

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FACEBOOK, INC., LINKEDIN CORP., and TWITTER, INC.,  
Petitioner,

v.

SOFTWARE RIGHTS ARCHIVE, LLC,  
Patent Owner.

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Case IPR2013-00480  
Patent 5,832,494

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Before SALLY C. MEDLEY, CHRISTOPHER L. CRUMBLEY, and  
BARBARA A. PARVIS, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

I. BACKGROUND

A. *Introduction*

On July 30, 2013, Facebook, Inc., LinkedIn Corp., and Twitter, Inc. (collectively “Petitioner”) filed a Petition (“Pet.”) requesting an *inter partes* review of claims 1, 5, 8, 10, 11, 14–16, 35, and 40 of U.S. Patent No.

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5,832,494 (Ex. 1001, “the ’494 Patent”). Paper 2. On February 3, 2014, we instituted trial for all challenged claims 1, 5, 8, 10, 11, 14–16, 35, and 40 of the ’494 Patent on certain of the grounds of unpatentability alleged in the Petition. Paper 17 (“Decision to Institute” or “Inst. Dec.”).

After institution of trial, Patent Owner, Software Rights Archive, LLC (“Patent Owner”), filed a Patent Owner Response (“PO Resp.”). Paper 31. Patent Owner also filed a Motion to Amend to cancel claims 8, 10, 11, 35, and 40. Paper 32 (“Motion to Amend” or “Mot. Am.”). Patent Owner’s Motion to Amend did not propose to add or amend any claims. Mot. Am. 1. Petitioner filed a Reply to the Patent Owner Response. Paper 40 (“Reply”).

A consolidated oral hearing for IPR2013-00478, IPR2013-00479, IPR2013-00480, and IPR2013-00481, each involving the same Petitioner and the same Patent Owner, was held on October 30, 2014. The transcript of the consolidated hearing has been entered into the record. Paper 53 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Petitioner has shown by a preponderance of the evidence that claim 14 of the ’494 Patent is unpatentable.

Petitioner has not shown by a preponderance of the evidence that any of claims 1, 5, 15, or 16 of the ’494 Patent are unpatentable.

Patent Owner’s Motion to Amend to cancel claims 8, 10, 11, 35, and 40 of the ’494 Patent is *granted*.

*B. Related Proceedings*

Petitioner indicates that the ’494 patent is involved in the following co-pending lawsuits: *Software Rights Archive, LLC v. Facebook, Inc.*, No. 12-cv-3970 (N.D. Cal., filed July 27, 2012), *Software Rights Archive, LLC v.*

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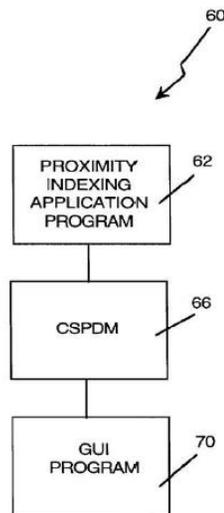
*LinkedIn Corp.*, No. 12-cv-3971 (N.D. Cal., filed July 27, 2012), and *Software Rights Archive, LLC v. Twitter, Inc.*, No. 12-cv-3972 (N.D. Cal., filed July 27, 2012). Pet. 2. Petitioner also indicates that the '494 patent was the subject of prior litigation: *Software Rights Archives, Inc. v. Google*, No. 08-cv-3172 (N.D. Cal.) (“Google Litigation”). Pet. 9.

Petitioner filed another petition, IPR2013-00479, which also seeks *inter partes* review of the '494 patent. The '494 patent was the subject of reexamination no. 90/011,014. Additionally, Petitioner filed other petitions on related patents including: (1) IPR2013-00478, which seeks *inter partes* review of U.S. Patent No. 5,544,352 (“the '352 Patent”) and (2) IPR2013-00481, which seeks *inter partes* review of U.S. Patent No. 6,233,571 (“the '571 Patent”). The '352 Patent issued from the parent of the application that issued as the '494 Patent. The '571 Patent issued from an application that was a divisional of the application that issued as the '494 Patent.

### C. *The '494 Patent*

The '494 Patent relates to computerized research on databases. Ex. 1001, 1:11–13. The '494 Patent discloses that it improves search methods by indexing data using proximity indexing techniques. *Id.* at 3:20–31. According to the '494 patent, proximity indexing techniques generate a quick-reference of the relations, patterns, and similarities found among the data in the database. *Id.* at 3:28–31.

Figure 2 of the '494 Patent illustrates the high-level processing of software for computerized searching (Ex. 1001, 8:7–8) and is reproduced below:



*Fig. 2*

Figure 2 illustrates high-level processing of three main programs for computerized searching.

As shown in Figure 2 above, software system 60 comprises: Proximity Indexing Application Program 62, Computer Search Program for Data Represented by Matrices (CSPDM) 66, and Graphical User Interface (GUI) Program 70. Ex. 1001, 11:29–36. Processing of software system 60 begins with Proximity Indexing Application Program 62 indexing a database. *Id.* at 11:46–47. Then, CSPDM 66 searches the indexed database and retrieves requested objects. *Id.* at 11:49–53. CSPDM 66 relays the retrieved objects to GUI Program 70 to display on a display. *Id.* at 11:53–55.

Software system 60 runs on a computer system comprising, for example, a processor of a personal computer. Ex. 1001, 10:11–15. The system comprises a display, which displays information to the user. *Id.* at 10:43–44. Exemplary displays include: computer monitors, televisions, LCDs, and LEDs. *Id.* at 10:44–46.

The processor is connected to a database to be searched. Ex. 1001, 10:18–20. Data in the database may be represented as a node. *Id.* at 12:29–33. Exemplary nodes include an object or a portion of an object, a document or section of a document, and a World Wide Web page. *Id.* at 12:35–38.

A cluster link generation algorithm may be used alone, or in conjunction with other proximity indexing subroutines, and prior to searching. Ex. 1001, 21:30–33. The cluster link generation algorithm may generate candidate cluster links (*id.* at 21:64–66) and then derive actual cluster links, which are used to locate nodes for display (*id.* at 22:1–4). Actual cluster links are: “a subset of the candidate cluster links . . . which meet a certain criteria.” *Id.* at 22:1–3.

*D. Illustrative Claims*

The independent claims are 1 and 14. Dependent claim 5 depends directly from claim 1. Each of dependent claims 15 and 16 depends, directly or indirectly, from claim 14.

Independent claims 1 and 14 illustrate the claimed subject matter and are reproduced below:

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.

14. A method for representing the relationship between nodes using stored direct links, paths, and candidate cluster links, comprising the steps of:

- a) initializing a set of candidate cluster links;
  - b) selecting the destination node of a path as the selected node to analyze;
  - c) retrieving the set of direct links from the selected node to any other node in the database;
  - d) determining the weight of the path using the retrieved direct links;
- repeating steps b through d for each path; and
- e) storing the determined weights as candidate cluster links.

*E. The Prior Art References Supporting Alleged Unpatentability*

Edward A. Fox, *Some Considerations for Implementing the SMART Information Retrieval System under UNIX*, (Sept. 1983) (Ph.D. dissertation, Cornell Univ. Dept. of Comp. Sci.) (“Fox SMART”) (Ex. 1005).

Edward A. Fox, *Extending the Boolean and Vector Space Models of Information Retrieval with P-Norm Queries and Multiple Concept Types*, (Aug. 1983) (Ph.D. dissertation, Cornell Univ. Dept. of Comp. Sci.) (“Fox Thesis”) (Ex. 1008).

The parties do not dispute the prior art status of the references.

*F. The Pending Grounds of Unpatentability*

Reference	Basis	Claims challenged
Fox Thesis	§ 102	14–16
Fox SMART	§ 102	1 and 5

## II. ANALYSIS

### A. Claim Construction

#### 1. Principles of Law

Petitioner asserts, and Patent Owner does not dispute, that the '494 Patent expired on June 14, 2013. Pet. 9. The Board's interpretation of the claims of an expired patent is similar to that of a district court's review. *See In re Rambus, Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). We, therefore, are guided by the principle that the words of a claim "are generally given their ordinary and customary meaning," as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312, 13 (Fed. Cir. 2005) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

#### 2. Overview of the Parties' Positions

In the Decision to Institute, we construed "cluster links," "candidate cluster links," "indirect relationships in the database," "displaying," and "actual cluster links." Our constructions are set forth in the table below.

Claim Term or Phrase	Construction
"cluster links"	"[R]elationships used for grouping interrelated nodes." Inst. Dec. 9.
"candidate cluster links"	"[A] set of possible cluster links between a search node and a target node." Inst. Dec. 10.

Claim Term or Phrase	Construction
“indirect relationships in the database”	“[R]elationships that are characterized by at least one intermediate node between two nodes.” Inst. Dec. 11.
“displaying”	“[D]epicting information on a hardware display.” Inst. Dec. 12.
“actual cluster links”	“[A] subset of the candidate cluster links[,] which meet certain criteria.” Inst. Dec. 13.

We also determined that “wherein the step of generating comprises an analysis of one or more indirect relationships in the database” requires no express construction other than the construction of “indirect relationships in the database” noted above. Inst. Dec. 11. We further determined that an express construction is not necessary for “selecting a node for analysis.” Inst. Dec. 11.

Patent Owner provides contentions based on Patent Owner’s view that the claims recite a specific arrangement of steps. PO Resp. 1–2. Patent Owner also makes arguments based on a construction of “cluster links” that is narrower than our construction. *Id.* Below, we evaluate whether the challenged claims recite a specific arrangement of steps. We also evaluate whether to adopt a construction of “cluster links” that is narrower than the construction that we adopted in our Decision to InSTITUTE.

With the exception of the arrangement of steps of the challenged claims and the construction of “cluster links,” for each of the other claim terms above, we discern no reason, based on the complete record now before us, to change our construction thereof.

3. *Order of Steps*

Patent Owner contends that the challenged claims of the '494 Patent are arranged in a specific manner. PO Resp. 2. For example, Patent Owner contends that claim 1 requires a specific arrangement in which “deriving actual cluster links from the candidate cluster links” is performed after “generating candidate cluster links for the selected node.” *Id.* at 16. Patent Owner similarly contends that claim 14, from which claim 15 depends, requires a specific arrangement. *Id.* at 48 (citing Ex. 2113 ¶ 205). Patent Owner contends that the prior art does not disclose the specific arrangement of the challenged claims.

Petitioner does not take a position on whether the elements of the challenged claims require the specific arrangement argued by Patent Owner. Petitioner contends that the asserted prior art discloses the steps as arranged in the challenged claims. *See e.g.*, Reply 9.

To evaluate Patent Owner’s and Petitioner’s contentions, we determine whether claims 1 and 15 recite a specific arrangement of steps such that deriving actual cluster links is performed after candidate cluster links are generated, as recite in claim 1, or after a set of candidate cluster links is initialized and stored, as recited in claim 15.

The full recitations of the phrases of claim 1 at issue are below.

1. A method of analyzing a database . . . comprising the steps of:

. . .*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*. . . .

(Emphases added). Claim 15 similarly recites deriving the actual cluster links after the steps of initializing and storing candidate cluster links.

We determine that actual cluster links can be derived from candidate cluster links only if the candidate cluster links already have been generated. This determination is consistent with the specification of the '494 Patent. In particular, the specification of the '494 Patent explains that candidate cluster links are the set of all possible cluster links between a search node and a target node. Ex. 1001, 21:64–22:1. The '494 Patent specification continues that actual cluster links are a subset of the candidate cluster links, which meet certain criteria. *Id.* at 22:1–4.

We agree with Patent Owner that claims 1 and 15 recite a specific arrangement with respect to the two steps of generating candidate cluster links and deriving actual cluster links from the candidate cluster links, as recited in claim 1, and as commensurately recited in claim 15. In particular, actual cluster links are derived from candidate cluster links after the candidate cluster links have been generated, as recited in claim 1, or stored, as recited in claim 15.

4. “*cluster links*”

The term “cluster links” is recited, for example, in claims 1 and 14, within “candidate cluster links.” The term “cluster links” also is recited in claims 1 and 15 within “actual cluster links.” In the Decision to Institute, we construed “cluster links” in light of the specification to mean “relationships used for grouping interrelated nodes.” Inst. Dec. 9.

Patent Owner contends that the asserted art describes “experimentation with relationships existing among printed documents.” PO Resp. 1. Patent Owner further contends that the challenged claims of the

'494 Patent are directed to analyzing and searching a computer database of objects. *Id.* Petitioner contends that Patent Owner's argument that the prior art describes relationships between paper documents, not electronic ones, is irrelevant because nothing in the challenged claims requires a database of objects that cite to other objects. Reply 1.

To evaluate Patent Owner's and Petitioner's contentions, we determine whether "cluster links" means relationships between two nodes, which are represented in data stored in a computer. Claim 1 recites a method of analyzing data in a database with indirect relationships using links and nodes. Claim 14 similarly recites a method for representing the relationship between nodes, using stored direct links, paths, and candidate cluster links.

As explained in the '494 Patent specification, data in the database may be represented as a node. Ex. 1001, 12:29–33. Exemplary nodes include an object or a portion of an object, a document or section of a document, and a World Wide Web page. *Id.* at 12:35–38. The '494 Patent specification states that a link is a "relationship between two nodes." *Id.* at 12:65–66. The '494 Patent specification continues, "[a] link [] can be represented by a vector or an entry on a table and contain information for example, a from-node identification [] (ID), a to-node ID [], a link type [], and a weight." *Id.* at 13:3–6. As described in the '494 Patent specification, a link is represented in data stored in a computer.

We, therefore, determine that "cluster links" means relationships, which are represented in data stored in a computer and are used for grouping interrelated nodes.

*B. Alleged Anticipation of Claims 1 and 5 by Fox SMART*

Petitioner contends that claims 1 and 5 of the '494 Patent are unpatentable, under 35 U.S.C. § 102, as anticipated by Fox SMART. Pet. 17–20. To establish anticipation, each and every element in a claim, arranged as is recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). We determine that Petitioner has not shown by a preponderance of the evidence that claims 1 and 5 are unpatentable as anticipated by Fox SMART.

*1. Fox SMART*

The System for Mechanical Analysis and Retrieval of Text (SMART) is described as a project for designing a fully automatic document retrieval system and for testing new ideas in information science. Ex. 1005, 3.

In SMART, an automatic indexing component constructs stored representations of documents. Ex. 1005, 3. Bibliographic information is used to enhance document representations. *Id.* at 29. The SMART system may process basic raw data, such as an exemplary *N* collection of articles and citation data describing which articles are cited by others. *Id.* at 29–30. The exemplary input data includes indirect citation relationships, such as bibliographic coupled and co-citation relationships. *Id.* at 30–32.

A clustering algorithm is processed by the SMART system as follows: “[t]he clustering algorithm produces a hierarchy where all *N* documents in a collection end up as leaves of a multilevel tree. . . . Clustering proceeds by adding documents one by one starting with an initially empty tree.” Ex. 1005, 44. Adding documents involves finding the proper place to insert,

attaching the incoming entry appropriately, and recursively splitting overly large nodes. *Id.* at 47.

In addition to splitting, the SMART system may delete clusters that exhibit too much overlap and assign others to a garbage or orphan cluster. Ex. 1005, 49. Eventually, only clusters that pass all appropriate tests are accepted. *Id.* at 51.

2. *Claims 1 and 5*

Petitioner points to Fox SMART's description of a clustering algorithm as disclosing generating candidate cluster links for a selected node by analyzing indirect relationships in a database, as recited in claim 1. Pet. 18–19 (citing Ex. 1005, 30–32, 44, 46; Ex. 1009 ¶¶ 160–61). In particular, Petitioner points to Fox SMART's description of constructing bibliographic and co-citation subvectors by analyzing indirect relationships, specifically bibliographic and co-citation relationships. *Id.* at 18 (citing Ex. 1005, 30–32). According to Petitioner's Declarant, Dr. Edward A. Fox, the resulting bibliographic and co-citation subvectors are stored in a computer for further computations using the clustering procedure. Ex. 1009 ¶¶ 173–74 (citing Ex. 1005, 36–38, 46). Petitioner additionally points to Fox SMART's description that the clustering algorithm produces a hierarchy or classification in which “all” of the  $N$  documents in the collection end up as leaves of a multilevel tree. Pet. 18–19 (citing Ex. 1005, 44). The resulting tree, according to Petitioner, is a set of possible cluster links between a search node and a target node. *Id.*; *see also* Ex. 1009 ¶ 160 (“Fox SMART . . . disclose[s] **generating candidate cluster links** . . . For example, the particular clustering analysis that I employed builds a tree.”).

Petitioner, however, points to this same clustering algorithm for deriving actual cluster links from the candidate cluster links, as recited in claim 1. Pet. 19 (citing Ex. 1005, 47, 49–51; Ex. 1009 ¶ 162). In particular, Petitioner points to Fox SMART’s description of concentration tests performed as part of the clustering algorithm. *Id.* (citing Ex. 1005, 51). As described in Fox SMART:

Candidate clusters which pass the concentration test are those formed by having enough highly correlated pairs in the proposed cluster. . . .

“Uncour” repeatedly considers the remaining cluster that is most heavily covered by other clusters. If the overlap is too much, it is deleted. Eventually only clusters that pass all appropriate tests are accepted.

Ex. 1005, 50–51.

Petitioner’s Declarant, Dr. Fox, testifies that Fox SMART derives a subset because “clusters that do not pass all the concentration and overlap tests are deleted.” Ex. 1009 ¶ 162 (citing Ex. 1005, 51). Dr. Fox supplements his testimony by stating, “Fox SMART teaches that potential (i.e., candidate) clusters are rejected (‘deleted’) if they fail any one of these tests.” Ex. 1028 ¶ 281 (citing Ex. 1005, 51). Dr. Fox further states that claim 1 does not require that candidate cluster links be deleted. *Id.*

Patent Owner contends that Dr. Fox incorrectly states that clusters that do not pass all of the tests are deleted. PO Resp. 33 (citing Ex. 2113 ¶¶ 82–103). Patent Owner’s Declarant, Dr. Paul S. Jacobs, provides his analysis of various aspects of the clustering process and concludes that the clustering algorithm, including the concentration tests noted above, does not result in a subset. Ex. 2113 ¶¶ 82–103. In particular, Dr. Jacobs states that the clustering process involves accepting trial clusters, which then must pass the

concentration tests to become candidate clusters. *Id.* ¶ 91. Dr. Jacobs also states that clusters are deleted only in the case of overlap with a new group of clusters formed from splitting. *Id.* ¶ 88. Additionally, Dr. Jacobs states that moving orphans to the garbage cluster does not result in deleting those orphans or creating a subset. *Id.* ¶ 101. Dr. Jacobs, instead, states that the orphans may not be garbage in the end as they may be assigned a node as new documents are added to the tree. *Id.*

We determine that the statements of Patent Owner's Declarant are consistent with Fox SMART's description of clustering. Fox SMART describes the clustering process as initializing a new tree as empty, adding documents to the tree, and recursively splitting overly large nodes of the tree. Ex. 1005, 47. Fox SMART states that splitting is accomplished by the following procedures: `div_cent`, `cleave`, and `uncour`. *Id.* at 49. Fox SMART further describes the splitting process as follows:

First a complete similarity matrix is formed based on the pairwise combined similarity values. "Cleave" then identifies a plausible clustering except that no limit on overlap is considered. "Uncour" compensates for that by first deleting clusters that exhibit too much overlap with remaining clusters, and secondly by assigning the others to a "garbage" or "orphan" cluster.

*Id.*

As described in Fox SMART, the concentration tests that are cited by Petitioner are performed as part of forming the cluster tree. *Id.* Petitioner does not identify disclosure in Fox SMART of deleting clusters other than those that simply overlap, or duplicate, other clusters. Overlapping clusters are deleted following a routine that identifies plausible clustering with "no limit on overlap." *Id.* Additionally, Fox SMART includes code that collects

orphans. *Id.* at 52. Petitioner, however, has not shown that Fox SMART describes a subset which does not include these orphans.

Dr. Fox's supplemental testimony that "Fox SMART teaches that potential (i.e., candidate) clusters are rejected ('deleted') if they fail any one of these tests" (Ex. 1028 ¶ 281 (citing Ex. 1005, 51)) suggests that the terms "rejected" and "deleted" are the same. We do not agree. In view of Dr. Fox's testimony in both of his Declarations and the testimony of Dr. Jacobs, we find that one of ordinary skill in the art reasonably would have understood Fox SMART as describing deleting overlap that had been generated by the immediately preceding software routine. Additionally, we find that one of ordinary skill in the art reasonably would have understood Fox SMART as describing that the tests referred to by Dr. Fox are processed during formation of the tree. We, therefore, determine that Dr. Fox's testimony does not address persuasively the requirement in claim 1 of deriving a subset of the already generated candidate cluster links.

Claim 1 additionally recites "displaying the identity of one or more nodes using the actual cluster links." For this element, Petitioner points to Fox SMART's description of searching a clustered tree. Pet. 19 (citing Ex. 1005, 53-54; Ex. 1009 ¶ 163). Fox SMART states that "one would like to retrieve and rank documents so that all relevant documents, regardless of what cluster they appear in, are retrieved as soon as possible." Ex. 1005, 53. Fox SMART continues that "most of the documents in a retrieved cluster are presented to the user." *Id.* at 54.

We are not persuaded that Fox SMART's description of ranking documents discloses deriving a subset because a set of ranked documents provides an indication of an order of presentation, but is not a subset.

Additionally, Fox SMART indicates that documents from multiple clusters are ranked. Furthermore, Petitioner does not point to disclosure in Fox SMART of criteria for forming a subset. Because Petitioner does not point to disclosure of deriving a subset, Petitioner has not shown by a preponderance of the evidence display using links of that subset.

In light of the Declaration by Patent Owner's Declarant, Dr. Jacobs, we determine that Petitioner has not shown by a preponderance of the evidence that Fox SMART discloses either: (1) deriving actual cluster links for the candidate cluster links; or (2) displaying the identity of one or more nodes using the actual cluster links. For the foregoing reasons, Petitioner has not established by a preponderance of the evidence that claim 1 is anticipated by Fox SMART. Because claim 5 depends from claim 1, we also determine that Petitioner has not established by a preponderance of the evidence that claim 5 is anticipated by Fox SMART.

*C. Alleged Anticipation of Claims 14–16 by Fox Thesis*

Petitioner contends that claims 14–16 of the '494 Patent are unpatentable, under 35 U.S.C. § 102, as anticipated by Fox Thesis. Pet. 10–16. In support of the asserted ground of unpatentability, Petitioner sets forth the disclosure of Fox Thesis, provides a detailed claim chart, and cites to the declaration of Dr. Fox (Ex. 1009 ¶¶ 156–78), explaining how each limitation is disclosed in Fox Thesis. Pet. 10–16.

Petitioner's claim chart persuasively reads all elements of claim 14 onto the disclosure of Fox Thesis. Despite the counter-arguments in Patent Owner's Response, and the evidence cited therein, which we have also considered, Petitioner has shown by a preponderance of the evidence that claim 14 is unpatentable as anticipated by Fox Thesis.

We, however, determine that Petitioner has not shown by a preponderance of the evidence that claims 15 and 16 are unpatentable as anticipated by Fox Thesis.

*1. Fox Thesis*

Fox Thesis describes improving query and document representation schemes for information retrieval. Ex. 1008, 261. In particular, useful types of bibliographic data are incorporated into a model to test clustering and retrieval functions. *Id.* at 164.

Bibliographic connections between articles are illustrated for an exemplary set “O” of documents, which are represented by letters A through G. Ex. 1008, 165, 66; Fig. 6.2. This exemplary set “O” includes direct and indirect citation references. *Id.* at 166, 67; Table 6.2.

Based on the reference pattern for a set of documents, Fox Thesis describes deriving various measures of the interconnection between the documents. Ex. 1008, 166. For example, weights are assigned “based upon integer counts” for bibliographically coupled documents. *Id.* at 167.

Citation submatrices represent reference or citation information. Ex. 1008, 169. For example, submatrix bc represents bibliographically coupled reference information and submatrix cc represents co-citation reference information. *Id.* at 169–72; Figs. 6.3–6.5.

*2. Claim 14*

Petitioner’s claim chart persuasively reads all elements of claim 14 onto the disclosure of Fox Thesis. Pet. 14–16 (citing Ex. 1008, 164–68, 170–72, 174–77, 181–82, 193, 195, 213, 237–39, 261, 272; Ex. 1009 ¶¶ 157–61, 169, 172–74). We address Patent Owner’s counter-arguments in turn.

Patent Owner contends that Petitioner “slap[s] together” disparate quotes from unrelated portions of Fox Thesis. PO Resp. 3. For example, Patent Owner contends that a user query relied on by Petitioner for disclosing selecting a destination node, as recited in claim 14, does not relate “in any way” to steps of a clustering process identified by Petitioner for other steps of claim 14. PO Resp. 47–48.

Fox Thesis, however, describes interrelated experiments. Ex. 1008, 21. In particular, Fox Thesis describes that the user query relied on by Petitioner (Pet. 12 (citing Ex. 1008, 237–39)) is used “[t]o quickly test the utility of extended vector feedback” (Ex. 1008, 237). As is evident in Fox Thesis, a query may be used to initiate a search. *Id.* at 234. Additionally, according to Fox Thesis, searches are conducted using clustering processes. *Id.* at 218. We, therefore, are persuaded that Petitioner shows by a preponderance of the evidence that Fox Thesis describes selecting a destination node, as recited in claim 14.

Patent Owner additionally contends that Fox Thesis does not disclose retrieving the set of direct links, as recited in claim 14. PO Resp. 49. In particular, Patent Owner contends that although the Fox Thesis describes using an *ln* sub-vector as a representation of direct links, the *ln* links are not used for obtaining the sub-vectors representing the indirect links. *Id.* Patent Owner further argues that retrieving the set of direct links is not a necessary precursor to finding co-citation values. *Id.* at 50.

Petitioner, however, points to Fox Thesis’s description of a reference pattern for a set of documents and measures of interconnection between those documents. Pet. 15 (citing Ex. 1008, 166–168). As set forth in Fox Thesis, this discussion pertains to direct references between documents, as

well as indirect references. Ex. 1008, 167. Additionally, Dr. Fox testifies that retrieving direct links is a precursor to finding indirect relationships. Ex. 1009 ¶ 171. Dr. Fox's testimony is consistent with Fox Thesis's description of a distance "k," which designates the number of "arcs" between a document and another cited document. Ex. 1008, 167. We, therefore, are persuaded that Petitioner's identification of the above disclosure shows by a preponderance of the evidence that Fox Thesis describes retrieving the set of direct links, as recited in claim 14.

Patent Owner, in reliance on its Declarant, Dr. Jacobs, further contends that co-citation count does not describe a weight of a path. PO Resp. 52 (citing Ex. 2113 ¶ 221). Dr. Jacobs states that claim 14 has a specific arrangement, which requires using an existing path and a new weight, presumably for a new path made up of the existing path extended by new links. Ex. 2113 ¶ 205 n. 21. Dr. Jacobs acknowledges "the claim does not specifically state this." *Id.* Nonetheless, based on this view of claim 14, Dr. Jacobs states that because every path is counted once in Fox Thesis, the weight is applied to the count of paths, not to a path. Ex. 2113 ¶ 221.

Patent Owner's contention is not commensurate with the scope of claim 14. As noted by Petitioner's Declarant, Fox Thesis illustrates citation submatrices with count-based weights for each path having a source and destination document in example "O" collection of documents. Ex. 1009 ¶ 174 (citing Ex. 1008, 171–72; *see also id.* at 167 ("the next two definitions can result in the assignment of weights that are based on integer counts.")). We, therefore, are persuaded that Petitioner shows by a preponderance of the evidence that Fox Thesis discloses determining the weight of the path using the retrieved links, as recited in claim 14.

Accordingly, even after considering the counter-arguments in Patent Owner's Response, and the evidence cited therein, we find that Petitioner has shown, by a preponderance of the evidence, that claim 14 is unpatentable as anticipated by Fox Thesis.

3. *Claims 15 and 16*

Claim 15 depends from independent claim 14 and recites, "further comprising the step of deriving the actual cluster links wherein the actual cluster links are a subset of the candidate cluster links." Claim 14, from which claim 15 depends, recites "initializing a set of candidate cluster links" and "storing the determined weights as candidate cluster links." Petitioner again points to the same clustering process for the step of deriving actual cluster links from the candidate cluster links recited in claim 15, as Petitioner identified for the identifying and storing steps recited in claim 14. Pet. 16 (referring to "claim 1(c) above" and citing Ex. 1009 ¶¶ 162, 177); *see also* Pet. 13 (referring to "[c]laim 1(b) above" and citing Ex. 1008, 199–200; Ex. 1009 ¶ 162). For the reasons discussed above with respect to claim construction and claim 1, we determine that Petitioner has not shown by a preponderance of the evidence that claim 15 is unpatentable as anticipated by Fox Thesis. Because claim 16 depends from claim 15, we also determine that Petitioner has not shown by a preponderance of the evidence that claim 16 is unpatentable as anticipated by Fox Thesis.

D. *Motion to Exclude*

Patent Owner filed a Motion to Exclude (Paper 44) in which Patent Owner seeks to exclude the Reply Declaration of Dr. Edward A. Fox (Ex. 1028) ("Reply Fox Declaration"). Patent Owner contends that the Reply Fox Declaration should be excluded because it presents evidence and/or

arguments for the first time. Paper 44, 1. A reply may respond to arguments raised in the corresponding patent owner response. 37 C.F.R. § 42.23(a). Examples of indications that a new issue has been raised in a reply include new evidence necessary to make out a *prima facie* case for the unpatentability of a claim. Office Patent Trial Practice Guide, 77 Fed.Reg. 48,756, 48,767 (Aug. 14, 2012). We determine that the evidence presented in the Reply Fox Declaration that is discussed in this Decision properly responds to arguments raised in the Patent Owner Response. Additionally, we do not rely on evidence in the Reply Fox Declaration in our determination that Petitioner established by a preponderance of the evidence that claim 14 is unpatentable.

For the reasons given, we deny Patent Owner's Motion to Exclude.

*E. Motions to Seal*

Patent Owner filed a Motion to Seal (Paper 33) the Declaration of Dr. Amy N. Langville ("Langville Declaration") filed as Exhibit 2114. The motion is unopposed. According to Patent Owner, paragraphs 25, 112, and 113 of the Langville Declaration makes reference to certain facts about confidential licenses to the patents under review. Paper 33, 3. Additionally, Patent Owner contends that this information has not been made, and will not be made, public. *Id.*

There is a strong public policy in favor of making information filed in *inter partes* review proceedings open to the public. *See Garmin Int'l v. Cuozzo Speed Techs., LLC*, Case IPR2012-00001 (PTAB March 14, 2013) (Paper 34). Under 35 U.S.C. § 316(a)(1), the default rule is that all papers filed in an *inter partes* review are open and available for access by the

public.<sup>1</sup> The standard for granting a motion to seal is “good cause.” 37 C.F.R. § 42.54. A moving party bears the burden of showing that the relief requested should be granted. 37 C.F.R. § 42.20(c).

Patent Owner, as the moving party, has failed to carry its burden. Patent Owner identifies only three paragraphs in the Langville Declaration that purportedly contain confidential information. However, Patent Owner has not pointed to proof in the record that any information contained in these paragraphs is confidential. Additionally, although Patent Owner contends that this information has not been made, and will not be made, public, Patent Owner presented this information during the hearing on October 30, 2014, which was open to the public. *See* Tr. 54:12–25. We, therefore, determine that Patent Owner has not met its burden of proof.

We recognize a denial of the motion to seal would immediately unseal the material that Patent Owner desires to remain confidential and the effect would be irreversible. Therefore, rather than denying the motion at this time, we will provide Patent Owner one week to (1) withdraw the motion to seal and request that we expunge Exhibit 2114, or (2) withdraw the motion to seal, request that we expunge Exhibit 2114, and replace it with a redacted version that leaves out the confidential information.

We note that the Langville Declaration relates to secondary considerations, which are not at issue in this case as the remaining

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<sup>1</sup> Additionally, we note that confidential information subject to a protective order ordinarily would become public 45 days after final judgment in a trial. Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,761 (Aug. 14, 2012). However, after denial of a petition to institute a trial or after final judgment in a trial, a party may file a motion to expunge confidential information from the record. 37 C.F.R. § 42.56.

challenges are based on anticipation. We, therefore, do not rely on the Langville Declaration in this Decision.

### III. CONCLUSION

We conclude that Petitioner has shown by a preponderance of the evidence that claim 14 of the '494 Patent is unpatentable, under 35 U.S.C. § 102, as anticipated by Fox Thesis. We further conclude that Petitioner has not shown that any of claims 1, 5, 15, or 16 of the '494 Patent are unpatentable.

This is a final written decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

### IV. ORDER

For the reasons given, it is

ORDERED that claim 14 of U.S. Patent No. 5,832,494 is determined by a preponderance of the evidence to be unpatentable;

ORDERED that claims 1, 5, 15, and 16 of U.S. Patent No. 5,832,494 are not determined to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend to cancel claims 8, 10, 11, 35, and 40 of the '494 Patent is GRANTED;

FURTHER ORDERED that Patent Owner's Motion to Exclude the Reply Declaration of Dr. Edward A. Fox (Exhibit 1028) is DENIED;

FURTHER ORDERED that Exhibit 2114 will be made available to the public after 5 PM Eastern five business days after the entry date of this decision, unless prior to that time, Patent Owner (1) withdraws the motion to seal and requests that we expunge Exhibit 2114, or (2) withdraws the motion

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to seal, requests that we expunge Exhibit 2114, and replaces it with a redacted version that leaves out the confidential information; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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