UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte RENE GROSS

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Appeal 2012-000811
Application 11/647,958
Technology Center 2600

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Before CARLA M. KRIVAK, ELENI MANTIS MERCADER, and
JASON V. MORGAN, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1–16 and 19–21. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse and enter a new ground of rejection.

THE INVENTION

Appellant's claimed invention is directed to accessing data, with at least some time-dependent data, which are compared to a validity period provided by a business application to generate a graph valid for the validity period. *See* Abstract.

Independent claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A computer implemented method for structure evaluation of time-dependent acyclic graphs, the method comprising the following steps performed by at least one hardware processor:

determining a validity of at least one node of an acyclic graph structure, with the at least one hardware processor, by comparing an identified validity period to the at least one node of the graph structure, each of at least a subset of the at least one node associated with a particular time period;

identifying at least one invalid node, the at least one invalid node associated with a time period outside the identified validity period;

removing the at least one identified invalid node;

substituting, for each of the at least one removed invalid nodes, a corresponding skip node, where each skip node corresponds to a single removed invalid node, each skip node including a skip function, each skip function defining a skip relation that defines a relationship for valid nodes adjacent each skip node, the relationship pointing from a last valid node located before the skip node to a next valid node located after the skip node;

generating a validity graph for the identified validity period including:

at least one of the nodes of the graph structure that is valid for the identified validity period based on the time period associated with each of the at least one nodes, and

at least one skip relation for each skip node, where data in the at least one invalid node is absent from the validity graph; and

storing the validity graph in a repository.

REFERENCES and REJECTIONS

1. The Examiner rejected claims 1–16 and 19–21 under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention;

2. The Examiner rejected claims 1–16 and 19–21 under 35 U.S.C. § 112, first paragraph; and

3. The Examiner rejected claims 1–16 and 19–21 under 35 U.S.C. § 103(a) as being unpatentable over Moudgal (US 2005/ 0182708 A1; Aug. 18, 2005).

ISSUES

The pivotal issues are whether the Examiner erred in finding:

1. claims 1–16 and 19–21 rejected under 35 U.S.C. § 112, second paragraph, fail to particularly point out and distinctly claim the subject matter which Appellant regards as the invention;

2. claims 1–16 and 19–21 rejected under 35 U.S.C. § 112, first paragraph, lack written description; and

3. Moudgal teaches the limitations of:

generating a validity graph for the identified validity period
including:

at least one of the nodes of the graph structure that is
valid for the identified validity period based on the time
period associated with each of the at least one nodes, and

at least one skip relation for each skip node, where data
in the at least one invalid node is absent from the validity
graph

as recited in claim 1.

ANALYSIS

1. Claims 1–16 and 19–21 under 35 U.S.C. § 112, second paragraph

Appellant argues that the claims satisfy the definiteness requirements
under 35 U.S.C. § 112, second paragraph (App. Br. 19-20).

The Examiner finds the claim limitation of "the at least one removed
invalid nodes" in the step of substituting, lacks antecedent basis since plural
invalid nodes are recited earlier in claim 1 (Ans. 74).

We do not agree with the Examiner's finding because there is no
recitation of *plural invalid nodes* in claim 1.

The Examiner further finds that it is not clear whether each skip node
replaces each of the removed invalid nodes or each skip relation replaces
each of the removed invalid nodes (Ans. 74). According to the Examiner, it
is further unclear whether the skip relation replaces only one single invalid
node or plural invalid nodes in the generating step as the claims fail to give
the proper definitions to the claimed skip relation and/or the claimed skip
node (Ans. 74). According to the Examiner, the claim limitations of
"removing the at least one identified invalid node" and "at least one
removed invalid nodes" are in direct contradiction with the Specification
disclosure at Paragraph 0106 (Ans. 74; Appellant refers to the Specification

paragraph 0106 of the published Patent Application (US 2008/0162205 A1) of the current invention, which corresponds to the Spec. 35:16–25, of record).

Appellant's Specification discloses a skip function pointing from the last valid node to the next valid node (Spec. 34:22–23). Appellant's Specification further describes Figure 18A as illustrating an example of a graph 1800, wherein application of a filter to graph 1800 determines nodes 1810 and 1830 as satisfying filter criteria and node 1820 as not satisfying the filter criteria (Spec. 34). Node 1820 is replaced with a skip function or relation (Spec. 34). Figure 18B illustrates graph 1800 of Figure 18A with a skip relation 1850 replacing node 1820 which did not satisfy the filter criteria (Spec. 34). A skip node may identify the last valid node (i.e., last node in a branch of a graph to satisfy filter criteria before the node that does not satisfy the filter criteria), next valid node (i.e., next node that satisfies filter criteria in the branch after the node that does not satisfy the filter criteria), an outgoing relation of the last valid node, and/or the incoming relation of the next valid node (Spec. 34–35). The skip path may be an attribute of the skip function as well (Spec. 35). Furthermore, Appellant's Specification states that a skip node replaces a node that does not satisfy the filter criteria (Spec. 9:11–12). Thus, while not explicitly stated, it would be clear to one skilled in the art at the time of the invention that an invalid node (i.e., node that does not satisfy filter criteria) is removed and replaced by a skip node having a skip function which indicates the prior and the next valid nodes. Contrary to the Examiner's finding, Appellant's Specification disclosure at paragraph 0106 (Ans. 74; Examiner refers to the Specification paragraph 0106 of the published Patent Application (US 2008/0162205 A1)

of the current invention which corresponds to the Spec. 35:16–25, of record) clearly states replacing the nodes that do not satisfy the filter criteria (i.e., removing the invalid nodes) with skip functions reduces the need for programming code for hiding or suppressing the nodes. Accordingly, we find the disputed claimed terms as adequately clear when read in view of the Specification.

Thus, we reverse the Examiner's 35 U.S.C. § 112, second paragraph, rejection of claim 1 and for the same reasons, the corresponding rejections of claims 2–16 and 19–21.

2. Claims 1–16 and 19–21 under 35 U.S.C. § 112, first paragraph

The Examiner finds Appellant's Specification lacking in describing the claim 1 limitations of: "substituting, for each of the at least one removed invalid nodes, a corresponding skip node;" "each skip node including a skip function;" "each skip function defining a skip relation;" "a skip relation that defines a relationship for valid nodes adjacent each skip node;" and "the relationship pointing from a last valid node located before the skip node to a next valid node located after the skip node" (Ans. 5–6).

Appellant argues that the Specification does describe the disputed limitations and points us to the description of the Specification directed to Figures 18A and 18B (App. Br. 15–19). Appellant's Specification discloses a skip function pointing from the last valid node to the next valid node (Spec. 34:22–23). Appellant's Specification further describes Figure 18A as illustrating an example of a graph 1800, wherein application of a filter to graph 1800 determines nodes 1810 and 1830 as satisfying filter criteria and node 1820 as not satisfying the filter criteria (Spec. 34). Node 1820 is replaced with a skip function or relation (Spec. 34). Figure 18B illustrates

graph 1800 of Figure 18A with a skip relation 1850 replacing node 1820 which did not satisfy the filter criteria (Spec. 34). A skip node may identify the last valid node (i.e., last node in a branch of a graph to satisfy filter criteria before the node that does not satisfy the filter criteria), next valid node (i.e., next node that satisfies filter criteria in the branch after node that does not satisfy the filter criteria), an outgoing relation of the last valid node, and/or the incoming relation of the next valid node (Spec. 34–35). The skip path may be an attribute of the skip function as well (Spec. 35).

Furthermore, Appellant's Specification, states that a skip node replaces a node that does not satisfy the filter criteria (App. Br. 16; Spec. 9:11–12). Thus, while not explicitly stated, it would have been clear to one skilled in the art at the time of the invention that an invalid node (i.e., node that does not satisfy filter criteria) is removed and replaced by a skip node having a skip function which indicates the prior and the next valid nodes.

Therefore, based on Appellant's Specification, we agree with Appellant that there is adequate written description for the disputed limitations. Accordingly, we reverse the Examiner's rejection of claim 1 and for the same reasons the Examiner's rejection of claims 2–16 and 19–21.

3. *Claims 1–16 and 19–21 under 35 U.S.C. § 103(a)*

Appellant argues *inter alia* Moudgal neither explicitly describes nor implicitly suggests the application of skip nodes or skip relations to instantiate a skip graph structure (App. Br. 21).

We agree with Appellant's argument. While we agree with the Examiner that removal of a peripheral node (i.e., E7) between Moudgal's directed graphs depicted in Figures 11A–B may indicate an invalid node

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removal of E7 (Ans. 75-78), we see no support for generating a validity graph that indicates a skip relation of a skip node as required by claim 1.

Accordingly, we reverse the Examiner's rejection of claim 1 and for the same reason the rejection of claims 2-16 and 19-21.

NEW GROUNDS OF REJECTION

We make the following new grounds of rejection pursuant to37 C.F.R. § 41.50(b).

Claims 1–16 and 19–21 are rejected under 35 U.S.C. § 101.

The Supreme Court decided *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) and reiterated the framework set out in *Mayo Collaborative Servs. v. Prometheus Labs Inc.*, 132 S. Ct. 1289 (2012) for "distinguishing patents that claim . . . abstract ideas from those that claim patent-eligible applications from those concepts." *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to determine if the claim is directed toward a patent-ineligible concept and, if so, the second step is to determine whether there are additional elements that transform the nature of the claim into a patent eligible application. The second step searches for an inventive concept that is sufficient to ensure that the patent amounts to significantly more than a patent on the patent-ineligible concept.

Applying the first step, we find that claims 1, 9, and 19 are directed to producing a graph indicating a skipped or invalid node. The claimed invention involves the application of a filter to identify an invalid node (i.e., mathematical application in a computer) and producing a graph indicating a skipped or invalid node as it relates to the valid nodes before and after the skipped node. Accordingly, we find that the claim is directed to a patent-

ineligible concept (i.e., abstract mathematical application and creation of a graph). Furthermore, the creation of a validity graph and storing it in a repository does not constitute an inventive concept that is sufficient to ensure that the claims amount to significantly more than a patent-ineligible concept. The dependent claims 2–8, 10–16, and 20–21, do not add significantly more to a patent-ineligible concept in that they merely characterize the graph.

CONCLUSIONS

The Examiner erred in finding:

1. claims 1–16 and 19–21 rejected under 35 U.S.C. § 112, second paragraph, fail to particularly point out and distinctly claim the subject matter which applicant regards as the invention;

2. claims 1–16 and 19–21 rejected under 35 U.S.C. § 112, first paragraph, lack written description ; and

3. Moudgal teaches the limitation of:

   generating a validity graph for the identified validity period including:
   >   at least one of the nodes of the graph structure that is valid for the identified validity period based on the time period associated with each of the at least one nodes, and at least one skip relation for each skip node, where data in the at least one invalid node is absent from the validity graph

   as recited in claim 1.

DECISION

The Examiner's decision rejecting claims 1–16 and 19–21 is reversed.

We enter new grounds of rejection of claims 1–16 and 19–21 under 35 U.S.C. § 101.

This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. . . .

<u>REVERSED</u>
<u>37 C.F.R. § 41.50(b)</u>