UNITED STATES PATENT AND TRADEMARK OFFICE

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PERKINS COIE LLP - SEA General
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247
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ALLADIN, AMBREEN A

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte ROBERT S. CREAMER, EDWARD PAUL KRAUSS,
GEOFFREY R. MYERS JR., and FRANK BRUEN

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Appeal 2017-004577
Application 13/837,945
Technology Center 3600

_____

Before ST. JOHN COURTENAY III, LARRY HUME, and
JOYCE CRAIG, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of
claims 1–20, which are all the claims pending in this application. We have
jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Introduction

Exemplary embodiments of Appellants' invention relate to "providing
perspective to market data." Abstract.

Representative Claim

1.   A computer-implemented method performed at a computing device for displaying market information, the computer-implemented method comprising,

receiving aggregated data for market information, at the computing device, to facilitate a trade for a user,

wherein the aggregated data includes multiple orders that have been submitted to a market, entered into an order book of the market, and are open in the market at the time of receiving the data at the computing device,

wherein each order of the multiple orders has:

a bid or offer quantity, and

a respective price for the bid or offer quantity;

determining, at the computing device, a total number of orders at each respective price;

determining, at the computing device, a total quantity of items bid or offered at each respective price;

disaggregating the aggregated market data by identifying, using an order estimation algorithm running on the computing device, groups of orders within the multiple orders in the aggregated data,

wherein the order estimation algorithm identifies groups of orders based at least on changes over time within the aggregated data to:

a bid or offer quantity within the multiple orders,

a quantity of orders within the multiple orders, and

a time when each of the multiple orders was entered; and

for at least one respective price, displaying on a display of the computing device multiple graphical representations of each of the identified groups of orders having a bid or offer at that respective price generated by disaggregating the aggregated market data,

wherein the multiple graphical representations for each of the identified groups of orders generated by disaggregating the aggregated market data is sized in proportion to a total number of orders at the at least one respective price, or is differentiated from a quantity of orders associated with other groups of orders.

(Emphasis added regarding contested limitations).

References and Rejections

A. Claims 19 and 20 are rejected under 35 U.S.C. § 112, 6ᵗʰ paragraph, as reciting a means-plus-function limitation without corresponding written description support. Final Act. 2.

B. Claims 1–20 are rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 3.

C. Claims 1–20 are rejected under 35 U.S.C. § 103(a) as being obvious over the combined teachings and suggestions of West (US 2010/0318458 A1; Dec. 16, 2010) and Friesen et al. (US 2010/0235273 A1; Sept. 16, 2010) ("Friesen"). Final Act. 5.

Issues on Appeal

Did the Examiner err in rejecting claims 19 and 20 under 35 U.S.C. § 112, 6ᵗʰ paragraph?

Did the Examiner err in rejecting claims 1–20 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter?

Did the Examiner err in rejecting claims 1–20 under 35 U.S.C. § 103(a) as being obvious over the cited combination of references?

ANALYSIS

We have considered all of Appellants' arguments and any evidence presented. To the extent Appellants have not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). We highlight and address specific findings and arguments for emphasis in our analysis below.

Rejection A of Claims 19 and 20 under 35 U.S.C. § 112, 6ᵗʰ paragraph

With respect to claims 19 and 20, the Examiner finds "the written description fails to disclose the corresponding structure, material, or acts for the claimed function." Final Act. 2. In the Answer, the Examiner responds to Appellants' arguments, and states that the "112, 6ᵗʰ paragraph rejection of [c]laim[] 19 and dependent [c]laim 20 [is] maintained." Ans. 29.

We *pro forma* reverse the Examiner's Rejection A, because the Examiner has not made the appropriate rejection for the Examiner's stated reasoning. *See* Final Act. 2; Ans. 29.

Our reviewing court provides applicable guidance: "If there is no structure in the specification corresponding to the means-plus-function limitation in the claims, the claim will be found invalid as indefinite." *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007).

Applying this reasoning here, we conclude the Examiner should have considered a rejection under pre-AIA 35 U.S.C. § 112, second paragraph, and not under §112, sixth paragraph, or under §112, first paragraph (written description).[1]

> MPEP § 2181(II) provides additional guidance:
>
> 35 U.S.C. § 112(f) or pre-AIA 35 U.S.C. § 112, sixth paragraph states that a claim limitation expressed in means- (or step-) plus-function language "shall be construed to cover the corresponding structure…described in the specification and equivalents thereof." "If one employs means plus function language in a claim, one must set forth in the specification an

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[1] Although the Board is authorized to reject claims under 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See* Manual of Patent Examining Procedure (MPEP) § 1213.02.

adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the 35 U.S.C. 112(b) [or the second paragraph of pre-AIA section 112]." *In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc) (emphasis added).[2]

Accordingly, we are constrained on this record to reverse the Examiner's rejection A of claims 19 and 20 under 35 U.S.C. § 112, sixth paragraph, or under 35 U.S.C. § 112, first paragraph, written description.

The Examiner's Rejection B of Claims 1–20 under 35 U.S.C. § 101
Mayo/Alice Analysis under 35 U.S.C. § 101

Under 35 U.S.C. § 101, a patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." The Supreme Court has "long held that this provision contains an important implicit exception: Laws of nature,

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[2] "Structure disclosed in the specification qualifies as 'corresponding structure' if the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1352 (Fed. Cir. 2015) (en banc) (citing *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)). For a computer-implemented claim limitation interpreted under § 112, sixth paragraph, the corresponding structure must include the algorithm needed to transform the general purpose computer or processor disclosed in the specification into the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008); *see also Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1318 (Fed. Cir. 2013). "[T]he fact that one of skill in the art could program a computer to perform the recited functions cannot create structure where none otherwise is disclosed." *Williamson*, F.3d at 1351 (citing *Function Media*, 708 F.3d at 1319).

natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013)). The Supreme Court in *Alice* reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 82–84 (2012), "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice*, 134 S. Ct. at 2355.

The first step in that analysis is to determine whether the claims at issue are directed to one of those patent-ineligible concepts, such as an *abstract idea*. Abstract ideas may include, but are not limited to, fundamental economic practices, methods of organizing human activities, an idea of itself, and mathematical formulas or relationships. *Id.* at 2355–57.

If the claims are *not directed* to a patent-ineligible concept, *the inquiry ends. See Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1262 (Fed. Cir. 2017).

Otherwise, the inquiry proceeds to the second step in which the elements of the claims are considered "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*, 566 U.S. at 79, 78). We consider the question of whether the claims are directed to a *specific improvement* in the capabilities of the computing devices, or, instead, "a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

We, therefore, decide under step two whether the claims: (a) set forth an *inventive concept* that provides a specific means or method that *improves* the relevant technology, or (b) are directed to a result or effect that itself is the abstract idea, in which the claims merely invoke generic processes and machinery. *See Enfish*, 822 F.3d at 1336.

Regarding the first step of the *Alice/Mayo* analysis, the Examiner concludes claims 1–20 are directed to an abstract idea:[3]

> The claims(s) are directed to the abstract idea of displaying market information. Performance of such activities is a fundamental economic practice and thus, the claims include an abstract idea.

Final Act. 4.

Regarding the second step of the *Mayo/Alice* analysis, the Examiner concludes the claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception,

> The additional element(s) or combination of elements in the claim(s) other than the abstract idea per se amount(s) to no more than: (i) mere instructions to implement the idea on a computer or electronic device, and/or (ii) recitation of generic computer structure that serves to perform generic computer functions that are *well-understood, routine and conventional* activities previously known to the pertinent industry. Viewed as a whole, these additional claim element(s) do not provide meaningful limitation(s) to transform the abstract idea into a patent eligible application of the abstract idea such that the claim(s) amount to significantly more than the abstract idea itself.

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[3] "Patent eligibility under § 101 presents an issue of law." *Accenture Glob. Servs.,GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1340 (Fed. Cir. 2013).

Final Act. 4, emphasis added.[4]

For the aforementioned reasons, the Examiner concludes that all claims 1–20 on appeal are not patent-eligible under 35 U.S.C. § 101.

Mayo/Alice Analysis — Step 1

Regarding *Alice* Step 1, Appellants contend, *inter alia*:

> This very particularized claim scope is **not** an abstract fundamental economic practice on par, e.g., with "intermediated settlement," "hedging, or protecting against risk," "adjust alarm limits for certain operating conditions," or "the conversion of binary numbers" with which the Supreme Court was concerned in, e.g., *Alice, Bilski, Flook,* and *Benson,* respectively. *Alice Corporation v. CLS Bank International,* 573 U.S. _, 134 S. Ct. 2347, 2350 (2014) ("*Alice Corp.*"). In each of those cases, the claim scope was so broad that it would effectively "cover both known and unknown uses," effectively preempting application anywhere in the art.

App. Br. 30.

We note Appellants' independent claim 1 is directed to, *inter alia*: displaying market information by receiving aggregated data, determining a total number of orders and total quantity of items bid or offered at each respective price, disaggregating the aggregated market data, and displaying multiple graphical representations of identified groups of orders. Remaining independent claims 10, 14, 18, and 19 recite similar language of commensurate scope.

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[4] The patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.,* 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, "[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact." *Berkheimer v. HP Inc.,* 881 F.3d 1360, 1368 (Fed. Cir. 2018).

Our reviewing court guides that claimed fundamental economic and
conventional business practices are often abstract ideas, even if performed
on a computer. *See, e.g., OIP Techs. Inc. v. Amazon.com, Inc.*, 788 F.3d
1359, 1362-63 (Fed. Cir. 2015); *Credit Acceptance Corp. v. Westlake Servs.*,
859 F.3d 1044, 1054 (Fed. Cir. 2017) ("Each of the claims is directed to the
abstract idea of processing an application for financing a purchase.").

Thus, under a broad but reasonable interpretation, we conclude each
of Appellants' claims on appeal is directed to an economic or business
practice, i.e., to the *result* of displaying "multiple graphical representations
of . . . identified groups of orders." Claim 1. However, our reviewing court
guides "[t]he abstract idea exception prevents patenting a *result* where 'it
matters not by what process or machinery the result is accomplished.'"
McRO, Inc. v. Bandai Namco Games Am. Inc., 837 F.3d 1299, 1312 (Fed.
Cir. 2016) (quoting *O'Reilly v. Morse*, 56 U.S. 62, 113 (1854)) (emphasis
added).

This guidance is applicable here. Therefore, on this record, we are not
persuaded of error regarding the Examiner's legal conclusion that all claims
on appeal are directed to the abstract idea of a "fundamental economic
practice." Final Act. 4.

Mayo/Alice Analysis – Step 2

Because we conclude the claims are directed to an abstract idea for
essentially the same reasons articulated by the Examiner (Final Act. 3–4;
Ans. 29–46), we turn to the second part of the *Alice/Mayo* analysis. We
analyze the claims to determine if there are additional limitations that
individually, or as an ordered combination, ensure the claims amount to
"significantly more" than the abstract idea. *Alice*, 134 S. Ct. at 2357.

Regarding *Alice* Step 2, Appellants address the purported *inventive concept* of the claims:

> The claims clearly provide improvements to a technology field, such as the functioning of trading platforms and data visualization tools. In fact, an inventive concept described in detail in the application -- the visualization techniques -- are fundamentally different and require different operations than those that have been traditionally used. For example, no trading platform or data visualization tool has previously provided a tool that preformed the specific operation to **disaggregate** the aggregated market data by "identifying, using an order estimation algorithm running on the computing device, groups of orders within the multiple orders in the aggregated data" and/or **displayed** "on a display of the computing device multiple graphical representations of each of the identified groups of orders having a bid or offer at that respective price generated by disaggregating the aggregated market data." These are clear, tangible improvements to the current technology.

App. Br. 33.

Appellants' arguments do not persuade us the Examiner erred, because Appellants do not explain how the functioning of the claimed "computing device" is improved. *See* Claim 1. The Examiner points to Appellants' Specification as evidence, and notes that "the input devices and data storage devices may be any of a variety of devices and that various computing devices are capable of implementing various features of the software and/or hardware facilities. (*See* Applicant Specification paragraph 28, 42 and Figure[s] 3-9)." Ans. 34; *see also* Ans. 33, citing Spec. Fig. 1, ¶¶ 25–27.

Appellants' arguments are further unavailing, because neither the algorithm nor the recited processing improve the actual processor. The Examiner additionally notes:

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> The order estimation algorithm is disclosed to be
> programmatically configured (e.g., using Boolean logic) to
> disaggregate and display orders based on the available (e.g.,
> type/quality) of information in the market data. (See Appellant
> Specification paragraph 36)[.] Additional market data provided
> by the provider improves the order estimation algorithm. (See
> Appellant Specification paragraph 36). *This is not an
> improvement to technology as the technology remains the same*
> (displaying orders based on available information in the market
> data) and the data is still processed on a processor. The data
> may in some instances be displayed in a different way but the
> data itself is not improved, nor is the process of processing the
> data.

Ans. 39 (emphasis added).

In particular, we find the steps (or functions) of Appellant's claims are merely performed using generic computer processing hardware: "a computing device," and "a display of the computing device." Claim 1. *See also* independent claim 14: "a processor" and "a display, coupled to the processor."

Our reviewing court has "repeatedly held that such invocations of computers and networks that are not even arguably inventive are 'insufficient to pass the test of an inventive concept in the application' of an abstract idea." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016) (internal citations omitted); *see also Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1341 (Fed. Cir. 2017) ("Rather, the claims recite both a generic computer element—a processor— and a series of generic computer 'components' that merely restate their individual functions . . . . That is to say, they merely describe the functions of the abstract idea itself.").

Because none of Appellant's claims on appeal is directed to an *improvement* in a processor, database, or other computer/network component, we find none of the claim limitations, viewed "both individually and as an ordered combination," amounts to significantly more than the judicial exception in order to sufficiently transform the nature of the claims into patent-eligible subject matter. *See Alice*, 134 S. Ct. at 2355 (internal quotations omitted) (quoting *Mayo*, 566 U.S. at 79).

Applying the aforementioned guidance from our reviewing courts to the claims before us on appeal, we conclude, in our *Mayo/Alice* analysis, that each of Appellant's claims 1–20, considered as a whole, is directed to (under *step one*), *a patent-ineligible abstract idea,* and under *step two*, does not recite something "*significantly more*" to transform the nature of the claim into a patent-eligible application.

Therefore, we conclude the additional elements recited in the claims of generic computer hardware *do not provide an inventive concept, without more.* Accordingly, for at least the reasons discussed above, we sustain the Examiner's Rejection B under 35 U.S.C. § 101 of claims 1–20, as being directed to patent-ineligible subject matter in light of *Alice* and its progeny.[5]

The Examiner's Rejection C of Claims 1–20 under § 103(a)

Based upon Appellants' arguments, we decide the appeal of Rejection C under § 103(a) of grouped claims 1–6, 9, 10, 12 –15, and 17–20 on the basis of representative independent claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

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[5] To the extent Appellants have not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

We address § 103(a) Rejection C of dependent claims 7, 8, 11, and 16, *infra*.

Based upon our review of the record, we disagree with Appellants' arguments, and agree with and adopt the Examiner's underlying factual findings and ultimate legal conclusion of obviousness for representative independent claim 1. Specifically, we agree with and adopt the reasons, rationales, and explanations articulated by the Examiner: (i) in the Final Action (5–25) from which this appeal is taken, and, (ii) as set forth in the Examiner's responsive explanations in the Answer (47–53).[6]

Regarding representative claim 1, Appellants note:

The Examiner points to paragraphs [0008]-[0009] and [0033] and Fig. 2A of *West* as teaching ***"disaggregating the aggregated market data by identifying, using an order estimation algorithm running on the computing device, groups of orders within the multiple orders in the aggregated data . . . .*"** However, these portion of *West* fails to teach any type of identification of groups of orders as recited by the claim.

App. Br. 41.

Appellants, in particular, contend:

claim 1 is clear that the aggregated data "includes multiple orders that have been submitted to a market, entered into an order book of the market, and are open in the market at the time of receiving the data at the computing device." In contrast, this portion of *West* is not identifying groups of orders in the aggregated data as recited by claim 1.

App. Br. 42.

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[6] To the extent Appellants advance new arguments in the Reply Brief without showing good cause, Appellants have waived such arguments. *See* 37 C.F.R. § 41.41(b)(2).

Regarding the disputed claim 1 term "disaggregating", Appellants urge:

> The **aggregated** volume of all **executed trades** at a single price as discussed consistently throughout *West* is the opposite of disaggregating aggregated market data by identifying groups of orders and ". . . displaying multiple graphical representations of each of the identified groups of orders having a bid or offer at that respective price" as recited by claim 1.

App. Br. 44.

We are not persuaded by Appellants' arguments, because the Examiner has applied a broad claim interpretation that is consistent with Appellants' Specification.[7] We agree with the Examiner's broad but reasonable interpretation, in light of Appellants' Specification, that "disaggregating" is no more than processing data to emphasize different pieces of market data. *See* Ans. 37–38, citing Spec. Fig. 2, ¶¶ 15, 30, and 33–35.[8]

> In particular, *see* Spec. ¶ 30:

> At step 204, aggregated market data is disaggregated into one or more groups of orders, based on various characteristics (e.g., the overall quantity of orders placed at a given time) detected in the market data. At step 206, disaggregated groups are displayed using one or more of the above-mentioned variety of emphasis techniques.

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[7] We give the contested claim limitations the broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

[8] *See* Claim 1: "*disaggregating* the aggregated market data by identifying, using an order estimation algorithm running on the computing device, groups of orders within the multiple orders in the aggregated data" (emphasis added).

Therefore, on this record, we are not persuaded the Examiner's claim interpretation is overly broad, unreasonable, or inconsistent with the Specification.[9]

Turning to the evidence, we find: (1) West's trading application that determines the traded volume for each price level, and (2) West's description of providing periodic updates corresponding to an aggregate traded quantity for the last traded price level, teach or suggest the disputed limitation of identifying groups of orders, within the meaning of claim 1. *See* West ¶ 33.

Moreover, we find the combination of the cited features of West and Friesen would have merely produced a predictable result. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007) ("[A] combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.").

Therefore, when West is modified by Friesen in the manner proffered by the Examiner (Final Act. 5–8), on this record, we find a preponderance of the evidence supports the Examiner's findings that the contested limitations are taught, or at least suggested, by the Examiner's proposed modification.[10]

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[9] Because "applicants may amend claims to narrow their scope, a broad construction during prosecution creates no unfairness to the applicant or patentee." *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (internal citation omitted).

[10] Our reviewing court guides: "'the question under 35 USC 103 is not merely what the references expressly teach but what they would have *suggested* to one of ordinary skill in the art at the time the invention was made.'" *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976)) (emphasis added); *see also* MPEP § 2123.

Accordingly, we sustain the Examiner's § 103(a) Rejection C of representative independent claim 1, and of the additional grouped claims 2–6, 9, 10, 12 –15, and 17–20, also rejected under Rejection C, which are not argued separately. App. Br. 45. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Rejection C of Claim 7

Regarding dependent claim 7, Appellants argue:

> [A]rranging and displaying market information and using interactive screens to enter and execute orders is not the same as "identifying a trading pattern based on a multiple other groups of orders placed in a multiple prices, wherein a trade is configured to initiate based on a selection of a graphical representation of one or more of the other groups of orders" as recited by claim 7.

App. Br. 45.

Appellants further urge that allowing a trader to select a quantity and value before submitting an order, as taught in West, is not the same as "identifying a trading pattern based on a multiple other groups of orders placed in a multiple prices, wherein a trade is configured to initiate based on a selection of a graphical representation of one or more of the other groups of orders" as recited by claim 7. App. Br. 46.

We conclude the Examiner's broad but reasonable interpretation of claim term "trading pattern" only requires *some* identification of a pattern related to trading based on orders placed in a multiple of prices. Ans. 48. Therefore, we agree with the Examiner's broad but reasonable claim interpretation, consistent with Appellants' Specification.[11]

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[11] *See ICON Health and Fitness, Inc.,* 496 F.3d at 1379.

Moreover, the Examiner notes that Appellants' own admissions regarding West ¶¶ 42–49 (App. Br. 45–47) show West teaches a selection of a graphical representation of a desired quantity level/group. Ans. 49. The Examiner further finds West's descriptions of providing various market information at different price levels, and displaying different data types, teach, or at least suggest, the disputed limitation of dependent claim 7. *Id.*, citing West, ¶¶ 30–32.

We agree with the Examiner's findings, because West's descriptions of "traded volume at a number of price levels" (¶ 30), and displaying different types of trading data (¶¶ 29–32), teach or at least suggest "identifying a trading pattern based on a multiple other groups of orders placed in a multiple prices, wherein a trade is configured to initiate based on a selection of a graphical representation of one or more of the other groups of orders," as recited in claim 7.

Because the Examiner's findings regarding the argued features of claim 7 are supported by a preponderance of the evidence, we sustain the Examiner's § 103(a) Rejection C of dependent claim 7.

Rejection C of Claims 8, 11 and 16

Regarding claim 8, Appellants argue that neither the Examiner nor the cited reference discuss or disclose "a trading algorithm." App. Br. 47–48.

The Examiner points to the support in Appellants' Specification for the disputed term "trading algorithm," in which the Specification describes the algorithm may be no more than a basic buy/sell order algorithm. Ans. 50. *See* Spec. Fig. 8, ¶¶ 18–20, 40.

Given the *context* provided in Appellants' Specification (*id.*), we are not persuaded the Examiner erred in finding the *combination* of Freisen's trading orders *and* West's trader who uses interface 500 to submit orders to an exchange (e.g., the CME or Eurex), teaches or at least suggests the "trading algorithm" recited in dependent claim 8. Ans. 50–52.

Because the Examiner's findings regarding the argued claim 8 features are supported by a preponderance of the evidence, we sustain the Examiner's § 103(a) Rejection C of dependent claim 8.

For similar reasons, the Examiner's underlying factual findings and ultimate legal conclusion of obviousness regarding rejected claims 11 and 16 are supported by a preponderance of the evidence. *See* Final Act. 21 (claim 11); Final Act. 23–24 (claim 16). Accordingly, we sustain the Examiner's § 103(a) Rejection C of dependent claims 11 and 16.

Because Appellants do not advance separate, substantive arguments for the remaining rejected claims on appeal, such arguments are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

CONCLUSIONS

The Examiner erred in rejecting claims 19 and 20 under 35 U.S.C. § 112, 6th paragraph.

The Examiner did not err in rejecting claims 1–20, under 35 U.S.C. § 101, as being directed to patent-ineligible subject matter.

The Examiner did not err in rejecting claims 1–20, under pre-AIA 35 U.S.C. § 103(a), as being obvious over the combined teachings and suggestions of the cited references.

DECISION

We reverse the Examiner's decision rejecting claims 19 and 20 under 35 U.S.C. § 112, 6th paragraph.

We affirm the Examiner's decision rejecting claims 1–20 under 35 U.S.C. § 101.

We affirm the Examiner's decision rejecting claims 1–20 under pre-AIA 35 U.S.C. § 103(a).

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

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED