# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/007,703 | 01/27/2016 | Daniel Baum | 10171-432US1 | 9820 |

75158     7590     01/30/2020

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| ART UNIT | PAPER NUMBER |
|---|---|
| 2658 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 01/30/2020 | ELECTRONIC |

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PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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*Ex parte* DANIEL BAUM, URI SEGAL,
RON WEIN, and OANA SIDI
_____

Appeal 2019-001764
Application 15/007,703
Technology Center 2600
_____

Before ELENI MANTIS MERCADER, NORMAN H. BEAMER, and
GARTH D. BAER, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.


DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 and 3–16, which are all the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

THE INVENTION

Appellant's claimed invention is directed to "expanding an initial ontology via processing of communication data, wherein the initial ontology is a structural representation of language elements" (Abstract).

Independent claim 1, reproduced below with emphases added, is representative of the subject matter on appeal:

> 1.  An automated method for *refining an initial ontology* stored in computer-readable memory *via processing of communication data, wherein the initial ontology is a structural representation of language elements, the method comprising*:
>
> *receiving the initial ontology comprising a set of entities, a set of terms, a set of term-entity associations, a set of entity-association rules, a set of abstract relations, and a set of relation instances*;
>
> r*eceiving a training set of communication data*;
>
> *processing*, by a computing system, *the training set of communication data to extract a set of significant phrases and a set of significant phrase pairs from within the training set of communication data*;

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies Verint Systems Ltd. as the real party in interest (Appeal Br. 3).

*after the extracting, adding*, by the computing system, *the set of significant phrases as ontology terms to the set of terms stored in the initial ontology, and then associating*, by the computing system, *the added ontology terms to ontology entities of the set of entities*;

*after the associating, adding*, by the computing system, *new abstract relations to the set of abstract relations stored in the initial ontology, the new abstract relations being based on both the set of significant phrase pairs and a scoring function that associates a respective score to each phrase pair of the set of significant phrase pairs*;

*after the adding of the new abstract relations to the stored initial ontology, adding*, by the computing system, *new relation instances to the set of relation instances stored in the initial ontology, the new relation instances being based on both the set of significant phrase pairs and the scoring function; and*

*after completion of the adding of the new relation instances, outputting and storing the initial ontology*, by the computing system, *as a refined ontological structure.*

(Claims Appendix (Appeal Br. 19)).

## REJECTION

The Examiner made the following rejection:

Claims 1 and 3–16 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Final Act. 3.

## ISSUE

The pivotal issue is whether the Examiner erred in finding that claims 1 and 3–16 are directed to non-statutory subject matter.

ANALYSIS

We adopt the Examiner's findings in the Answer and Final Office
Action and we add the following primarily for emphasis. We note that if
Appellant failed to present arguments on a particular rejection, we will not
unilaterally review those uncontested aspects of the rejection. *See Ex parte
Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential); *Hyatt v. Dudas*,
551 F.3d 1307, 1313–14 (Fed. Cir. 2008) (the Board may treat arguments
Appellant failed to make for a given ground of rejection as waived).

The Examiner determines claim 1 is patent ineligible under 35 U.S.C.
§ 101, because the claims are "directed to an abstract idea of refining a
collection/ontology of text, and involve organizing and manipulating
information through mathematical correlations" (Final Act. 3, citing
*Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.*, 758
F.3d 1344 (Fed. Cir. 2014)), and that when

> [v]iewed as a whole, these additional claim elements do not
> provide meaningful limitations to transform the abstract idea
> into a patent eligible application of the abstract idea such that
> the claims amounts to significantly more than the abstract idea
> itself

(Final Act. 4; *see also Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217
(2014) (describing the two-step framework "for distinguishing patents that
claim laws of nature, natural phenomena, and abstract ideas from those that
claim patent-eligible applications of those concepts")).

After the docketing of this appeal, the USPTO published revised
guidance on the application of § 101 ("Guidance"). *See* USPTO's 2019
Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7,

2019) ("Memorandum"). Pursuant to the Guidance "Step 2A," the Office

first looks to whether the claim recites:

> (1) Prong One: any judicial exceptions, including certain groupings of
> abstract ideas (i.e., mathematical concepts, certain methods of
> organizing human activity such as a fundamental economic practice,
> or mental processes); and

> (2) Prong Two: additional elements that integrate the judicial exception
> into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h) (9<sup>th</sup>
> Ed., Rev. 08.2017 (Jan. 2018))).

Only if a claim (1) recites a judicial exception and (2) does not integrate that

exception into a practical application, does the Office then (pursuant to the

Guidance "Step 2B") look to whether the claim:

> (3) adds a specific limitation beyond the judicial exception that are not
> "well-understood, routine, conventional" in the field (*see* MPEP
> § 2106.05(d)); or

> (4) simply appends well-understood, routine, conventional activities
> previously known to the industry, specified at a high level of
> generality, to the judicial exception.

*See* Memorandum.

Pursuant to Step 2A, Prong One of the Guidance, the Office first looks

to "evaluate whether the claim recites a judicial exception, *i.e.*, an abstract

idea" (Memorandum, 84 Fed. Reg. at 54). Here, claim 1 recites "[a]n

automated method for refining an initial ontology . . . via processing of

communication data, wherein the initial ontology is a structural

representation of language elements." Specifically, claim 1 recites the

limitations italicized *supra*. The italicized portions of claim 1 represent the steps performed in order to "refin[e] [the] initial ontology."

While these limitations generally recite organizing and manipulating information, the steps specifically recite that "new abstract relations" and "new relation instances" are added based in part on a "scoring function that associates a respective score to each phrase pair of the set of significant phrase pairs." The recitation of a "scoring function" is a "mathematical calculation[]" under the Guidance. *See* Memorandum, 84 Fed. Reg. at 52; *see also* October 2019 Update: Subject Matter Eligibility at 4. The Guidance provides that these limitations, therefore, recite the abstract idea of "mathematical concepts." Memorandum, 84 Fed. Reg. at 52; *see also SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) ("[S]electing certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis . . . is all abstract"); *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) ("analyzing information . . . by mathematical algorithms, without more" is abstract) (case citations omitted).

Accordingly, claim 1 "recites a judicial exception . . . [and] requires further analysis in Prong Two" of the Guidance. *See* Memorandum, 84 Fed. Reg. at 54.

Pursuant to Step 2A, Prong Two, we are not persuaded the Examiner has erred in finding that claim 1 is directed to an abstract idea. That is, we determine claim 1 does not integrate the recited judicial exception into a practical application. *See* Memorandum, 84 Fed. Reg. at 54.

Appellant argues "[t]he pending claims do not simply manipulate existing information to generate additional information, as in *Digitech*"

(Appeal Br. 13), but instead add "the extracted set of significant phrases
from the training set" and

> add additional term-entity associations, abstract relations, and
> relation instances, thereby transforming the structure of the
> initial ontology to generate the refined ontological structure

(Appeal Br. 13). Appellant further contends "the pending claims are
explicitly tied to a specific structure or machine" (Appeal Br. 13), and that
because "the pending claims explicitly recite performance of the 'automated
method . . . by a computing system,' *Digitech* does not apply" (Reply Br. 4).

Appellant additionally argues that "[p]rocesses that automate tasks
that humans are capable of performing are patent eligible if properly
claimed" (Appeal Br. 17, citing *McRO, Inc. v. Bandai Namco Games Am.
Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016)). Appellant contends that

> [m]achine learning is a technological process. The claimed
> features for how to extract significant phrases and significant
> phrase pairs from a training set of communication data and
> change the structure of an initial ontology to generate a refined
> ontological structure is an improvement of the technological
> process

(Appeal Br. 17).

We are not persuaded by Appellant's arguments. Appellant relies on
the claimed "refined ontological structure" produced by the method to
distinguish the claimed method from the holding in *Digitech*. However, the
claimed method steps take an abstract, pre-existing ontological structure, and

1. *add* "the set of significant phrases as ontology terms to the set of
   terms stored in the initial ontology";
2. *associate* "the added ontology terms to ontology entities of the set of
   entities";

3. *add* "new abstract relations to the set of abstract relations"; and

4. *add* "new relation instances to the set of relation instances,"

and finally then *output* the result.

Appellant has not persuasively shown how refining an abstract pre-existing ontological structure using mathematical techniques does not run afoul of *Digitech's* admonition that "[w]ithout additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible." *Digitech*, 758 F.3d at 1351.

Nor do we see any claim steps that comprise an improvement of a technological process akin to *McRO*, as Appellant's automated method does not go "beyond merely 'organizing [existing] information into a new form'" (*McRO*, 837 F.3d at 1315 (citation omitted)). Rather, the disclosure indicates that

> [i]n general, training module 300 is an automated process that accepts an initial ontology and a set of text documents, gives scores to the existing ontology components based on their relevance to the text documents, and ***enriches the initial ontology with additional terms, abstract relations and relation instances that are characteristic to those documents***

(Spec. ¶ 30, emphasis added), and such an enrichment appears to retain the initial ontology's existing form.

Moreover, Appellant's purportedly improved abstract concept is still an abstract concept under the Guidance. *See Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) ("[A] claim for a new abstract idea is still an abstract idea") (emphasis omitted). That is, the highlighted limitations, which form steps to refine the ontological structure,

are part of the recited abstract idea as discussed above.  As the argued

elements are part of the abstract idea, they are not additional elements that

integrate the identified abstract idea into a practical application.  *See*

Memorandum, 84 Fed. Reg. 54–55 ("[E]valuate integration into a practical

application by: (a) Identifying whether there are any additional elements

recited in the claim beyond the judicial exception(s)").

Accordingly, we determine the claim does not integrate the judicial

exception into a practical application.  *See* Memorandum, 84 Fed. Reg. at

54.  We determine the "claim recites a judicial exception and fails to

integrate the exception into a practical application," therefore we proceed

with "further analysis pursuant to the second step of the *Alice/Mayo* test

(USPTO Step 2B)."  Memorandum, 84 Fed. Reg. at 51.

We agree with the Examiner that the claimed elements and

combination of elements do not amount to significantly more than the

judicial exception itself.  *See* Final Act. 4; *see also* Memorandum, 84 Fed.

Reg. at 56.  Independent claim 1 additionally recites "a computing system."

We agree with the Examiner that

> [t]he additional elements or combination of elements in the
> claims other than the abstract idea per se (i.e. use of terms
> automated, computing system, processor, memory, computer-
> readable medium) amount to no more than mere instructions to
> implement the idea on a computer, and/or (ii) recitation of
> generic computer structure that serves to perform generic
> computer functions that are well-understood, routine, and
> conventional activities previously known to the pertinent
> industry

(Final Act. 4).

Appellant argues that "unlike *Digitech*, the pending claims are explicitly tied to a specific structure or machine" (Appeal Br. 13), but does not point to any portion of the disclosure as describing the "computing system" and does not explain how the structure or machine is "specific." The disclosure generically describes "computing system 1200" as being "generally a computing system that includes a processing system 1206, storage system 1204, software 1202, communication interface 1208 and a user interface 1210" (Spec. ¶ 58; *see also* Fig. 7, ¶¶ 59–64). *See Alice*, 573 U.S. at 226 ("But what petitioner characterizes as specific hardware . . . is purely functional and generic. Nearly every computer will include a 'communications controller' and 'data storage unit' capable of performing the basic calculation, storage, and transmission functions required by the method claims."); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (Claims reciting, *inter alia*, sending messages over a network, gathering statistics, using a computerized system to automatically determine an estimated outcome, and presenting offers to potential customers found to merely recite "well-understood, routine conventional activit[ies].").

Accordingly, we affirm the Examiner's rejection of independent claim 1, and independent claims 6 and 10, as well as dependent claims 3–5, 7–9, and 11–16 not separately argued with particularity. *See* Appeal Br. 17–18.

## CONCLUSION

The Examiner did not err in finding that claims 1 and 3–16 are directed to non-statutory subject matter.

DECISION

In summary:

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed |
|---|---|---|---|---|
| 1, 3–16 | 101 | Eligibility | 1, 3–16 | |

TIME PERIOD FOR RESPONSE

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).

AFFIRMED