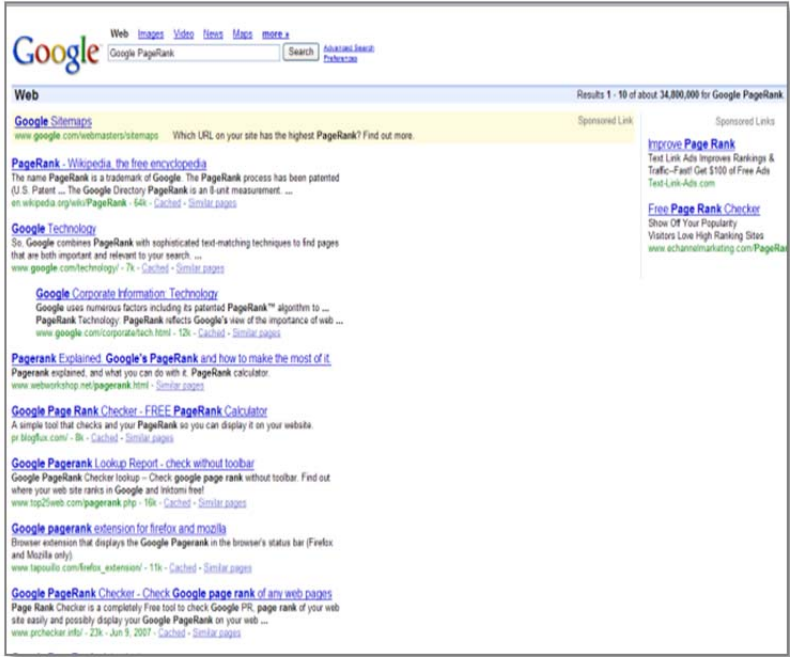EXHIBIT 2052

Challenged Claims of '571 Patent	Evidence of Infringement – Google's Search Engine that uses F
12. A method for visually displaying data related to a web having identifiable web pages and Universal Resource Locators with pointers, comprising:	**Google's search engine that uses PageRank employs met displaying data relating to the World Wide Web (and ot identifiable web pages and URLs with pointers:** Google's search engine that uses PageRank employs methods for v data related to the World Wide Web. Search results including iden and URLs with pointers are displayed to the user. The user may cl provided by Google and request Google to display the full text of t Google provides an interface for receiving the inputs, processes the appropriate instructions. Google also automatically displays a port and in some cases the full text of the web page.

EXHIBIT 2052

Challenged Claims of '571 Patent	Evidence of Infringement – Google's Search Engine that uses PageRank
12. A method for visually displaying data related to a web having identifiable web pages and Universal Resource Locators with pointers, comprising:	**Google's search engine that uses PageRank employs methods for visually displaying data relating to the World Wide Web (and other webs) having identifiable web pages and URLs with pointers:** Google's search engine that uses PageRank employs methods for visually displaying data related to the World Wide Web. Search results including identifiable web pages and URLs with pointers are displayed to the user. The user may click on a URL provided by Google and request Google to display the full text of the web page. Google provides an interface for receiving the inputs, processes the inputs, and sends appropriate instructions. Google also automatically displays a portion of the web page and in some cases the full text of the web page.

EXHIBIT 2052

Challenged Claims of '571 Patent	Evidence of Infringement – Google's Search Engine that uses PageRank
	  Google Search for "Google PageRank"
choosing an identifiable web	The PageRank algorithm chooses an identifiable web page in order to analyze the link structure of the web and calculate a unique PageRank score for the individual web

EXHIBIT 2052

Challenged Claims of '571 Patent	Evidence of Infringement – Google's Search Engine that uses PageRank
page;	page, which determines which web pages are displayed. In doing so, Google selects each node and conducts an analysis through mathematical calculation of the link structure of the web in relation to that specific selected node to determine a numerical score specifically associated with the node or web page.

This is clearly seen in one of the disclosed mathematically equivalent formulations of PageRank, where web page A is selected and the analysis is subsequently computed with respect to the selected web page A:

" [T]he rank of a page A is defined according to the present invention as

$$r(A) = \frac{\alpha}{N} + (1 - \alpha)\left(\frac{r(B_1)}{|B_1|} + \cdots + \frac{r(B_n)}{|B_n|}\right),$$

where B_1, ... , B_n are the backlink pages of A, $r(B_1)$, ... , $r(B_n)$ are their ranks, $|B_1|$, ... , $|B_n|$ are their numbers of forward links, and α is a constant in the interval [0,1], and N is the total number of pages in the web. Ex. 2086:'999 Patent, 4:15-25.

Furthermore, these web pages are identified by at least their URL and the unique number assigned to it internally by Google:

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EXHIBIT 2052

Challenged Claims of '571 Patent	Evidence of Infringement – Google's Search Engine that uses PageRank
	"We convert each URL into a unique integer, and store each hyperlink in a database using the integer IDs to identify pages." Ex. 2054: *The PageRank Citation Ranking: Bringing Order to the Web* at 3.1 Nodes (documents, webpages, hosts, sites, domains, blogs etc.) existing as or relating to webpages residing on the Web (or nodes in a related database) may have direct references from one node to another and indirect relationships though a series of connected hyperlinks. As part of its clustering analysis and the calculation of its ranks, Google's Software also chooses contributing nodes to analyze for purposes of quantifying relationships between the scored nodes and the contributing nodes. An analysis unique to the contributing node in relation to the scored node is conducted.
identifying Universal Resource Locators for the web pages, wherein the identified Universal Resource Locators either point to or point away from the chosen web page;	PageRank identifies Universal Resource Locators which either point to or point away from the chosen web page in order to perform link analysis on the chosen web page. When a web page is chosen for analysis, the link structure connecting the identified web page to other web pages is determined and used to create an adapted adjacency matrix for use in the calculation of the PageRank algorithm. These matrices map the direct links between each web page on the Web identified by Google. Ex. 2099: Langville, Amy and Meyer, Carl D, *Google's PageRank and*

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