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 GANESAN UMANESAN

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Appeal 2018-000744
Application 13/890,030[1]
Technology Center 2100

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Before MAHSHID D. SAADAT, THU A. DANG, and
JOHN P. PINKERTON, *Administrative Patent Judges*.

PINKERTON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's Final
Rejection of claims 65–90, which are all of the claims pending in this
application. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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STATEMENT OF THE CASE

Introduction

Appellant's disclosed and claimed invention is directed generally to "computer program event analysis, more specifically in the field of clustering computational error logs." Spec. 1:1–2.[2]

Claims 65, 75, and 86 are independent claims. Claim 65 is illustrative of the subject matter on appeal and reads as follows (with format changes and paragraph lettering added):

> 65. A method, comprising:
>
> (a) selecting, via a processor, a plurality of event messages generated by a computing cluster, the event messages comprising unstructured logs of the computer cluster;
>
> (b) determining, via the processor, message metric distances between the event messages based on combining word metric distances between aligned words of the event messages, determining the word metric distances involving treating aligned numeric characters between the aligned words as matching characters regardless of differences between the aligned numeric characters;
>
> (c) clustering the event messages into event types based on the message metric distances; and
>
> (d) storing a record of the event types associated with the event messages, the record used for system diagnostics of the computer cluster.

App. Br. 15 (Claims App.).

Rejections on Appeal

Claims 65–90 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Final Act. 8–10.

Claims 65, 69–75, 79–86, and 88–90 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Cohen et al. (US 2011/0185234 A1; published July 28, 2011) ("Cohen"). Final Act. 11–15.

Claims 66–68, 76–78, and 87 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cohen and Brady, Jr. et al. (US 2005/0125807 A1; published June 9, 2005) ("Brady"). Final Act. 16–17.

ANALYSIS

I. Section 101 Rejection

A. Applicable Law

Section 101 of the Patent Act provides that "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" is patent eligible. 35 U.S.C. § 101. But the Supreme Court has long recognized an implicit exception to this section: "Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). To determine whether a claim falls within one of these excluded categories, the Court has set out a two-part framework. The framework requires us first to consider whether the claim is "directed to one of those patent-ineligible concepts." *Alice*, 573 U.S. at 217. If so, we then examine "the elements of [the] claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a

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patent-eligible application." *Alice*, 573 U.S. at 217 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78, 79 (2012)). That is, we examine the claim for an "inventive concept," "an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Alice*, 573 U.S. at 217–18 (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73).

The Patent Office recently issued guidance about this framework. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Revised Guidance"). Under the Revised Guidance, to decide whether a claim is directed to an abstract idea, we evaluate whether the claim (1) recites one of the abstract ideas listed in the Revised Guidance ("Prong One") and (2) fails to integrate the recited abstract idea into a practical application ("Prong Two"). *See* Revised Guidance, 84 Fed. Reg. at 51, 54. If the claim is directed to an abstract idea, as noted above, we then determine whether the claim has an inventive concept. The Revised Guidance explains that when making this determination, we should consider whether the additional claim elements add "a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field" or "simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality." Revised Guidance, 84 Fed. Reg. at 56.

With these principles in mind, we first analyze whether claim 65 is directed to an abstract idea.[3]

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[3] Appellant argues claims 65, 75, and 86 together. *See* App. Br. 6–10.

B. *Abstract Idea*

The Examiner finds that "the description in claim[s] 65, 75, and 86 of processing event message[] logs is an abstract idea." *See* Final Act. 9. In particular, the Examiner finds "determining the word metric distances . . . is mere data gathering, manipulation . . ." and "organizing information through mathematical correlations," all of which falls into one of the abstract ideas. *Id.*; *see also* Ans. 6–7 (finding that the claims boil down to "mere manipulation of event messages of the event logs"). The Examiner also finds that "[t]here is no indication that the combination of elements improves the computing functioning of a process or improves any other clustering event log system technology." Final Act 9–10; *see also* Ans. 8.

Appellant contends that the claims as a whole are not directed to an abstract idea, but are instead "directed to a technological improvement in the processing of records used for system diagnostics, analogous to the self-referential table model found patent-eligible in *Enfish*.[4]" Reply Br. 6. Appellant also argues that "the claimed features related to treatment of aligned numeric characters as matching have a direct improvement in computing performance when producing the records used for system diagnostics." App. Br. 8.

1. *USPTO Step 2A, Prong One*

Beginning with prong one of the first step of *Alice*, we must determine "whether the claims at issue are directed to one of those patent-ineligible concepts," including the abstract ideas enumerated in the Revised Guidance. *Alice*, 573 U.S. at 217. One of the subject matter groupings identified as an abstract idea in the Revised Guidance is "mental processes—concepts

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[4] *Enfish LLC v. Microsoft Corporation*, 822 F.3d 1327 (Fed. Cir. 2016).

performed in the human mind (including an observation, evaluation, judgment, opinion)." *See* Revised Guidance, 84 Fed. Reg. at 52, 53. The Revised Guidance explains that "mental processes" include acts that people can perform in their minds or using pen and paper, even if the claim recites that a generic computer component performs the acts. *See* Revised Guidance, 84 Fed. Reg. at 52 n.14 ("If a claim, under its broadest reasonable interpretation, covers performance in the mind but for the recitation of generic computer components, then it is still in the mental processes category unless the claim cannot practically be performed in the mind.")

Claim 65 recites limitations (a)–(d), which are reproduced in full above. The Examiner finds that "determining the word metric distances . . . is mere data gathering, manipulation . . ." and "organizing information through mathematical correlations," all of which falls into one of the abstract ideas. Final Act. 9. Because people can perform the functions recited in limitations (a)–(d) using their minds or pen and paper, they are directed to the abstract idea of "mental processes." For example, limitation (a) recites the step of "selecting . . . a plurality of event messages generated by a computing cluster, the event messages comprising unstructured logs of the computing cluster." A person can perform this function by using his or her judgment to identify, and record using pen and paper, two or more event messages generated by a computing cluster. Limitation (b) recites "determining . . . message metric distances between the event messages based on combining word metric distances between aligned words of the event messages, determining the word metric distances involving treating aligned numeric characters between the aligned words as matching characters regardless of differences between the aligned numeric

characters." A person can perform this function by comparing in his or her mind the aligned numeric characters and assigning a metric distance based on the comparison while treating aligned numeric characters as matching even though there are differences between them.

Limitation (c) recites "clustering the event messages into event types based on the message metric distances." This clustering function can be performed in the human mind or with pen and paper by using the determined metric distances to assign the event messages into event types. Finally, limitation (d) recites "storing a record of the event types associated with the event messages, the record used for system diagnostics of the computing cluster." This function can be performed by a person using pen and paper to prepare a list or record of the event types associated with the event messages and retaining a copy of the list to use for system diagnostics.

Accordingly, we conclude that claim 65 recites "mental processes"— one of the abstract idea groupings in the Revised Guidance. *See* Revised Guidance, 84 Fed. Reg. at 52. Thus, we also conclude that claim 65 recites an abstract idea.

2. USPTO Step 2A, Prong Two

Because we determine that claim 1 recites an abstract idea, we turn to prong two of the first step of the *Alice* analysis and consider whether claim 65 integrates this abstract idea into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 51. In doing so, we consider whether there are any additional elements beyond the abstract idea that, individually or in combination, "integrate the [abstract idea] into a practical application,

using one or more of the considerations laid out by the Supreme Court and the Federal Circuit."[5] Revised Guidance, 84 Fed. Reg. at 54–55.

As discussed *supra,* the Examiner finds that "[t]here is no indication that the combination of elements improves the computing functioning of a process or improves any other clustering event log system technology." Final Act. 9–10; *see also* Ans. 8. The Examiner also finds that the "determining" step is merely a routine step of "computing word metric distances between words and/or numeric characters"). Ans. 8.

We do not agree. Instead, we are persuaded by Appellant's arguments that the recited "determining" step of claim 65—"determining the word metric distances involving treating aligned numeric characters between the aligned words as matching characters regardless of differences between the aligned numeric characters"— integrates the abstract idea into a practical application, thus improving the underlying technology of error analysis of computing cluster messages. App. Br. 7–8; Reply Br. 6–7. In regard to claim 65, as well as claims 75 and 86, Appellant argues, and we agree, as follows:

> Independent claim 65 recites that determining word metric distances between event messages involves treating aligned numeric characters between the aligned words as matching characters regardless of differences between the aligned numeric characters. Independent claim 75 recites word metric distances that treat aligned numeric characters between the aligned words as matching characters. Independent claim 86 recites word metric distances that treat aligned numeric

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[5] We acknowledge that some of these considerations may be properly evaluated under step 2 of *Alice* (step 2B of the Revised Guidance). Solely for purposes of maintaining consistent treatment within the Office, we evaluate it under step 1 of *Alice* (step 2A, prong two, of the Revised Guidance). *See* Revised Guidance, 84 Fed. Reg. at 54–55.

characters between the aligned words as matching characters such that at least one of an address and a process identifier identified by the aligned numeric characters are made irrelevant to clustering the event messages. In all of these claims, the metric distances are used to cluster the event messages to create system diagnostic records.

Note that in all of claims 65, 75, and 86, the event messages are generated by a computing cluster, which "generate massive amounts of complex, cryptic, and unstructured content." (Specification at page 2, lines 1-2). The use of an efficient metric distance function enables efficient clustering and analysis of this content, as clustering can otherwise incur a large memory footprint, leading to slow analysis. (Specification at page 3, lines 16-20; page 13, lines 20-26; and page 14, lines 4-6). In particular, the inventors realized that numeric and alphanumeric data do not need to be analyzed to determine similarity for error analysis (Specification at page 13, line 27 to page 14, line 4). Therefore, the claimed features related to treatment of aligned numeric characters as matching have a direct improvement in computing performance when producing the records used for system diagnostics.

App. Br. 7–8.

Accordingly, we determine the recited judicial exception is integrated into a practical application such that the claim, as a whole, is not directed to the judicial exception. Because we conclude claim 65 is not directed to a judicial exception, and thus is patent-eligible, this ends the patent-eligibility inquiry under the Revised Guidance, and we need not proceed to the Step 2B analysis.

3. Conclusion

Thus, we do not sustain the Examiner's rejection of claim 65, and dependent claims 66–74, under 35 U.S.C. § 101. For the same reasons, we

do not sustain the Examiner's rejection of claims 75 and 86, and claims 76–
85 and 87–90 that depend from either claim 75 or 86, under 35 U.S.C. § 101.

II. Section 102(a)(1) Rejection

The Examiner rejects independent claims 65, 75, and 86, as
well as dependent claims 69–74, 79–85, and 88–90, as being anticipated by
Cohen. Final Act. 11–15. Regarding the claim 65 limitation of
"determining the word metric distances involving treating aligned numeric
characters between the aligned words as matching characters regardless of
differences between the aligned numeric characters," the Examiner finds
"Cohen teaches consistency of cluster, particularly matching messages with
respect to cosine similarity distance, matching different semantics or
frequent parameter values." Final Act. 12 (citing Cohen ¶¶ 44–46). The
Examiner also finds that certain portions of Cohen's Specification are
identical to the instant specification and that "Cohen not only teaches event
messages defining the data structure as character string including time field,
but also using cosine similarity distance algorithm in analyzing and
matching event message." Ans. 12–13 (citing Cohen ¶¶ 44–46); *see also*
Ans. 14 (citing Cohen ¶ 40).

We are persuaded by Appellant's arguments that the Examiner erred.
"'A rejection for anticipation under section 102 requires that each and every
limitation of the claimed invention be disclosed in a single prior art
reference.'" *See In re Buszard*, 504 F.3d 1364, 1366 (Fed. Cir. 2007)
(quoting *In re Paulsen*, 30 F.3d 1475, 1478–79 (Fed. Cir. 1994)). Appellant
argues, and we agree, that claims 65, 75, and 86 recite using metric distances
that treat aligned numeric characters between aligned words as matching
characters, but Cohen fails to disclose this aspect of the claims. App. Br.

10–11. We have reviewed the portions of Cohen cited by the Examiner and agree with Appellant that they do not disclose the use of word metric distances that treat aligned numeric characters between aligned words as matching characters, as set forth in the "determining" limitations of claims 65, 75, and 86. Reply Br. 7. Regarding paragraphs 38–40 of Cohen, Appellant argues, and we agree, that they describe "a similarity function that looks at identical words in the same position between two messages and provides a measure of similarity between 1 and 0," but they do not disclose that the similarity function treats aligned numeric characters between aligned words as matching characters. *Id.* at 11; *see also* Reply Br. 8.

Regarding paragraphs 44–46 of Cohen, Appellant argues, and we agree, that they "merely set forth criteria for 'suitable algorithms for message comparison and cluster generation,'" but do not disclose "an algorithm itself, and so cannot be considered an enabling disclosure." App. Br. 10–11. With respect to the Examiner's comparison of portions of Appellant's Specification to portions of the disclosure of Cohen, we agree with Appellant's argument that the Examiner "does not address the specific deficiencies in Cohen noted in the Appeal Brief." Reply Br. 7. Lastly, Appellant argues, and we agree, that the Examiner's finding that Cohen "supports log event messages as a string of characters including time field . . . [to] maintain high entropy among the members of a cluster in the word position . . . using 'cosine distance'" is unavailing because the Examiner cannot simply rely on "Cohen's showing of similar-looking messages and a generic cosine word-distance function" as disclosing the disputed limitations regarding the treatment of numeric characters. *Id.* at 8.

Accordingly, we do not sustain the Examiner's rejection of claims 65, 75, and 86, and dependent claims 69–74, 79–84, and 88–90, under 35 U.S.C. § 102(a)(1).

III. Section 103 Rejection

The Examiner rejects claims 66–68, 76–78, and 87 for obviousness over the combination of Cohen and Brady. Final Act. 16–17. The Examiner finds Cohen does not disclose hexadecimal characters, but Brady teaches "hexadecimal code representing [the] result of processing the 'event.'" Final Act. 16 (citing Brady ¶ [0003]); *see also* Ans. 16.

Appellant argues that Brady was cited as teaching the use of hexadecimal characters and was not relied on to teach or suggest "that the hexadecimal characters in such codes are treated as matching characters for any purpose." App. Br. 12. Thus, Appellant argues, and we agree, that Brady fails to cure the deficiencies of Cohen in regard to the § 102(a)(1) rejection of the independent claims from which claims 66–68, 76–78, and 87 depend. *Id.*

Accordingly, we do not sustain the Examiner's rejection of claims 66–68, 76–78, and 87 under 35 U.S.C. § 103(a).

DECISION

We reverse the Examiner's rejection of claims 65–90 under 35 U.S.C. § 101.

We reverse the Examiner's rejection of claims 65, 69–75, 79–86, and 88–90 under 35 U.S.C. § 102(a)(1).

We reverse the Examiner's rejection of claims 66–68, 76–78, and 87 under 35 U.S.C. § 103.

REVERSED