

'480 Case – '494 Patent Claim 1

1. A method of analyzing a database with indirect relationships, using links and nodes, comprising the steps of: selecting a node for analysis; generating candidate cluster links for the selected node, wherein the step of generating comprises an analysis of one or more indirect relationships in the database; deriving actual cluster links from the candidate cluster links; identifying one or more nodes for display; and displaying the identity of one or more nodes using the actual cluster links.

Claim Term in Dispute

Disputed Term from the '494 Patent

- “Indirect Relationships in the Database”

“Indirect Relationships in the Database”

PTAB’s Construction

Relationships characterized by at least one intermediate node between two nodes.

Patent Owner’s Construction

Non-semantic, **referential** relationships where at least one intermediate **object** exists between two **objects**, and where the intermediate objects connect the two objects **through a chain of citations.**

(’480 Inst. Dec. (Paper 17) at 11; PO Resp. (Paper 31) at 21-23)

'494 Patent—Nodes

Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 76,658, Jun. 14, 1993, Pat. No. 5,544,352.
- [51] Int. Cl.⁶ **G06F 17/30**
- [52] U.S. Cl. **707/102; 707/104; 707/5**
- [58] Field of Search **707/102, 104, 707/5**

I. A method of analyzing a database with indirect relationships, using links and nodes, comprising the steps of: selecting a node for analysis; generating candidate cluster links for the selected node, wherein the step of generating comprises an analysis of one or more indirect relationships in the database; deriving actual cluster links from the candidate cluster links; identifying one or more nodes for display; and displaying the identity of one or more nodes using the actual cluster links.

[57]

ABSTRACT

time, a paradigm datum, or any similar reference. An alternative embodiment of the invention employs a cluster link generation algorithm which uses links and nodes to index and search a database or network. The algorithm searches for direct and indirect links to a search node and retrieves the nodes which are most closely related to the search node. The user interface program, called the Graphical User Interface (GUI), provides a user friendly method of interacting with the CSPDM program and prepares and presents a visual graphical display. The graphical display provides the user with a two or three dimensional spatial orientation of the data.

('494 Patent at cols. 1, 2, and 51; see also Reply (Paper 40) at 2-3)

'494 Patent Claim 1: Fox SMART—Selecting a Node for Analysis

4.4.4. Clustering

The clustering algorithm produces a hierarchy where all N documents in a collection end up as leaves of a multilevel tree. Interior nodes are associated with cluster centroids which represent all the documents in the subtree below them. Viewed another way, a given centroid summarizes all the information contained in the children immediately below regardless of whether those are documents or other centroids.

Clustering proceeds by adding documents one by one starting with an initially empty tree. The addition process involves a search for the proper place to insert the new document and a subsequent adjustment of the tree to first include the new entry and secondly conform to the various constraints

(Fox SMART ('480 Ex. 1005) at 44; see also Fox Reply Decl. ('480 Ex. 1028) at ¶ 275)

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