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Introducing the Knowledge Graph: things, not strings

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Cross-posted on the [Inside Search Blog](#)

Search is a lot about discovery—the basic human need to learn and broaden your horizons. But searching still requires a lot of hard work by you, the user. So today I'm really excited to launch the Knowledge Graph, which will help you discover new information quickly and easily.

Take a query like [taj mahal]. For more than four decades, search has essentially been about matching keywords to queries. To a search engine the words [taj mahal] have been just that—two words.

But we all know that [taj mahal] has a much richer meaning. You might think of one of the world's most beautiful monuments, or a Grammy Award-winning musician, or possibly even a casino in Atlantic City, NJ. Or, depending on when you last ate, the nearest Indian restaurant. It's why we've been working on an intelligent model—in geek-speak, a “graph”—that understands real-world entities and their relationships to one another: things, not strings.

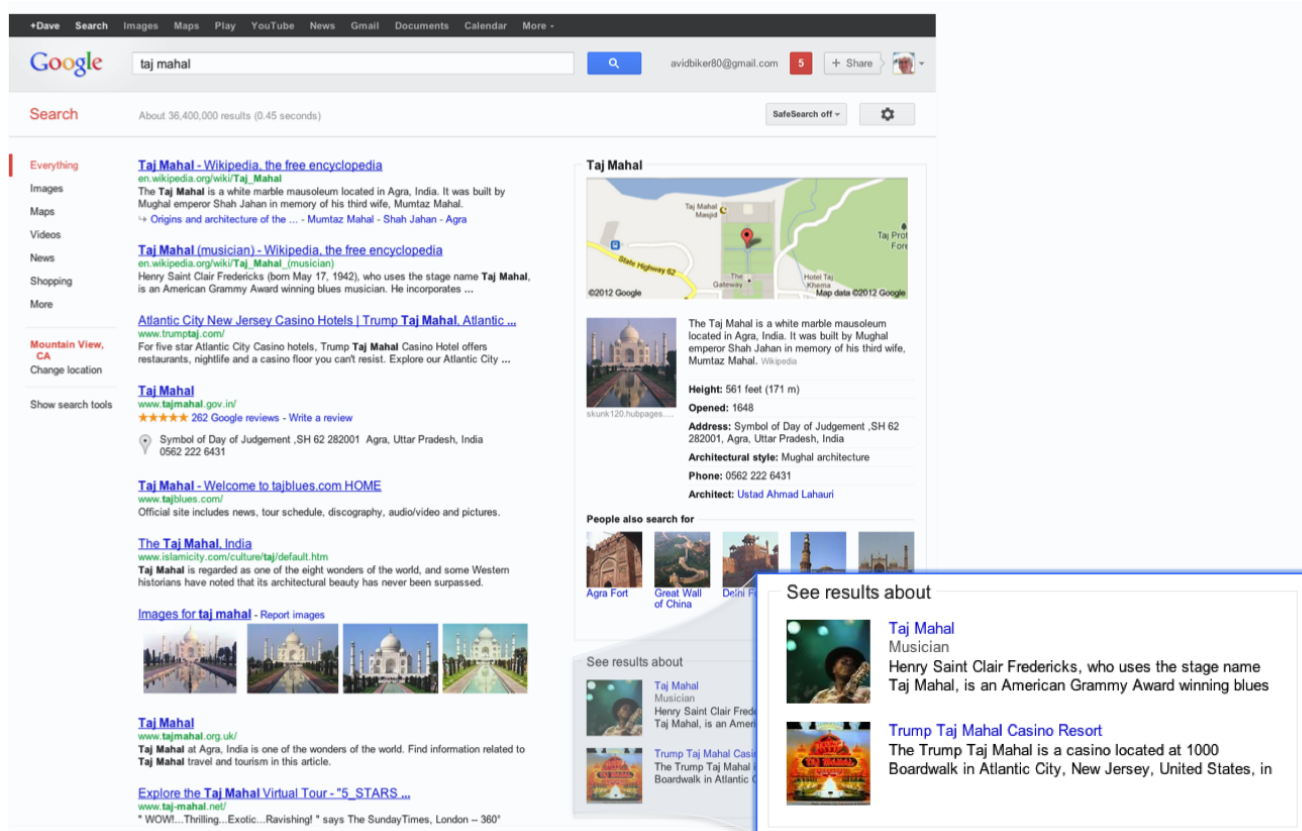
The Knowledge Graph enables you to search for things, people or places that Google knows about—landmarks, celebrities, cities, sports teams, buildings, geographical features, movies, celestial objects, works of art and more—and instantly get information that's relevant to your query. This is a critical first step towards building the next generation of search, which taps into the collective intelligence of the web and understands the world a bit more like people do.

Google's Knowledge Graph isn't just rooted in public sources such as Freebase, Wikipedia and the CIA World Factbook. It's also augmented at a much larger scale—because we're focused on comprehensive breadth and depth. It currently contains more than 500 million objects, as well as more than 3.5 billion facts about and relationships between these different objects. And it's tuned based on what people search for, and what we find out on the web.

The Knowledge Graph enhances Google Search in three main ways to start:

1. Find the right thing

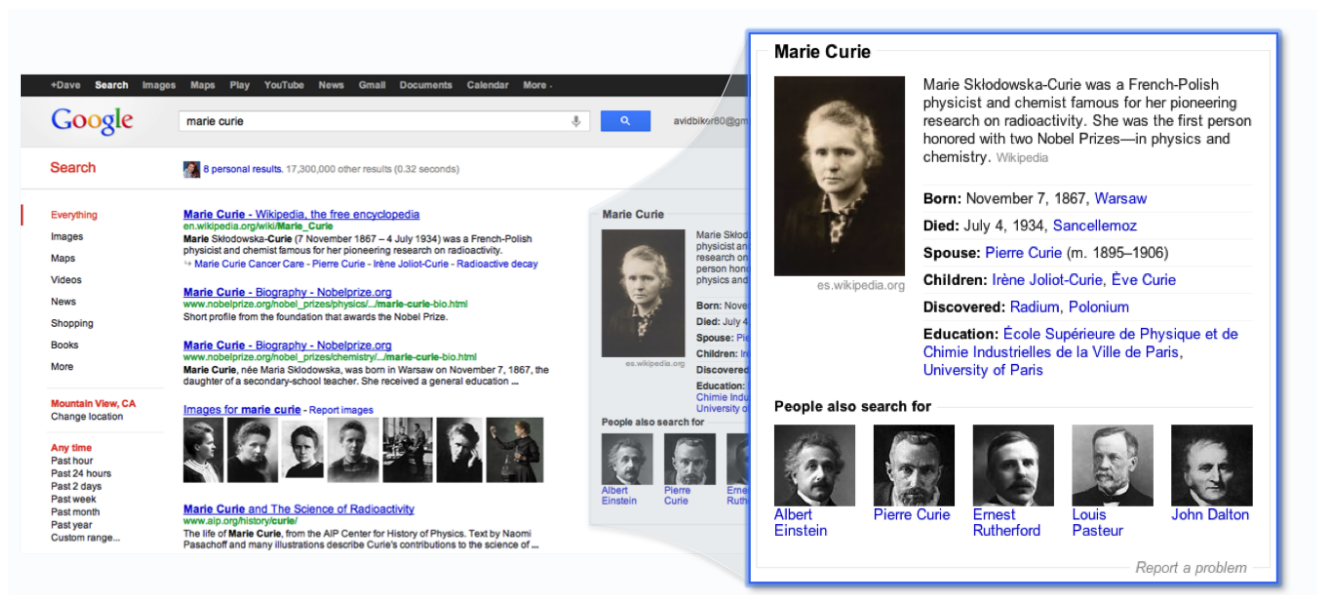
Language can be ambiguous—do you mean Taj Mahal the monument, or Taj Mahal the musician? Now Google understands the difference, and can narrow your search results just to the one you mean—just click on one of the links to see that particular slice of results:



This is one way the Knowledge Graph makes Google Search more intelligent—your results are more relevant because we understand these entities, and the nuances in their meaning, the way you do.

2. Get the best summary

With the Knowledge Graph, Google can better understand your query, so we can summarize relevant content around that topic, including key facts you're likely to need for that particular thing. For example, if you're looking for Marie Curie, you'll see when she was born and died, but you'll also get details on her education and scientific discoveries:

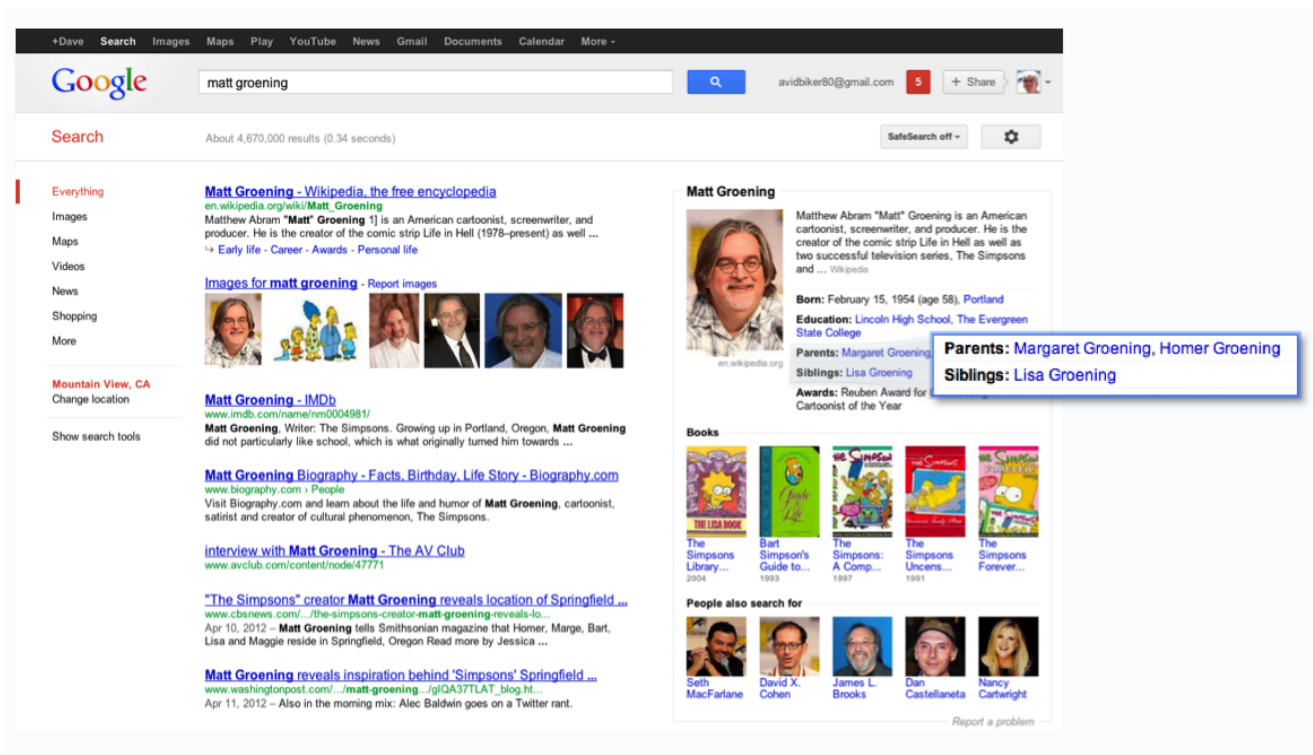


How do we know which facts are most likely to be needed for each item? For that, we go back to our users and study in aggregate what they've been asking Google about each item. For example, people are interested in knowing what books Charles Dickens wrote, whereas they're less interested in what books Frank Lloyd Wright wrote, and more in what buildings he designed.

The Knowledge Graph also helps us understand the relationships between things. Marie Curie is a person in the Knowledge Graph, and she had two children, one of whom also won a Nobel Prize, as well as a husband, Pierre Curie, who claimed a third Nobel Prize for the family. All of these are linked in our graph. It's not just a catalog of objects; it also models all these inter-relationships. It's the intelligence *between* these different entities that's the key.

3. Go deeper and broader

Finally, the part that's the most fun of all—the Knowledge Graph can help you make some unexpected discoveries. You might learn a new fact or new connection that prompts a whole new line of inquiry. Do you know where Matt Groening, the creator of the Simpsons (one of my all-time favorite shows), got the idea for Homer, Marge and Lisa's names? It's a bit of a surprise:



We've always believed that the perfect search engine should understand exactly what you mean and give you back exactly what you want. And we can now sometimes help answer your next question before you've asked it, because the facts we show are informed by what other people have searched for. For example, the information we show for Tom Cruise answers 37 percent of next queries that people ask about him. In fact, some of the most serendipitous discoveries I've made using the Knowledge Graph are through the magical "People also search for" feature. One of my favorite books is *The White Tiger*

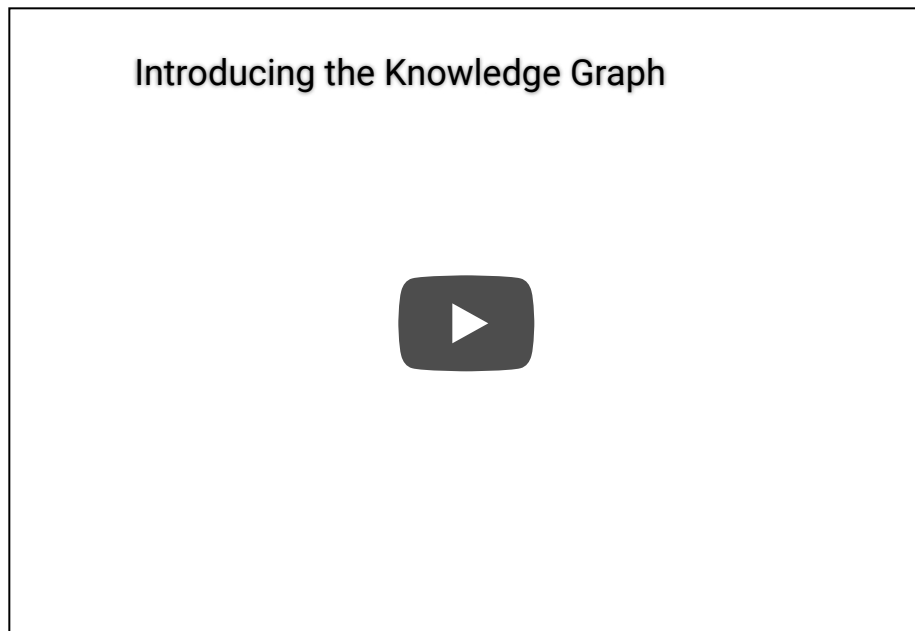
, the debut novel by Aravind Adiga, which won the prestigious Man Booker Prize. Using the Knowledge Graph, I discovered three other books that had won the same prize and one that won the Pulitzer. I can tell you, this suggestion was spot on!

We've begun to gradually roll out this view of the Knowledge Graph to U.S. English users. It's also going to be available on smartphones and tablets—read more about how we've [tailored this to mobile devices](#). And watch our video (also available on our [site](#)



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about the Knowledge Graph) that gives a deeper dive into the details and technology, in the words of people who've worked on this project:



We hope this added intelligence will give you a more complete picture of your interest, provide smarter search results, and pique your curiosity on new topics. We're proud of our first baby step—the Knowledge Graph—which will enable us to make search more intelligent, moving us closer to the "Star Trek computer" that I've always dreamt of building. Enjoy your lifelong journey of discovery, made easier by Google Search, so you can spend less time searching and more time doing what you love.

Posted by Amit Singhal, SVP, Engineering



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