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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* WILLIAM E. SEALE and TAEYONG LEE

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Appeal 2019-002942  
Application 14/300,410  
Technology Center 3600

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Before ST. JOHN COURTENAY III, BETH Z. SHAW, and  
JOYCE CRAIG, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from a Final rejection of claims 1 and 24–43. Claims 2–23 are canceled. We have jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). According to Appellant, the real party in interest is Profund Advisors, LLC. *See* Appeal Br. 3.

## STATEMENT OF THE CASE

### *Introduction*

Embodiments of Appellant’s invention relate generally to “the field of exchange traded funds. In particular, it relates to a method and system for calculating an intraday indicative value for leveraged bullish and/or bearish exchange traded funds (‘ETF’).” Spec. ¶ 2.

### *Rejection*<sup>2</sup>

Claims 1 and 24–43 are rejected under 35 U.S.C. § 101, as being directed to a judicial exception, without significantly more. *See* Final Act. 2.

### *Issues on Appeal*

Did the Examiner err in rejecting claims 1 and 24–43 under 35 U.S.C. § 101, as being directed to a judicial exception, without significantly more?

## ANALYSIS

We reproduce *infra* independent claim 1 in Table One. We have considered all of Appellant’s arguments and any evidence presented. To the extent Appellant has 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).

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<sup>2</sup> The Examiner withdrew the rejection under 35 U.S.C. § 103. *See* PTO-90C, office communication, mailed on Aug. 15, 2018. As noted by Appellant, “the non-statutory obviousness-type double patenting rejection was mooted by Appellant’s submission of a Terminal Disclaimer on October 17, 2018.” Reply Br. 2. In reviewing the record, we note the Terminal Disclaimer was approved and entered the next day, on Oct. 18, 2018. Therefore, these rejections are not before us on appeal.

*Rejection under 35 U.S.C. § 101*

*Principles of Law*

A. Section 101

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101.

However, the U.S. Supreme Court 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 Court’s two-part framework, described in *Mayo* and *Alice*. *Alice*, 573 U.S. 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, 67 (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 (*Benson*, 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 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 187; *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 *Benson* and *Flook*); *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.*

### B. USPTO § 101 Guidance

The U. S. Patent and Trademark Office (USPTO) published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (“2019 Memorandum”).<sup>3</sup> Under that guidance, we first look to whether the claim recites:

- (1) (*see* 2019 Memorandum Step 2A – Prong One) 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) (*see* 2019 Memorandum Step 2A – Prong Two) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).<sup>4</sup>

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<sup>3</sup> The Office issued a further memorandum on October 17, 2019 (the “October 2019 Memorandum”) clarifying guidance of the January 2019 Memorandum in response to received public comments. *See* [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf). Moreover, “[a]ll USPTO personnel are, as a matter of internal agency management, expected to follow the guidance.” January 2019 Memorandum at 51; *see also* October 2019 Memorandum at 1.

<sup>4</sup> This evaluation is performed by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception, and (b) evaluating those additional elements individually and in combination to determine whether the claim as a whole integrates the exception into a practical application. *See* 2019 Memorandum - Section III(A)(2).

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* 2019 Memorandum Step 2B.

Because there is no single definition of an “abstract idea” under *Alice* step 1, the PTO has recently synthesized, for purposes of clarity, predictability, and consistency, key concepts identified by the courts as abstract ideas to explain that the “abstract idea” exception includes the following three groupings:

1. Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;
2. Mental processes— concepts performed in the human mind (including an observation, evaluation, judgment, opinion); and
3. Certain methods of organizing human activity—fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions).

*See* 2019 Memorandum, 84 Fed. Reg. at 52.

According to the 2019 Memorandum, “[c]laims that do not recite [subject] matter that falls within these enumerated groupings of abstract ideas should not be treated as reciting abstract ideas,” except in rare circumstances. Even if the claims recite any one of these three groupings of abstract ideas, these claims are still not “directed to” a judicial exception (abstract idea), and thus are patent eligible, if “the claim as a whole integrates the recited judicial exception into a practical application of that exception.” *See* 2019 Memorandum, 84 Fed. Reg. at 53.

For example, limitations that **are** indicative of *integration into a practical application* include:

1. Improvements to the functioning of a computer, or to any other technology or technical field — *see* MPEP § 2106.05(a);
2. Applying the judicial exception with, or by use of, a particular machine — *see* MPEP § 2106.05(b);
3. Effecting a transformation or reduction of a particular article to a different state or thing — *see* MPEP § 2106.05(c); and
4. Applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception — *see* MPEP § 2106.05(e).

In contrast, limitations that are **not** indicative of *integration into a practical application* include:

1. Adding the words “apply it” (or an equivalent) with the judicial exception, or merely include instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea — *see* MPEP § 2106.05(f);

2. Adding insignificant extra-solution activity to the judicial exception — *see* MPEP § 2106.05(g); and
3. Generally linking the use of the judicial exception to a particular technological environment or field of use — *see* MPEP § 2106.05(h).

*See* 2019 Memorandum, 84 Fed. Reg. at 54–55 (“Prong Two”).

*2019 Memorandum, Step 2A, Prong One*<sup>5</sup>  
*The Judicial Exception*

Under the 2019 Memorandum, we begin our analysis by first considering whether the claims recite any judicial exceptions, including certain groupings of abstract ideas, in particular: (a) mathematical concepts, (b) mental steps, and (c) certain methods of organizing human activities.

The Examiner concludes:

In the instant application, the data processing system of claims 1 and 24 – 43 **recite** a series of steps of “**calculating**, using the at least one processor, an intraday change in value of the at least one derivative product; and *determining*, using the at least one processor, during trading time at an interval of a predetermined number of seconds, an intraday indicative value of the ETF by combining the obtained intraday current value of the at least one equity or fixed-income security, the daily accumulated change in value of the at least one derivative product, and the intraday change in value of the at least one derivative product”, which is **a fundamental economic principle** of exchanging trading funds. An improvement on the abstract ideal does not make it less abstract. There must be an improvement in the technology.

Final Act. 3–4 (emphasis added).

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<sup>5</sup> Throughout this opinion, we give the claim limitations the broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

We apply the Director’s 2019 Memorandum *de novo*. In Table One below, we identify in *italics* the specific claim limitations that we conclude recite an abstract idea. We also identify in **bold** the additional (non-abstract) claim elements that we find are generic computer components:

TABLE ONE

| Independent Claim 1   | 2019 Memorandum   |
|---|---|
| [a] A <b>computer</b> -implemented method, comprising: <sup>6</sup>   |   |
| [b] obtaining, using <b>at least one processor</b> , (i) an intraday current value of at least one of an equity or fixed-income security invested by an exchange-traded fund (ETF) and (ii) a daily accumulated change in value of at least one derivative product held by the ETF, the daily accumulated change comprising a loss or gain in the value of the at least one derivative product over a previous trading day; | Obtaining (i) an intraday current value of at least one of an equity or fixed-income security invested by an exchange-traded fund (ETF) and (ii) a daily accumulated change in value of at least one derivative product held by the ETF is insignificant extra-solution activity (i.e., data gathering). 2019 Memorandum, 55 n.31; <i>see also</i> MPEP § 2106.05(g). |
| [c] <i>calculating</i> , using <b>the at least one processor</b> , <i>an intraday change in value of the at least one derivative product</i> ;  | <i>Abstract Idea: Calculating an intraday change in value of the at least one derivative product involves mathematical relationships and requires a mathematical calculation</i>  |

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<sup>6</sup> A method falls under the statutory subject matter class of a process. *See* 35 U.S.C. § 101 (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”).

| Independent Claim 1  | 2019 Memorandum  |
|--|--|
|  | and could be performed alternatively as a mental step.   |
| <p>[d] <i>determining, using the at least one processor, during trading time at an interval of a predetermined number of seconds, an intraday indicative value of the ETF by combining the obtained intraday current value of the at least one equity or fixed-income security, the daily accumulated change in value of the at least one derivative product, and the intraday change in value of the at least one derivative product.</i></p> | <p><i>Abstract Idea: Determining during trading time at an interval of a predetermined number of seconds, an intraday indicative value of the ETF is a fundamental economic practice including mitigating risk, commercial interactions, and sales activities that could also be performed alternatively as a mental step.</i></p> |

*Abstract Idea*

After considering representative method claim 1 as a whole, we conclude that the *italicized* steps of claim 1 shown in Table One **recite** methods of organizing human activity. We conclude that “calculating . . . an intraday change in value of the at least one derivative product” and “determining . . . an intraday indicative value of the ETF” both recite a fundamental economic practice, which includes mitigating risk, commercial interactions, and sales activities. *See* 2019 Memorandum, 84 Fed. Reg. at 52. Further “calculating an intraday change in value of the at least one derivative product” involves mathematical relationships and requires a mathematical calculation. We conclude both of these *italicized* steps could

also be performed alternatively as mental processes.<sup>7</sup> See 2019 Memorandum, 84 Fed. Reg. at 52. See also “*Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016) (“[W]ith the exception of generic computer-implemented steps, there is nothing in the claims themselves that foreclose them from being performed by a human, mentally or with pen and paper.”)”. 2019 Memorandum, 84 Fed. Reg. at 52 n.14.

“An abstract idea can generally be described at different levels of abstraction.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016). Merely combining several abstract ideas does not render the combination any less abstract. See *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) (“Adding one abstract idea (math) to another abstract idea . . . does not render the claim non-abstract.”); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir.

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<sup>7</sup> If a method can be performed by human thought alone, or by a human using pen and paper, it is merely an abstract idea and is not patent eligible under § 101. See *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011); “That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.” *CyberSource*, 654 F.3d at 1375. See also *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146–47 (Fed. Cir. 2016). Moreover, “[u]sing a computer to accelerate an ineligible mental process does not make that process patent-eligible.” *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1279 (Fed. Cir. 2012); see also *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (“[R]elying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.”).

2016) (determining the pending claims were directed to a combination of abstract ideas).

For at least these reasons, we conclude claim 1 recites the specific types of abstract ideas identified above in Table One.

#### *Additional Limitations*

As emphasized in **bold** in Table One, *supra*, we note the additional non-abstract limitations, for example (claim 1): the **computer** and the **at least one processor**. We further note the supporting exemplary, non-limiting descriptions of generic computer components in the Specification, for example:

Figure 7 illustrates the components of a **generic computing system** connected to a **general purpose electronic network 10**, such as a computer network. The computer network can be a virtual private network or a public network, such as the Internet. As shown in Figure 7, the computer system 12 includes a central processing unit (CPU) 14 connected to a system memory 18.

Spec. ¶ 72 (emphasis added).

We emphasize that *McRO, Inc. v. Bandai Namco Games Am. Inc.*, (837 F.3d 1299 (Fed. Cir. 2016)), guides: “[t]he abstract idea exception prevents patenting a *result* where ‘it matters not by what process or machinery the result is accomplished.’” 837 F.3d at 1312 (*quoting O’Reilly v. Morse*, 56 U.S. 62, 113 (1854)) (emphasis added). *See supra* Table One. Because we conclude all claims 1 and 24–43 on appeal recite an abstract idea, as identified above, under *Step 2A, Prong One*, we proceed to *Step 2A, Prong Two*.

*2019 Memorandum, Step 2A, Prong Two  
Integration of the Judicial Exception into a Practical Application*

Pursuant to the 2019 Memorandum, we consider whether there are additional elements set forth in the claims that integrate the judicial exception into a practical application. *See* 2019 Memorandum, 84 Fed. Reg. at 54–55.

*MPEP § 2106.05(a)*

*Improvements to the Functioning of a Computer or  
to Any Other Technology or Technical Field*

*McRO*

Appellant cites to *McRO*, and contends:

As in *McRO*, Appellant's claims employ a "specific means or method" that "**improve[s]** computer-related technology by allowing computer performance of a function not previously performable by a computer." Rather than merely claiming "determining ... an intraday indicative value of the ETF," Appellant's claims recite a particular way of doing so. Specifically, the claims recite, for example, "determining, using the at least one processor, during trading time at an interval of a predetermined number of seconds, an intraday indicative value of the ETF by combining the obtained intraday current value of the at least one equity or fixed-income security, the daily accumulated change in value of the at least one derivative product, and the intraday change in value of the at least one derivative product."

That is, Appellant's claims, like the claim in *McRO*, focus on a "specific means or method" of achieving a desired result or effect. Thus, like the claim in *McRO*, Appellant's claims are not "directed to" the asserted "abstract idea."

Appeal Br. 19 (emphasis added in bold, underline in original).

Appellant’s reliance on *McRO* is misplaced. For example, *McRO*’s ’576 patent (U.S. Patent No. 6,307,576) describes computer software for matching audio to a 3D animated mouth movement to provide lip-synced animation. *McRO*’s claims contain: (i) specific limitations regarding a set of rules that “define[] a morph weight set stream as a function of phoneme sequence and times associated with said phoneme sequence” to enable computers to produce “accurate and realistic lip synchronization and facial expressions in animated characters” (*McRO*, 837 F.3d at 1313) and, when viewed as a whole, are directed to, (ii) a “technological improvement over the existing, manual 3–D animation techniques” that uses “limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice.” *McRO*, 837 F.3d at 1316.

In contrast to *McRO*, we conclude “calculating . . . an intraday change in value of the at least one derivative product” and “determining . . . an intraday indicative value of the ETF” (claim 1) does not improve the computer functionality or “improve computer-related technology by allowing computer performance of a function not previously performable by a computer,” as Appellant argues. App. Br. 19.

To the extent a computer may perform faster than a person performing the steps of the method as a mental process, our reviewing court has held that speed and accuracy increases stemming from the ordinary capabilities of a general purpose computer “do[] not materially alter the patent eligibility of the claimed subject matter.” *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012). Additionally, “a claim for a *new* abstract idea is still an abstract idea.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016). “[U]nder the

*Mayo/Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility . . . .” *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) (citations omitted).

### *Enfish*

Appellant also cites to *Enfish* in support, and restates essentially the same argument addressed above with respect to *McRO*: “the claims here are ‘not directed to the use of conventional or generic technology’ but constitute an **improvement** to the functioning of a computer and a specific implementation of a solution to a problem in the software arts, and thus significantly more than any abstract idea.” Appeal Br. 22, (emphasis added).

We note the *Enfish* court held that the subject claims “are not directed to an abstract idea within the meaning of *Alice*. Rather, they are directed to a specific *improvement to the way computers operate*, embodied in the *self-referential table*.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016) (emphasis added).

As found by the *Enfish* court, the structural requirements of prior databases required a programmer to *predefine a structure* and subsequent data entry had to *conform* to that structure. *See Enfish*, 822 F.3d at 1337. The court found the improved database of the *Enfish* invention “does not require a programmer to preconfigure a structure to which a user must adapt data entry.” *Id.*

Thus, the *self-referential database table* considered by the court in *Enfish* was found to be a specific type of data structure that was designed to

*improve* the way a computer stores and retrieves data in memory. *Enfish*, 822 F.3d at 1339. Because the *Enfish* court found the claimed *self-referential* database table *improved* the way the computer stored and retrieved data, the court concluded the *Enfish* claims were not directed to an abstract idea, and thus ended the analysis at *Alice* step one. *Id.* at 1336.

Here, Appellant’s computer-implemented method claims and apparatus claims are *silent* regarding any mention of a database. Moreover, Appellant has not shown that any of the features of the claims on appeal *improve* the way the recited generic computer and at least one processor store and retrieve data, in a manner analogous to that found by the court in *Enfish*. See Appellant’s independent claims 1, 32, 42, and 43. There is no mention of a database storage device that includes a *self-referential database table* of the type found by the *Enfish* court to *improve* the way a computer stores and retrieves data in memory.

Therefore, on this record, we are not persuaded that Appellant’s claimed invention improves the recited generic computer and “at least one processor” functionality or efficiency, or otherwise changes the way the claimed generic computer components function, at least in the sense contemplated by the Federal Circuit in *Enfish*. See claim 1.

### *DDR Holdings*

Appellant further urges that the claimed invention provides an improvement to computer functionality based upon the Federal Circuit’s holding in *DDR*:

just as the claims in *DDR Holdings* recited a specific means — a composite web page — of achieving a result — retaining website visitors, the claims at issue recite a specific means—

“determining . . . an intraday indicative value of the ETF by combining the obtained intraday current value of the at least one equity or fixed-income security, the daily accumulated change in value of the at least one derivative product, and the intraday change in value of the at least one derivative product”— of achieving a result— calculating.

Appeal Br. 22–23 (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014)).

We do not agree with Appellant that this is a case involving eligible subject matter, as was the case in *DDR*. See Appeal Br. 22–23.

In *DDR*, instead of a computer network operating in its normal, expected manner by sending a website visitor to a third-party website via a clicked advertisement, the claimed invention generated and directed the visitor to a hybrid page that presented: (1) product information from the third party, and (2) the visual “look and feel” elements from the host website, *thus retaining the visitor at the original website*. *DDR*, 773 F.3d at 1258–59. Given this particular Internet-based solution, the court held that the claimed invention did not merely use the Internet to perform a business practice known from the pre-Internet world, but rather was *necessarily rooted in computer technology* to overcome a problem *specifically arising in computer networks*. *Id.* at 1257.

That is not the case here. Unlike *DDR*, Appellant’s method of “calculating . . . an intraday change in value of the at least one derivative product” and “determining . . . an intraday indicative value of the ETF” is not claimed as solving or otherwise addressing a problem specifically arising in computer networks. Claim 1. Appellant’s claimed invention recites no language that pertains to improving the “computer” or the “at least one

processor,” as recited in claim 1, or any (unclaimed) network. (emphasis added).

Moreover, the “‘mere automation of manual processes using generic computers’ . . . ‘does not constitute a patentable improvement in computer technology,’” *Trading Techs. Int’l v. IBG LLC*, 921 F.3d 1378, 1384 (Fed. Cir. 2019) (quoting *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017)).

To the extent that Appellant has invented an *improved* method of “determining . . . an intraday indicative value of the ETF” (claim 1), we again emphasize that an improved abstract idea is still an abstract idea. *See Mayo*, 566 U.S. at 90; *Synopsys*, 839 F.3d at 1151. Therefore, it is our view that Appellant’s claimed invention is not rooted in computer technology in the sense contemplated by the court in *DDR*, in which the claimed invention solved a challenge particular to the Internet.

As detailed above in Table One, the claim 1 method of “calculating . . . an intraday change in value of the at least one derivative product” and “determining . . . an intraday indicative value of the ETF” (claim 1) is a *fundamental economic practice* that could be performed alternatively as *mental steps*.

Moreover, as set forth in MPEP § 2106.05(a):

To show that the involvement of a computer assists in *improving the technology*, the claims *must recite the details regarding how a computer aids the method, the extent to which the computer aids the method, or the significance of a computer to the performance of the method*. Merely adding generic computer components to perform the method is not sufficient. Thus, the claim must include more than mere instructions to perform the method on a generic component or machinery to qualify as an improvement to an existing technology.

(Emphasis added).

Here, Appellant has not sufficiently explained how the recited “computer” and “at least one processor” of claim 1 include more than mere instructions to perform the recited steps to qualify as an improvement to an existing technology.

Accordingly, on this record, we conclude independent claims 1, 32, 42, and 43, and associated dependent claims, do not recite an improvement to the functionality of a computer or other technology or technical field. *See* MPEP § 2106.05(a).

Appellant advances no arguments that any of the method claims on appeal are tied to a particular machine, or transform an article to a different state or thing. *See* MPEP § 2106.05(c). Nor does Appellant advance further substantive, persuasive arguments as to any particular “meaningful” claim limitations, such as those of the types addressed under MPEP § 2106.05(e), *that impose meaningful limits on the judicial exception.*<sup>8</sup>

*MPEP § 2106.05(f)*  
*Merely including instructions to implement*  
*an abstract idea on a computer, or*  
*Merely using a computer as a tool*  
*to perform an abstract idea*

We conclude Appellant’s claimed invention merely implements the abstract idea using *instructions* executed on generic computer components,

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<sup>8</sup> *See 2019 Memorandum*, 84 Fed. Reg. 55, citing MPEP § 2106.05(e): “[A]pply[ing] or us[ing] the judicial exception in some other *meaningful* way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception.” (emphasis added).

as depicted in **bold** type in Table One, and as supported in our reproduction of the Specification, paragraph 72, *supra*. Thus, we conclude Appellant’s claims merely use a programmed computer as a tool to perform an abstract idea.

*MPEP § 2106.05(g)*  
*Adding insignificant extra-solution activity*  
*to the judicial exception*

As mapped in the right column of Table One, *supra*, we conclude that representative independent claim 1 recites extra or post-solution activities that courts have determined to be insufficient to transform judicially excepted subject matter into a patent-eligible application. *See* MPEP § 2106.05(g); 84 Fed. Reg. at 55 n.31.

*MPEP § 2106.05(h)*  
*Generally linking the use of the judicial exception to a particular*  
*technological environment or field of use*

The Supreme Court guides: “the prohibition against patenting abstract ideas ‘cannot be circumvented by attempting to limit the use of the formula to a particular technological environment’ or [by] adding ‘insignificant postsolution activity.’” *Bilski*, 561 U.S. at 610–12, (*quoting Diehr*, 450 U.S. at 191–92).

Appellant argues that because the claims on appeal “do not threaten to monopolize or pre-empt any asserted ‘abstract’ system or method, the claims are not directed to an abstract idea as asserted in the Office Action.” Appeal Br. 17 ¶ 2.

Our reviewing court provides applicable guidance: “While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015).

Nor do claims 1 and 24–43 on appeal present any other issues as set forth in the 2019 Memorandum regarding a determination of whether the additional generic elements integrate the judicial exception into a practical application. *See* 2019 Memorandum, 84 Fed. Reg. at 55.

Thus, under *Step 2A, Prong Two* (MPEP §§ 2106.05(a)–(c) and (e)–(h)), we conclude claims 1 and 24–43 do not integrate the judicial exception into a practical application. Therefore, we proceed to *Step 2B, The Inventive Concept*.

#### *The Inventive Concept – Step 2B*

Under the 2019 Memorandum, 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 adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); **or**, simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

Appellant contends:

Appellant’s claims are also similar to those of *BASCOM* and *Amdocs II* in that, like those of *BASCOM* and *Amdocs II*, they do not describe a mere abstract concept, or a concept similar to those found by the courts to be abstract. Rather, as in *BASCOM*, Appellant’s claims similarly recite a “technology-based solution,” utilizing processors with enhanced computational capability that improves efficiency and flexibility over

conventional systems when high speed computation is not available. In particular, Appellant’s claims recite methods including, *inter alia*, “obtaining . . . a daily accumulated change in value of at least one derivative product held by the ETF,” “calculating ... an intraday change,” and “determining ... an intraday indicative value of the ETF ....” Operations performed by a computer to determine the intraday indicative value is not an abstract idea or a human activity. Thus, the claims do not simply involve automating a human activity, they involve technical functions that differ from normal human activity.

Appeal Br. 20.

*BASCOM*

The Federal Circuit held in *BASCOM* that the claimed Internet content filtering, which featured an implementation “versatile enough that it could be adapted to many different users’ preferences while also installed remotely in a single location,” expressed an inventive concept in “the non-conventional and non-generic arrangement of known, conventional pieces.” *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

Here, Appellant has not persuasively shown an unconventional, non-generic *arrangement* regarding the non-abstract limitations of generic computer components in any of the claims on appeal. *See* 2019 Revised Guidance, 84 Fed. Reg. at 52.

Therefore, Appellant’s claims do not involve any improvements to another technology, technical field, or improvements to the functioning of the computer or network, as was seen by the court in *BASCOM*. Instead, we conclude Appellant’s claims merely invoke generic computer components as

a tool in which the instructions executing on the computer apply the judicial exception.

We also find unpersuasive Appellant's arguments that analogize the claims on appeal to the subject claims considered by the court in *Amdocs (Israel) Limited v. Openet Telecom, Inc.*, 841 F.3d 1288 (2016) (*Amdocs II*).  
Appeal Br. 20.

In *Amdocs*, the Federal Circuit held that claim 1 of the patent at issue is also like the claims in *BASCOM* because even though the system in the '065 patent relies upon some arguably generic limitations, when all limitations are considered individually and as an ordered combination, they provide an inventive concept through the use of distributed architecture. This is similar to the design in *BASCOM* which permitted the invention to have a filtering tool with the benefits of a filter on a local computer and the benefits of a filter on an ISP server. The benefits in *BASCOM* were possible because of customizable filtering features at specific locations remote from the user. Similarly, the benefits of the '065 patent's claim 1 are possible because of *the distributed, remote enhancement that produced an unconventional result—reduced data flows and the possibility of smaller databases*. This arrangement is not so broadly described to cause preemption concerns. Instead, it is narrowly circumscribed to the particular system outlined. As in *BASCOM*, this is a technical improvement over prior art technologies and served to improve the performance of the system itself.

*Amdocs*, 841 F.3d at 1302 (emphasis added).

As noted above, the claims on appeal are *silent* regarding any mention of a database. Therefore, there is no indication that any of Appellant's claims 1 and 24–43 provides *unconventional results* produced by a distributed, remote enhancement that reduces data flows and allows for the possibility of *smaller databases*, as was the case in *Amdocs*.

*Reply Brief*

We note the Reply Brief was filed on Feb. 28, 2019, after the issuance of the 2019 Memorandum (Jan. 2019). Although Appellant advances timely arguments under the Director’s 2019 Memorandum in the Reply Brief, we do not agree with Appellant’s contentions.

In the Reply Brief, Appellant urges: “Here, the pending claims recite apparatuses and methods rooted in technology, and thus *do not fall within the three groupings of abstract ideas specified in the 2019 Guidance*, namely, mathematical concepts, certain methods of organizing human activity, and mental processes.” Reply Br. 4 (emphasis added).

However, we disagree for the reasons fully addressed *supra* regarding our analysis under *Step 2A, Prong One*. We also find Appellant’s additional argument unavailing:

Neither the Final Office Action nor the Examiner's Answer identifies the specific limitation(s) in the claim under examination that the Examiner believes recites an abstract idea, as required by the 2019 guidance. Instead, the Final Office Action quotes a vast portion of the language of independent claim 1 wholesale, arguing that it represents a fundamental economic principle. See, e.g., Final Office Action, pp. 3-4.

*Id.* (emphasis omitted).

We find Appellant’s argument is not supported by the record, because as noted above, the Examiner concludes that all claims 1 and 24–43 describe:

In the instant application, the data processing system of claims 1 and 24 – 43 **recite** a series of steps of “**calculating**, using the at least one processor, an intraday change in value of the at least one derivative product; and *determining*, using the at

least one processor, during trading time at an interval of a predetermined number of seconds, an intraday indicative value of the ETF by combining the obtained intraday current value of the at least one equity or fixed-income security, the daily accumulated change in value of the at least one derivative product, and the intraday change in value of the at least one derivative product”, which is **a fundamental economic principle** of exchanging trading funds. An improvement on the abstract ideal does not make it less abstract. There must be an improvement in the technology.

Final Act. 3–4 (emphasis added).

Further, regarding the use of the recited generic computer components identified above in Table One, the Supreme Court has held that “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice*, 573 U.S. at 223. Our reviewing court provides additional guidance: *See FairWarning*, 839 F.3d at 1096 (“[T]he use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter.”); *OIP Techs*, 788 F.3d at 1363 (claims reciting, *inter alia*, sending messages over a network, gathering statistics, using a computerized system to automatically determine an estimated outcome, and presenting offers to potential customers found to merely recite “‘well-understood, routine conventional activit[ies],’ either by requiring conventional computer activities or routine data-gathering steps”).

This reasoning is applicable here. Therefore, on the record before us, Appellant has not shown that the claims on appeal add a specific limitation beyond the judicial exception that is not well-understood, routine, and conventional, when the claim limitations are considered both individually and as an ordered combination. *See* MPEP § 2106.05(d).

### CONCLUSION

In light of the foregoing, we conclude, under the 2019 Memorandum, that each of Appellant's claims 1 and 24–43 considered as a whole, is directed to a patent-ineligible abstract idea that is not integrated into a practical application, and does not include an inventive concept.

### DECISION SUMMARY

| <b>Claims Rejected</b> | <b>35 U.S.C. §</b> | <b>Reference(s)Basis</b> | <b>Affirmed</b> | <b>Reversed</b> |
|------------------------|--------------------|--------------------------|-----------------|-----------------|
| 1, 24–43               | 101                | Eligibility              | 1, 24–43        |                 |

### FINALITY AND 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)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED