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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARIUS DOORNENBAL

Appeal 2018-004339
Application 14/080,141[1]
Technology Center 2600

Before JOSEPH L. DIXON, HUNG H. BUI, and JON M. JURGOVAN, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant seeks review under 35 U.S.C. § 134(a) from a Final Rejection of claims 1–20, which are all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.[2]

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[1] We use the word "Appellant" to refer to "applicant(s)" as defined in 37 C.F.R. § 1.42. The real party in interest is Elsevier B.V. (Appeal Br. 2.)

[2] Our Decision refers to the Specification ("Spec.") filed November 14, 2013, the Final Office Action ("Final Act.") mailed May 2, 2017, the Appeal Brief ("Appeal Br.") filed September 18, 2017, the Examiner's Answer ("Ans.") mailed January 22, 2018, and the Reply Brief ("Reply Br.") filed March 20, 2018.

CLAIMED INVENTION

The claims are directed to a method and system for "annotating electronic text documents with multiple entities defined in a controlled vocabulary extracted from a compound noun phrase" in the electronic document. (Abstract; Spec. ¶¶ 1–2.)

Claims 1, 9, and 15 are independent. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A method of annotating an electronic text document, the method comprising:
>
> searching, by a computing device, the electronic text document for instances of congruent compound noun phrases comprising a head and a modifier;
>
> determining that a first congruent compound noun phrase is found;
>
> determining a preceding word that precedes the modifier of the first congruent compound noun phrase;
>
> searching a controlled vocabulary for a second congruent compound noun phrase comprising the preceding word and the head of the first congruent compound noun phrase;
>
> determining that the second congruent compound noun phrase is found in the controlled vocabulary; and
>
> annotating the electronic text document with the second congruent compound noun phrase comprising the preceding word and the head of the first congruent compound noun phrase.

(Appeal Br. 28–33 (Claims App.).)

REJECTION[3]

Claims 1–20 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. (Final Act. 3–6.)

[3] Claims 1, 9, and 15 were rejected under 35 U.S.C. § 112(b) as being indefinite. (Final Act. 6–7.) However, this rejection was withdrawn in the

ANALYSIS

Patent eligibility is a question of law that is reviewable *de novo*. *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012). Accordingly, we review the Examiner's § 101 determinations concerning patent eligibility under this standard.

Patentable subject matter is defined by 35 U.S.C. § 101, as follows:

> [w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

In interpreting this statute, the Supreme Court emphasizes that patent protection should not preempt "the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) ("*Benson*"); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) ("*Mayo*"); *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) ("*Alice*"). The rationale is that patents directed to basic building blocks of technology would not "promote the progress of science" under the U.S. Constitution, Article I, Section 8, Clause 8, but instead would impede it. Accordingly, laws of nature, natural phenomena, and abstract ideas, are not patent-eligible subject matter. *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1346 (Fed. Cir. 2017) (citing *Alice*, 573 U.S. at 216).

The Supreme Court set forth a two-part test for subject matter eligibility in *Alice* (573 U.S. at 217–18). The first step is to determine whether the claim is directed to a patent-ineligible concept. *Id.* (citing *Mayo*, 566 U.S. at 76–77). If so, then the eligibility analysis proceeds to the second step of the *Alice*/*Mayo* test in which we "examine the elements of the

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Examiner's Answer, and is no longer pending on appeal. (Ans. 2.)

claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221 (internal quotation marks omitted) (quoting *Mayo*, 566 U.S. at 72, 79). There is no need to proceed to the second step, however, if the first step of the *Alice/Mayo* test yields a determination that the claim is directed to patent-eligible subject matter.

The Patent Office has recently revised its guidance for how to apply the *Alice/Mayo* test in the *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50–57 (January 7, 2019) ("Revised Guidance"). Under the Revised Guidance, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, mental processes, or certain methods of organizing human activity such as a fundamental economic practice or managing personal behavior or relationships or interactions between people); and
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* Manual of Patent Examining Procedure ("MPEP") § 2106.05(a)–(c), (e)–(h)).

84 Fed. Reg. at 51–52, 55.

A claim that integrates a judicial exception into a practical application applies, relies on, or uses the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception. 84 Fed. Reg. at 54. When the judicial exception is so integrated, then the claim is not directed to a judicial exception and is patent-eligible under § 101. 84 Fed. Reg. at 54. Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then evaluate whether the claim provides an inventive concept. 84 Fed. Reg. at 56; *Alice*,

573 U.S. at 217–19, 221. Evaluation of the inventive concept involves consideration of whether an additional element or combination of elements (1) adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present; or (2) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.

Applying *Step 1 of the Revised Guidance* (which is unchanged from the prior guidance) to the present case, we determine independent claim 1 recites a "method," independent claim 9 recites a "computer-program product," and independent claim 15 recites a "system," which are a form of "process," "manufacture," and "machine," respectively, thereby falling within one of the categories enumerated under § 101 and satisfying Step 1 of the Revised Guidance.

We proceed to apply Step 2A of the Revised Guidance to determine if the claims are "directed to" a judicial exception. As discussed *supra*, the *first prong of Step 2A under the Revised Guidance* is to determine whether the claims recite a judicial exception including (a) mathematical concepts; (b) certain methods of organizing human activity; and (c) mental processes. Revised Guidance, 84 Fed. Reg. at 51–52. Here, the Examiner determines that independent claims 1, 9, and 15 are "directed to a patent-ineligible abstract concept of annotating an electronic text document" which is "an abstract concept that could be performed in the human mind, or by a human using a pen and paper." (Final Act. 4–5 (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011); *In re Comiskey*, 554 F.3d

967 (Fed. Cir. 2009)); Ans. 3, 5–6.) The Examiner further finds the claims merely manipulate data by "collecting data . . . recognizing certain data within the collected data set, and . . . storing that recognized data in a memory." (Ans. 6–7.)

We are not persuaded by the Examiner's findings, as we are unable to agree that the Examiner has adequately found the concept of claim 1 (and similar claims 9 and 15) to be similar to other concepts (e.g., mental processes, pen and paper actions, and data collection and manipulation) found to be abstract ideas by our reviewing courts. (*See* Appeal Br. 9–13; Reply Br. 2, 6–9.) Appellant's claim 1 recites a method of annotating an electronic text document by searching the electronic document for particular types of phrases and finding such phrases, searching a controlled vocabulary for phrases related to the identified phrases, and annotating the electronic text document with related phrases found in the controlled vocabulary.

Here, we are unable to determine from the Examiner's analysis whether such technique for automatic phrase recognition and automatic annotation of electronic documents describes subject matter that is a mathematical concept, a method of organizing human activity, or a mental process (i.e., one of the three types of abstract ideas identified by the Revised Guidance). For example, Appellant's method is not performable by a human being or by pen and paper (as the Examiner asserts) because the method requires computer-enabled recognition of phrases in electronic documents and in a controlled vocabulary, and electronic annotation (e.g., by a mark-up language such as XML, or by changing metadata, *see* Spec. ¶¶ 2, 20, 22–23, 43). (Appeal Br. 11–13; Reply Br. 7–9.) Claim 1 also does not merely recite data collection and manipulation (as the Examiner asserts);

rather, claim 1 relates to a method for automatic updating of electronic documents to provide semantic information for multi-word phrases. (*See* Spec. ¶¶ 2–3, 25, 28, 31.)

Moreover, even if Appellant's claims 1, 9, and 15 were considered to recite an abstract idea, we are persuaded by Appellant's arguments that the claims *integrate* an abstract idea *into a practical application* (in accordance with *the second prong of Step 2A under the Revised Guidance*). (Appeal Br. 10–11, 21; Reply Br. 6–7, 11.) Specifically, the claimed technique for annotating electronic text documents improves computer-enabled recognition of multi-word phrases in electronic documents, and improves automatic annotation of electronic documents to provide semantic information for multi-word phrases. (Reply Br. 6–7, 11; *see* Spec. ¶¶ 1–4.)

As Appellant's Specification explains, a "congruent compound noun phrase" is a multi-word phrase comprising a "head" (e.g., a parent concept) and a "modifier" modifying the head, the congruent compound noun phrase being "a compound noun phrase wherein the linguistic, syntactic head of a compound noun phrase is the linguistic parent as defined by the controlled vocabulary, and the context of the compound noun phrase is discernible from the modifier." (*See* Spec. ¶¶ 14, 16, 46.) A "controlled vocabulary" is a data structure, such as a thesaurus, taxonomy, or subject index, in which phrases are organized and clustered in a semantic network based on field-specific meanings, as well as semantic inheritance relationships and/or common head terms. (*See* Spec. ¶¶ 15–16, 21, 28.) Appellant's automatic annotation method (i) searches for and identifies congruent compound noun phrases in the electronic text document, (ii) analyzes each identified congruent compound noun phrase to determine a preceding word in the

electronic document that precedes the phrase's modifier, (iii) searches a controlled vocabulary for phrases related to the identified congruent compound noun phrase and identifies such phrases as "a second congruent compound noun phrase comprising the preceding word and the head of the first congruent compound noun phrase," and (iv) annotates the electronic text document with the second congruent compound noun phrase comprising the preceding word and the head of the first congruent compound noun phrase. The electronic text document is "annotated with information pertaining to the multiple phrases found in the controlled vocabulary"—such as information including phrase meanings and domain-defined entities/field-related phrases extracted from the controlled vocabulary—by adding metadata or updating the electronic document by a mark-up language such as XML. (*See* Spec. ¶¶ 2, 15, 20, 36, 43, 49, 57.)

As Appellant explains, the claimed automatic annotation technique solves a problem in the software arts, which is that existing programs do not recognize and annotate multi-word semantic units in electronic documents:

> Compound noun phrases are multiple word phrases that comprise at least one modifier and a head. For example, in the compound noun phrase "thin film," the word "thin" is the modifier and the word "film" is the head. In some instances, a compound noun phrase may have multiple modifiers, such as "epitaxial thin film," wherein both "epitaxial" and "thin" are modifiers that modify head word "film." Such compound noun phrases may be referred to as interdigitated terms. In the present example, the word "thin" appears between "epitaxial" and "film." *In current systems, term annotations are disallowed on electronic document texts if there are meaningful intervening words or tokens. However, multiple phrases may be intended by an interdigitated term. Electronic text documents are therefore not annotated with information regarding these hidden phrases. Accordingly, a need exists for alternative methods for extracting*

> *information from single compound noun phrases to provide additional annotation information for electronic text documents*.

(Spec. ¶¶ 3–4 (emphasis added); *see also* Reply Br. 6–7; Appeal Br. 10–11.) Appellant's claimed technique provides a solution to the above-mentioned problem, improving computer-enabled recognition and extraction of multi-word phrases from electronic documents, and providing automatic annotation of multi-word phrases (such as interdigitated terms) in the electronic documents:

> In processing text documents, it may be advantageous to extract each domain-defined entity [(compound noun phrase or term that is present within the controlled vocabulary)] present in the text document for annotation purposes as well as to properly index the text document within the corpus. When interdigitated terms are used in the electronic text document, such as "corrosion-resistant aluminum alloy," "epitaxial thin films," and "ultrasonic surface wave," it may be beneficial to extract additional compound noun phrases found in the controlled vocabulary that are not present within the text . . . .
>
> By extracting these additional compound noun phrases and annotating the electronic text document accordingly, indexing of the electronic document may be improved. These additional compound noun phrases may also enable more accurate searching of the document corpus by users desiring to surface particular documents based on a search query. . . .
>
> [E]mbodiments described herein provide for extraction of multiple defined entities from a controlled vocabulary using a single compound noun phrase. Electronic text documents may be annotated with multiple compound noun phrases to provide for more precise annotation with phrases that would otherwise not be detected.

(Spec. ¶¶ 26–27, 57.)

Thus, Appellant's claimed technique improves computer-enabled recognition of phrases in electronic documents, and automatic annotation of electronic documents to provide semantic information for multi-word phrases. (Reply Br. 2, 6–7, 11; Appeal Br. 14–16; *see McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1310, 1313, 1316 (Fed. Cir. 2016) (patent eligible claims employed "rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence" to allow "computers to produce 'accurate and realistic lip synchronization and facial expressions in animated characters' that previously could only be produced by human animators"); *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1259–60 (Fed. Cir. 2017) (patent-eligible claims were "directed to a technological improvement: an enhanced computer memory system" with "programmable operational characteristics . . . configurable based on the type of processor," and "the specification discusses the advantages offered by the technological improvement").)

Because claims 1, 9, and 15 integrate the judicial exception into a practical application, we find claims 1, 9, and 15, and their dependent claims 2–8, 10–14, and 16–20, are not directed to a judicial exception (abstract idea), rather, they are directed to patent-eligible subject matter under § 101. Accordingly, we do not address Step 2B of the Revised Guidance (corresponding to step two of the *Alice/Mayo* test).

For these reasons, we do not sustain the Examiner's rejection of claims 1–20 as directed to ineligible subject matter under 35 U.S.C. § 101.

DECISION SUMMARY

The Examiner's rejection of claims 1–20 under 35 U.S.C. § 101 is REVERSED.

In summary:

Claims Rejected	35 U.S.C. §	Basis/Reference(s	Affirmed	Reversed
1–20	101	Eligibility		1–20

REVERSED