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 YOUNG SOOK HWANG, SANG-BUM KIM,
SHOUXUN LIN, ZHAOPENG TU, YANG LIU,
QUN LIU, and CHANG HAO YIN

_____

Appeal 2016-008365
Application 13/818,137
Technology Center 2600

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Before CARLA M. KRIVAK, CAROLYN D. THOMAS, and
JOSEPH P. LENTIVECH, *Administrative Patent Judges*.

KRIVAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of
claims 1, 3–10, and 12–19. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Appellants' invention is directed to

> a statistical machine translation method using a dependency
> forest which can improve a translation capability by performing
> a dependency analysis for a corpus of a pair of languages to
> generate a plurality of dependency trees, combining the
> plurality of generated dependency trees to generate a
> dependency forest, using the dependency forest to generate a
> translation rule and a dependency language model, and then
> applying the generated translation rule and dependency
> language model when a source-language text is converted to a
> target language text

(Spec. 1:6–14).

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

> 1. A method of generating a translation rule, the method
> comprising:
>
> extracting a translation rule by using a dependency forest
> generated by combining a plurality of dependency trees,
>
> wherein respective nodes of the dependency forest are
> connected by a hyperedge, and
>
> the hyperedge packs all dependents having a common
> head,
>
> wherein the hyperedge has a probability *(p(e))* which
> satisfies Equation 1:

$$p(e) = \frac{c(e)}{\sum_{e',\, head(e')=head(e)} c(e')}$$

where:

c(e) is count of a hyperedge e and satisfies Equation 2:

$$c(e) = \exp\left(\frac{\sum_{v \in tails(e)} s(v, head(e))}{|tails(e)|}\right);$$

head(e) is a head of the hyperedge e;

tail(e) is a dependent set of the head;
v is one dependent; and
s(v, head(e)) is a score of an edge to head(e) in v; and

storing the translation rule in a non-transitory computer-readable recording medium.

REJECTION

The Examiner rejected claims 1, 3–10, and 12–19 under 35 U.S.C. § 101 as directed to non-eligible subject matter (Final Act. 3–4).

ANALYSIS

Alice Corp. Pty. Ltd. v. CLS Bank International, 134 S. Ct. 2347 (2014) identifies a two-step framework for determining whether claimed subject matter is judicially-excepted from patent eligibility under 35 U.S.C. § 101. In the first step, "[w]e must first determine whether the claims at issue are directed to a patent-ineligible concept." *Alice*, 134 S. Ct. at 2355. This step requires us to consider the claims "in their entirety to ascertain whether their character as a whole is directed to excluded subject matter." *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015). The question is whether the claims as a whole "focus on a

specific means or method that improves the relevant technology" or are "directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016). If the claims are directed to a patent-ineligible concept, the inquiry proceeds to the second step.

In the second step of the *Alice* analysis, we "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Alice*, 134 S. Ct. at 2355 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78–79 (2012)). In other words, the second step is to "search for an 'inventive concept' – i.e., 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.'" *Id.* (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73).

In rejecting independent claims 1, 3–10, and 12–19 under 35 U.S.C. § 101, the Examiner finds these claims are directed to an abstract idea of generating a transaction rule that is a generic abstract mathematical structure (Final Act. 3; Ans. 2).

Appellants contend the Examiner failed to provide convincing rationale or evidence that Appellants' claimed subject matter is directed to an abstract idea (App. Br. 12). Additionally, Appellants assert the Examiner "agreed that the prior art of record fails to teach or suggest the" claimed limitations, therefore claim 1 recites significantly more because it is not routine or conventional in the field (App. Br. 14). Further, Appellants contend there is an improvement to the functioning of the computer itself in

that it "make[s] a function for generating a target language text, which is translated from a source language text, to be faster and to be more accurate" (App. Br. 13). We do not agree.

Appellants claims merely recite a method for generating a translation rule including extracting a translation rule and storing the translation rule. The extraction occurs using a dependency forest where all respective nodes of the dependency forest are connected by a hyperedge, the hyperedge having a probability satisfied by an equation. "Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible." *Digitech Image Techs., LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014); *see also In re Abele*, 684 F.2d 902, 907 (C.C.P.A. 1982). Thus, we agree with the Examiner that Appellants' claim is an abstract idea under Alice's step 1.

As to Appellants contention that because the Examiner withdrew the § 102 rejection and there are no further rejections under 35 U.S.C. §§ 102 or 103, claim 1 provides "significantly more" than an abstract idea (App. Br. 13), a finding that the claims are novel and non-obvious does not necessarily lead to the conclusion that the subject matter is patent eligible. *See also Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1050 (Fed. Cir. 2016). "[P]atent-eligibility does not turn on ease of execution or obviousness of application. Those are questions that are examined under separate provisions of the Patent Act." *Id.* at 1052 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 90 (2012). Indeed, "[t]he 'novelty' of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of

a claim falls within the § 101 categories of possibly patentable subject matter." *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981).

Appellants' argument that the claimed invention improves the functioning of the computer itself is also incorrect (App. Br. 13). The claims do not recite a specific improvement to the way computers operate, and Appellants do not present evidence to establish these claims recite a specific improvement to the computers (*see Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016)). As a matter of fact, no computer is recited in Appellants' claims. Appellants' Reply Brief states there are three machines recited in the method of claim 1; however, these argued limitations are also not found in the claims (Reply Br. 5). Even if we agree a computer performs the claimed functions, as Appellants assert they do, a single computer could perform them and nowhere does Appellants' Specification state that anything other than a generic computer can be used. Additionally, Appellants assertion there is improved functioning of the computer itself because "by using the method of generating a translation rule . . . it is possible to make a function for generating a target language text, which is translated from a source language text, to be faster and to be more accurate," is also misguided (App. Br. 13). First, "relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible" (*OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015)). Second, even according to Appellants, it is not the computer itself that is made faster, but the target language text is generated more quickly (App. Br. 13); Appellants' claims merely rely on the computer to perform routine tasks more quickly.

Thus, we agree with the Examiner the claims also fail under step 2 of the Alice analysis. Therefore, we sustain the Examiner's rejection of claims 1, 3–10, and 12–19.

DECISION

The Examiner's decision rejecting claims 1, 3–10, and 12–19 under § 101 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

<u>AFFIRMED</u>