

# EXHIBIT L



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## Ga-ga over Google

By Jennifer Lee  
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Typed anything into the Google search engine lately? Your query and millions like it are being logged and the result is a fascinating insight into what the world is thinking. Jennifer Lee reports.

Visitors at Google's squat headquarters in Mountain View, California, sit in the lobby transfixed by the words scrolling by on the wall behind the receptionist.

The projected display, called Live Query, shows updated samples of what people around the world are typing into Google's search engine. The terms scroll by in English, Chinese, Spanish, Japanese, Korean, French, Dutch, Italian - any of the 86 languages that Google tracks.

People who shouldn't marry ... "she smoked a cigar" ... mr potatoheads in long island ... pick-up lines to get women ... auto theft fraud how to.

Stare at Live Query long enough and it's like watching the collective consciousness of the world stream by. Each line represents a thought from someone, somewhere with an internet connection. Google collects these queries - 150 million a day from more than 100 countries - in its databases, updating and storing the computer logs, millisecond by millisecond.

Google is taking snapshots of our minds and aggregating them. Like a flipbook that emerges when successive images are strung together, the logged data tells a story.

So what is the world thinking about? Sex, for one thing.

"You can learn to say 'sex' in a lot of different languages by looking at the logs," says Craig Silverstein, director of technology at Google. (To keep Live Query G-rated, Google filters out sex-related searches, though less successfully with languages other than English.)

Despite its geographic and ethnic diversity, the internet-connected world is spending much of its time thinking about the same things. Country to country, region to region, day to day and even minute to minute, the same topic areas bubble to the top: celebrities, current events, products and computer downloads.

"It's amazing how similar people are all over the world based on what they are searching for," says Greg Rae, one of three members of Google's Logs Team, which is responsible for building, storing, accessing and protecting the data record.

Google's following - it is the most widely used search engine - has given Rae a world view from his cubicle. Since October last year, he has been able to reel off "anthrax" in several languages: milzbrand (German), carbonchio (Italian), miltvuur (Dutch), antrax (Spanish). He says he can also tell which countries took their recent elections seriously (Brazil and Germany), because of the frenzy of searches. He notes that the globalisation of consumer culture means that the most popular brands are far-flung in origin: Nokia, Sony, BMW, Ferrari, Ikea and Microsoft.

Judging from Google's data, some sports events stir interest almost everywhere: the Tour de France, Wimbledon, the Melbourne Cup and the World Series were all among the top 10 sports-related searches last year. It also becomes obvious just how familiar US movies, music and celebrities are to searchers across the globe.

Two years ago, a Google engineer named Lucas Pereira noticed that searches for Britney Spears had declined, indicating what he thought must be a decline in her popularity. From that observation grew Google Zeitgeist, a listing of the top gaining and declining queries of each week and month.

The long-lasting volume of searches involving her name has made Spears something of a benchmark for the Logs Team. It has helped them understand how news can cause spikes in searches, as it did when she broke up with Justin Timberlake.

Google can feel the reverberations of such events, and others of a more serious nature, immediately.

On February 28 last year, for example, an earthquake began near Seattle at 10.45am local time. Within two minutes, earthquake-related searches jumped from almost none to 250 a minute, with a concentration in the Pacific north-west states.

On September 11, 2001, searches for the World Trade Centre, Pentagon and CNN shot up immediately after the attacks. Over the next few days, Nostradamus became the top search query, fuelled by a rumour that he had predicted the WTC destruction.

But the most trivial events may also register on Google's sensitive cultural seismic meter. The Logs Team came to work one morning to find that "carol brady maiden name" had surged to the top of the charts.

Curious, they mapped the searches by time of day and found that they were neatly grouped in five spikes: biggest, small, small, big and, finally, after a long wait, another small blip. Each spike started at 48 minutes after the hour. As the logs were passed through the office, employees were perplexed. Why would there be a surge in interest in a character from the 1970s sitcom *The Brady Bunch*? But the data could only reflect patterns, not explain them.

That is a paradox of a Google log: it does not capture social phenomena per se, but merely the shadows they cast across the internet. "The most interesting part is why," says Amit Patel, who has been a member of the Logs Team. "You can't interpret it unless you know what else is going on in the world."

So what had gone on on April 22, 2001? That night the million-dollar question on the US game show *Who Wants to Be a Millionaire* had been, "What was Carol Brady's maiden name?" Seconds after the show's host, Regis Philbin, posed the question, thousands flocked to Google to search for the answer (Tyler), producing four spikes as the show was broadcast successively in each time zone.

And that last little blip? "Hawaii," Patel says.

The precision of the Carol Brady data was eye-opening for some. "It was like trying an electron microscope for the first time," says Sergey Brin, who, as a graduate student in computer science at Stanford, helped found Google in 1998 and is now its president for technology. "It was like a moment-by-moment barometer."

Predictably, Google's query data respond to television, movies and radio. But the mass media also feed off the demands of their audiences. One of Google's strengths is its predictive power, flagging trends before they hit the radar of other media.

As such it could be of tremendous value to entertainment companies or retailers. Google is quiet about what if any plans it has for commercialising its vast store of query information.

"There is tremendous opportunity with this data," Silverstein says. "The challenge is defining what we want to do."

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*This story was found at: <http://www.theage.com.au/articles/2003/01/03/1041196779397.html>*