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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROGER BURKHARDT, ANNE E. ALLEN,
ROBERT J. MCSWEENEY, and LOUIS G. PASTINA

Appeal 2018-007752
Application 11/545,222¹
Technology Center 3600

Before DONALD E. ADAMS, TAWEN CHANG, and
RACHEL H. TOWNSEND, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This Appeal under 35 U.S.C. § 134(a) involves claims 5, 7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 (Non-Final Act.² 2). Examiner entered rejections under the written description provision of 35 U.S.C. § 112, first paragraph, 35 U.S.C. § 112, second paragraph, and 35 U.S.C. § 101. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ Appellants identify “NYSE Group, Inc” as the real party in interest (Appellants’ March 26, 2018 Appeal Brief (App. Br.) 1).

² Examiner’s November 2, 2017 Non-Final Office Action.

STATEMENT OF THE CASE

Appellants' disclosure relates "to the field of securities trading, and more particularly to systems and methods for automatic order processing and execution in conjunction with live floor auction markets" (Spec.³ 1: 11–13). Claim 5 is representative and reproduced below:

5. A computer-implemented method for improving data throughput on an electronic exchange system, the method comprising:

in the electronic exchange system comprising a programmed computer coupled to one or more participant computers, a display book embodied on a computing device and an external market data source, each in communication with the electronic exchange system through a network:

receiving, by the programmed computer, broker interests via the one or more participant computers, the programmed computer comprising non-transitory memory and at least one processor executing computer-readable instructions stored in the non-transitory memory, the computer-readable instructions causing the programmed computer to perform the function of:

automatically correcting broker interests among the received broker interests that are ineligible for display via the display book or execution by the programmed computer upon being received, thereby rendering said broker interests both eligible for display and executable, said automatically correcting comprising:

receiving a broker interest from among the broker interests to buy or sell a security at a first price with a maximum trade size and a maximum discretionary volume size, wherein the maximum discretionary volume size is less than the maximum trade size,

³ Appellants' October 10, 2006 Specification.

determining that the broker interest is at the security's best bid or offer of the electronic exchange system by monitoring the external market data source,

determining that the security's best bid or offer has changed to a new best bid or offer based on results from said monitoring of the external market data source,

adjusting, only when the security's best bid or offer has changed to a new best bid or offer, the first price to equal the new best bid or offer, and

displaying, on the display book, only when the broker interest is at the security's best bid or offer or new best bid or offer of the electronic exchange system, the broker interest to other traders and a specialist among the one or more participant computers having bids or offers that are not the best; and

receiving, by the programmed computer, one or more orders from among the one or more participant computers responsive to the displayed broker interest on the display book, the received one or more orders causing the programmed computer to execute further computer readable instructions, thereby causing the programmed computer to further perform the function of:

selectively executing the displayed broker interest against the received one or more orders for the security, comprising:

receiving an order from among the one or more orders for the security with an order trade size, wherein the order for the security is an order to sell if the displayed broker interest is to buy, and the order for the security is an order to buy if the displayed broker interest is to sell,

determining whether the order trade size is or is not less than the maximum trade size,

responsive to determining that the order trade size is less than the maximum trade size, trading at least part

of the displayed broker interest against the order up to the maximum discretionary volume size, and

responsive to determining that the order trade size is not less than the maximum trade size, trading no part of the displayed broker interest against the order.

(App. Br. 52–53 (emphasis added).)

Grounds of rejection before this Panel for review:

Claims 5, 7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 stand rejected under the written description provision of 35 U.S.C. § 112, first paragraph.

Claims 5, 7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 stand rejected under 35 U.S.C. § 112, second paragraph.

Claims 5, 7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 stand rejected under 35 U.S.C. § 101.

WRITTEN DESCRIPTION:

ISSUE

Does the preponderance of evidence on this record support Examiner’s finding that Appellants’ Specification fails to provide written descriptive support for the claimed invention?

FACTUAL FINDINGS (FF)

FF 1. Appellants disclose that “a Floor broker needs to be represented in the . . . [best bid and order (BBO)] in order to participate in automatic executions” of trades (Spec. 12: 20–21; *see id.* at 10: 17 (defining the acronym “BBO” as “best bid and offer”)).

FF 2. Appellants disclose that “in a more automated environment, the BBO may change rapidly and Floor brokers may be unable to stay with a quickly changing BBO” (Spec. 12: 22–13: 1).

FF 3. Appellants disclose “a pegging function [that] allows Floor brokers to keep their interest in the quote at the BBO, even as the BBO moves,” wherein “Floor brokers designate a range to which their . . . [electronically represented broker interest (e-Quotes)] or . . . [broker interest with discretion (d-Quotes)] peg and, as long as the BBO is within that range, the e-Quote or d-Quote will be included,” i.e., in the display book (Spec. 13: 1–4; *see id.* at 13: 4–5 (“Buy side e-Quotes or d-Quotes peg to the best bid, and sell side e-Quotes or d-Quotes peg to the best offer”); *id.* at 15: 7–8 (“Discretionary instructions relate to the price at which the d-Quote may trade and the number of shares to which the discretionary price instructions apply”); *id.* at 21: 8–9 (“The order display book may show limit orders, as well as broker interest and specialist interest”)).

FF 4. Appellants exemplify the pegging function in the context of a d-Quote as follows:

A Floor broker is representing an order to buy 4,000 shares of XYZ with a limit of .97, not-held. He decides to electronically represent this order as a d-Quote, with a quote price of .92 and with price discretion of .02, in the hope of obtaining a better execution price for his customer. This means that the Floor broker is willing to participate in an execution at the following prices: .92, .93 and .94. Further, he has decided to display 1,000 shares, with 3,000 in reserve. In addition, the Floor broker has decided to have this order peg, with minimum and maximum volume sizes of 500 and 8,000 shares respectively. The Floor broker has set the ceiling price at .97. This means that as long as the Exchange best bid is a minimum

of 500 shares and no more than 8,000 shares, the d-Quote would peg to any Exchange best bid at or between .92 and .97.

The Exchange best bid becomes 2,000 shares bid for .94. As this is within the minimum and maximum pegging size range, the order will peg to the .94 bid, increasing the displayed size at that price to 3,000 shares (2,000 shares that established that price and the d-Quote's displayed 1,000 shares). The Exchange best bid then becomes 300 shares bid for .95. The d-Quote will not peg to that best bid, as its size is below the minimum pegging size designated by the Floor broker. If an additional 400 shares is added to the best bid as a result of other interest at that price, the d-Quote will peg to it, increasing the displayed size to 1,700 shares. Similarly, if the displayed volume at .95 increased from 300 shares to 10,000 shares (instead of 700 shares), the d-Quote would not peg to that price, as 10,000 shares is more than the maximum pegging size selected by the Floor broker (which was 8,000 shares, as noted above). Again, if the displayed volume at .95 decreases to 6,000 shares, for example, as a result of a trade at that price, the d-Quote will peg to the .95 bid, as the displayed volume size is now lower than the maximum selected by the Floor broker. 7,000 shares will be bid at .95, with the d-Quote's 3,000 shares in reserve.

As the d-Quote pegs, it continues to be able to use its price discretion of .02 to effect a trade. Accordingly, if 7,000 shares is bid at .95, comprised of 6,000 shares of other interest and 1,000 shares of the d-Quote (with 3,000 shares of the d-Quote in reserve at .95) and the Exchange best offer is .97 for 1,700 shares, the d-Quote will initiate an execution, trading 1,700 shares at .97. The d-Quote's reserve size will be decremented by the amount of the trade, leaving 1,300 shares to buy in reserve, with 1,000 shares displayed. The best bid continues to be .95, so the d-Quote remains pegged at that price. The displayed volume at .95 continues to be 7,000 shares, including the displayed portion of the d-Quote (1,000 shares).

(Spec. 13:18–15:5)

FF 5. Appellants disclose:

One advantage of the pegging feature is related to the discretionary feature of a d-Quote, which can only be active when the d-Quote is in the best bid or offer. As markets become more automated, the best bid or offer may change very rapidly and the broker may have difficulty manually keeping the d-Quote at the best bid or offer. Therefore to allow the d-Quote to participate in more trades, the pegging feature attempts to automatically peg the d-Quote to either the best bid (for buy quotes) or the best offer (for sell quotes).

(Spec. 23:1–8.)

ANALYSIS

Appellants disclose

a pegging function [that] allows Floor brokers to keep their interest in the quote at the BBO, even as the BBO moves,” wherein “Floor brokers designate a range to which their . . . [electronically represented broker interest (e-Quotes)] or . . . [broker interest with discretion (d-Quotes)] peg and, as long as the BBO is within that range, the e-Quote or d-Quote will be included,” i.e., in the display book.

(FF 3; *see generally* Ans. 4.) In this regard, Appellants’ disclosure exemplifies a method, wherein a “Floor broker” electronically submits, i.e., represents, “an order to buy 4,000 shares of XYZ with a limit of .97 . . . as a d-Quote, with a quote price of .92 and with price discretion of .02 Further, he has decided to display 1,000 shares, with 3,000 in reserve” and “to have this order peg, with minimum and maximum volume sizes of 500 and 8,000 shares respectively” (FF 4). “As the d-Quote pegs, it continues to be able to use its price discretion of .02 to effect a trade” (*id.*; *see generally* Ans. 4). As Appellants explain, “the pegging feature attempts to automatically peg the d-Quote to either the best bid (for buy quotes) or the best offer (for sell quotes)” (FF 5).

Thus, in an electronic exchange system as defined by Appellants' claimed invention, the programmed computer will receive broker interests and automatically correct, or peg, broker interests among the received broker interests that are ineligible for display via the display book or execution by the programmed computer upon being received, thereby rendering the broker interests both eligible for display and executable (*see* FF 1–5; *cf.* App. Br. 52–53). In addition, because the broker interest, i.e. d-Quote, continues to be able to use its price discretion, as it pegs, a trade may be selectively executed against the received one or more orders for the security, as required by Appellants' claimed invention (*see* FF 4; *cf.* Ans. 4).

Therefore, we are not persuaded by Examiner's assertion that Appellants' Specification fails to provide written descriptive support for

“A method for improving data throughput on an electronic exchange, the method comprising: automatically correcting broker interests that are ineligible for display via the display book or execution upon being received thereby rendering said broker interests both eligible for display and executable, said automatically correcting comprising: ; selectively executing, by the programmed computer, the displayed broker interest against the received one or more orders for the security, comprising:”

(Non-Final Act. 3 (quoting Appellants' claim 5) (alteration original, emphasis omitted); *see also id.* at 23–24; Ans. 3–4.) In this regard, we find that although Appellants' disclosure does not use the same words as Appellants' claims, the written description requirement of 35 U.S.C. § 112, first paragraph, does not require Appellants' disclosure to provide *in haec verba* support for Appellants' claimed invention. *Purdue Pharma L.P. v. Faulding, Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000) (“In order to satisfy the written description requirement, the disclosure as originally filed does not

have to provide *in haec verba* support for the claimed subject matter at issue.”); *see* App. Br. 32; *cf.* Non-Final Act. 3–4 and 23–24; Ans. 3–4.

CONCLUSION

The preponderance of evidence on this record fails to support Examiner’s finding that Appellants’ Specification fails to provide written descriptive support for the claimed invention. The rejection of claims 5, 7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 under the written description provision of 35 U.S.C. § 112, first paragraph is reversed.

DEFINITENESS:

ISSUE

Does the preponderance of evidence support Examiner’s conclusion that the scope of Appellants’ claimed invention is indefinite?

ANALYSIS

Examiner finds that Appellants’ claims are indefinite for the reasons set forth in the rejection under the written description provision of 35 U.S.C. § 112, first paragraph (*see* Non-Final Act. 6). Having found no deficiency in Appellants’ written description of their claimed invention, we are not persuaded by Examiner’s assertion that Appellants’ claims are indefinite (*see* Non-Final Act. 4–6).

CONCLUSION

The preponderance of evidence on this record fails to support Examiner’s conclusion that the scope of Appellants’ claimed invention is indefinite. The rejection of claims 5, 7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 under 35 U.S.C. 112, second paragraph is reversed.

SUBJECT MATTER ELIGIBILITY:

ISSUE

Does the preponderance of evidence of record support Examiner’s finding that Appellants’ claimed invention is directed to patent ineligible subject matter?

PRINCIPLES OF LAW

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g., Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and

mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Gottschalk*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 176; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Gottschalk* and *Parker*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (quotation marks omitted). “A

claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The PTO recently published revised guidance on the application of § 101. USPTO, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (January 7, 2019) (“Revised Guidance”). Under that guidance, we first look to whether the claim recites:

(1) 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) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).
See 84 Fed. Reg. 54–55. Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

(3) adds a specific limitation beyond the judicial exception that is 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 84 Fed. Reg. 51.

ANALYSIS

Applying the Revised Guidance to the facts on this record, we find that Appellants’ representative claim 5 is directed to patent-ineligible subject matter.

Step One: Does Claim 5 fall within a Statutory Category of § 101?

We agree with Examiner that claim 5 recites a method and, therefore, falls within the statutory categories of 35 U.S.C. § 101 (*see* Non-Final Act. 7). Appellants do not dispute this determination.

Step 2A, Prong One: Does Claim 5 Recite a Judicial Exception?

The Revised Guidance identifies three judicially-excepted groupings identified by the courts as abstract ideas: (1) mathematical concepts, (2) certain methods of organizing human behavior such as fundamental economic practices, and (3) mental processes. On this record, we agree with Examiner that claim 5 recites fundamental economic practices and mental processes and, thus, recites an abstract idea (*see* Non-Final Act. 7–9).

Appellants’ claimed method comprises the step of collecting data (i.e. receiving broker interests) by a programmed computer via one or more participant computers (*see* App. Br. 52). The collection, i.e. receipt, of data represents a mental process. *See Intellectual Ventures I LLC v. Capital One Financial Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (“an invention directed to collection, manipulation, and display of data was an abstract process”). Therefore, we agree with Examiner’s finding that “the step of ‘receiving broker interests’ is considered to be an abstract idea” (Non-Final Act. 7). In this regard, we note that the collection of data as a predicate step to performing additional steps represents insignificant extra-solution activity. *See, e.g., In re Bilski*, 545 F.3d 943, 963 (Fed. Cir. 2008) (en banc), *aff’d sub nom, Bilski v. Kappos*, 561 U.S. 593 (2010); *see also CyberSource v. Retail Decisions*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) (data-gathering

“step[s] cannot make an otherwise nonstatutory claim statutory.”) (citation omitted)).

Appellants’ claimed method requires that data, i.e. broker interests, that is ineligible for display via a display book or execution by the programmed computer upon being received is automatically corrected, i.e. manipulated, to render the data both eligible for display and executable (*see* App. Br. 52). The collection, manipulation, and display of data is a mental process. *See Intellectual Ventures I LLC*, 850 F.3d at 1340 (“an invention directed to collection, manipulation, and display of data was an abstract process”). Therefore, we agree with Examiner’s finding that the step of automatically correcting broker interests is an abstract idea (*see* Non-Final Act. 8).

The automatic correction step of Appellants’ claimed method comprises the steps of:

receiving a broker interest from among the broker interests to buy or sell a security at a first price with a maximum trade size and a maximum discretionary volume size, wherein the maximum discretionary volume size is less than the maximum trade size,

determining that the broker interest is at the security’s best bid or offer of the electronic exchange system by monitoring the external market data source,

determining that the security’s best bid or offer has changed to a new best bid or offer based on results from said monitoring of the external market data source,

adjusting, only when the security’s best bid or offer has changed to a new best bid or offer, the first price to equal the new best bid or offer, and

displaying, on the display book, only when the broker interest is at the security’s best bid or offer or new best bid or

offer of the electronic exchange system, the broker interest to other traders and a specialist among the one or more participant computers having bids or offers that are not the best.

(App. Br. 52–53.) As discussed above, the collection (i.e. receipt), manipulation (i.e. determining), and display of data is an abstract process. *See Intellectual Ventures I LLC*, 850 F.3d at 1340 (“an invention directed to collection, manipulation, and display of data was an abstract process”); *see also CyberSource Corp.*, 654 F.3d at 1375 (“The mere manipulation or reorganization of data . . . does not satisfy the transformation prong”); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, [are] essentially mental processes falling within the abstract idea category”); *Digitech Image Techs, LLC v. Elec. for Imaging, Inc.*, 758 F.3d 1344, (Fed. Cir. 2014) (“Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible. ‘If a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.’”) (citation omitted). Therefore, we agree with Examiner’s finding that these steps

are considered to be abstract ideas similar to the concepts that have been identified by the courts such as obtaining and comparing intangible data . . . , organizing information through mathematical correlations . . . , comparing information regarding a sample or test subject to a control or target data . . . , collecting information, analyzing it, and displaying certain results of the collection and analysis . . . , and generating menus on a computer.

(Non-Final Act. 8–9 (citations omitted).)

In addition, these steps involve market trading activities, i.e. fundamental economic practices. Methods of organizing human activity, such as fundamental economic practices, are abstract ideas. *See Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611. Therefore, we agree with Examiner that Appellants’ claim 5 recites a “fundamental economic practice” (Non-Final Act. 7 and 9).

Appellants’ claimed process comprises the collection of additional data, i.e. receipt, “by a programmed computer, of one or more orders from among the one or more participant computers responsive to the displayed broker interest on the display book” (App. Br. 53). As discussed above, the collection (i.e. receipt), manipulation (i.e. reorganization, selection, or comparison), and display of data is an abstract process. *See Intellectual Ventures I LLC*, 850 F.3d at 1340 (“an invention directed to collection, manipulation, and display of data was an abstract process”); *see also CyberSource Corp.*, 654 F.3d at 1375 (“The mere manipulation or reorganization of data . . . does not satisfy the transformation prong”); *Elec. Power Grp.*, 830 F.3d at 1354 (“analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, [are] essentially mental processes falling within the abstract idea category”); *see also* Non-Final Act. 9.

Appellants’ claimed process comprises the step of selectively executing the displayed broker interest against the received one or more orders for the security (App. Br. 53). This step involves market trading activities and, thus, represents a fundamental economic practice. *See Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611. Therefore, we agree with

Examiner that Appellants' claim 5 recites a "fundamental economic practice" (Non-Final Act. 7 and 9).

Appellants' selective execution step comprises:

receiving an order from among the one or more orders for the security with an order trade size, wherein the order for the security is an order to sell if the displayed broker interest is to buy, and the order for the security is an order to buy if the displayed broker interest is to sell,

determining whether the order trade size is or is not less than the maximum trade size,

responsive to determining that the order trade size is less than the maximum trade size, trading at least part of the displayed broker interest against the order up to the maximum discretionary volume size, and

responsive to determining that the order trade size is not less than the maximum trade size, trading no part of the displayed broker interest against the order.

(App. Br. 53.) As discussed above, the collection (i.e. receipt), manipulation (i.e. determining), and display of data is an abstract process. *See Intellectual Ventures I LLC*, 850 F.3d at 1340 ("an invention directed to collection, manipulation, and display of data was an abstract process"); *see also CyberSource Corp.*, 654 F.3d at 1375 ("The mere manipulation or reorganization of data . . . does not satisfy the transformation prong"); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) ("analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, [are] essentially mental processes falling within the abstract idea category"). Therefore, we agree with Examiner's finding that these steps are considered to be abstract ideas (*see* Non-Final Act. 7 and 9).

In addition, these steps involve market trading activities, i.e. fundamental economic practices of market trading activities. Methods of organizing human activity, such as fundamental economic practices, are abstract ideas. *See Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611. Therefore, we agree with Examiner that Appellants’ claim 5 recites a “fundamental economic practice” (Non-Final Act. 7 and 9).

For the foregoing reasons, we find that Appellants’ claimed method recites a judicial exception.

Step 2A, Prong Two: Is There Integration into a Practical Application?

Appellants disclose that their claimed method is performed on general purpose computers and handheld devices, wherein

[t]he computers generally include a central processor (CPU), memory for processing software instructions that is stored on fixed and removable media, as well as input/output devices such as keyboards, monitors, printers, pointing devices, and system busses. All of these systems use information signals to communicate as needed. Network . . . may be a LAN, WAN, the Ethernet, the PSTN, or any form of wireless or wired network.

(Spec. 20: 4–9.) Therefore, we agree with Examiner’s finding that the steps of Appellants’ claimed “process are performed by a computer system comprising a memory and a processor suitably programmed to execute the claimed steps,” wherein “the claimed technology is nothing more than generic computer technology implementing an abstract idea” (Non-Final Act. 6 (citing Appellants’ Spec. 20); *see also id.* at 6–7).

Steps that recite basic data collection and analysis, even when limited to particular content (e.g., trading activities), without more, are insufficient to integrate abstract ideas recited in claim 5 into a practical application. *See*

Elec. Power Grp., LLC v. Alstom S.A., 830 F.3d 1350, 1353-54 (Fed. Cir. 2016) (holding that steps of collecting information, even when limited to particular content (which does not change its character as information), do not make claims patent eligible and further holding that analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, are essentially mental processes within the abstract-idea category); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1354-55 (Fed. Cir. 2014) (determining claims to creating a contractual relationship with a “transaction performance guaranty” recite a long-familiar commercial transaction that is an abstract idea and reciting generic computer functions of receiving and sending information over a network was insufficient to make the abstract idea patent eligible); *Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1084, 1092-93 (Fed. Cir. 2019) (holding that claims to placing an order on displayed market information, even with some particularity, is a fundamental economic practice and that collecting, organizing, and displaying two sets of information on a generic display device does not make the claims patent eligible).

In this regard, we find that the application of an abstract idea on a computer does not integrate abstract ideas into a practical application. *Alice*, 573 U.S. at 223 (“[M]ere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea while adding the words ‘apply it’ is not enough for patent eligibility.” (citation and internal quotation omitted)); *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) (“Accenture attempts to limit the abstract idea of claim 1 by applying it in a computer environment and within the insurance industry. However,

those types of limitations do not ‘narrow, confine, or otherwise tie down the claim.’ . . . [S]imply implementing an abstract concept on a computer, without meaningful limitations to that concept, does not transform a patent-ineligible claim into a patent-eligible one.” (citation omitted)); *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“To salvage an otherwise patent-ineligible process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.”); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (“[E]ven if a process of collecting and analyzing information is ‘limited to particular content’ or a particular ‘source,’ that limitation does not make the collection and analysis other than abstract.”); *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016) (holding claims “to the use of conventional or generic technology in a nascent but well-known environment” are patent ineligible); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (“At best, the claims describe the automation of the fundamental economic concept of offer-based price optimization through . . . generic computer functions.”).

For the foregoing reasons, we are not persuaded by Appellants’ contention that claim 5 is “directed to a technical improvement to an electronic exchange network that solves technical problems related to data accuracy, data usability, display speed and execution speed/efficiency.” Specifically, Appellants contend that “[t]hese unconventional features include . . . an auto-correction mechanism performing a specific set of tasks for automatically controlling how a display device (e.g., a display book) displays broker interest data” (App. Br. 35; *see also id.* at 48 (“improving

order throughput, reducing memory storage requirements and avoiding unnecessary execution and processing’ are indeed, by any definition, technological improvements”); *see generally* Reply Br. 3–4). To the contrary, for the reasons discussed above, here as in *OIP*, Appellants’ claimed method employing the auto-correction mechanism, which Appellants describe as a mechanism that

monitors external market data from an external data source, and then uses this data to automatically adjust / correct received data so as to avoid systematic delays that occur in existing systems in this art,

(App. Br. 35), at best, “describes the automation of the fundamental economic concept . . . through . . . generic computer functions.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d at 1363; *Bancorp*, 687 F.3d at 1279 (“the computer merely permits one to manage a stable value protected life insurance policy more efficiently than one could mentally. Using a computer to accelerate an ineligible mental process does not make that process patent-eligible.”); *In re Chorna*, 656 F. App’x 1016, 1021 (Fed. Cir. 2016) (non-precedential) (for a claimed exchange and trading system “the claimed financial securities, allocation formulas, trading networks, and clearing houses do not add anything to the steps described above”)

Furthermore, although the claimed method may affect the efficiency of the fundamental economic practice, i.e. trading activity, itself, we find no claimed improvement to a network or to computer architecture so as to integrate the abstract ideas into a practical application (*cf.* App. Br. 35–36 (contending that Appellants’ claim 5 “avoid[s] systematic delays that occur in existing systems in this art,” “improve the accuracy of the data being displayed,” and “the now accurate data is displayed faster and leads to faster

execution speed” (emphasis omitted)); *see also id.* at 37 (contending that “Appellants’ auto-correction mechanism actually changes what data is displayed on the display device and in an immediate manner”) (emphasis omitted); *id.* at 38 (contending that “the auto-correction mechanism also improves the display speed of broker interests as compared to other systems” and that claim 5 “includes features and rules that solve specific, identified technical problems with prior devices in the context of computerize[d] trading systems relating to delay, accuracy, usability and speed”) (emphasis omitted); *see generally* App. Br. 46–47).

Notwithstanding Appellants’ contention to the contrary, we find no disclosure in Appellants’ Specification that describes an advancement in network architecture, computer processing, or trading technology. *See SAP*, 898 F.3d at 1163 (“No matter how much of an advance in the finance field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm. An advance of that nature is ineligible for patenting.”); *see also Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1374 (2017) (“When claims like the Asserted Claims are ‘directed to an abstract idea’ and ‘merely require[e] generic computer implementation,’ they ‘do[] not move into section 101 eligibility territory.’”) (citation omitted).

For the foregoing reasons, we find that Appellants’ claimed method is not integrated into a practical application.

Step 2B: Does Claim 5 Recite Well-Understood, Routine, Conventional Activity?

We find no error in Examiner’s finding that “the functions such as ‘receiving data, determining conditions based on criteria, adjusting based on the determination and data, displaying information, receiving more data, determining parameters and conditions based on rules, trading and/or not trading’ are conventional functions of a computer” (Ans. 7). *See, e.g., Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044, 1055 (Fed. Cir. 2017) (Mere automation of manual processes, such as using a generic computer to process an application for financing a purchase); *LendingTree, LLC v. Zillow, Inc.*, 656 Fed. App’x 991, 996–97 (Fed. Cir. 2016) (non-precedential) (or speeding up a loan-application process by enabling borrowers to avoid physically going to or calling each lender and filling out a loan application); *see also* MPEP §§ 2106.05(a)(I) (providing examples that the courts have indicated may not be sufficient to show an improvement in computer-functionality) and 2106.05(d)(II) (providing examples that the courts have recognized as well-understood, routine, conventional activity in particular fields).

Moreover, claim limitations describing the excluded subject matter cannot satisfy the second step of the *Alice* analysis. *See SAP*, 898 F.3d at 1163 (“No matter how much of an advance in the finance field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm. An advance of that nature is ineligible for patenting.”); *Mayo*, 566 U.S. at 72–73 (requiring “a process that focuses upon the use of a natural law also contain *other* elements or a combination of elements, sometimes referred to as an

‘inventive concept,’ sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself” (emphasis added)); *BSG Tech. LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (“It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”); *Berkheimer v. HP Inc.*, 890 F.3d 1369, 1374 (Fed. Cir. 2018) (Moore, J., concurring) (“[A]nd *Berkheimer* . . . leave[s] untouched the numerous cases from [the Federal Circuit] which have held claims ineligible because the only alleged ‘inventive concept’ is the abstract idea.”).

Because, for the reasons discussed above, the additional elements of Appellants’ claimed invention are, as a matter of law, well-understood, routine, and conventional, we are not persuaded by Appellants’ contention that “Examiner has plainly failed to provide any facts or evidence whatsoever in support of the assertion that the claims simply involve ‘well-understood, routine and conventional activities previously known in the industry” (App. Br. 45 (emphasis omitted); *see also* Reply Br. 3; *cf.* MPEP § 2106.05(d)(II) (providing examples that the courts have recognized as well-understood, routine conventional activity in particular fields).

For the foregoing reasons, we find that Appellants’ claimed method simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

We are not persuaded by Appellants’ contention that their claim 5 is [c]omparable to *Trading Technologies, [Inc. v. CQG, Inc., because]* Appellants’ auto-correction mechanism, which automatically corrects and displays data that would otherwise

not be displayed, provides a unique mechanism for removing delay and improving data accuracy, data usability, display speed and execution speed, thereby solving long-felt problems of prior art devices in the electronic trading field. . . .

(App. Br. 39; *see also id.* at 48 (contending that “the recent decision in *Trading Technologies[, Inc. v. CQG, Inc.,]* acknowledges that improvements such as speed, accuracy and usability in a display device of a trading system are indeed technical improvements (even though the claims are directed to a trading system)”) (emphasis omitted); *see generally* Reply Br. 2.)

Notwithstanding Appellants’ contentions to the contrary, and unlike Appellants’ claim 5, the claims at issue in *Trading Technologies* “require[d] a specific, structured graphical user interface paired with a prescribed functionality directly related to the graphical user interface’s structure that is addressed to and resolves a specifically identified problem in the prior state of the art.” *Trading Technologies, Inc. v. CQG, Inc.*, 675 Fed. Appx. 1001, 1004 (2017) (unpublished). Thus, unlike Appellants’ claim 5 on this record, the court in *Trading Technologies* agreed with the District Court’s finding “that these patents are directed to improvements in existing graphical user interface devices that have no ‘pre-electronic trading analog,’ and recite more than ‘setting, displaying, and selecting’ data or information that is visible on the [graphical user interface] device” (*id.* (alteration original)).

For the foregoing reasons, we are not persuaded by Appellants’ contention that they “are not claiming ‘automated electronic trading’ as their invention,” but “[i]nstead, . . . are claiming a very specific mechanism with a very unique functionality that improves deficiencies of existing electronic trading systems, such as data accuracy, data usability, display speed and execution speed in a trading system / network” (App. Br. 40).

Appellants also contend that “under *McRO*[, *Inc. v. Bandai Namco Games Am.*, 837 F.3d 1299 (Fed. Cir. 2016)]” the claims are statutory (App Br. 41). We do not agree. In *McRO*, the claims focused on a specific improvement in computer animation. The claimed process in *McRO* used a combined order of specific rules that renders information into a specific format used and applied to create a desired result—a sequence of synchronized, animated characters. *McRO*, 873 F.3d at 1314-15. The claims in *McRO* recited a process of automated lip-synchronization of 3-D characters that resulted from a specific order of rules as a relationship between sub-sequences of phonemes, timing, and weight of visual expression at a particular timing by a morph weight set. *Id.* at 1315. The rules in *McRO* improved the synchronization of 3-D characters on computers. In contrast, as discussed above, although Appellants’ claim 5 may provide an improvement in a fundamental economic practice, unlike *McRO*, Appellants’ alleged improvement is not to computer technology implementing the trading method using rules, but rather to the trading method itself. In other words, Appellants’ alleged improvement is to the manner in which the trade is effected, i.e., using a computer to perform conventional computer functions (the so-called “rules”) of receiving, processing, and displaying data. *See SAP*, 898 F.3d at 1163 (“No matter how much of an advance in the finance field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm. An advance of that nature is ineligible for patenting.”). Therefore, we are not persuaded by Appellants’ contention that their “invention includes a set of rules for automatically correcting and displaying corrected broker interest data . . .

based on monitoring external market data” and “[t]hus, under *McRO*, . . . renders the claims statutory” (App. Br. 41).

The fact that claim 5 may recite rules that are abstract ideas does not provide an inventive step or integrate those abstract ideas into a patent-eligible application. *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.”); *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) (affirming unpatentability of claims that improved an abstract idea, but not a computer’s performance).

Appellants also contend that *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016), supports a conclusion that the claims on appeal here are patent-eligible. (App. Br. 42.) We disagree. In *Enfish*, the court held that claims to a data storage and retrieval system for computer memory was not directed to an abstract idea because they involved more than storing, organizing, and retrieving memory in a logical table. *Enfish*, 822 F.3d at 1336-37. The claims were directed to a *self-referential* table (“means for configuring” algorithm) that functions differently than conventional database structures. *Id.* at 1337. This technological improvement provided increased flexibility, faster search times, and smaller memory requirements. *Id.* In contrast, as discussed above, Appellants’ alleged improvement is not to computer technology implementing the trading method, but rather to the manner in which the trade is effected, i.e., using a computer to perform conventional computer functions of receiving, processing, and displaying data. Therefore, we are not persuaded by Appellants’ contention that

[i]t is the Appellants’ differently configured computer system (including the existence of the auto-correction mechanism that performs a specific set of task based rules for automatically

correcting and controlling how and when a display device displays broker interest data) that provides the specific improvements in the functioning of the computer system itself. (App. Br. 42; *see also id.* at 44 (contending that “[i]t is Appellants’ differently configured computer system (including the auto-correction mechanism) that provides the specific improvements in the functioning of the computer system itself”).)

Appellants further contend that the claims should be found patent eligible like the claims in *Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016). (App. Br. 42.) We disagree. In *Bascom*, the claims recited a hybrid internet filtering system that provided the benefits of a filter on a local computer with the benefits of a filter on the Internet Service Provider server as an improvement to existing technological filtering processes by adapting many different users’ preferences while being installed remotely in a single location. *Bascom*, 827 F.3d at 1350-51 (finding an inventive concept in a filtering system that associates individual accounts with their own filtering scheme while locating the system on an ISP server). In upholding the patent-eligibility of the claims, the *Bascom* court emphasized that “[t]he claims do not merely recite the abstract idea of filtering content along with the requirement to perform it on the Internet, or to perform it on a set of generic computer components. Such claims would not contain an inventive concept.” *Id.* at 1350. Therefore, we are not persuaded by Appellants’ contention that “*even if* the Appellants’ claims include an abstract idea . . ., the claims are still patent-eligible because they are directed to a specific, discrete implementation that improves upon the prior art” (App. Br. 42; *see also id.* at 43 (contending that “Appellants’ claims include an *inventive concept* embodied as a novel mechanism and set

of rules that automatically corrects data that is inaccurate and unusable, thereby avoiding having to store the data in memory, and instead transforming said data into data that is immediately displayed as automatically executed’’)).

We are not persuaded by Appellants’ contentions regarding preemption (App. Br. 41). *See Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (Although “preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.”).

For the foregoing reasons, we are not persuaded by Appellants’ contention that Examiner “improperly overgeneralize[ed]” Appellants’ claim 5 (App. Br. 49–50; Reply Br. 3 and 5).

We are not persuaded by Appellants’ contention that their “claims have overcome all prior art rejections under 35 [U.S.C. § 103] and/or 35 [U.S.C. § 102]” and, thus, “Examiner has failed to produce even a credible argument that the claimed combination of elements is well-understood, routine and conventional” (Reply Br 4; *see also id.* at 5). We are not persuaded by Appellants’ contention that “the record reflects that the pending claims are patentable under 35 U.S.C. [§§] 102 and 103, or in other words the claimed invention is novel and unobvious from the prior art, which is the opposite of being ‘generic,’ ‘conventional,’ ‘common,’ ‘well-known’ or ‘routine’” (Reply Br. 3–4). As the *Flook* Court explained, “the novelty of the mathematical algorithm is not a determining factor at all,” but is “treated as though it were a familiar part of the prior art.” *Flook*, 437 U.S. at 591–92. Appellant has given us no reason to depart from this guiding principle. As the Court in *Flook* explained, “[v]ery simply, our holding

today is that a claim for an improved method of calculation, even when tied to a specific end use, is unpatentable subject matter under § 101.” *Id.* at 595 n.18. Thus, the fact that Appellants’ claim may be novel and nonobvious does not make the claim eligible for a patent under § 101 where the novelty or inventive concept is grounded in an abstract idea.

Further, we note that the Supreme Court cautioned that even though the § 101 patent-eligibility inquiry and prior art inquiries might sometimes overlap, “to shift the patent-eligibility inquiry entirely to these later sections risks creating significantly greater legal uncertainty, while assuming that those sections can do work that they are not equipped to do.” *Mayo*, 566 U.S. at 90; *see also Diehr*, 450 U.S. at 188–89 (“[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.”). Putting this into practice, the Federal Circuit has held that “a claim for a *new* abstract idea is still an abstract idea. The search for a § 101 inventive concept is thus distinct from demonstrating § 102 novelty.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (holding claims to a method for converting a hardware-independent user description of a logic circuit are ineligible because the use of assignment conditions as an intermediate step in the translation process is an aid to a mental process and does not change the nature of the claims to being directed to more than an abstract idea).

CONCLUSION

The preponderance of evidence of record supports Examiner’s finding that Appellants’ claimed invention is directed to patent ineligible subject matter. The rejection of claim 5 under 35 U.S.C. § 101 is affirmed. Claims

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7–9, 11–13, 15, 16, 18, 19, 21, 22, 24–26, 31, and 33–37 are not separately argued and fall with claim 5.

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).

AFFIRMED