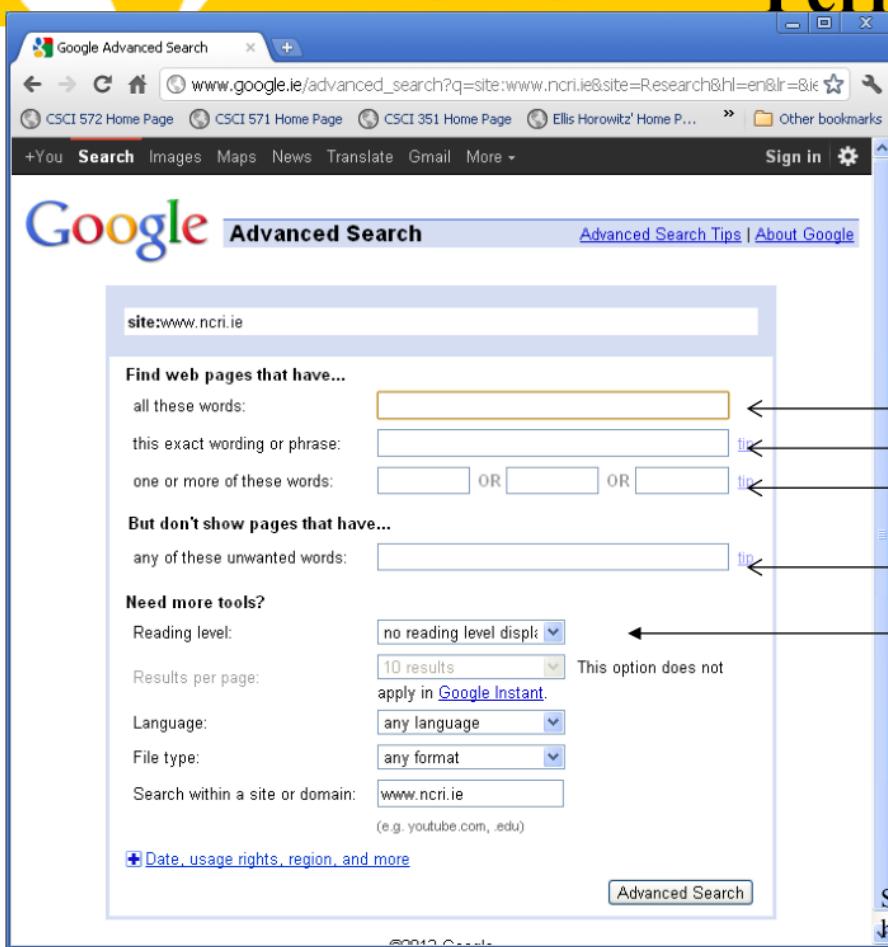
Notice Related searches

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But Google Advanced Search Permits Boolean Queries



Search engines typically offer an “Advanced Search” page where users **can enter**, in effect, a Boolean query; e.g. Here is Google’s “advanced search” screen

ANDing a set of words
Exact phrase
ORing a set of words
NOT words
reading level
language
file type
etc

See also
<https://help.bing.microsoft.com/#apex/bing/en-US/10002/-1>

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Advanced Search Works Properly

Google Advanced Search

apple orchard -computer

Advanced Search

Find pages with...

all these words: apple orchard

this exact word or phrase:

any of these words:

none of these words: computer

numbers ranging from: to

Then narrow your results by...

language: any language

region: any region

last update: anytime

site or domain:

terms appearing: anywhere in the page

SafeSearch: Show explicit results

file type: any format

usage rights: not filtered by license

Advanced Search

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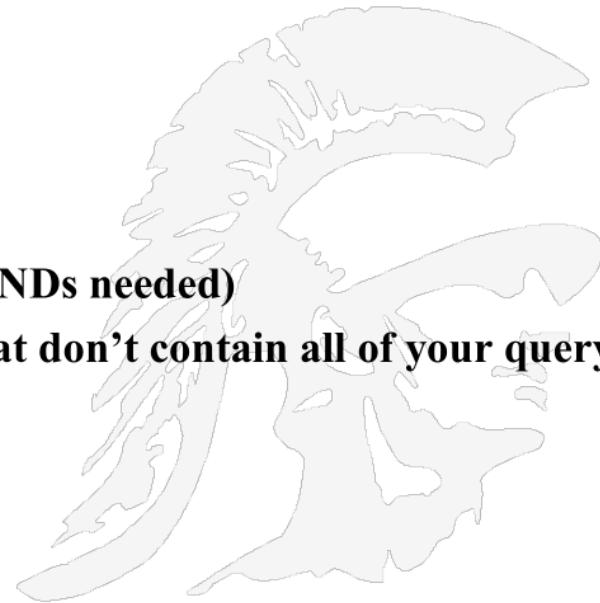
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Query Box Default is AND

- If you search for more than one keyword at a time, Google/Bing will automatically search for pages that contain ALL of your keywords
 - This is called “implicit AND”
- A search for
disney disneyland pirates
is the same as searching for
disney AND disneyland AND pirates
(without the ANDs needed)
- Google sometimes returns pages that don't contain all of your query terms



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5

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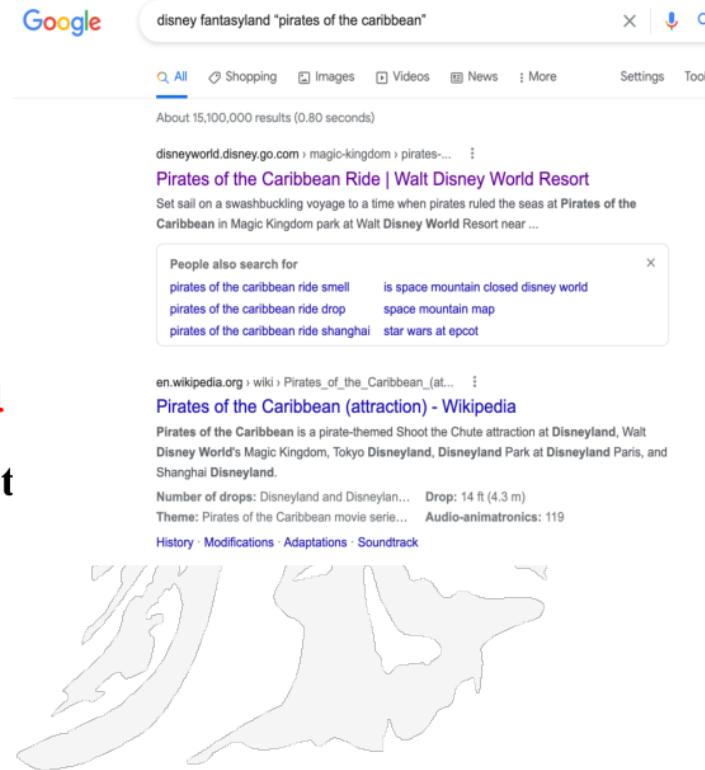
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USC Viterbi School of Engineering Put Exact Phrases in Quotes

- To search for phrases, just put your phrase in quotes.
- For example,

disney disneyland “pirates of the caribbean”

- This would show you all the pages in Google’s index that contain the word **disney** AND the word **disneyland** AND the exact phrase “**pirates of the Caribbean**” (of course, without the quotes)



The screenshot shows a Google search results page. The search query is "disney fantasyland \"pirates of the caribbean\"". The results include a link to Disney's Magic Kingdom website for the Pirates of the Caribbean ride. Below the search bar, there is a "People also search for" section with suggestions like "pirates of the caribbean ride smell", "is space mountain closed disney world", etc. At the bottom of the page, there is a small image of two pirate figures.

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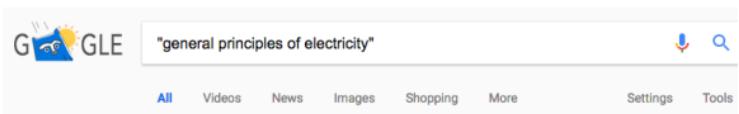
6

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Differences With/Without Quotes

Query: general principles of electricity



About 189,000 results (0.55 seconds)

[PDF] General principles of electricity supply systems
www.idc-online.com/.../pdfs/.../General_principles_of_electricity_supply_systems.pdf ▾
 The generator consists of a prime mover and a magnetic field excitor. The magnetic field is produced electrically by passing a direct current (d.c.) through a winding on an iron core, which rotates inside three-phase windings on the stator of the machine. The magnetic field is rotated by means of a prime mover which may be ...

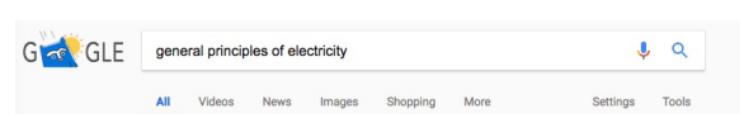
General principles of electricity supply systems | EEP | Transmission ...
<https://www.pinterest.com/pin/35888128254768417/>
 Electric Power Substation ... Volts, alternating, amperage, blackout, built, cable, communications, connection, construction, current, danger, distribution, electrical, electricity, energies, equipment, factory, fuel, fuse, generation, generator, high, in, industry, insulation, insulators, iron, lines, link, metal, multi-generation, nobody, ...

articles - Mentor EBS
www.mentor-ebs.si/ARTICLES ▾
 To give the answer to this question, we need knowledge of the general principles of electricity pricing in the electricity market. What we have in mind here is the market price of electricity, i.e. the price at which electricity is sold to suppliers by producers, not the rate in the end-user market. The latter, naturally, indirectly has to ...

Electricity - Guides.turnitin.com
https://guides.turnitin.com/.../Prompt_Library/Secondary_Education ▾
 Dec 19, 2017 - Prompt: Today you will research electricity and consider some of the methods used in science texts to support different purposes. First, you will read a passage that explains some general principles of electricity. Then you will read an article about what causes a short circuit. Finally, you will read an article ...

[PDF] C:\Physics Dept History\1965Curriculum.wpd
blogs.mtu.edu/physics/files/2000/01/Curriculum1965.pdf ▾
 PH336. Electric and Magnetic Measurements. (0-3-3) s (alternate years) 4. A continuation of work begun in PH316-317, intended for those who wish to pursue further the theory and practice of precise electric and magnetic measurements. Types of all the principal instruments used in modern electrical methods are ...

With quotes



About 2,120,000 results (0.60 seconds)

The Principles of Electricity - Energizer
www.energizer.com/science-center/the-principles-of-electricity

Even materials that conduct **electricity** resist the flow of electrons. The unit of **electrical** resistance is an ohm. The pressure needed to make one coulomb per second (one ampere) flow through a conductor having a resistance of one ohm is one volt. ... The quantity of **electric** charge is measured in coulombs.

People also ask

- What is the law of electricity?** ▾
- What is the basic principle of the electric generator?** ▾
- What is the basic principle of magnetism?** ▾
- What is the theory of electricity?** ▾

The Basic Principles of Electricity | Anixter
https://www.anixter.com/en_us/resources/.../the-basic-principles-of-electricity.html ▾
 The Volt. The pressure that is put on free electrons that causes them to flow is known as electromotive force (EMF). The volt is the unit of pressure, i.e., the volt is the amount of electromotive force required to push a current of one ampere through a conductor with a resistance of one ohm.

The Principles of Electricity - Energizer
www.energizer.com/science-center/the-principles-of-electricity ▾
 Even materials that conduct **electricity** resist the flow of electrons. The unit of **electrical** resistance is an ohm. The pressure needed to make one coulomb per second (one ampere) flow through a conductor having a resistance of one ohm is one volt. ... The quantity of **electric** charge is measured in coulombs.

Without quotes

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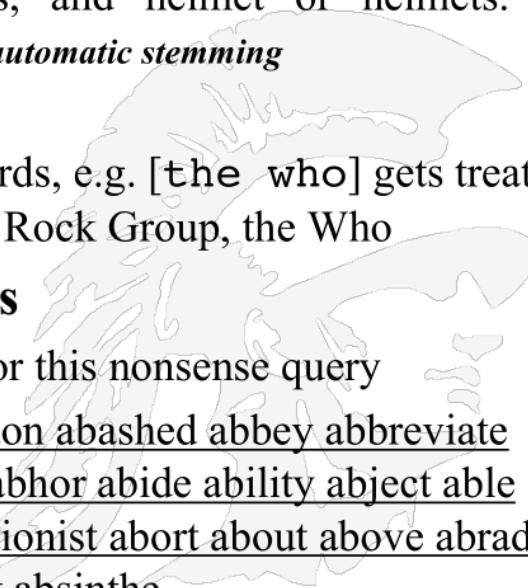
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Google Stemming and Stop Words

- The query [**child bicycle helmet**] finds pages that contain words that are similar to some or all of your search terms,
 - e.g., “child,” “children,” or “children's,” “bicycle,” “bicycles,” “bicycle's,” “bicycling,” or “bicyclists,” and “helmet” or “helmets.”
 - Google calls this feature *word variations* or *automatic stemming*
- **Google will often ignore Stop Words**
 - However, a query with only Stop Words, e.g. [**the who**] gets treated as significant, returning pages for the Rock Group, the Who
- **Google limits queries to 32 words**
 - Google will return nonsense results for this nonsense query
 - aardvark aback abacus abalone abandon abashed abbey abbreviate abdicate abdomen abduct aberration abhor abide ability abject able abnormal aboard abode abolish abolitionist abort about above abrade abridge abroad abrupt abscond absent absinthe



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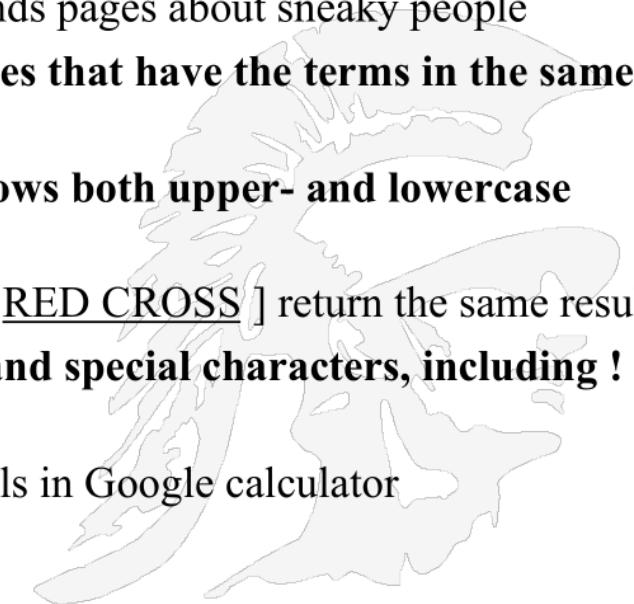
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Other Google Query Rules

- **Google favors results that have your search terms near each other**
 - The query [snake grass] finds pages about plants;
 - The query [snake in the grass] finds pages about sneaky people
- **Google gives higher priority to pages that have the terms in the same order as in your query**
- **Google is NOT case sensitive; it shows both upper- and lowercase results**
 - [Red Cross], [red cross], and [RED CROSS] return the same results.
- **Google ignores some punctuation and special characters, including ! ? , . ; [] @ / # < >**
 - Exceptions: C++, or math symbols in Google calculator



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**Capitalization Does NOT Matter
(but there are exceptions)**

The image shows two separate Google search results side-by-side. Both searches for 'bush' and 'Bush' yield the same results. The results include links to the official Bush websites (bushofficial.com and georgewbush.com), news articles from FOX NEWS, yahoo/news, and THE HILL, and a summary of George W. Bush's life and career. The search results are identical for both queries.

bush and Bush yield the same results as does “apple” and “Apple”

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More Exceptions

The image shows two identical Google search results pages for the query "disney". Both pages display approximately 1,620,000,000 results found in 1.06 seconds.

Left Search Result:

- Ad:** Disney+ - Start Streaming (Classic favorites, New releases, Disney Channel throwbacks, Exclusive Original series. From classics to new releases, get access to stories you can't stream anywhere else.)
- Disney+** (Entretenimiento Sin Fin Suscibe Ahora)
- Disney+, Hulu, and ESPN+** (The Ultimate Streaming Trio There's something for everyone.)
- Marvel Movie Home** (Captain America, Thor, and More! Stream Your Favorites Today!)
- Stream Disney Throwbacks** (The Vault is Wide Open. Your Disney Favorites Await.)
- https://www.disney.com** (Disney.com | The official home for all things Disney)
- Walt Disney World Resort in Orlando, Florida** (Welcome to Walt Disney World. Come and enjoy the magic of Walt Disney World Resort in Orlando, FL. Plan your family vacation and create memories for a ...)

Right Search Result:

- the Walt Disney Company** (Mass media company)
 - Stock price:** DIS (NYSE) \$1
 - CEO:** Bob Chapek (Feb 25, 2023)
 - Headquarters:** Burbank, CA
 - Founded:** October 16, 1923
 - Subsidiaries:** Hulu, Pixar, sh
 - Resort, MORE**
 - Founders:** Walt Disney, Roy O. Disney
- Films produced**
- Top stories**
 - THE VERGE**: Disney sues for control of key Marvel characters (2 hours ago)
 - The New York Times**: Disney Sues to Keep Complete Rights to Marvel Characters (2 hours ago)
 - THE WALL STREET JOURNAL**: Disney Isn't Investigating Handling of Sexual-Assault Allegations, After ABC News Boss Urge... (1 day ago)
- Films produced**

disney Copyright Ellis Horowitz 2011-2022

Disney

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Boolean OR

- The Boolean OR operator is acceptable in Google queries, placed between keywords, and **OR** is *always* in all caps
- For example,
`disney disneyland OR "pirates of the caribbean"`
- This would show you pages in Google's index that contain the word **disney** AND the word **(disneyland OR the phrase pirates of the caribbean)**
- OR has higher precedence than AND



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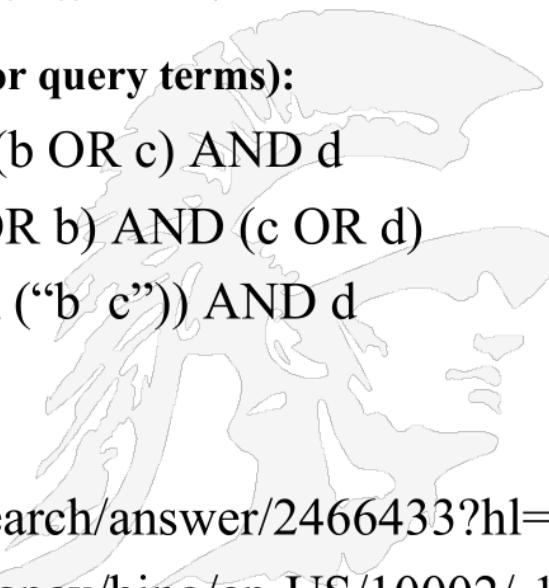
12

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 How Google/Bing Treat Queries
with Boolean Operators

- All query terms are implicitly ANDed
- OR has higher precedence than AND
- Three examples (a, b, c stand for query terms):
 1. a b OR c d is treated as a AND (b OR c) AND d
 2. a OR b c OR d is treated as (a OR b) AND (c OR d)
 3. a OR “b c” d is treated as (a OR (“b c”)) AND d
- and see
<https://support.google.com/websearch/answer/2466433?hl=en>
- <https://help.bing.microsoft.com/#apex/bing/en-US/10002/-1>



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Google and Wildcards

- Google offers full-word wildcard queries
- For example, if you search Google for
 - **it's +a * world**,
 - Google shows you all of the pages in its database that contain the phrase, e.g. “it's a small world” ... and “it's a nano world” ... and “it's a Linux world” ... and so on
 - The + before a is required because it is a stop word and would otherwise be ignored
 - This query works the same in Bing
 - There must be a space after the +a

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Google Advanced Operators

Search Service	Search Operators
Web Search	allinanchor: , allintext: , allintitle: , allinurl: , cache: , define: , filetype: , id: , inanchor: , info: , intext: , intitle: , inurl: , link: , related: , site:
Image Search	allintitle: , allinurl: , filetype: , inurl: , intitle: , site:
Groups	allintext: , allintitle: , author: , group: , insubject: , intext: , intitle:
Directory	allintext: , allintitle: , allinurl: , ext: , filetype: , intext: , intitle: , inurl:
News	allintext: , allintitle: , allinurl: , intext: , intitle: , inurl: , location: , source:
Product Search	allintext: , allintitle:

Query modifiers

- **daterange:**
- **filetype:**
- **inanchor:**
- **intext:**
- **intitle:**
- **inurl:**
- **site:**

Alternative query types

- **cache:**
- **link:**
- **related:**
- **info:**

Other information needs

- **stocks:**

http://www.googleguide.com/advanced_operators_reference.html
 See also
<https://help.bing.microsoft.com/#apex/bing/en-US/10001/-1>

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Searching by Date

The composite image shows five screenshots of a Google search results page for the query "html".

- 1. Google search for "html"**: Shows the initial search results for "html".
- 2. click on "Search Tools" and "Any Time" appears**: Shows the "Search Tools" dropdown menu open, with "Any Time" selected.
- 3. click on Any Time and select Custom Range**: Shows the "Any Time" dropdown expanded, with "Custom range..." selected.
- 4. calendar appears, enter dates**: Shows a date range selector dialog box with "From" set to "12/31/2005" and "To" set to "12/31/1999".
- 5. Final Result**: Shows the search results filtered by the date range, displaying results from December 31, 1999, to December 31, 2005.

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filetype:



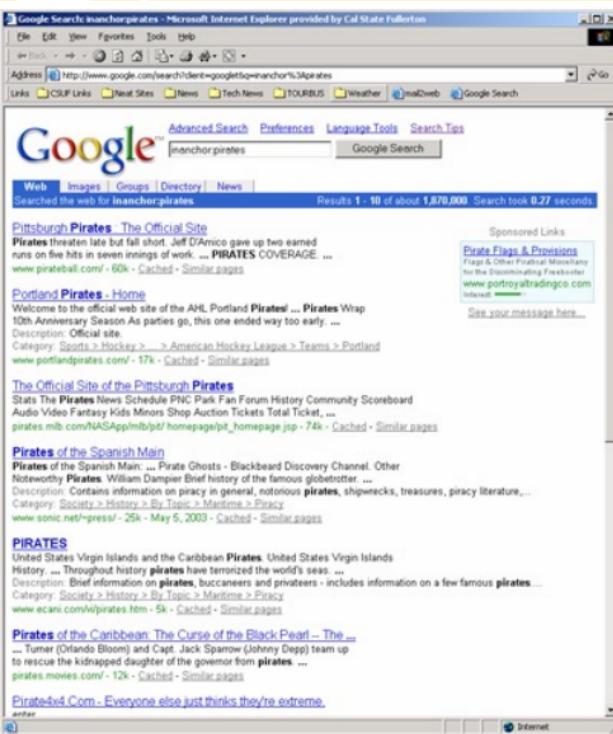
- **filetype:** restricts your results to files ending in a specific file suffix, e.g ".doc" (or .xls, .ppt. etc.), and shows you only files created with the corresponding program
- There can be no space between **filetype:** and the file extension
- The “dot” in the file extension – .doc – is optional
- filetype:doc will NOT return docx

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inanchor:



- **inanchor:** will restrict the results to pages containing the query terms you specify in the anchor text or links to the page.
- For example,
[restaurants inanchor:gourmet]
- will return pages in which the anchor text on links to the pages contain the word “gourmet” and the page contains the word “restaurants.”
- **allinanchor:** restricts results to pages containing all query terms you specify in the anchor text on links to the page.

For example, **[allinanchor: best museums sydney]**
will return only pages in which the anchor text on links to the pages contain the words “best,” “museums,” and “sydney.”

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The screenshot shows a Google search results page for the query "pirates intext:"disney.com"". The results are as follows:

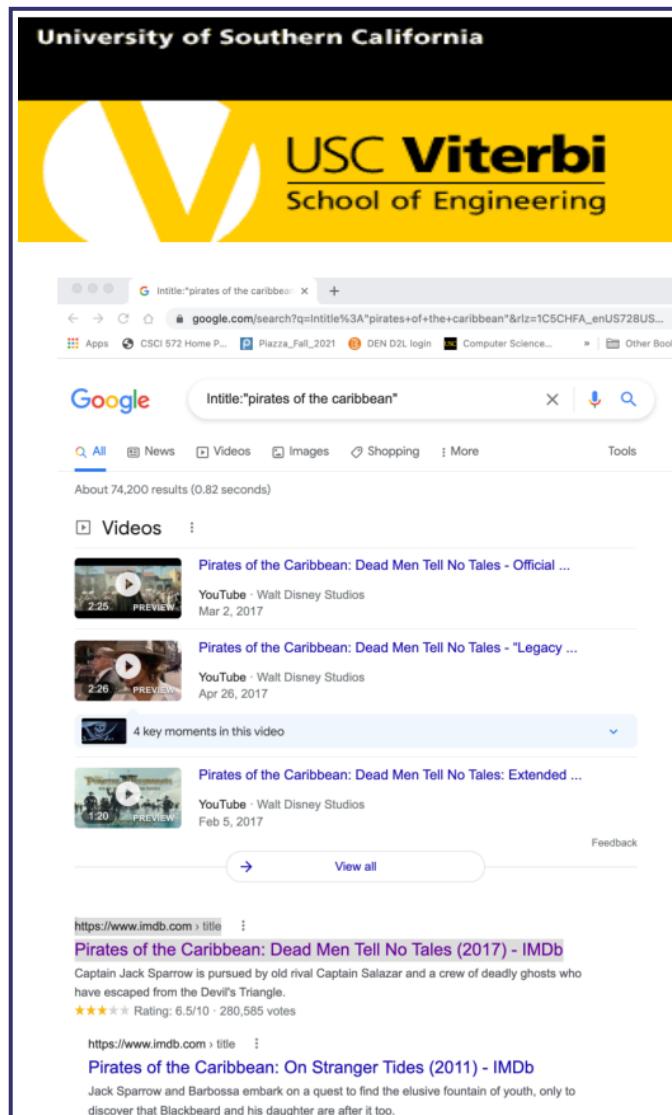
- Pirates of the Caribbean | Official Website | Disney**
pirates disney.com/ ▾
Visit the Pirates of the Caribbean site to learn about the movies, watch video, play games, find activities, meet the characters, browse images, and more!
- Movies**
On Stranger Tides - Dead Man's Chest - At World's End - ...
- The Curse of the Black Pearl**
Visit the Pirates of the Caribbean: The Curse of the Black Pearl ...
- On Stranger Tides**
Visit the Pirates of the Caribbean: On Stranger Tides site to play ...
- Jack Sparrow**
Jack Sparrow. Captain of the Black Pearl and legendary pirate of ...
- Games**
Play online games and find fun activities based on the Pirates of ...
- Hector Barbossa**
Meet the characters from Pirates of the Caribbean: The Curse of the ...
- [More results from disney.com »](#)
- Pirates vs. Mermaids - Disney Games**
games disney.com/games/pirates-vs-mermaids ▾ Disney.com ▾
Choose your battle in Pirates vs. Mermaids! ... Pirates of the Caribbean - Pirates vs. Mermaids. Choose your battle in Pirates vs. Mermaids! Share ...
- Pirates of the Caribbean - Pirate's Conquest | Disney Games**
games disney.com/games/pirates-conquest ▾ Disney.com ▾
Watch out for pirate ships and avoid colliding with whirlpools! If the Damage meter is depleted, the battle ends, and you'll have to start over.. To conquer a city, ...

intext:

- **intext:** ignores link text, URLs, and titles, and only searches body text.
- **intext:** helps you avoid query words that are too common in URLs and links.
- **pirates intext:"Disney.com"** requires Disney.com to be within the body of the web page

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intitle:



- **intitle:** restricts the results to documents containing a particular word in its title.
- You can also search for phrases. Just put your phrase in quotes
- **intitle:pirates**
- **Intitle:"pirates of the caribbean"**

..

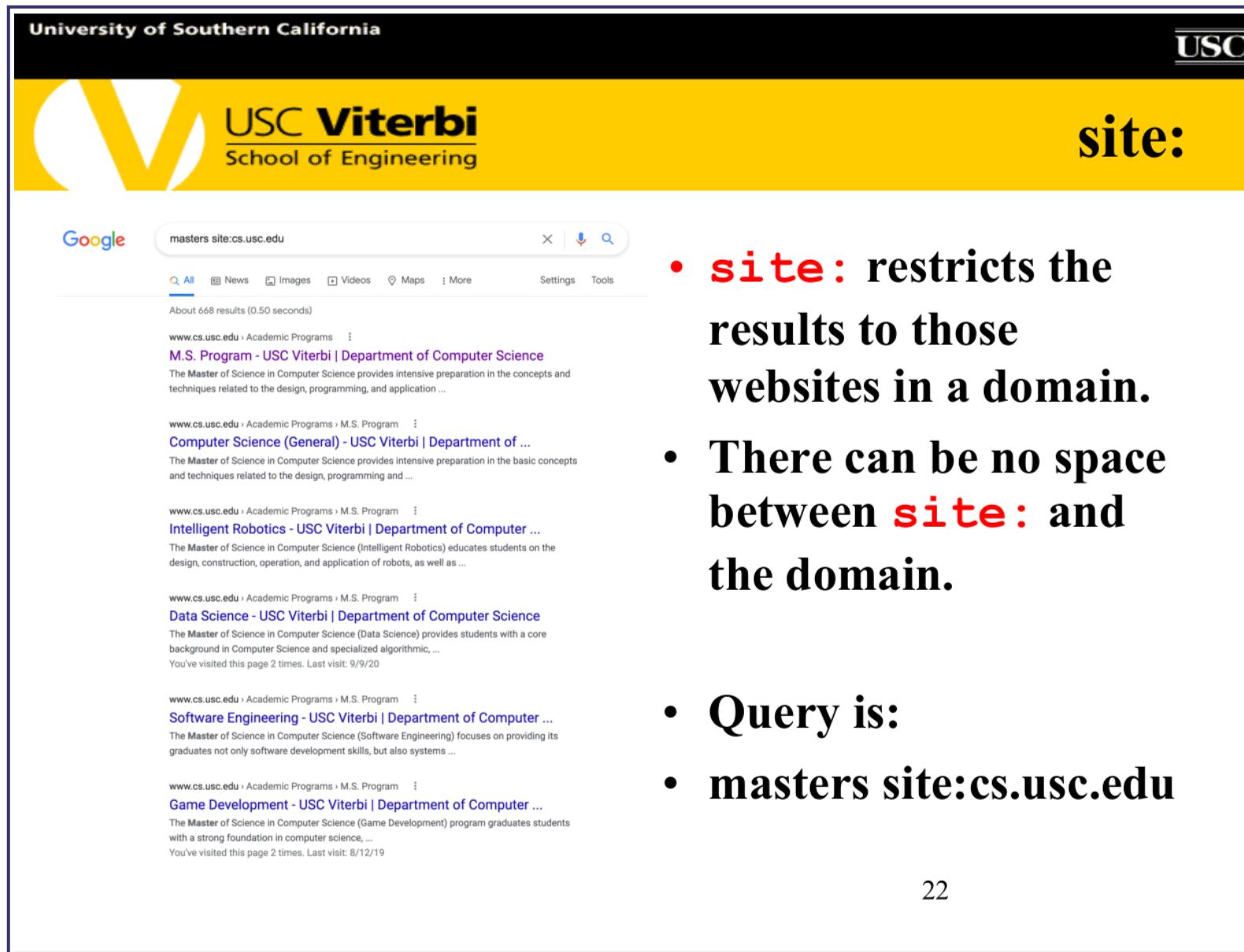
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inurl:

- **inurl:** restricts the results to documents containing a particular word in its URL.
- **inurl:disney**
- Results include
- **Disney.go.com**
- **www.disney.de**

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The screenshot shows a Google search results page for the query "masters site:cs.usc.edu". The results are filtered by the "site:" operator, which restricts the search to the domain `cs.usc.edu`. The results list several academic programs offered by the USC Viterbi School of Engineering:

- M.S. Program - USC Viterbi | Department of Computer Science**: The Master of Science in Computer Science provides intensive preparation in the concepts and techniques related to the design, programming, and application ...
- Computer Science (General) - USC Viterbi | Department of ...**: The Master of Science in Computer Science provides intensive preparation in the basic concepts and techniques related to the design, programming and ...
- Intelligent Robotics - USC Viterbi | Department of Computer ...**: The Master of Science in Computer Science (Intelligent Robotics) educates students on the design, construction, operation, and application of robots, as well as ...
- Data Science - USC Viterbi | Department of Computer Science**: The Master of Science in Computer Science (Data Science) provides students with a core background in Computer Science and specialized algorithmic, ...
- Software Engineering - USC Viterbi | Department of Computer ...**: The Master of Science in Computer Science (Software Engineering) focuses on providing its graduates not only software development skills, but also systems ...
- Game Development - USC Viterbi | Department of Computer ...**: The Master of Science in Computer Science (Game Development) program graduates students with a strong foundation in computer science, ...

Each result includes a snippet of text describing the program and a link to the official department page.

- **site:** restricts the results to those websites in a domain.
- There can be no space between **site:** and the domain.
- Query is:
- **masters site:cs.usc.edu**

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Using site:

- You can use **site:** in conjunction with another search term or phrase.
pirates site:disney.com
- You can also use **site:** and negation to exclude sites.
pirates -site:disney.com
- You can use **site:** to exclude or include entire top level domains (and, like with filetype, the dot is optional).
pirates -site:com
pirates site:edu



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The screenshot shows a Google search result for the query "cache:www.cs.usc.edu". The result is a cached version of the USC Viterbi School of Engineering homepage. The page has a yellow header with the USC logo and "Viterbi School of Engineering". The main content area says "This is Google's cache of https://www.cs.usc.edu/. It is a snapshot of the page as it appeared on Feb 15, 2022 08:53:41 GMT. The current page could have changed in the meantime. Learn more." Below this are links for "Full version", "Text-only version", and "View source". A tip at the bottom suggests using Ctrl+F or ⌘-F to find terms. The background of the page features a blue-toned image of a neural network or brain activity. At the bottom, there is a news snippet: "'Deepfaking the Mind' Could Improve Brain-Computer Interfaces for People with Disabilities".

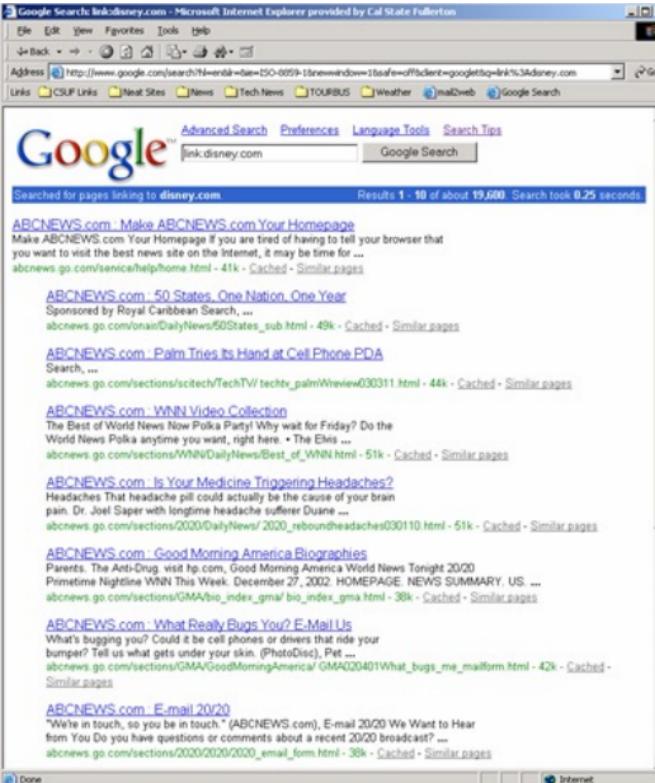
- **cache:url** shows the version of a web page that Google has in its cache.

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link:



The screenshot shows a Microsoft Internet Explorer window displaying Google search results for the query "link:disney.com". The results page has a yellow header with the text "Searched for pages linking to disney.com" and "Results 1 - 10 of about 19,600. Search took 0.25 seconds". Below the header, there are ten search results, each with a title, a snippet of text, and links for "Cached" and "Similar pages". The titles include "ABCNEWS.com - Make ABCNEWS.com Your Homepage", "ABCNEWS.com - 50 States, One Nation, One Year", "ABCNEWS.com - Palm Tries Its Hand at Cell Phone PDA", "ABCNEWS.com - WNN Video Collection", "ABCNEWS.com - Is Your Medicine Triggering Headaches?", "ABCNEWS.com - Good Morning America Biographies", "ABCNEWS.com - What Really Bugs You? E-Mail Us", and "ABCNEWS.com - E-mail 20/20".

- **link:** restricts the results to those web pages that have links to the specified URL.
- **link:Disney.com**
- Note: apparently the link operator only returns a sample of web pages pointing to the link

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The screenshot shows the USC Viterbi School of Engineering homepage. The top navigation bar features the USC logo and the text "related:". Below the header, there is a search bar with the query "related:www.cs.usc.edu". The search results page displays various links to computer science departments from different universities, such as Columbia University, UC Davis, Stanford University, Princeton University, and UCR.

- **related:** lists web pages that are "similar" to a specified web page.
- There can be no space between **related:** and the URL.



The screenshot shows a Google search results page for the query "related:disney.com". The results list various websites related to Disney, including Disney Online, Yahoo!igans!, Nickelodeon Online at Nick.com, Paramount Pictures, and Welcome to Discovery.com. The number "26" is visible in the bottom right corner of the search results.

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info:

info: presents some information that Google has about a particular web page.

Google search results for "info.disney.com":

- Disney.com | The official home for all things Disney

Google can show you the following information for this URL:

- Show Google's cache of disney.com
- Find web pages that are similar to disney.com
- Find web pages that link to disney.com
- Find web pages from the site disney.com
- Find web pages that contain the term "disney.com"

● Los Angeles, CA - From your phone (Location History) - Use precise location - Learn more

Help Send feedback Privacy & Terms

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stocks:

Google stocks:aapl

All News Videos Shopping Images More Tools

About 13,900,000 results (0.77 seconds)

Apple Inc. NASDAQ: AAPL

Overview News Compare Financials

Market Summary > Apple Inc

170.74 USD
+1.85 (1.10%) ↑ today

Feb 15, 10:36 AM EST • Disclaimer

1D | 5D | 1M | 6M | YTD | 1Y | 5Y | Max

172
170.83 USD 10:36 AM
171
170
169
168.88 Previous close 168.88

10:00 AM 12:00 PM 1:00 PM 2:00 PM 3:00 PM 4:00 PM

Open	170.97	Mkt cap	2.79T	GDP.score	A-
High	171.45	P/E ratio	28.36	52-wk high	182.94
Low	170.25	Div yield	0.52%	52-wk low	116.21

About

apple.com

Apple Inc. is an American multinational technology company that specializes in consumer electronics, software and online services. [Wikipedia](#)

CEO: Tim Cook (Aug 24, 2011–)
Founded: April 1, 1976, Los Altos, CA
Headquarters: Cupertino, CA
Number of employees: 154,000 (2021)
Subsidiaries: Beddit, NextVR, Inc., Beats Electronics, MORE
Founders: Steve Jobs, Ronald Wayne, Steve Wozniak

Disclaimer

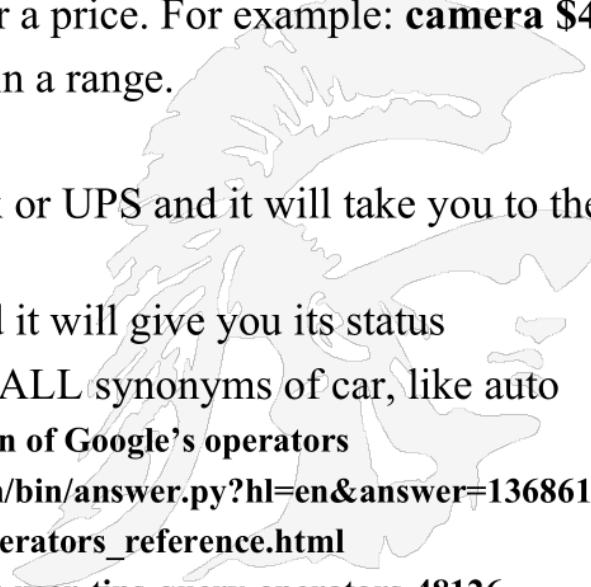
Financials

- If you begin a query with **stocks:** Google will treat the rest of the query terms as stock ticker symbols, and will link to a finance page showing stock information for those symbols.

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Even More Special Features of the Google Query Box



- **Math expressions are evaluated:** $12 + 34 + 10 * (150 / 7) = 260.285714$
- **Dictionary definitions:** define:antidisestablishmentarianism
- Put @ in front of a word to search social media. For example: @twitter.
- Put \$ in front of a number and search for a price. For example: camera \$400.
- Put .. between two numbers and search in a range.
For example, camera \$50..\$100.
- Put a valid tracking number from FedEx or UPS and it will take you to the tracking site
- Put a valid airline and flight number and it will give you its status
- Put a tilde, ~car repair and it queries on ALL synonyms of car, like auto
 - See the following links to further discussion of Google's operators
 - <http://www.google.com/support/websearch/bin/answer.py?hl=en&answer=136861>
 - http://www.googleguide.com/advanced_operators_reference.html
 - <http://searchengineland.com/google-power-user-tips-query-operators-48126>

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Even More Things One Can Do with Google

Google search results for "53493439531=english". The search bar shows the query. Below it, a snippet of text is displayed: "53 493 439 531 = fifty-three billion four hundred ninety-three million four hundred thirty-nine thousand five hundred thirty-one".

Speaking/writing out a number

Google search results for "mortgage calculator". A mortgage calculator tool is shown with the following input fields and results:

Monthly cost	Maximum loan
Mortgage amount \$ 100,000	Interest rate (%) 3.92
Mortgage period (years) 30	
Total cost of mortgage \$170,213	Monthly payments \$473

Mortgage calculator

Google search results for "what's my ip". The search bar shows the query. Below it, a snippet of text is displayed: "What's my IP" followed by the IP address "172.248.32.30" and the text "Your public IP address".

What is my IP address

Google search results for "spinner". A spinner tool is shown with the following interface:

- Top left: "5 numbers" dropdown menu.
- Top right: "Number" toggle switch (off) and "Fidget" button.
- Center: A circular spinner divided into 5 segments labeled 1, 2, 3, 4, and 5.
- Bottom: "SPIN" button.

Spinners for Games

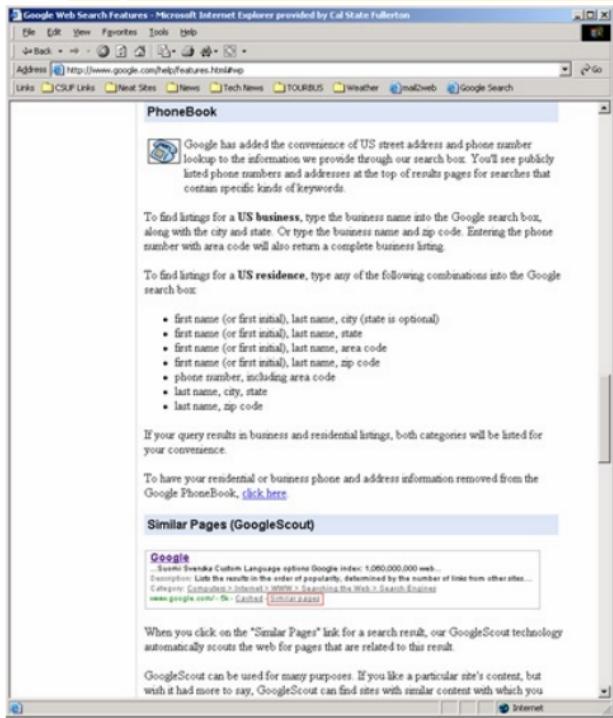
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A Failed Google Experiment - phonebook: operator



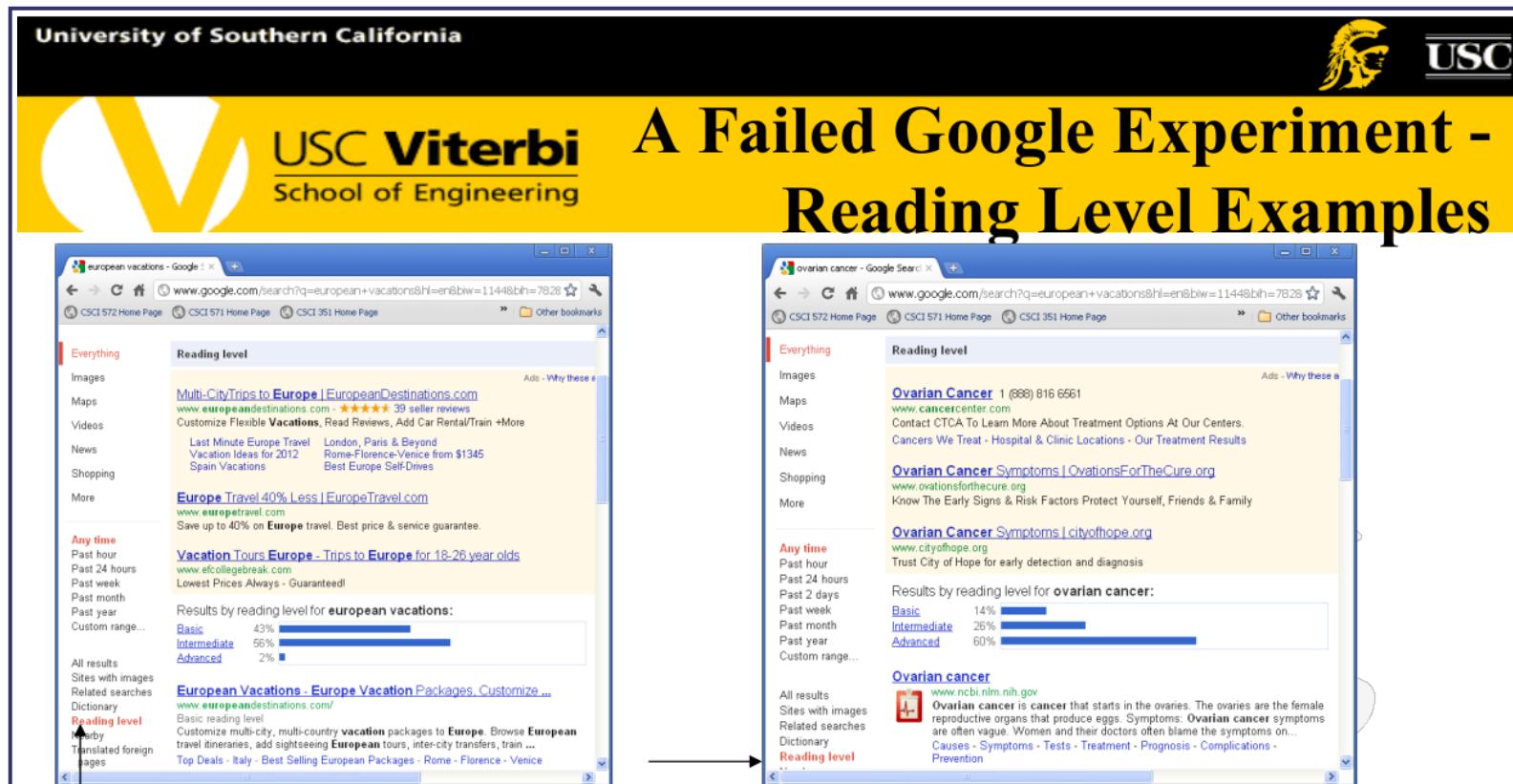
- There were actually three different Google phonebook operators.
- **phonebook:** searches the entire Google phonebook.
- **rphonebook:** searches residential listings only.
- **bphonebook:** searches business listings only

As of 2010, Google's phone book feature has been officially retired. Both the phonebook: and the rphonebook: search operator have both been dropped due to many complaints about privacy violations

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A Failed Google Experiment - Reading Level Examples



Query: European vacations

The feature is based primarily on statistical models built with the help of teachers. Google paid teachers to classify pages for different reading levels, and then took their classifications to build a statistical model. With this model, they can compare the words on any webpage with the words in the model to classify reading levels.

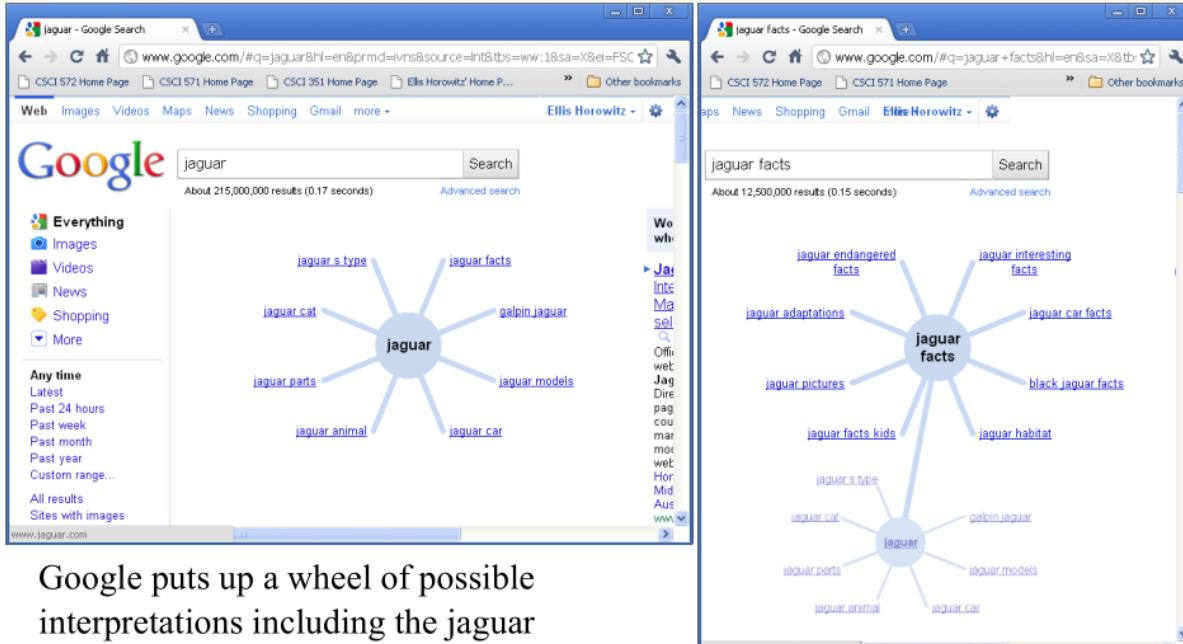
Google dropped this feature in 2015.

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A Failed Google Experiment - The Wonder Wheel



Google puts up a wheel of possible interpretations including the jaguar car and the animal; clicking on the spokes of the wheel bring up a refined wheel which eventually lead to a modified query

In 2011 Google removed the Wonder Wheel

In 2009 Google introduced the Wonder Wheel, a flash-based interface

In 2011 Google removed the Wonder Wheel but provided no concrete explanation for why it did so;

In 2012 Google restored the wonder wheel, renaming it the Contextual Targeting Tool

In 2014 it was re-focused to help advertisers chose their keywords

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A Failed Google Experiment - Google Code Search

Google Code Search

From Wikipedia, the free encyclopedia

Not to be confused with Google Code.

Google Code Search was a free [beta](#) product from [Google](#) which debuted in [Google Labs](#) on October 5, 2006, allowing web users to search for open-source code on the Internet. Features included the ability to search using operators, namely `lang:`, `package:`, `license:` and `file:`.

The code available for searching was in various formats including `.tar.gz`, `.tar.bz2`, `.tar`, and `.zip`, [CVS](#), [Subversion](#), [git](#) and [Mercurial](#) repositories.

Contents [hide]
1 Regular expression engine
2 Discontinuation
3 See also
4 References
5 External links

Google Code Search

Developer(s)	Google
Initial release	October 5, 2006
Development status	Discontinued
Operating system	Any (web-based application)
Type	Code search engine
Website	www.google.com/codesearch

Regular expression engine [edit]

The site allowed the use of [regular expressions](#) in queries, which at the time was not offered by any other search engine for code.[\[citation needed\]](#) This makes it resemble [grep](#), but over the world's public code. The methodology employed combines a [trigram index](#) with a custom-built, [denial-of-service](#) resistant regular expression engine.[\[1\]](#)

In March 2010, the code of [RE2](#), the regular expression engine used in Google Code Search, was made open source.[\[2\]](#)

Google Code Search supported POSIX extended regular expression syntax, excluding back-references, collating elements, and collation classes.

Languages not officially supported could be searched for using the `file:` operator to match the common file extensions for the language.

Discontinuation [edit]

In October 2011, Google announced that Code Search was to be shut down along with the Code Search API.[\[3\]](#) The service remained online until March 2013,[\[4\]](#) and it now returns a [404](#).

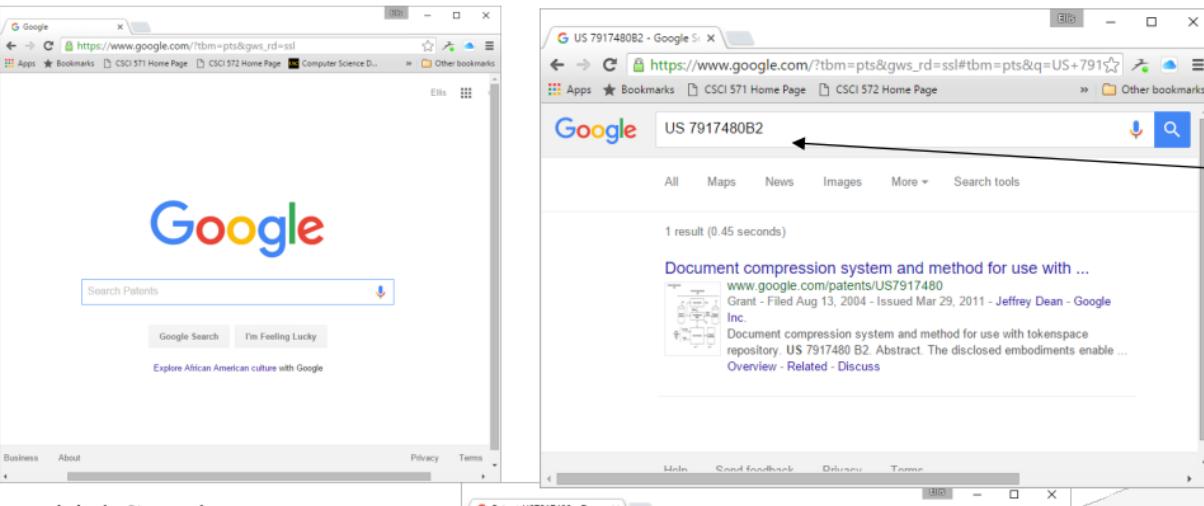
In January 2012, Russ Cox published an overview of history and the technical aspects of the tool, and open-sourced a basic implementation of a similar functionality as a set of standalone programs that can run fast indexed regular expression searches over local code.[\[5\]](#)

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Special Content Search Engines

Google Patents



Initial Google Patents Page

patent query using patent number

Sample patent results page; Note download

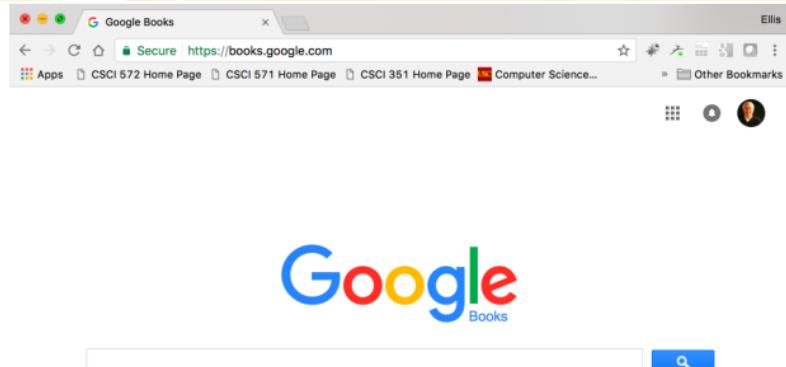
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Special Content Search Engines Google Books



The screenshot shows the Google Books homepage. At the top, there's a navigation bar with links for "Secure https://books.google.com", "Ellis", and "Other Bookmarks". Below the navigation bar is the Google Books logo. A search bar is followed by a "Search" button. Below the search bar, the text reads "Search the world's most comprehensive index of full-text books." and "My library".

Google Books is a service that searches the full text of books and magazines that Google has scanned, converted to text using optical character recognition (OCR), and stored in its digital database

Books are provided either by

- publishers and authors, through the Google Books Partner Program, or by
- Google's library partners, through the Library Project.

Controversy:
Google has been criticized for potential copyright violations, and lack of editing to correct the many errors introduced into the scanned texts by the OCR process.

As of October 2015, the number of scanned book titles was over 25 million.

Google estimated in 2010 that there were about 130 million distinct titles in the world, and stated that it intended to scan all of them

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What You See on Google Books

The diagram illustrates three different ways to view books on Google Books:

- Full View:** Shows a full page of text and images from a book. It includes a left sidebar with navigation links like 'Home', 'Search', 'Books', 'About', 'Help', and 'Feedback'.
- Limited Preview:** Shows a limited number of pages from a book. It includes a left sidebar with navigation links like 'Home', 'Search', 'Books', 'About', 'Help', and 'Feedback'.
- Snippet View:** Shows a card catalog view of a book with summary information and snippets of text. It includes a left sidebar with navigation links like 'Home', 'Search', 'Books', 'About', 'Help', and 'Feedback'.

Arrows point from each view label to its corresponding screenshot. A large, faint illustration of a brain is visible in the background of the right side of the diagram.

<https://www.google.com/googlebooks/library/screenshots.html#books-fullview>

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The screenshot shows a web browser window with the following details:

- Header:** University of Southern California, USC Viterbi School of Engineering.
- Title Bar:** Special Content Search Engines Google Scholar.
- Address Bar:** https://scholar.google.com
- User Information:** Ellis, ehorowitz1@gmail.com
- Toolbar:** Web, Images, More..., My library, My Citations, My updates, Alerts, More.
- Search Bar:** A large Google Scholar logo with a search input field and a blue "Search" button.
- Filter Options:** Articles (✓ include patents), Case law.
- My updates:** recommended based on My Citations, Learn more. It lists two recent publications:
 - A discrete particle swarm optimisation algorithm for geographical map contour reconstruction by B Fergani, MK Kholladi - ... Information and Communication Technology and its ..., 2016
 - Dynamic character grouping based on four consistency constraints in topographic maps by P Xu, Q Miao, R Liu, X Chen, X Fan - Neurocomputing, 2016
- Footer:** Stand on the shoulders of giants.

List of bullet points describing Google Scholar:

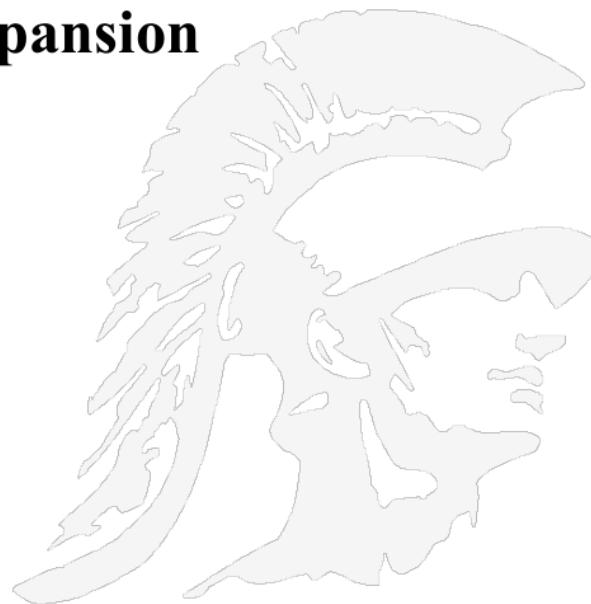
- **Google Scholar** is a freely accessible search engine that indexes the full text or metadata of scholarly literature across an array of publishing formats and disciplines.
- The Google Scholar index includes most peer-reviewed online academic journals and books, conference papers, theses, dissertations, etc

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The slide features the University of Southern California (USC) Viterbi School of Engineering logo at the top. The logo consists of a black header bar with "University of Southern California" in white, a yellow bar below it with the "V" logo and "USC Viterbi School of Engineering" text, and the USC Trojan head logo and "USC" text on the right.

Relevance Feedback & Query Expansion



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Relevance Feedback

- After initial retrieval results are presented, allow the user to provide feedback on the relevance of one or more of the retrieved documents
 - Google offers this but not very prominently (see 10 related searches below)

The image shows two side-by-side Google search results pages for the query "peer-to-peer processing". The left page displays the main search results, while the right page highlights the "Related searches" section. Arrows point from the text above to both the main results and the related searches section.

Search About 53,500,000 results (0.20 seconds)

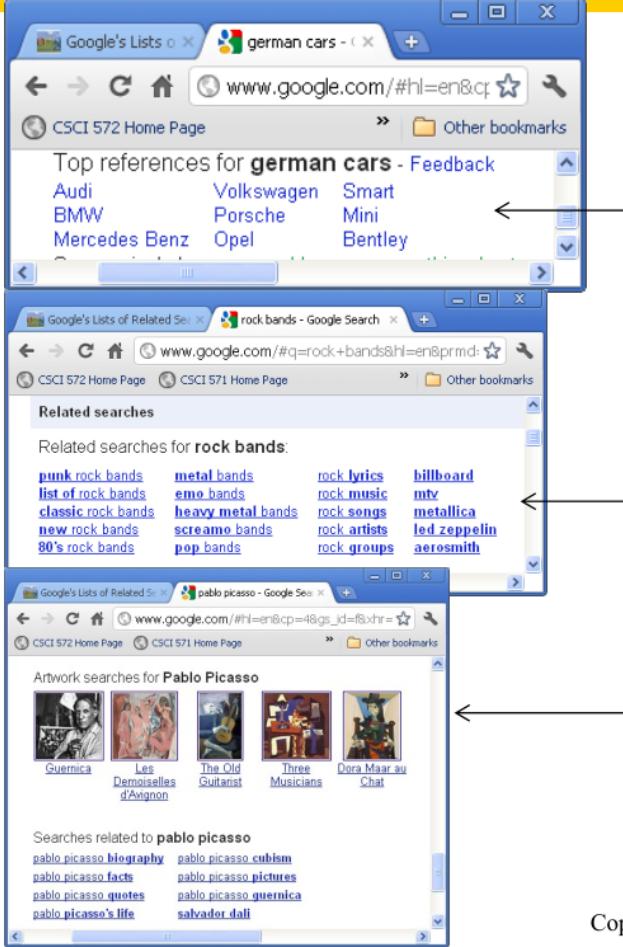
Related searches

- peer to peer query processing
- peer to peer service
- peer to peer production
- peer to peer developing
- peer to peer manufacturing
- processing peer to peer networking
- Introduction to Windows Peer-to-Peer Networking
- technet.microsoft.com/en-us/library/bb457079.aspx
- Sep 27, 2006 – Another way to utilize peer-to-peer networking for distributed processing is to run programs on each peer that run during idle processor times ...
- A Peer-To-Peer Work Processing App With WCF
- msdn.microsoft.com/en-us/magazine/dd882514.aspx
- We demonstrate creating a peer-to-peer processing platform where multiple players function together for a common purpose: getting your work done.
- What is peer-to-peer process
- wiki.answers.com ... > Technology > Computers > Computer Networking
- Peer to peer process? zgr l za il bhuju. When to have a peer to peer? Computer with internet access. Network cables connected to each machine. Program ...
- Storage Device Evolution: General-Purpose Peer Processing ...
- developers.sun.com > Solaris > Reference > Technical Articles and Tips
- Storage devices have evolved from very simple devices to complex, fully programmable computer systems. This is an evolutionary path that, when combined ...
- An Efficient Scheme for Query Processing on Peer-to-Peer Networks
- aeolus.horestead.com/files/index.html
- The peer-to-peer networking paradigm has emerged as an exciting and popular approach for interconnecting individual systems. However, networks that ...

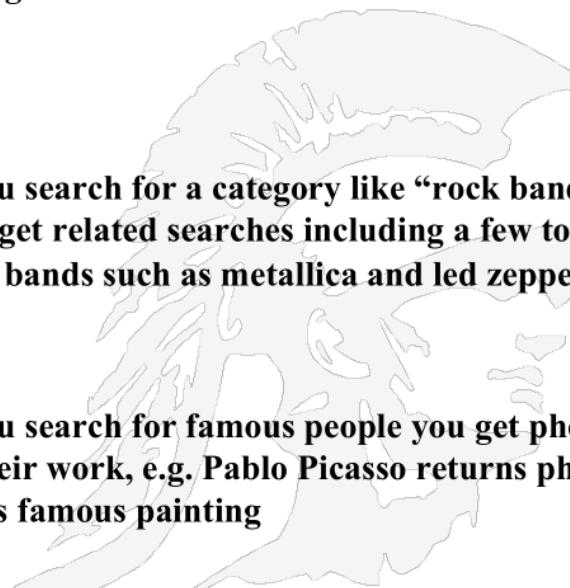
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Google Related Searches



- Google has enhanced their related searches, e.g.
- If you search for the name of a category, Google will show the most popular members, e.g. “german cars”
- If you search for a category like “rock bands” You get related searches including a few top rock bands such as metallica and led zeppelin
- If you search for famous people you get photos of their work, e.g. Pablo Picasso returns photos of his famous painting



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Search Engines and Relevance Feedback

The slide shows two search engines side-by-side:

- Bing Results:**
 - 1-10 of 66,900,000 results - Advanced
 - Sponsored sites: [CPO Jaguar Southern CA](#), [Ask a Jaguar Mechanic Now](#), [Jaguar at CarMax](#), [Jaguar Pricing & Info](#), [Jaguar International - Market selector page](#).
 - Related Searches: [BMW](#), [Lexus](#), [Aston Martin](#), [Audi](#), [Mercedes-Benz](#).
- Yahoo Results:**
 - 1-10 of 63,900,000 results for jaguar: [CPO Jaguar Southern CA](#), [The Official Jaguar Site](#), [Jaguar at CarMax](#), [Jaguar Pricing & Info](#), [Jaguar International - Market selector page](#).
 - Related Searches: [BMW](#), [Lexus](#), [Aston Martin](#), [Audi](#), [Mercedes-Benz](#).

Two arrows point from the text below to the 'Related Searches' sections of both search results.

On the query “jaguar” yahoo’s 3rd result is the animal; Bing’s 2nd result is the animal; all have extensive ads for the car at the top and side indicating that the query for the animal is far rarer; Bing, on the left, puts up alternatives, e.g. Jaguar Luggage, Jacksonville Jaguars; Yahoo also provides related searches but only for the car: bmw, lexus, etc

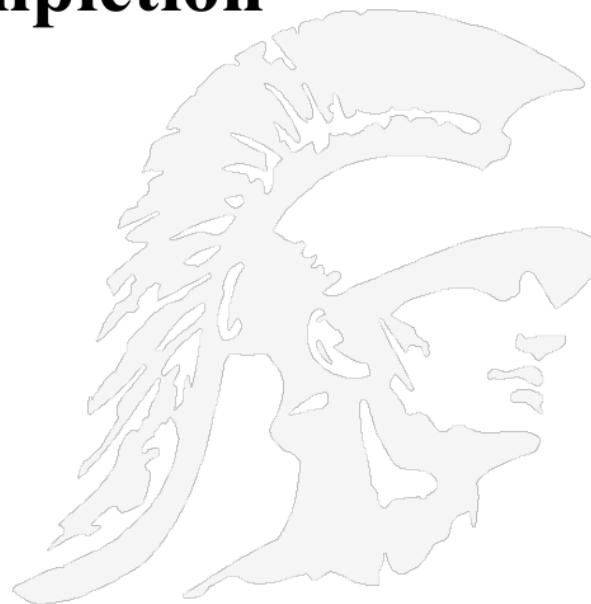
Bing and Yahoo clearly mark Related Searches

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The logo for the University of Southern California Viterbi School of Engineering. It features a black header bar with "University of Southern California" and the USC Trojan logo. Below this is a yellow bar with the "V" logo and "USC Viterbi School of Engineering". The main body of the slide is white.

Auto-Completion



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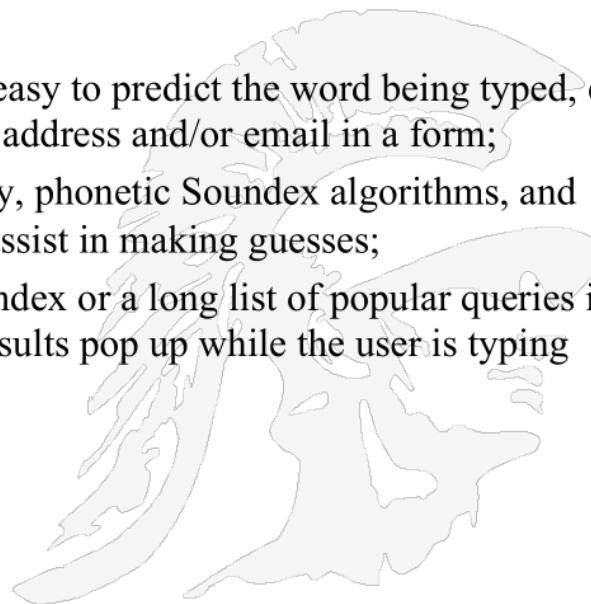
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Auto-Completion

- ***Auto-completion*** is the process of predicting a word or phrase that the user wants to type in without the user actually typing it in completely
- **Auto-completion is a form of relevance feedback**
 - This feature is effective when it is easy to predict the word being typed, e.g. when a browser fills in your name, address and/or email in a form;
 - Search engines may use past history, phonetic Soundex algorithms, and spelling corrections algorithms to assist in making guesses;
 - The challenge is to search a large index or a long list of popular queries in a very short amount of time so the results pop up while the user is typing



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Google Auto-Completion

- Google has been offering auto-completion since 2008, though it was an experimental feature as far back as 2004.
- Google does automatic completion even after the user enters just the first character
- When the second character is entered a totally different set of possibilities may be offered

+Ellis Search Images Videos Maps News Shopping Gmail More ·Ellis Horowitz 1 Share...

Google

Search

Everything

Images

Maps

Videos

News

Shopping

More

anniversary gifts

anniversary gifts Remove

anthropologie

angry birds

android market

Anniversary Gifts 1 (877) 530 9512
www.bluenile.com - ★★★★★ 3,437 seller reviews.
Find the perfect gift for her. Free FedEx & 30-Day Returns.

Anniversary Gifts | PersonalizationMall.com
www.personalizationmall.com - ★★★★★ 2,157 seller reviews.
Unique Romantic Anniversary Gifts Engraved Free & Ship in 1-2 Days!
Bridesmaid Gifts - Wedding Favors - Wedding Gifts - Groomsmen Gifts

MY M&M'S® - Anniversary | MyMMs.com
www.mymms.com

Customized MY M&M'S® Cookies Make the Perfect Anniversary Gift!

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Google Auto-Completion

- By the time the fourth character is entered Google has already guessed that the word has been misspelled, and shows this by the squiggly red line; so auto-completion and spelling correction are intertwined

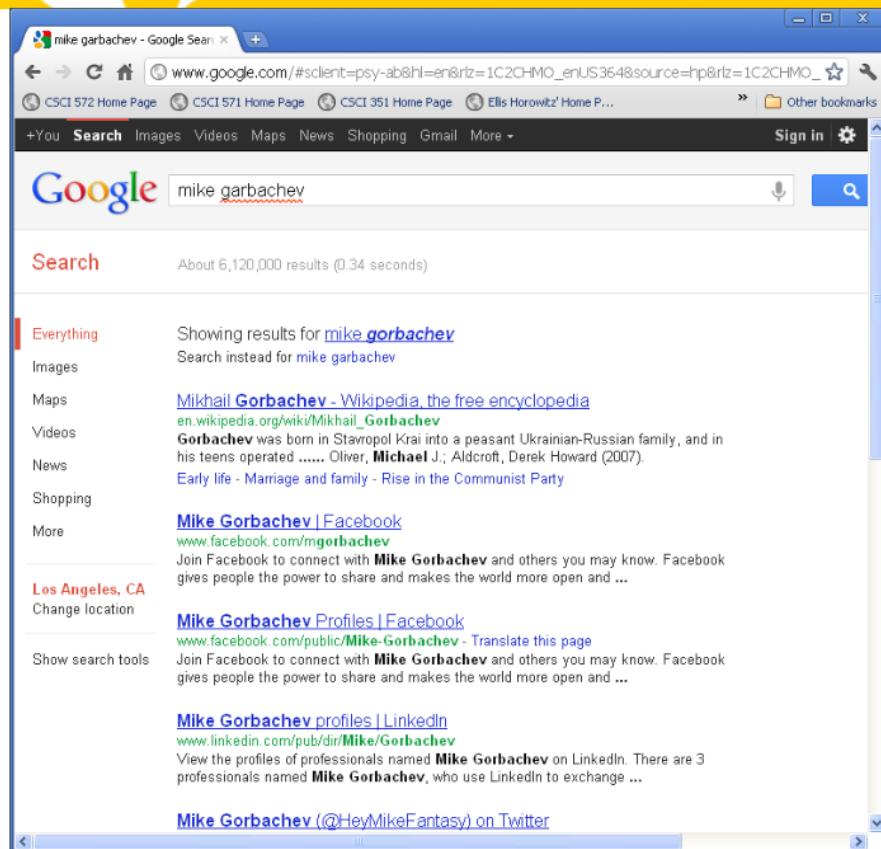
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Google Combines Spelling Correction and Auto Completion



The screenshot shows a Google search results page for the query "mike garbachev". The search bar at the top contains the misspelled term. Below the search bar, the results are displayed under the heading "Search" with a note about 6,120,000 results found in 0.34 seconds. The results include links for Wikipedia, Facebook, LinkedIn, and Twitter profiles for various individuals named "Mike Gorbachev". To the right of the search results, there is a large, faint watermark-like illustration of a person's face.

After hitting Enter, Google will display results for “Mikhail Gorbachev”, but also provide a link if instead the user actually wanted to search for “mike garbachev”

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Yahoo Auto-Completion



The top screenshot shows the search bar containing "mike garb". Below it, a list of suggestions includes: mike garber, mike garbutt, mike garbarino, mike garbe, mike garbo, mad mike garbage pail kids, mike garbutt transport, mike garbush, mike garbutt impressionist, and mike garble. The bottom screenshot shows the search bar containing "mike garbac". Below it, a list of suggestions includes: mike garbacki.

- **Yahoo does auto-completion though it starts after typing the *third* character, whereas Google starts on the *first* character**
- **As the user types more characters in this example Yahoo runs out of alternatives and when one more character is added there will be no more auto-complete suggestions**

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Yahoo Also Offers Spelling Correction

After hitting Enter, Yahoo does offer the correct spelling of “Gorbachev” and returns many results; in case the user actually wanted to search for “garbachev” it provides a link to produce those results, but after clicking Yahoo delivers more results for Gorbachev and none for Garbachev

mike garbachev - Yahoo! Search Results

mike garbachev - Yahoo! Search... +

Hi, Guest | Sign In | Help

YAHOO! mike garbachev

2,100,000 results

FILTER BY TIME

Anytime

Past day

Past week

Past month

We have included [michael gorbachev](#) results - Show only [mike garbachev](#)

[Mikhail Gorbachev - Wikipedia, the free encyclopedia](#)
Early life | Marriage and... | Rise in the... | General Secretary...
Archie Brown, in The Gorbachev Factor, uses the memoirs of many people around ...
Retrieved 2 April 2009. ^ Oliver, Michael J., Aldcroft, Derek Howard (2007).
[en.wikipedia.org/wiki/Mikhail_Gorbachev](#) - Cached

[More results from en.wikipedia.org »](#)

[Mikhail Gorbachev: Biography from Answers.com](#)
McFaul, Michael. (2001). Russia's Unfinished Revolution: Political Change from Gorbachev to Putin. Ithaca, NY: Cornell University Press. Matlock, Jack F., Jr. (1995).
[www.answers.com/topic/mikhail-gorbachev](#) - Cached

[More results from answers.com »](#)

[Mike Gorbachev - Image Results](#)

[Michael Gorbachev | Facebook](#)
Michael Gorbachev is on Facebook. Join Facebook to connect with Michael Gorbachev and others you may know. Facebook gives people the power to share and makes the ...
[www.facebook.com/people/Michael-Gorbachev/100002373955597](#) - Cached

[More results from facebook.com »](#)

[My Country and the World, by Michael Gorbachev](#)
A two-page summary of Gorbachev's evaluation of Russian and Soviet history dating back to 1917.
[www.fsmitha.com/review/r-gorb.htm](#) - Cached

[Mikhail Gorbachev - Biography - Nobelprize.org](#)
Why Gorbachev Happened: His Triumphs and his Failures. New York: Simon & Schuster, 1991. Miller, John. Mikhail Gorbachev and the End of Soviet Power ...
[www.nobelprize.org/laureates/1990/gorbachev-bio.html](#) - Cached

[michael gorbachev | crazymonk.org](#)
Part II of Errol Morris day. (Re-)watch this Morris short, which played during the 2002

<http://shopping.yahoo.com/search...rbachev&fr=yfp-t-701&fr2=plv-web>

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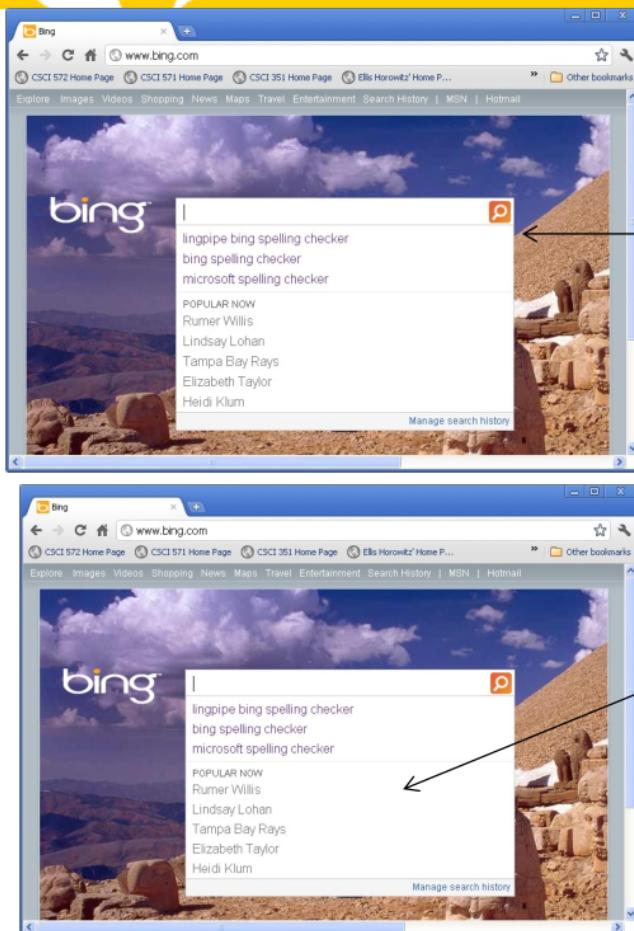
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Bing Auto-Completion

- On the other hand, Bing does not even wait for the first character to be entered, as seen on the left they make use of previous queries and enter some possibilities before the user even types a single character
- After entering “mike garbac” bing finally comes up with the correct spelling, see below



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**Bing Final Result
with Spelling Corrected**

As with Google and Yahoo, Bing will offer results using the corrected spelling and include a link for the user spelling

mike garbachev - Bing

1-10 of 2,160,000 results - Advanced

Including results for [michael gorbachev](#). ←

Do you want results for mike garbachev?

[Mikhail Gorbachev - Wikipedia, the free encyclopedia](#)
Early life · Marriage and family · Rise in the Communist ...
Archie Brown, in The Gorbachev Factor, uses the memoirs of many people around ...
Retrieved 2 April 2009. ^ Oliver, Michael J.; Aldcroft, Derek Howard (2007). en.wikipedia.org/wiki/Mikhail_Gorbachev

[Mikhail Gorbachev: Biography from Answers.com](#)
McFaul, Michael. (2001). Russia's Unfinished Revolution: Political Change from Gorbachev to Putin. Ithaca, NY: Cornell University Press. Matlock, Jack F., Jr. ... www.answers.com/topic/mikhail-gorbachev

[Images of mike garbachev](#)

[Michael Gorbachev | Facebook](#)
Lives in Tanjungbalai · From Medan · Worked at PT KALAPAON
Michael Gorbachev is on Facebook. Join Facebook to connect with Michael Gorbachev and others you may know. Facebook gives people ... www.facebook.com/people/Michael-Gorbachev/...

[My Country and the World, by Michael Gorbachev](#)
A two-page summary of Gorbachev's evaluation of Russian and Soviet history dating back to 1917
www.fsmilka.com/review/r-gorb.htm

[Mikhail Gorbachev - Biography - Nobelprize.org](#)
Why Gorbachev Happened: His Triumphs and his Failures. New York: Simon & Schuster, 1991. Miller, John. Mikhail Gorbachev and the End of Soviet Power ... www.nobelprize.org/nobel_prizes/peace laureates/1990/gorbachev-bio...

[michael gorbachev | crazymonk.org](#)
Part II of Errol Morris day. (Re-)watch this Morris short, which played during the 2002 Oscar telecast, depicting a bunch of people talking about their favorite films. crazymonk.org/topics/michaelgorbachev

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Judging the Quality of Answers: Mean Reciprocal Rank (MRR) Scoring

- The mean reciprocal rank is a statistical measure for evaluating any process that produces a list of possible responses to a sample of queries, ordered by probability of correctness.
The **reciprocal rank** of a query response is the multiplicative inverse of the **rank** of the first correct answer
- The mean reciprocal rank is the average of the reciprocal ranks of results for a sample of queries
- For example, suppose we have the following three sample queries for a system that tries to translate English words to their plurals. In each case, the system makes three guesses, with the first one being the one it thinks is most likely correct:

$$\text{MRR} = \frac{1}{|Q|} \sum_{i=1}^{|Q|} \frac{1}{\text{rank}_i}.$$

Query	Results	Correct response	Rank	Reciprocal rank
cat	catten, cati, cats	cats	3	1/3
tori	torii, tori , toruses	tori	2	1/2
virus	viruses , virii, viri	viruses	1	1

the mean reciprocal rank as $(1/3 + 1/2 + 1)/3 = 11/18$ or about 0.61.