# Direct and Indirect Relationships Between Objects in a Database

IPR2013-00478 POR at 15-19; '352 Jacobs Dec., IPR2013-00478 Exhibit 2113 at ¶ 130-148.

#### **EXHIBIT 2122**

Facebook, Inc. et al. v. Software Rights Archive, LLC
CASES IPR2013-00478
IPR2013-00479
IPR2013-00480
IPR2013-00481

"The claims of the Patents at Issue are directed to the analysis and search of a computerized database of textual objects containing citations to other objects stored in the computer database.

Each specification discloses computerized tools and methods for extracting keywords and direct relationships from the content of database objects and generating representations of direct and indirect relationships existing among the database objects."

'352 PO Response, IPR2013-00478 Paper 34 at 4, 1-6.

"This invention is a system **for computerized searching** of data. Specially, the present invention significantly aids a researcher in **performing computerized research on a database**.

. . .

The invention **begins with an existing database** and indexed the data by creating a numerical representation of the data. This indexing technique called proximity indexing generates a quick-reference of the relations, patterns, and similarity found among the data in the database. Using this proximity index, an efficient search for pools of data having a particular relation, pattern or characteristic can be effectuated."

IPR2013-00478 POR at 1-6; '352 Patent at 3:42-55.

### "Specialized Computer Tools"

A "Proximity Indexing Application Program indexes the database into a more useful format to enable the Computer Search Program for Data Represented by Matrices (CSPDM) to efficiently search the database." 494 patent at 3:61-63.

"This program includes an "extractor" which analyzes the text of database objects to extract citations (i.e., any reference to and from database objects to other database objects) and keywords for purposes of creating a proximity index. '494 patent at 16:47-17:32; FIGS 3B, 3D.

This program also includes a "patterner" and "cluster link generator" to automatically generate cluster links of indirect relationships from the extracted content so that a large computer database can be analyzed and searched." '494 patent at 17:33-18:58; FIGS 3B-3H; 21:30-24:16; see IPR2013-00478 POR at 4, 1-6.

"Critical to the functioning of the above systems and methods is a database that contains objects that cite to other objects in the database. This is a non-trivial limitation. Without such a database, the "extractor" cannot analyze the content of database objects to extract their direct relationships (and keywords) and the "patterner" and "cluster link generator" cannot automatically generate representations of indirect relationships that exist in the database. '494 patent at 16:47-17:32; 17:33-18:58; FIGS 3B-3D.16. Similarly, the search and display routines cannot display the content of objects that refer to each other without such content being stored in an electronic database."

IPR2013-00478 POR at 4; see, e.g., '352 patent at 23:25 –26:49; FIGs 4A-D; 5A-D; IPR2013-00478 POR at 4,1-6.

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