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melena.sanchez@sigmalawgroup.com
alex.korona@sigmalawgroup.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHNATHAN MUN

Appeal 2017-009046
Application 13/753,624
Technology Center 3600

Before JUSTIN BUSCH, JASON J. CHUNG, and JASON M. REPKO,
Administrative Patent Judges.

REPKO, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 19 and 20. Br. 12.² Claims 1–18 are canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ According to Appellant, the real party in interest is Johnathan C. Mun. Br. 3.

² Throughout this opinion, we refer to the Non-Final Rejection (“Non-Final”) mailed June 3, 2016; the Appeal Brief (“Br.”) filed December 29, 2016; and the Examiner’s Answer (“Ans.”) mailed March 21, 2017.

THE INVENTION

Appellant's invention relates to the modeling and valuation of financial, exotic, employee, and strategic options. Spec. 1:20–2:1.

Claim 19 is reproduced below:

19. A computing device for designing and valuing customized financial options, said device comprising:

a processor;

a memory;

a display;

computer readable code residing in said memory and executable by said processor, wherein said computer readable code is configured to generate a graphical user interface that appears on said display, said graphical user interface comprising:

a menu of selectable lattice models comprising:

binomial lattice,

trinomial lattice,

quadranomial lattice, and

pentanomial lattice,

wherein the lattice model selected defines the number of potential value states associated with an option based on the value of an underlying asset of said option;

a menu of selectable option types comprising:

American Option Type,

European Option Type,

Bermudan Option Type,

Custom Option Type,

wherein selection of the American Option Type defines an option condition in which the custom-designed option can be executed at any time, selection of the European Option

Type defines an option condition in which the custom-designed option can only be executed at a maturity date, selection of the Bermudan Option Type defines an option condition in which the custom-designed option can be executed at any time except certain predetermined blackout periods, selection of the Custom Option Type defines an option condition in which the custom designed option can only be executed at predetermined times, wherein said computer readable code generates a request for at least one required input parameter for the option type selected in response to a user selection of the option type, said input parameter comprising a value of an underlying asset of the option, a blackout period, and a vesting period; an input field for receiving an equation from the user comprising at least one of:

- a terminal equation,
- a blackout equation, and
- an intermediate equation,

wherein said computer readable code is configured to calculate a plurality of possible option values by applying at least one of said terminal equation, blackout equation, and intermediate equation, entered by said user in said input field, to a value of at least one underlying asset of said option, wherein said computer readable code applies the terminal equation when a user has selected at least one of the American Option Type and the European Option, and applies the blackout equation and intermediate equation when a user has selected at least one of the Bermudan Option Type and Custom Option Type,

wherein projected values of said option are displayed in a triangular lattice of cells, the number of possible projected values in said triangular lattice depends on the lattice model selected, and values are automatically recalculated based on changes to at least one of said input parameters, said option type, and said equation,

wherein the value in the left-most cell of said triangular lattice represents the current value of said option and each column of valuation to the right of said left-most cell represent successive possible future values of said option, such that the further a column is from the left-most cell the more possible values of the option are displayed.

THE REJECTIONS

Claims 19 and 20 stand rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. Non-Final 3–8.

Claims 19 and 20 stand rejected under 35 U.S.C. § 112 as being indefinite. Non-Final 9–10.

THE REJECTION UNDER 35 U.S.C. § 101

The Examiner rejects claims 19 and 20 under 35 U.S.C. § 101 because the claims are directed to an abstract idea of a mathematical calculation and the claims lack an inventive concept sufficient to transform them into a patent-eligible application. Non-Final 3–8. For the reasons discussed below, Appellant has not persuaded us of error.

The Supreme Court’s two-step framework guides our analysis. *See Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2355 (2014). According to step one, “[w]e must first determine whether the claims at issue are directed to a patent-ineligible concept,” such as an abstract idea. *Id.*

Here, Appellant does not rebut the Examiner’s conclusion that the claims are directed to an abstract idea of a mathematical calculation. *See* Br. 7–12. Indeed, the claimed options-valuation device and method receive input values (lattice models, option types, and equations), calculate the

option values using equations, and display the results of the calculations. On this record, we are unpersuaded that the Examiner erred in concluding that claims 19 and 20 are directed to an abstract idea of a mathematical calculation. *See* Non-Final 6; Ans. 4.

Because the claims are directed to an abstract idea, we consider the claim limitations “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)). The Supreme Court has described this analysis “as a search for an ‘inventive concept.’” *Id.*

Appellant argues that claims 19 and 20 recite significantly more than the abstract idea because the claimed options-valuation process is used in a graphical user-interface environment and is a computer-implemented process. Br. 9 (citing *USPTO, July 2015 Update Appendix 1: Examples* 10 (July 30, 2015) (“Examiner Guidance”)). Appellant argues that, in this regard, claims 19 and 20 are unlike the example of an ineligible mathematical algorithm in the Examiner Guidance. *Id.* at 8–10.

Although the claimed method may be executed in a computer environment, Br. 10, “limiting the claims to the computer field does not alone transform them into a patent-eligible application.” *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1097 (citing *Alice*, 134 S. Ct. at 2358). For example, “use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter.” *Id.* at 1096 (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014)).

Here, claim 19's device only requires a processor, memory, display, and code executed on the processor. Similarly, claim 20 recites a method that generates a graphical user interface on the display device.

Appellant's arguments focus on the novelty of the data operated on by this generic computer. *See* Br. 10–11. For instance, Appellant argues that the method allows the user to model the effects of many inputs, including unconventional ones. *Id.* at 10. Appellant explains that the user can perform customized options valuations. *Id.* at 10–11. Appellant argues that these valuations capture exotic elements of real-life situations, which is unconventional. *Id.* at 11. According to Appellant, these inputs highlight the simulation's novelty because conventional methods do not take into account exotic elements. *Id.*

But claims 19 and 20 merely collect a combination of customized options and use the computer in its ordinary capacity to execute the mathematical calculations with the collected input, as the Examiner finds. Non-Final 6–7; Ans. 5. Specifically, claims 19 and 20 recite selecting certain data (models, option types, and equations) for analysis and display. The data is collected using a graphical interface with menus. These menus allow the user to select a lattice model and option type. The recited interface also has an input field for receiving an equation.

“Given that the method of solving a mathematical equation may not be the subject of patent protection, it follows that the addition of the old and necessary antecedent steps of establishing values for the variables in the equation cannot convert the unpatentable method to patentable subject matter.” *In re Grams*, 888 F.2d 835, 839 (Fed. Cir. 1989) (quoting *In re Christensen*, 478 F.2d 1392, 1394 (CCPA 1973)); *see also Fair Warning*,

839 F.3d at 1097 (Fed. Cir. 2016) (“The mere combination of data sources . . . does not make the claims patent eligible.”). Here, Appellant’s invention merely supplies the necessary antecedent steps of establishing values for the abstract idea identified by the Examiner. *See* Ans. 10.

Even the recited data gathering and display steps use the computer in its ordinary capacity. Specifically, the code calculates the option values using the selected input (i.e., “calculate a plurality of possible option values by applying at least one of said terminal equation . . .”). The projected option values are then displayed in a triangular lattice of cells. Notably, the lattice can be generated in a Microsoft Excel spreadsheet. Spec. 9:16–19; *see also* Fig. 9 (showing the lattice in a spreadsheet). Essentially, the recited system uses the computer to calculate repeatedly the recited values and display them in a spreadsheet. *See* Spec. 9:16–19. Appellant’s claimed improvement is not to spreadsheet technology. Instead, the claimed invention uses the spreadsheet’s cells to manage the data and organize the calculations. *See, e.g.*, Fig. 9. In this way, the invention uses the spreadsheet program as a tool in its ordinary capacity. *See* Spec. 9:16–19. Yet using a computer for its basic function to perform repetitive calculations does not impose meaningful limits on the claim’s scope. *Bancorp Servs. v. Sun Life*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

Appellant argues that the claimed invention improves the technological process of determining and presenting preferred econometric models “for a given set of data.” Br. 11. In Appellant’s view, the claimed option-valuation method takes into account exotic elements that conventional methods cannot. *Id.* Appellant argues that, in this way, the

claims are similar to those in *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016). *Id.*

The claims in *BASCOM* involved an inventive distribution of function between a local computer and a server. *See BASCOM*, 827 F.3d at 1352. The Federal Circuit noted “[t]he inventive concept described and claimed in the ’606 patent is the installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user.” *Id.* at 1350. The *BASCOM* claims recited a particular arrangement of elements that solved a technical problem. *Id.*

Even assuming that valuing financial options is a technical problem, Appellant has not identified any particular arrangement of computer components to solve this problem. *See* Br. 7–12. Rather, claims 19 and 20 merely use a graphical user interface to collect values. Appellant’s purported improvement is to the mathematical calculations, not to a computer or a particular arrangement of computer components. *See id.* Similar to Appellant’s claims, the Federal Circuit has recognized that “an invocation of already-available computers that are not themselves plausibly asserted to be an advance, for use in carrying out improved mathematical calculations, amounts to a recitation of what is ‘well-understood, routine, [and] conventional.’” *SAP Am., Inc. v. InvestPic, LLC*, 890 F.3d 1016, 1023 (Fed. Cir. 2018) (alteration in original) (citing *Mayo*, 566 U.S. at 73).

Appellant argues that the claims do not tie up a judicial exception because the claims do not merely recite the simple computer-implementation of the mathematical calculation. Br. 7. Appellant argues that there are many ways that the mathematical models may be used to perform valuations

without infringing claims 19 or 20. *Id.* According to Appellant, the claims do not preempt an entire field. *Id.* at 7–8.

Although the extent of preemption is a consideration in our analysis, the absence of complete preemption is not dispositive. *See, e.g., Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (“While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.”). Furthermore, “questions on preemption are inherent in and resolved by the § 101 analysis” that the Examiner has applied. *Id.* Nevertheless, in this case, apart from limiting the method to a particular data set, claims 19 and 20 effectively cover any use of the recited mathematical calculations. In this way, the claims are directed to the mathematical calculations themselves and merely invoke generic processes and computers to collect data and carry out those calculations. Like those in *Gottschalk v. Benson*, the claims here would wholly pre-empt the mathematical calculations and “in practical effect would be a patent on the algorithm itself.” 409 U.S. 63, 72 (1972).

Therefore, Appellant has not persuaded us of error in the rejection of independent claims 19 and 20 under 35 U.S.C. § 101

THE REJECTION OF CLAIM 20 ON PAGE NINE OF THE OFFICE ACTION

In the rejection, the Examiner quotes § 101 and states that claim 20 is “directed to non-statutory subject matter.” Non-Final 9. The Examiner then explains that claim 20 recites “said device” without a proper antecedent basis for this limitation. *Id.* The Examiner does not explain why the lack of antecedent basis renders the claims ineligible for patent protection. *Id.* In the Answer, the Examiner states that the claims should be rejected under

35 U.S.C. § 112. Ans. 3. But the Examiner does not state which paragraph of § 112 or why. *See* Ans. 3.

Although a lack of antecedent basis can give rise to an indefiniteness rejection under § 112, second paragraph, Examiners are instructed that “[t]he mere fact that a term or phrase used in the claim has no antecedent basis in the specification disclosure does not mean, necessarily, that the term or phrase is indefinite.” MPEP § 2173.05(e) (9th ed. Rev. 08.2017, Jan. 2018). In the rejection, the Examiner does not state that the claim is indefinite or explain why the lack of antecedent basis gives rise to this deficiency. Non-Final 9. Rather, the Examiner states that claim 20 is “directed to non-statutory subject matter.” *Id.*

Although the Examiner likely intended to reject claim 20 as indefinite under § 112, second paragraph, we decline to supply the reasoning and statutory basis missing from the rejection. We simply find that the rejection does not satisfy the requirements of 35 U.S.C. § 132 because it does not notify the applicant of the reasons for rejection, together with such information “as may be useful in judging of the propriety of continuing the prosecution of [the] application.” *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011). In this way, the Examiner has not carried the procedural burden of establishing a prima facie case. So we do not sustain the rejection of claim 20 on page 9 of the Office Action dated June 3, 2016. We leave it to the Appellant and Examiner to resolve any issues resulting from the recitation of “said device.”

THE INDEFINITENESS REJECTION

The Examiner rejects claims 19 and 20 under 35 U.S.C. § 112, second paragraph as being indefinite because the “claims recite the limitation of a menu of selectable lattice models, but does not recite a step to prompt and receive the selected model type for analysis from a user.” Non-Final 10.

Appellant argues that the absence of this step does not render the claim indefinite. Br. 6. According to Appellant, the recited menu can be configured in a number of ways. *Id.* We agree.

“Breadth is not indefiniteness.” *In re Gardner*, 427 F.2d 786, 788 (CCPA 1970). Here, claims 19 and 20 need not recite the additional features of prompting and receiving the model type from the user. Although the claims cover multiple ways to interact with the user, the claims are not rendered indefinite because of this breadth. Thus, we do not sustain the Examiner’s rejection of claims 19 and 20 as being indefinite.

CONCLUSIONS

We sustain the rejection of claims 19 and 20 under 35 U.S.C. § 101.

We do not sustain the rejection of claim 20 on page 9 of the Office Action from which this appeal is taken.

We do not sustain the rejection of claims 19 and 20 under 35 U.S.C. § 112, second paragraph.

DECISION

Because we have affirmed at least one ground of rejection with respect to each claim on appeal, the Examiner’s decision to reject claims 19 and 20 is affirmed. *See* 37 C.F.R. § 41.50(a)(1). *See* 37 C.F.R. § 41.50(f).

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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)(1)(iv).

AFFIRMED