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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KAMAL K. BHATTACHARYA,
JAYAN NALLACHERRY, and
YEDENDRA BABU SHRINIVASAN

Appeal 2017–009780
Application 13/570,811¹
Technology Center 3600

Before HUBERT C. LORIN, TARA L. HUTCHINGS, and
AMEE A. SHAH, *Administrative Patent Judges*.

LORIN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Kamal K. Bhattacharya et al. (Appellants) seek our review under 35 U.S.C. § 134(a) of the Final Rejection of claims 1, 5–9, 13–16, 20, and 21. We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

We REVERSE and enter a NEW GROUND of rejection.

¹ The Appellants identify International Business Machines Corporation as the real party in interest. App. Br. 1.

THE INVENTION

Claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A service processing unit (SPU) performance improvement method comprising:

receiving simultaneously and in real-time from a plurality of data gathering tools via an input device, by a computer processor of a human provided service delivery computing system (HPSDS) executing a plurality of data gathering tools within an IT infrastructure, current and historic performance and compliance metrics and associated importance ratings for a service, wherein said HPSDS computing system comprises a particular hardware configuration;

archiving in real-time, by a data store repository of said HPSDS computing system, said current and historic performance and compliance metrics and associated importance ratings;

integrating, by a performance and compliance combination component, said current and historic performance and compliance metrics;

providing, by a visualization component, a time series based visualization of said current and historic performance and compliance metrics;

determining, by said computer processor executing a performance-compliance relationship analyzer (OPCRA) configured component of said HPSDS computing system, optimally balanced states and worst states for each metric of said performance and compliance metrics;

calculating, by said computer processor based on said optimally balanced states and said worst states, Service Delivery Quotient (SDQ) values for said performance and compliance metrics during a specified time period;

displaying, by said visualization component via said computer screen, said SDQ values;

generating by said computer processor from said SDQ values based on input received via said input device, normalized SDQ values;

displaying, by said visualization component via said computer screen, said normalized SDQ values;

receiving, by said computer processor, data indicating a circle comprising a radius R;

generating, by said computer processor from said data, a virtual circle comprising said radius R;

dividing, by said computer processor, said virtual circle into a plurality of sectors such that each said metric comprises a sector angle value that is proportional to an associated importance rating of said associated importance ratings;

generating, by said computer processor, bisectors for said plurality of sectors;

generating, by said computer processor, a star plot graph comprising said bisectors;

plotting within said virtual circle, by said computer processor executing said visualization component, said normalized SDQ values;

displaying, by said visualization component via said computer screen, said ideal SDQ values within said virtual circle;

generating, by said computer processor based on said plotting based on input received via said input device, a first polygon B from said normalized SDQ values;

determining, by said computer processor based on said first polygon B, ideal SDQ values of said normalized SDQ values, said ideal SDQ values representing changes in said current and historic performance;

second plotting within said virtual circle, by said computer processor, said ideal SDQ values;

displaying, by said visualization component via said computer screen, said ideal SDQ values within said virtual circle;

generating, by said computer processor based on said second plotting, a second polygon G from said ideal SDQ values;

calculating, by said computer processor, time based SDQ values for performance during a time t, wherein $D =$

$\sqrt{|\overline{GB}|^2 + (S_B - S_G)^2}$, wherein S_B equals a sum of all distances between ideal state performance and compliance metrics value points along an axis to a center of the circle, wherein S_G equals a sum of all distances between the performance and compliance metrics value points of the HPSDS at a time t along the axis to

the center of the circle, and wherein $|\overline{GB}|$ is the distance between a center of the first polygon B and a center of the second polygon G;

processing, by said visualization component, an output from a performance and compliance combination component and OPCRA configured component;

determining, by said visualization component based on said output, various states of HPSDS computing system over a specified time period;

evaluating, by said computer processor based on said various states and results of said calculating said time based SDQ values for performance, an operational performance of components of a service processing unit (SPU) component;

determining, by said computer processor based on results of said evaluating, an overall operational performance of said SPU component; and

enforcing, by said computer processor based on said overall operational performance of said SPU component, improvement actions with respect to improving said overall operational performance said SPU component, resulting in said overall operational performance said SPU component being improved by;

mapping a relationship between outcomes of said SPU component and associated performance components;

forecasting outcomes of said SPU component based on an associated performance;

visualization of past, current, and future performance of said SPU component; and

visualization of compliance of said SPU component to a service delivery framework component thereby modifying said SPU component to be in compliance with said service delivery framework component.

THE REJECTION

The following rejection is before us for review:

Claims 1, 5–9, 13–16, 20, and 21 are rejected under 35 U.S.C. § 101 for claiming patent-ineligible subject matter.

ISSUE

Did the Examiner err in rejecting claims 1, 5–9, 13–16, 20, and 21 under 35 U.S.C. §101 for claiming patent-ineligible subject matter?

ANALYSIS

The rejection of claims 1, 5–9, 13–16, 20, and 21 under 35 U.S.C. § 101 for claiming patent-ineligible subject matter.

Claims 1, 5–9, 13–16, 20, and 21 are indefinite for the reasons discussed below. Accordingly, the rejection of claims 1, 5–9, 13–16, 20, and 21 under 35 U.S.C. § 101 for claiming patent-ineligible subject matter must fall, *pro forma*, because it necessarily is based on speculative assumptions as to the meaning of the claims. *See In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962).

We make the following observations to explain why we are raising a question of definiteness. We otherwise have no comment on the merits of the Examiner’s position regarding the patent–eligibility of the claimed subject matter.

We cannot meaningfully review this rejection because, based on the present record, we have been unable to give “a service processing unit (SPU)” (all the claims) a broadest reasonable construction in light of the Specification as it would be interpreted by one of ordinary skill in the art.

Introduction

35 U.S.C. § 101 provides that “[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.”

In that regard, claim 1 (reproduced above) covers a “process” and is thus statutory subject matter for which a patent may be obtained.² This cannot be disputed. The two other independent claims on appeal, claim 9 to “[a] computer program product” and claim 16 to “[a] computer system” are nominally directed to the “manufacture” and “apparatus” statutory categories of invention, respectively. This also cannot be in dispute.

However, the § 101 provision “contains an important implicit exception: 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)).

In that regard, notwithstanding independent claims 1, 9, and 16 are statutory subject matter (as are the claims depending from them), the Examiner has raised a question of patent–eligibility on the ground that they are directed to an abstract idea.

Alice identifies a two-step framework for determining whether claimed subject matter is directed to an abstract idea. *Alice*, 573 U.S. at 217.

Alice step one – the “directed to” inquiry

According to *Alice* step one, “[w]e must first determine whether the claims at issue are *directed to* a patent-ineligible concept” (*Id.* at 218 (emphasis added)).

² This corresponds to Step 1 of the 2019 Revised 101 Guidance which requires determining whether a “claim is to a statutory category.” *Id.* at 53. *See also* sentence bridging pages 53 and 54 (“consider[] whether the claimed subject matter falls within the four statutory categories of patentable subject matter identified by 35 U.S.C. 101 . . .”).

The Examiner determined that “claims 1, 5–9, 13–16, 20, and 21 are directed to receiving data, archiving metrics, integrating metrics, providing a visualization, determining optimally balanced states, calculating values, displaying values, and using mathematical calculation to determine values for graphically plotting, which is a practice similar to those found by the courts to be abstract.” Final Act. 10–11.

The Appellants disagree:

In response, Appellants assert that Appellants claim a specific type of non-abstract computer technology improvement defined by **real time** implemented component (SPU) structures (e.g., logical (software) and/or physical (hardware)) being improved (i.e., a non-abstract computer technology improvement) via associated novel processes improving a performance of the components (i.e., to be in compliance with each other by mapping relationships between components and modifying the components to be compliant with a framework component).

App. Br. 4.

Additionally, Appellants assert that the SPU component of Appellants claims is clearly defined as a processing unit (e.g., hardware/software component 104 in FIG. 1) for evaluating and mapping hardware/software component performance based on real time generated information and therefore cannot be "a processing unit of people performing tasks" as alleged by the Examiner as Appellants argue that the *simultaneous and real-time* process in combination with the hardware/software performance improvement executed by the SPU of Appellants['] claims cannot not be performed manually and/or in the human mind. Additionally, Appellants contend that the improved operational performance changes (e.g., mapping software components to additional components thereby modifying the SPU component to be in compliance with additional components based on SDQ values and software performance) to Appellants['] claimed SPU

component is designed to improve the way the computer maps or stores relationships between components. Furthermore, Appellants argue that the claims do not just comprise "an improvement to the mapping function" as alleged by the Examiner as Appellants contend that the claims comprise bringing software components into compliance with each other thereby improving the technology of software component technology resulting in an improvement to the functioning of a computing system (i.e., software operational improvement). Additionally, Appellants contend that the improved operational performance changes of the SPU (i.e., a software feature as alleged by the Examiner) component comprises a software improvement to the SPU software component

App. Br. 5.

Accordingly, there is a dispute over what claims are directed to. Are they directed to “receiving data, [etc.]” (Final Act. 10) or an improvement to a “SPU component” (App. Br. 5)?

*Claim Construction*³

To make a determination as to whether the claims at issue are directed to a patent-ineligible concept (or not), in accordance with step one of the *Alice* framework, we need to first accurately articulate what it is that the claims are directed to. The Examiner and the Appellants have two different

³ “[T]he important inquiry for a § 101 analysis is to look to the claim.” *Accenture Glob. Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013). “In *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can.*, 687 F.3d 1266, 1273 (Fed. Cir. 2012), the court observed that ‘claim construction is not an inviolable prerequisite to a validity determination under § 101.’ However, the threshold of § 101 must be crossed; an event often dependent on the scope and meaning of the claims.” *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1347–48 (Fed. Cir. 2015).

views on this. The correct view will be the one that aligns with the claims, properly construed. In that regard, we consider the claims as a whole⁴ giving them the broadest reasonable construction⁵ as one of ordinary skill in the art would have interpreted it in light of the Specification⁶ at the time of filing.

All the claims call for “a service processing unit (SPU).” They are specifically recited as improving it. See independent claims 1 (a “service processing unit (SPU) performance improvement method . . .”; 9 (“said computer readable program code comprising an algorithm that when executed . . . implements a service processing unit (SPU) performance improvement method . . .”); and, 16 (“said memory unit comprising instructions that when executed by the computer processor . . . implements a service processing unit (SPU) performance improvement method . . .”) The claims set forth steps for, *inter alia*, “evaluating,” “determining,” and “enforcing . . . actions” “with respect to improving [] overall operational

⁴ “In determining the eligibility of respondents’ claimed process for patent protection under § 101, their claims must be considered as a whole.” *Diamond v. Diehr*, 450 U.S. 175, 188 (1981).

⁵ 2019 Revised 101 Guidance, page 52, footnote 14 (“If a claim, under its *broadest reasonable interpretation*”)(Emphasis added.)

⁶ “First, it is always important to look at the actual language of the claims. . . . Second, in considering the roles played by individual limitations, it is important to read the claims ‘in light of the specification.’” *Smart Sys. Innovations, LLC v. Chicago Transit Authority*, 873 F.3d 1364, 1387 (Fed. Cir. 2017) (J. Linn, dissenting in part and concurring in part), citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016), among others.

performance [of] said SPU component.” The claims do not, however, define what the SPU or its “component” is.

Turning to the Specification, “SPU” is mentioned on pages 5–6, only. The passage containing it is reproduced below in its entirety.

System 100 enables the following functions:

1. Definition of performance components based on SDF component 102.
2. Evaluation of performance components of a service processing unit (SPU) based on real-time data from the SPU.
3. Integration of results of a performance component evaluator to determine an overall performance of the SPU.
4. Prediction of future performance of the SPU based on historical data.
5. Mapping a relationship between outcomes of the SPU and associated performance components.
6. Forecasting outcomes of the SPU based on performance.
7. Visualization of past, current, and future performance of the SPU.
8. Visualization of compliance of the SPU to SDF component 102.

Spec., pages 5–6. This passage adds little to our understanding of what an “SPU” is.

At this juncture, given nothing more than what is recited in the claims and said passage from the Specification, we are unable even to give the term “SPU” an ordinary and customary meaning. There is insufficient information to ascertain what a “SPU” is.

The disagreement between the Examiner and the Appellants as to what a “SPU” is mirrors our own difficulty.

The Examiner appears to view it as software. *See e.g.*, Final Act. 5 (“The SPU is assumed to be software because of the lack of disclosure

stating otherwise.”). However, the Examiner recognizes that the claim term “SPU” is unclear. *See* Ans. 3 (“Additionally, the SPU is not clearly claimed or defined, so one having ordinary skill in the art could surmise that the SPU is actually a processing unit of people performing tasks.”)

The Appellants argue, variously, that the “SPU” is “structures (e.g., logical (software) and/or physical (hardware))” (Reply Br. 4); “a software feature as alleged by the Examiner” (*id.* at 5); and, “hardware and/or software” (*id.* at 7). Notwithstanding the vagueness of these various characterizations, there is insufficient support in the Specification for any of them. The Appellants “assert that the SPU component of Appellants['] claims is clearly defined as a processing unit (e.g., hardware/software component 104 in FIG. 1) for evaluating and mapping hardware/ software component performance based on real time generated information.” *Id.* at 5. We have reviewed Figure 1. But we do not see there any mention of “SPU.” Element 104 is a box and inside are the words “Human Provided Services Unit (HPSU).” However, the present record insufficiently equates element 104 to the claimed “SPU.” Based on the present insufficient record, that lone assertion amounts to mere attorney argument and as such does not help advance a broadest reasonable construction for “SPU.”

*The Abstract Idea*⁷

Based on our inability to ascertain what a “SPU” is and thereby give the claims a broadest reasonable construction (see above), we cannot proceed to identify those limitations that recite an abstract idea.⁸ Knowing what a “SPU” is would go a long way in determining whether the claimed subject matter is directed to an abstract idea; that is to say, whether the claimed subject matter falls within the enumerated groupings of abstract ideas; that is “Mathematical concepts,” “Certain methods of organizing human activity,” and “Mental processes.”⁹

As the Appellants have extensively argued, it is true that specific asserted improvements in computer capabilities, when claimed, can render

⁷ See Step 2A of the 2019 Revised 101 Guidance. Step 2A determines “whether a claim is ‘directed to’ a judicial exception,” such as an abstract idea. *Id.* at 53. Step 2A is a two prong inquiry.

⁸ See Prong One (a) of Step 2A of the 2019 Revised 101 Guidance. “To determine whether a claim recites an abstract idea in Prong One, examiners are now to: (a) Identify the specific limitation(s) in the claim under examination (individually or in combination) that the examiner believes recites an abstract idea” *Id.* at 54.

⁹ See Prong One [“Evaluate Whether the Claim Recites a Judicial Exception”] (b) of Step 2A of the 2019 Revised 101 Guidance. “To determine whether a claim recites an abstract idea in Prong One, examiners are now to: . . . (b) determine whether the identified limitation(s) falls within the subject matter groupings of abstract ideas enumerated in Section 1 of the [2019 Revised 101 Guidance].” *Id.* at 54.

claimed subject matter not directed to an abstract idea.¹⁰ *Cf. McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1316 (Fed. Cir. 2016) (“When looked at as a whole, claim 1 is directed to a patentable, technological improvement over the existing, manual 3–D animation techniques.”). In that regard, we can consider specific asserted improvements in computer capabilities in the step one analysis of the *Alice* framework. This is consistent with the case law. *See Ancora Techs., Inc. v. HTC America, Inc.*, 908 F.3d 1343, 1347 (Fed. Cir. 2018) (“We have several times held claims to pass muster under *Alice* step one when sufficiently focused on such improvements.”)

Nonetheless, as we have explained, without an understanding of what a “SPU” is, we are unable to ascertain a broadest reasonable construction for the claims. That inability prevents us from accurately articulating what the claims are directed to and then reaching a determination as to whether what

¹⁰ *See* Prong Two (“If the Claim Recites a Judicial Exception, Evaluate Whether the Judicial Exception Is Integrated Into a Practical Application”) of Step 2A of the 2019 Revised 101 Guidance. “A claim that integrates a judicial exception into a practical application will apply, rely on, or use 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.” 2019 Revised 101 Guidance 54. One consideration, implicated here, that is “indicative that an additional element (or combination of elements) may have integrated the exception into a practical application” (*id.*, at 55) is if “[a]n additional element reflects an improvement in the functioning of a computer, or an improvement to other technology or technical field” (*id.*).

the claims are directed to is a patent-ineligible concept under step one of the *Alice* framework. We do not reach step two of the *Alice* framework.

For the foregoing reasons, we are not placed in a position to do a meaningful review of this rejection.

NEW GROUND OF REJECTION

Claims 1, 5–9, 13–16, 20, and 21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention.

For the reasons discussed, the claims and the Specification fail to inform those skilled in the art about the scope of the “SPU” with any reasonable certainty. The Appellants provide certain arbitrary definitions in the briefs including pointing to element 104 of Fig. 1 as being the “SPU,” none of which have sufficient support in the present record. “SPU” has no ordinary meaning and its scope is unclear based on the intrinsic record. “[U]nder the broadest reasonable interpretation when read in light of the Specification, [the term “SPU”] is vague and unclear, and a person having ordinary skill in the art would not be able to discern the metes and bounds of the claimed invention in light of this claim language.” *Ex parte McAward*, 2015–006416 (PTAB Aug. 25, 2017) (precedential). Accordingly, claims 1, 5–9, 13–16, 20, and 21 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim Appellants’ invention.

CONCLUSIONS

The decision of the Examiner to reject claims 1, 5–9, 13–16, 20, and 21 under 35 U.S.C. §101 for claiming patent-ineligible subject matter is reversed *pro forma*.

Claims 1, 5–9, 13–16, 20, and 21 are newly rejected under 35 U.S.C. § 112, second paragraph.

DECISION

The decision of the Examiner to reject claims 1, 5–9, 13–16, 20, and 21 is reversed.

Claims 1, 5–9, 13–16, 20, and 21 are newly rejected.

NEW GROUND

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” 37 C.F.R. § 41.50(b) also provides that the Appellants, **WITHIN TWO MONTHS FROM THE DATE OF THE DECISION**, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner
- (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record

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

REVERSED; 37 C.F.R. § 41.50(b)