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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* MOHAMED N. AHMED and AARON K. BAUGHMAN

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Appeal 2018-004119  
Application 14/196,002  
Technology Center 2600

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Before MAHSHID D. SAADAT, SCOTT B. HOWARD, and  
JOHN D. HAMANN, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–6 and 8–21, which constitute all the pending claims in this application.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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<sup>1</sup> Appellants identify International Business Machines Corporation as the real party in interest. App. Br. 3.

<sup>2</sup> Claim 7 has been previously canceled.

## STATEMENT OF THE CASE

### *Introduction*

Appellants' disclosure relates to "the field of natural language processing, and more particularly to natural language processing with dynamic pipelines." Spec. ¶ 1. Exemplary claim 1 under appeal reads as follows:

1. A method for natural language processing, the method comprising:

selecting, by a computer processor, a dynamic pipeline based, at least in part, on a corpus, wherein the dynamic pipeline links a first human language technology component and a second human language technology component, wherein the first human language technology component comprises a first set of algorithms and the second human language technology component comprises a second set of algorithms and wherein the corpus includes at least text, audio, and video;

identifying, by a computer processor, a first algorithm of the first set of algorithms associated with the first human language technology component and a second algorithm of the second set of algorithms associated with the second human language technology component;

applying, by the computer processor, the first algorithm based, at least in part, on the corpus to generate a first cluster space that reflects a dynamic determination of relationships within the corpus, wherein the first cluster space includes probabilities that each respective relationship within the corpus is true or untrue;

amending, by the computer processor, an evidence chain that includes one or more findings of true relationships associated with the corpus in response to applying the first algorithm, to reflect a most recent finding of a true relationship of the true relationships that supersedes a previous finding in light of a probabilistic determination from new determined relationships in the first cluster space;

standardizing, by the computer processor, a first ontology of the first cluster space, wherein the first ontology is a data structure on a computer;

applying, by the computer processor, the second algorithm based, at least in part, on the corpus and the first ontology of the first cluster space to generate a second cluster space that is associated with the corpus;

identifying, by the computer processor, a set of information of one or more corpora that has a relevance to the corpus that exceeds a pre-determined threshold based, at least in part, on the first and second cluster spaces of corpus; and

generating, by the computer processor, a summary report based, at least in part, on the set of information of the one or more corpora.

App. Br. 32–33 (Claims Appendix).

*The Examiner's Rejection*

Claims 1–6 and 8–21 stand rejected under 35 U.S.C. § 101 as not being directed to patent-eligible subject matter. *See* Final Act. 4–6

ANALYSIS

We have reviewed the Examiner's rejection in light of Appellants' arguments that the Examiner erred. We are persuaded the Examiner erred in rejecting the claims under 35 U.S.C. § 101 for not being directed to patent-eligible subject matter. We highlight and address specific findings and arguments for emphasis as follows.

*The Examiner's Determinations*

The Examiner determines claim 1 is patent-ineligible under 35 U.S.C. § 101 because the claims are directed to the abstract idea of “selecting a dynamic pipeline based on a corpus, identifying a first and second algorithm, applying the first algorithm to the corpus to produce a cluster space,

amending an evidence chain based on applying the first algorithm, standardizing an ontology of the cluster space, applying the second algorithm on the corpus and the ontology, identifying related information and generating a summary report.” Final Act. 4. The Examiner finds other independent claims 9 and 15 recite similar process steps. Final Act. 4–5. The Examiner also determines that these features are directed to an abstract idea because they are similar to:

“Data recognition and storage” (Content Extraction and Transmission LLC v. Wells Fargo Bank, N.A., 776 F.3d 1343, 113 U.S.P.Q.2d 1354 (Fed. Cir. 2014)), “Collecting information, analyzing it, and displaying certain results of the collection and analysis” (Electric Power Group, LLC, v. Alstom, 830 F.3d 1350, 119 U.S.P.Q.2d 1739 (Fed. Cir. 2016)), and “organizing information through mathematical correlations” (Digitech: 19 see Section IV.C.1, Federal Register, Vol. 79, No. 241, dated Tuesday, December 16, 2014, page 74622).

Final Act. 5. The Examiner further determines the additional elements recited in the claims are directed to computer-implemented functions that are well-understood, routine, and conventional that “fail to amount to significantly more than the abstract idea above.” *Id.*

#### *Appellant’s Contentions*

Appellants argue that, under the *first* step of *Alice*, the claimed features address “many challenges in natural language processing involve natural language understanding—that is, ***enabling computers to derive meaning from human or natural language input*** and that embodiments of the present invention provide “***an NLP system that determines relationships expressed indirectly***, (e.g., relationships between entities within unstructured data).” App. Br. 16. Appellants contrast their claims with those in *Content*

*Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) “because embodiments of Appellant’s invention provides for an NLP system that is not commonly used in the industry (e.g., determines relationships expressed indirectly)” and “does more than ‘data recognition and storage.’” App. Br. 16–17.

Similarly, Appellants contend that, unlike the claims in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016), their claims recite “limitations for the technical means for improving the functioning of natural language processing systems to identify relationships not explicitly expressed.” App. Br. 18. Appellants also argue their claims are different from those in *Digitech Image Techs., LLC v. Electronics for Imaging, Inc.*, 758 F. 3d 1344, 1350 (Fed. Cir. 2014) because their “claimed invention does not merely ‘take two data sets’ and combine them into a single data set,” nor does it “organize this existing information and organize the information into a new form.” App. Br. 19.

Additionally, Appellants contend their claims, similar to those in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), include “a set of ‘rules’ (basically mathematical relationships that improve computer-related technology by allowing computer performance of a function not previously performable by a computer.” See App. Br. 20–22.

Lastly, Appellants argue their claims can readily be analogized to the claims in *DDR Holdings, LLC v. Hotels.com*, 773 F.3d 1245 (Fed. Cir. 2014), because their invention “does not merely recite a mathematical algorithm, nor a fundamental economic or longstanding commercial practice but instead address a challenge particular to natural language processing systems.” App. Br. 22–24. Thus, Appellants argue their claims recite more

than gathering and analyzing data because “Applicant’s specification provides context in that paragraphs [0010-0011] ‘many challenges in natural language processing involve natural language understanding—that is, enabling computers to derive meaning from human or natural language input’” and “embodiments of the present invention provide ‘an NLP system that determines relationships expressed indirectly, (e.g., relationships between entities within unstructured data).’” Reply Br. 6–7.

*Discussion*

The pending claims do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it. Instead, as stated by Appellants and described in paragraphs 2–4 and 10–12 of the Specification, the claims “are directed towards the improvement of ‘natural language processing’ systems.” App. Br. 21. We are persuaded by Appellants’ argument that the claims “do not rely on ‘generating the summary report’ to improve the functioning of a computer,” and instead:

As acknowledged by Appellant’s specification, the function not previously performable by a computer is “***deriv[ing] meaning from human or natural language input***” and “***determin[ing] relationships expressed indirectly***, (e.g., relationships between entities within unstructured data) is something, as mentioned in Appellant’s specification that enables these NLP systems to function better at their tasks (e.g., improvement in performance of a function not previously performable).

*Id.*

We disagree with the Examiner that the claims are directed to gathering and analyzing data and identifying and displaying the results of the analysis (*see* Ans. 14), or directed to a mathematical formula or algorithm.

Ans. 16. “The ‘directed to’ inquiry, therefore, cannot simply ask whether the claims involve a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions involves a law of nature and/or natural phenomenon.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). Therefore, although the claims may use an algorithm or some mathematics in the recited calculations, the claims recite a process and system that “***enables[ing] computers to derive meaning from human or natural language input.***” App. Br. 22.

Claims 1, 9, 15 are not directed to collecting information without “requir[ing] a new source or type of information, or new techniques for analyzing it,” like the claims in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016), *cited in* Ans. 14–15. Nor do the claims recite “steps people go through in their minds” or a mathematical algorithm. *Id.* at 1354. Rather, the claimed invention uses the recited information (e.g., a dynamic pipeline or a data structure that links two HLT components) and applies different algorithms to identify specific relationships among parts of the data structure.

We are also persuaded by Appellants’ argument that the claimed solution is necessarily rooted in the natural language recognition system in order to overcome a problem specifically arising in the realm of the Internet. *See DDR*, 773 F.3d at 1257. Additionally, the combination of Appellants’ claim elements, like the claims in *Bascom*, provides a practical application of natural language processing, including natural language understanding that enables computers to derive meaning from human or natural language input. In particular, the claims address “a challenge particular to natural

language processing systems” by “improving natural language processing systems that seek to discern relationships that are not explicitly expressed.” App. Br. 23. For example, the Specification provides for specific relational aspects of data structures in the context of a dynamic pipeline which, in turn, “is associated with one or more cluster spaces, which are each a topological representation of unstructured data.” See Spec. ¶ 19. Similarly, specific algorithms are used to determine values representing “probabilistic findings of truth,” which is “a conclusion of a probability that an asserted finding is true or untrue.” See Spec. ¶ 25. Thus, the problem and solution specifically arise in computer technology. Additionally, the claimed invention does not simply use a computer to process data and/or serve a conventional business purpose that transforms the abstract idea (*i.e.*, “selecting a dynamic pipeline” or applying algorithms to the corpus to generate cluster spaces”) into “a particular, practical application of that abstract idea,” similar to the claims in *Bascom*.

The Examiner has not addressed whether the claim recitations, when viewed in light of Appellants’ Specification, relate to a challenge particular to natural language processing systems and thus recite significantly more than the abstract idea. The Examiner instead focuses on whether “the claims are simply performing algorithmic steps that could be performed by a human with pen and paper.” Ans. 22. Although the claimed process and a person’s language recognition can result in similar outcomes, *i.e.*, parse, tag, and extract knowledge from unstructured text (Spec. ¶ 10), the outcomes are achieved through different processes. One is the way a human recognizes speech, and the other relates to analyzing relational data structures and linking one or more algorithms of HLT components. See Spec. ¶¶ 22–28.

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On this record, we are persuaded that the Examiner erred in concluding that claims 1–6 and 8–21 are ineligible under 35 U.S.C. § 101.

**DECISION**

We reverse the Examiner’s decision to reject claims 1–6 and 8–21 under 35 U.S.C. § 101.

**REVERSED**