United States Court of Appeals for the Federal Circuit

THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK,
Plaintiff-Appellee

v.

GEN DIGITAL INC., FKA SYMANTEC CORPORATION, FKA NORTONLIFELOCK, INC.,
Defendant-Appellant

2024-1243

Appeals from the United States District Court for the Eastern District of Virginia in No. 3:13-cv-00808-MHL, Chief Judge M. Hannah Lauck.

Decided: March 11, 2026

DUSTIN GUZIOR, Sullivan & Cromwell LLP, New York, NY, argued for plaintiff-appellee. Also represented by GARRARD R. BEENEY, STEPHEN J. ELLIOTT, ALEXANDER N. GROSS; OLIVER ENGEBRETSON-SCHOOLEY, MORGAN L. RATNER, JEFFREY B. WALL, Washington, DC.

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SHERRY, MARGARET UPSHAW, Latham & Watkins LLP, Washington, DC; DAVID K. CALLAHAN, Chicago, IL; NICOLAS LUONGO, New York, NY.

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Before DYK, PROST, and REYNA, *Circuit Judges.*

DYK, *Circuit Judge.*

The Trustees of Columbia University in the City of New York ("Columbia") brought suit against Gen Digital Inc., which markets the Norton software brand, ("Norton") asserting infringement of several claims of United States Patent Nos. 8,601,322 (the "'322 patent") and 8,074,115 (the "'115 patent") related primarily to protecting computer systems from viruses and other malicious activity. Columbia also sought correction of inventorship of United States Patent No. 8,549,643 (the "'643 patent").

Norton filed a motion for judgment on the pleadings with respect to the '322 and '115 patent claims, arguing the asserted claims were ineligible under 35 U.S.C. § 101. The district court denied the motion, concluding that under step one of the framework set forth in *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208 (2014), the claims were not directed to an abstract idea. Before trial, the district court struck the § 101 defense. After trial, the jury returned a verdict of willful infringement on four claims: claims 2, 11, and 27 of the '322 patent and claim 2 of the '115 patent (together, the "asserted claims") and awarded $185,112,727 in damages. The damages figure included damages based on Norton's sales to customers outside the United States. The district court denied judgment as a matter of law ("JMOL") on the issues of infringement, willfulness, and damages as to the foreign sales. Based on the jury verdict, the district court awarded enhanced damages and attorneys' fees, in part because of a negative inference imposed based on a contempt finding against Quinn Emanuel Urquhart & Sullivan, LLP ("Quinn"), Norton's counsel.

We vacate the judgment. We conclude that the asserted claims are abstract at step one of the *Alice* analysis and that further proceedings on remand are required as to step two. Because other issues may arise on the remand, we address those issues, which the district court need take up only if the patent claims are determined to be eligible. We see no error in the district court's claim construction or its denial of JMOL with regard to the issues of infringement and willfulness. However, we conclude the district court erred in its denial of JMOL as to damages resulting from foreign sales. In the companion case we also decide today, No. 2024-1244, we reverse the contempt order against Quinn. This would require vacating the award of enhanced damages and attorneys' fees in this case since those awards relied in part on the contempt finding. Other considerations also would require reconsideration of the enhancement.

BACKGROUND

I.   THE ASSERTED PATENTS

The '322 patent and '115 patent are directed towards "[m]ethods, media, and systems for detecting anomalous program executions." '322 patent, col. 3 ll. 7–8.[1]   The claims disclose a process by which an "emulator" executes a portion of a program and compares how the emulated program performs with a "model of function calls" reflecting how the program is typically expected to perform. A function call reflects the next action a program is requesting to take and contains data setting the parameters of the request, so a model of function calls models the future behavior of a program. Comparing a function call made in the

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[1]   The '322 patent and the '115 patent share a common specification. For the purposes of this opinion, we cite to the '322 patent unless the distinction between the patents is relevant.

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emulator to the model helps to identify whether the emulated program is behaving anomalously.

Independent claim 2 of the '322 patent is illustrative. The claim recites:

> A method for detecting anomalous program executions, comprising:
>
>> executing at least a portion of a program in an emulator;
>>
>> comparing a function call made in the emulator to a model of function calls for the at least a portion of the program, wherein the model is a combined model created from at least two models created using different computers; and
>>
>> identifying the function call as anomalous based on the comparison.

'322 patent, claim 2. The other asserted claims include a claim to a system with a processor that performs the claimed process ('322 patent, claim 27) and a claim to a computer-readable medium containing instructions to perform the claimed process ('322 patent, claim 11). Claim 2 of the '115 patent recites a method that includes a further step of "notifying an application community . . . of the anomalous function call." '115 patent, claim 2 (depending from unasserted claim 1).

II.   PROCEDURAL HISTORY

Several of Norton's antivirus software products employ a feature called SONAR/BASH. Norton sells its products both in the United States and internationally. Its international sales make use of a "content delivery network" whereby the software is transmitted electronically from domestic servers to other servers—including many located abroad. J.A. 211. Customers then download the software via an electronic transmission from a nearby server.

Columbia brought suit against Norton in the United States District Court for the Eastern District of Virginia, asserting that SONAR/BASH infringes the asserted claims. In addition to patent infringement claims, Columbia brought claims for correcting inventorship of the '643 patent owned by Norton. These latter claims were resolved in Columbia's favor and are not relevant to this appeal. However, they are relevant to the companion case.

Following a *Markman* hearing, the district court construed the contested terms of the '322 and '115 patent claims. The district court adopted Columbia's proposed construction of the claim term "emulator" as "[s]oftware, alone or in combination with hardware, that permits the monitoring and selective execution of certain parts, or all, of a program." J.A. 2.[2] The district court rejected Norton's preferred construction, "[s]oftware, alone or in combination with hardware, that simulates a computer system." J.A. 2787. The relevant difference between the two is whether simulation is a required element. The parties then entered a stipulated judgment of noninfringement as to the '322 and '115 patents based on the district court's construction of a different term, "anomalous." On appeal, we reversed the claim construction of "anomalous," vacated the stipulated judgment as to the '322 and '115 patents and remanded for further proceedings. *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1370–71 (Fed. Cir. 2016). Meanwhile in a separate proceeding, the Patent Trial and Appeal Board determined that various claims in the '322 and '115 patents (previously asserted in this case) were invalid as obvious, and we affirmed. *Trs. of Columbia Univ. v. Symantec Corp.*, 714 F. App'x 1021, 1022 (Fed. Cir. 2018) (Rule 36 affirmance).

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[2]   Citations to the J.A. refer to the Joint Appendix filed by the parties in this case. Dkt. No. 59.

After our remand, Norton moved for judgment on the pleadings that the remaining asserted claims were patent ineligible under 35 U.S.C. § 101. For the purposes of the § 101 analysis, Columbia represented to the district court that there were no relevant differences between '322 patent claim 2 and the other asserted claims of the '322 patent. At *Alice* step one, the district court denied the motion, finding that the asserted claims of both the '322 and '115 patents were not directed to an unpatentable abstract idea, but to "improving computer virus scanning" through "the creation of unique models," and "improvements in efficiency." J.A. 18. The district court did not reach step two of the *Alice* analysis.

At trial, Columbia's expert witness, Michael Bailey, testified that SONAR/BASH is software that, in combination with a computer, functions as the claimed emulator because it permitted the monitoring and selective execution of programs. However, Dr. Bailey conceded that SONAR/BASH "is not capable of simulating software," so it would not be infringing under Norton's rejected construction. J.A. 52932. The jury returned a verdict finding literal infringement of all asserted claims including induced and contributory infringement of claims 2, 11, and 27 of the '322 patent.[3] The jury also found the infringement was willful and awarded a reasonable royalty of $185,112,727. The reasonable royalty included a royalty for Norton's sales to customers located outside the United States of $94,037,265 based on findings that the infringing product sold to foreign customers was made in the United States and distributed from the United States.

After trial, Norton renewed its motion for JMOL, arguing that there was insufficient evidence of infringement and that damages for the foreign sales were not

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[3]   The jury did not reach the question of doctrine of equivalents.

recoverable. The district court denied the motion. Then, Columbia moved for enhanced damages under 35 U.S.C. § 284 and attorneys' fees under § 285. The district court granted the motions for enhanced damages and attorneys' fees, increasing the damages by a factor of 2.6. In doing so, the district court relied in part on a finding that Quinn was in civil contempt for failing to produce communications alleged to be privileged, as discussed in the companion case.

Norton appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I.   ELIGIBILITY UNDER § 101

As an initial matter, we conclude that the district court erred in determining that the asserted claims were not abstract at step one of the *Alice* inquiry. We therefore vacate the district court's denial of Norton's motion for judgment on the pleadings and remand for the district court to consider step two of *Alice* in the first instance.[4]

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[4]   Columbia argues, citing a case where we held that a decision denying summary judgment on an issue that eventually went to trial was not appealable, that the order denying Norton's motion for judgment on the pleadings was not appealable. Appellee's Br. 42–43 (citing *Ecofactor, Inc. v. Google LLC*, 104 F.4th 243, 249–50 (Fed. Cir. 2024), *vacated* 115 F.4th 1380 (Fed. Cir. 2024), *reinstated in relevant part* 137 F.4th 1333, 1347 (Fed. Cir. 2025) (en banc)). This is not an appeal from a denial of summary judgment, and in any event the issue was not litigated at trial nor submitted to the jury because the district court struck the issue *sua sponte*; this argument is meritless. *See Free Stream Media Corp. v. Alphonso Inc.*, 996 F.3d 1355, 1367

An invention is patent eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. "But there are exceptions." *Free Stream*, 996 F.3d at 1361. The Supreme Court has interpreted this language to exclude "[l]aws of nature, natural phenomena, and abstract ideas" from patent eligibility. *Alice*, 573 U.S. at 216.

Patent eligibility involves a two-step inquiry. *Id.* at 217–18; *Recentive Analytics, Inc. v. Fox Corp.*, 134 F.4th 1205, 1211 (Fed. Cir. 2025), *cert. denied* — S. Ct. —, No. 25-505, 2025 WL 3507020. "First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Alice*, 573 U.S. at 217. If the claims are found to be directed to an abstract idea, we proceed to step two, where we assess the elements of each claim both individually and as an ordered combination to determine whether they possess an "inventive concept" that ensures that the patent amounts to more than a patent upon the abstract idea itself. *Id.* at 217–18.

A. *ALICE* STEP ONE

To determine whether a claim is "directed to" a patent ineligible concept, we evaluate "the focus of the claimed advance over the prior art to determine if the claim's character as a whole is directed to excluded subject matter." *Trinity Info Media, LLC v. Covalent, Inc.*, 72 F.4th 1355, 1361 (Fed. Cir. 2023) (quoting *PersonalWeb Techs. LLC v. Google LLC*, 8 F.4th 1310, 1315 (Fed. Cir. 2021)). This requires "an accurate characterization of what the claims require and of what the patent asserts to be the claimed advance." *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1294 (Fed. Cir. 2020). Although the specification is relevant to the construction of the claims, "reliance on the specification

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(Fed. Cir. 2021) (reversing denial of motion to dismiss based on § 101).

must always yield to the claim language in identifying that focus." *Trinity*, 72 F.4th at 1361 (quoting *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 766 (Fed. Cir. 2019)); *see also Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1152 (Fed. Cir. 2016) ("Our analysis focuses, as it must, on the Asserted Claims."); *Trading Techs. Int'l, Inc. v. IBG LLC*, 921 F.3d 1084, 1095 (Fed. Cir. 2019) ("Eligibility depends on what is claimed, not all that is disclosed in the specification."); *AI Visualize, Inc. v. Nuance Commc'ns, Inc.*, 97 F.4th 1371, 1378 (Fed. Cir. 2024) ("[W]e consider the claims in light of the specification but avoid importing concepts from the specification into the claims.").

In the software context, *Alice* step one "often turns on whether the claims focus on 'the specific asserted improvement in computer capabilities'" rather than "an 'abstract idea' for which computers are invoked merely as a tool." *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018) (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016)). For example, a claim may be eligible at step one if it "overcom[es] a problem specifically arising in the realm of computer networks." *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1307 (Fed. Cir. 2020) (quoting *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–58 (Fed. Cir. 2014)). Such software-based innovations have been found to be patent eligible where they make "non-abstract improvements to computer technology." *Finjan*, 879 F.3d at 1304 (quoting *Enfish*, 822 F.3d at 1335–36).

However, claims that recite something "already routine and conventional" are not sufficient. *See GoTV Streaming v. Netflix, Inc.*, 166 F.4th 1053, 1065 (Fed. Cir. 2026). That is, the use of "conventional or generic technology" cannot alone constitute a technological improvement. *See In re TLI Commc'ns LLC Pat. Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016); *Intell. Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1314 & n.5 (Fed. Cir. 2016) (noting that well-known and fundamental practices are abstract ideas); *accord*

GoTV, 166 F.4th at 1065. "[T]he claim itself 'must identify "how" that functional result is achieved by limiting the claim scope to structures specified at some level of concreteness, in the case of a product claim, or to concrete action, in the case of a method claim.'" *Free Stream*, 996 F.3d at 1363 (quoting *Am. Axle & Mfg., Inc. v. Neapco Holdings, LLC*, 967 F.3d 1285, 1302 (Fed. Cir. 2020)). Claims that "do not delineate steps through which the [relevant] technology achieves an improvement" are insufficient for patent eligibility. *See Recentive*, 134 F.4th at 1213 (citing *Int'l Bus. Machs. Corp. v. Zillow Grp., Inc.*, 50 F.4th 1371, 1381 (Fed. Cir. 2022)).

In the computer context, "[b]y itself, virus screening is well-known and constitutes an abstract idea." *Intell. Ventures*, 838 F.3d at 1319. Therefore, a claim that "does not claim a new method of virus screening or improvements thereto" and does not "improve or change the way a computer functions" is directed to an abstract idea. *Id.* at 1319–20.

In its motion for judgment on the pleadings, Norton argued that the asserted claims were drawn to the abstract idea of "identifying a deviation in data based on a comparison" in connection with virus scanning. J.A. 7820. In response, Columbia argued that the claims "recite specific steps and a technique for improving computer security that departs from earlier approaches." Mem. in Opp. at 16, *Trs. of Columbia Univ. v. Symantec Corp.*, No. 3:13-cv-808 (E.D. Va. Aug. 5, 2019), Dkt. No. 264.

Relying primarily on the patents' shared specification, the district court held that the asserted claims "improve computer functionality by improving computer virus scanning" by "(1) the creation of unique models and (2) improvements in efficiency," J.A. 18, and therefore are patent eligible. The only claim language relied on by the district court was the limitation requiring that "the model is a combined model created from at least two models created using

different computers." J.A. 20 (quoting '322 patent, claim 2). On appeal, Columbia supports the district court's rationale, namely that the claims are not abstract because of the use of multiple computers. Columbia argues that the use of a model that is created using different computers is more efficient and allows a computer to be more resistant to viruses because viruses are detected more quickly.

As the specification describes, by dividing the task of creating a model between different computers, a complete model can be created much more quickly than one computer working on its own. If "models are shared among many members of a community running the same application (referred to as an 'application community')," then "some embodiments can share models with each other and/or update each other's models such that the learning of anomaly detection models is relatively quick." '322 patent, col. 6 ll. 37–42. This approach can provide an efficiency gain: "For example, instead of running a particular application for days at a single site . . . thousands of replicated applications can be run for a short period of time . . . and the models created based on the distributed data can be shared." *Id.* col. 6 ll. 42–47; *accord id.* col. 9 ll. 14–21. Under this divide-and-conquer method, "[w]hile only a portion of each application instance may be monitored [by a single computer] . . . the entire software body can be monitored across the entire community" of devices monitoring the program. *Id.* col. 6 ll. 47–49.

Columbia concedes that emulators were conventional technology and that a divide-and-conquer approach where multiple computers collaborate on a single task is an abstract idea. *Cf. Finjan*, 879 F.3d at 1304 (quoting *Intell. Ventures*, 838 F.3d at 1321) (recognizing mere use of a second computer in virus scanning does not render a claim non-abstract). The claimed invention's efficiency gain from the use of multiple computers is no more than this concededly abstract idea.

Columbia nonetheless argues that the asserted claims recite various other technological improvements not relied on by the district court that render the claims directed to something non-abstract. The problem is these supposed improvements are not what the claims are directed to, i.e., the supposed improvements are not required by the language of the asserted claims at all.

First, although Columbia conceded at oral argument that the use of emulators was conventional, it argued that selective emulation was not. Selective emulation refers to emulating only part of a program rather than the full program to reduce the burden of emulation on the computer. Columbia argues that the emulator's capacity to selectively emulate was at the heart of the technological improvement disclosed in the asserted patents. This argument was not raised before the district court and is therefore forfeited. *See Nuvo Pharms. (Ir.) Designated Activity Co. v. Dr. Reddy's Lab'ys Inc.*, 923 F.3d 1368, 1378 (Fed. Cir. 2019). Even if this argument were not forfeited, it is without merit. Columbia's reading of the patent is not supported by the plain language of the claims. The language of '322 patent claim 2 ("executing at least a portion of a program in an emulator") suggests that selectivity is not required, and that the entire program may be emulated. The specification consistently describes selective emulation as optional. *E.g.*, '322 patent, col. 9 ll. 41–43, col. 13 ll. 1–3. In other words, the claims are satisfied even when there is no selective emulation. We do not read the district court's construction as requiring selective emulation, given the reference to "permit[ting]" emulation of the entire program. J.A. 2.

It cannot be said that the claims are directed to a technological improvement when nothing in the claims requires the steps necessary to make the improvement. *GoTV*, 166 F.4th at 1061 ("[O]nly features that are claimed, not unclaimed details that appear in the specification, can supply something beyond . . . an abstract idea

and sufficient to render the claim eligible . . . ."); *Uniloc*, 957 F.3d at 130 (discussing *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014)); *Free Stream*, 996 F.3d at 1364 (claims abstract where "asserted claims do not incorporate any such methods" of achieving the technological improvement described in the specification). Because the claims do not require selective emulation, selective emulation cannot prevent the claims from constituting an abstract idea.

Second, Columbia points to language in the specification, arguing that the specification describes how the claims capture a non-abstract technological improvement involving the creation of non-standard models. The specification provides that "[m]odel sharing can result in one standard model that an attacker could potentially access and use to craft a mimicry attack." '322 patent, col. 6 ll. 54–56. A system that builds a single standardized model is easier to infiltrate because a virus only has to mimic that single model to be undetected throughout the entire system. The specification goes on to describe improvements that can be made to solve this problem, such as creating a set of "unique and diversified models." *Id.* col. 6 ll. 56–57. These diversified models are not merely created by combining models from different computers, but by "randomly choosing particular features from the application execution that is modeled." *Id.* col. 6 ll. 57–60. These requirements again are not reflected in the relevant claim language.

Third, Columbia argues that the claims are not abstract because they use the claimed application community members to create a model, citing a portion of the specification that states that "distributed sensors whose data is correlated among many (e.g., a thousand) application community members can be used to compute a substantially accurate [combined model] in a relatively short amount of time." '322 patent, col. 7 ll. 58–62. Even if this feature were distinct from the concededly abstract divide-and-conquer approach discussed above, it is not reflected in the

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language of the claims.   Only one claim at issue here, claim 2 of the '115 patent, references the application community and, as the district court recognized in its claim construction, it involves the application community only *after* the combined model is developed, not in the development of the model.   *See* '115 patent, claim 2 ("upon identifying the anomalous function call [based on the comparison to the model], notifying an application community" (depending from claim 1)).   Likewise, none of the asserted claims requires, or even references, the use of "distributed sensors."

At oral argument, Columbia sought to support the district court's step one decision based on a ground that was not relied on by the district court: the requirement in the claims of the use of function calls in creating the model. We find this argument forfeited because Columbia failed to develop the issue properly in its brief, though as will be seen, the same issue arises again at step two. *See SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1320 (Fed. Cir. 2006) (collecting cases); *see also Kao Corp. v. Unilever U.S., Inc.*, 441 F.3d 963, 973 n.4 (Fed. Cir. 2006) (arguments alluded to in the "Statement of the Facts" and not developed in the argument section of a brief are forfeited).

Finally, Columbia argues that our decision in *Finjan, Inc. v. Blue Coat Systems, Inc.*, counsels us to find the asserted claims non-abstract. We disagree. In *Finjan*, we found a patent claim directed to a technological improvement in the virus-scanning context where it claimed a "security profile that identifies suspicious code in [a] received Downloadable." 879 F.3d at 1304. This novel file type represented an improvement in computer functionality because traditional code detection models relied on "code-matching" virus scans that merely compared the analyzed code with code listed in a database of viruses, whereas the claimed file type *required* the use of an improved "behavior-based" virus scan that analyzed the operations that may be

attempted by the Downloadable and that "link[ed]" the re-
sults of the scan to the Downloadable so that downloading
computers could review them. *Id.* at 1304–05. The im-
provements found to be non-abstract in *Finjan* bear no re-
semblance to the purportedly non-abstract claims in this
case.

We therefore find that the asserted claims are directed
towards the abstract idea of comparing data against a
model (created using different computers) to determine if
it is anomalous and proceed to step two of *Alice.*

B. *ALICE* STEP TWO

At *Alice* step two, we consider the elements of the claim
both individually and "as an ordered combination" to deter-
mine whether the additional elements "transform the na-
ture of the claim" into a patent-eligible application. *Alice*,
573 U.S. at 217 (quoting *Mayo Collaborative Servs. v. Pro-
metheus Lab'ys, Inc.*, 566 U.S. 66, 78–79 (2012)); *Recentive*,
134 F.4th at 1214. This requires identifying "an inventive
concept sufficient to transform the claimed abstract idea
into a patent-eligible application." *Recentive*, 134 F.4th
at 1215 (quoting *Trinity*, 72 F.4th at 1365). "An inventive
concept . . . must be significantly more than the abstract
idea itself." *BASCOM Glob. Internet Servs. v. AT&T Mo-
bility LLC*, 827 F.3d 1341, 1349 (Fed. Cir. 2016). So too,
"[s]imply appending conventional steps, specified at a high
level of generality," which are "well known in the art" and
consist of "well-understood, routine, conventional ac-
tivit[ies]" previously engaged in by workers in the field, is
not sufficient to supply the inventive concept. *Alice*,
573 U.S. at 221–22, 225 (second alteration in original)
(quoting *Mayo*, 566 U.S. at 73, 79, 82).

To a large extent, Columbia raises the same arguments
at step two that it made at step one, and these arguments
have no more merit at step two than they had at step one.
However, Columbia does raise one argument at step two
that merits further attention. Columbia argues the "model

of function calls" supplies an inventive concept itself. While Columbia's argument that the model of function calls does not render the claims abstract was forfeited in this court, it has not forfeited its argument that the model of function calls is an inventive concept at step two, which was also raised before the district court.

Norton argues that we can make a determination as to this step two issue based on the record before us. Columbia argues that factual issues remain that preclude our determining step two of *Alice* in the first instance. In this respect, we agree with Columbia. Since we are reviewing an action of the district court at the pleadings stage, we draw all reasonable factual inferences in favor of the nonmovant. *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1293 (Fed. Cir. 2016) (applying Fourth Circuit law). The district court construed the phrase "model of function calls for a [part/portion] of the program" to mean "model of function calls created by modeling program executions." J.A. 178. Drawing all reasonable inferences in Columbia's favor, the parties' dispute over whether this feature was conventional is a question of fact that precludes judgment on the pleadings.

As this factual issue was raised before the district court and left unaddressed in the district court's decision on § 101, we believe that it is best addressed by the district court in the first instance. We therefore vacate the district court's denial of judgment on the pleadings as to patent eligibility, hold that the claims are directed to an abstract idea, and remand for the district court to solely consider, at step two, the question whether the claimed model of function calls feature was conventional.

II.   REMAINING ISSUES

Given the interest in judicial efficiency, we address the remaining issues raised by the parties, which have been fully briefed, because these issues may again be relevant on remand, depending on whether the claims are

determined to be patent eligible. *See Optis Cellular Tech., LLC v. Apple Inc.*, 139 F.4th 1363, 1377 (Fed. Cir. 2025); *Jiaxing Super Lighting Elec. Appliance, Co. v. CH Lighting Tech. Co.*, 146 F.4th 1098, 1110 (Fed. Cir. 2025); *accord LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 78 (Fed. Cir. 2012).

A. CLAIM CONSTRUCTION AND INFRINGEMENT

Norton argues that the district court's construction of the claim term "emulator" was erroneous and that under Norton's construction it did not infringe the asserted claims. Claim construction based on intrinsic evidence is an issue of law that we review de novo. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). To the extent the claim construction depends on extrinsic evidence, we review the district court's factual findings under a clearly erroneous standard. *Id.* at 326.

Claims are construed based on the "ordinary and customary meaning . . . that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). The skilled artisan "is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* Thus, claim construction begins with an analysis of the intrinsic record of the patent. *Id.* at 1313–14. But extrinsic evidence may be relevant if the intrinsic record does not resolve the claim construction issue. *See id.* at 1317.

The claims here do not define the term "emulator." The function of the emulator is only described generally in the specification as involving the monitoring and execution of programs. *See* '322 patent, col. 3 ll. 28–37, col. 13 ll. 1–3, 16–27, 52–67, col. 14 ll. 18–21. Primarily relying on the specification, Columbia successfully argued before the district court that "emulator" should be construed as "Software, alone or in combination with hardware, that permits

the monitoring and selective execution of certain parts, or all, of a program." J.A. 2. Norton argued, largely based on extrinsic evidence, that the term emulator should be construed as "Software, alone or in combination with hardware, that simulates a computer system." J.A. 2787. Norton's construction is incorrect in requiring simulation.

The question is whether an emulator in the patent requires the ability to simulate. The claims on the face require an "emulator" rather than a "simulator." Simulate, in this context, appears to refer to executing programs on a "virtual" processor rather than the real computer processor. J.A. 2788. The specification references some embodiments that execute on a virtual processor. *See* '322 patent, col. 14 ll. 2–3, 57–59. Additionally, the Valgrind emulator, named in the specification, appears to simulate a computer. *Id.* col. 3 ll. 28–37; J.A. 3428 (describing the Valgrind emulator as "simulat[ing] the operation of the CPU"). However, we do not read the specification as limiting the claims to only emulators that simulate computer systems.

Norton nonetheless argues the prosecution history supports its construction. First, it points to language in the provisional application that states that in Selective Transactional Emulation, "the emulator . . . executes all instructions on the virtual processor." J.A. 4215. However, this is only a description of one embodiment. Second, Norton argues that the prior art cited in the information disclosure statement refers to emulators as simulating in a virtual environment, but a narrow definition used by one patent cannot narrow the scope of another patent that does not disclaim the broader meaning of the term. Neither of the patents cited in the information disclosure statement purport to define the meaning of the term in general usage. Based on the intrinsic evidence of the patent, we conclude that there is no requirement that the claimed emulator simulate a computer system.

Even if the intrinsic evidence proffered by Columbia were less than clear, Norton's remaining arguments—based on extrinsic evidence—are unpersuasive. To be sure, some evidence presented in the form of language from technical dictionaries supports Norton's construction. *See, e.g.*, *Dictionary of Computer Science, Engineering, and Technology* 158, J.A. 3694 (Phillip A. Laplante ed., 2001) (defining an emulator as "the firmware that simulates a given machine architecture"). But the proffered dictionaries also indicated that an emulator does not necessarily require "simulation" if it can provide another method of imitating the operation of a computer system. *See Glossary*, *Virus Bulletin*, J.A. 3226 ("Emulation refers to any method of creating a fake environment . . ."); *Microsoft Computer Dictionary* 191, J.A. 3223 (5th ed. 2002) (defining an emulator as something "mak[ing] one type of computer or component act as if it were another"). At least one of the textbooks that Norton cites also supports the idea that emulators do not necessarily involve simulation or use of a virtual machine. *See* J.A. 3207 (describing two kinds of emulation, one involving a "virtual machine" and the other "using the [real] processor"). Thus, the extrinsic evidence here indicates that Norton's proposed construction maps onto some, but not all, accepted definitions of the term "emulator."

Norton's expert testimony opinion was more supportive of Norton's position. The expert testified that a skilled artisan would understand "emulator" to require simulation. But his testimony was the kind of unsupported conclusory evidence that we have consistently held should be afforded no weight. *See Smartrend Mfg. Grp., Inc. v. Opti-Luxx Inc.*, 159 F.4th 1322, 1330–31 (Fed. Cir. 2025) ("'[C]onclusory' testimony by experts unsupported by reliable extrinsic material . . . is insufficient." (quoting *Phillips*, 415 F.3d at 1318)); *Network Com., Inc. v. Microsoft Corp.*, 422 F.3d 1353, 1361 (Fed. Cir. 2005); *SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1210 (Fed. Cir. 2013); *see also Phillips*, 415 F.3d at 1318 ("[E]xpert reports . . . [are] generated at

the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence."). We therefore agree that the district court properly construed the "emulator" as not requiring simulating a computer system.

Norton argues alternatively that even under the district court's construction, its products did not infringe the asserted claims as a matter of law, and the district court erred in denying its motion for JMOL on noninfringement. We review the district court's denial of JMOL de novo. *Trudell Med. Int'l Inc. v. D R Burton Healthcare, LLC*, 127 F.4th 1340, 1350 (Fed. Cir. 2025) (applying Fourth Circuit law). Norton's theory of noninfringement is that its product feature, SONAR/BASH, standing alone, acts as the claimed "emulator." Norton argues that because the claims require programs to be executed "in" the emulator, and it is undisputed that programs are not executed "in" SONAR/BASH, its products do not infringe the asserted claims. This argument is meritless. Columbia presented sufficient evidence that SONAR/BASH—operating in conjunction with an operating environment—was the emulator. The evidence supported the proposition that Norton's products enable computers to execute programs in the operating environment. The district court concluded that "this presented a factual question for the jury." J.A. 184 n.17. We agree that there was sufficient evidence to allow a reasonable jury to conclude that Norton's products infringed the asserted claims.[5]

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[5]   Norton also argues that it was entitled to JMOL of noninfringement under the district court's construction because, as the customers' computers provide the operating environment that is part of the claimed emulator, it cannot be liable for direct infringement and could only have been found liable for divided infringement. Because this

B. WILLFUL INFRINGEMENT

Norton challenged the jury's finding of willfulness in its JMOL motion, arguing that it lacked notice of the patents prior to receiving actual notice from Columbia[6] and had a reasonable belief that its products did not infringe. "Willful infringement is a question of fact reviewed for substantial evidence following a jury trial." *Polara Eng'g Inc. v. Campbell Co.*, 894 F.3d 1339, 1353 (Fed. Cir. 2018) (citing *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1341–42 (Fed. Cir. 2016)). An infringement may be willful if the infringer knew or should have known of the patent's existence. *See Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1371–72 (Fed. Cir. 2017).

As the district court recognized, "[s]ufficient evidence exists on the record that would support a jury finding that Norton knew about the Columbia professors' designs and work before the patents issued" including the provisional application. J.A. 198 & n.22. An inventor of the '322 and '115 patents testified that a Norton representative attended a workshop in 2004 where he discussed the research that became the basis of the patents. He further testified that it was his understanding that Norton was aware of the patent rights Columbia was seeking based on communications he had with Norton about potentially licensing the claimed invention as early as November 2005, after the provisional patent application had been filed. We have established that notice of a pending patent application is sufficient for a jury to find that the infringer should

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argument was not raised in Norton's JMOL motion before the district court, we find it forfeited.

    6   Uncontested evidence showed that Columbia informed Norton of the '115 patent on August 14, 2012, and the '322 patent on December 6, 2013, the latter of which was during the course of litigation and prior to the filing of the operative complaint.

have known of the patent at the date of issuance. *See Arctic Cat*, 876 F.3d at 1371; *Georgetown Rail Equip. Co. v. Holland L.P.*, 867 F.3d 1229, 1245 (Fed. Cir. 2017). The jury was entitled to infer based on Norton's expressed interest in licensing the intellectual property that it was aware of the patent application at that time. In this respect, this case is different from *SRI International, Inc. v. Cisco Systems, Inc.* ("*SRI I*"), 930 F.3d 1295 (Fed. Cir. 2019). There, it was "undisputed" that the defendant "did not know of [the] patent" until it received a notice letter from the patent owner. *Id.* at 1309. While the defendant had met with the inventor prior to developing its infringing products, the defendant "could not have been aware of the patent application" that was filed because it was filed *after* they met. *Id.*

Norton also argues that it had reasonable defenses to infringement that preclude a finding of willfulness. While there is evidence that its defenses were reasonable, that does not mandate reversal. "Proof of an objectively reasonable litigation-inspired defense to infringement is no longer a defense to willful infringement." *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1341 (Fed. Cir. 2016) (citing *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 579 U.S. 93, 105–06 (2016)). Because "culpability is generally measured against the knowledge of the actor at the time of the challenged conduct," Norton was required to show that it "act[ed] on the basis of the defense" or was "aware of it" at the relevant time. *See Halo*, 579 U.S. at 105. Here, the district court identified evidence that Norton's software development team "failed to investigate any potential infringement" by the SONAR/BASH feature of their products. J.A. 125. Even assuming the existence of objectively reasonable defenses, a reasonable jury could have found that Norton did not actually rely on them when deciding to develop and distribute its software product. *See C R Bard Inc. v. AngioDynamics, Inc.*, 979 F.3d 1372, 1380 (Fed. Cir. 2020). The district court did not err in denying JMOL on the issue of willfulness.

C. FOREIGN SALES

Norton argues that the district court erred in denying JMOL of no damages based on the district court's instruction as to foreign sales. We agree.

"It is the general rule under United States patent law that no infringement occurs when a patented product is made and sold in another country." *Microsoft Corp. v. AT & T Corp.*, 550 U.S. 437, 441 (2006). This general principle applies to both direct and indirect infringement. *Id.* at 443 (citing *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 526–29 (1972)). Although Congress has created "an exception to the general rule" with 35 U.S.C. § 271(f), that provision is not implicated in this case. *See Microsoft*, 550 U.S. at 442; *accord id.* at 444; *Life Techs. Corp. v. Promega Corp.*, 580 U.S. 140, 151 (2017).

Here, at Columbia's request, the jury was instructed:

> Columbia is entitled to damages based on sales to customers located outside of the United States if you find that the infringing product sold to those customers was <u>made in or distributed from the United States</u>, even if the infringing product is delivered to a customer and used by the customer outside the United States.

Tr. of Trial at 2842:1–7, *Trs. of Columbia Univ. v. Symantec, Corp.*, No. 3:13-cv-808 (E.D. Va. May 10, 2022), Dkt. No. 1220 (emphasis added). The verdict form also asked jurors to identify whether the reasonable royalty award "include[d] a royalty for Norton's sales to customers located outside of the United States." J.A. 43917. The verdict form stated that if this was marked "yes," then the jury "must check 'yes' to at least one of the three questions below," referring to separate inquiries as to whether the infringing product was made in, distributed from, or sold in the United States. J.A. 43917–18. The jury indicated it found

that "the infringing product sold to customers located outside of the United States was made in the United States," and "the infringing product sold to customers located outside the United States was distributed from the United States." J.A. 43918.[7] Norton argues that it was entitled to JMOL because no reasonable jury could conclude that any infringing copies of Norton's software that were sold to customers outside of the United States were made in the United States or distributed from the United States.

"The Supreme Court has recognized the important distinction between software and a particular copy of it on a [computer-readable medium]." *Brumfield, Tr. for Ascent Tr. v. IBG LLC*, 97 F.4th 854, 880 (Fed. Cir. 2024) (citing *Microsoft*, 550 U.S. at 447–48, 449 n.10, 451 & n.12.). *Microsoft Corp. v. AT&T Corp.* concerned a patent that claimed an "apparatus" that was capable of performing certain functions. 550 U.S. at 446. The question was whether § 271(f) (knowingly supplying "components" of an infringing product from the United States with the intent that they are combined into the infringing product outside the United States) applied to "computer software first sent from the United States to a foreign manufacturer on a master disk, or by electronic transmission, then copied by the foreign recipient for installation on computers made and sold abroad." *Id.* at 441. The patentee argued that the

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[7]   The jury was also instructed that Columbia would be entitled to damages based on sales to customers located outside the United States if the sales substantially occurred in the United States. Tr. of Trial at 2842:8–11, *Trs. of Columbia Univ. v. Symantec Corp.*, No. 3:13-cv-808 (E.D. Va. May 10, 2022), Dkt. No. 1220. The jury did not find that "Norton's sales to foreign customers were sales that substantially occurred in the United States." J.A. 43918.

computer software transmitted from the United States was a "component" that was later incorporated into an infringing product that was sold abroad. *Id.* at 450–51.

Although *Microsoft* involved § 271(f), *Microsoft's* holding that infringement only occurred when software was "installed on a computer," *id.* at 446, equally applies here. *Microsoft* establishes that software in the abstract—that is, software not physically encoded in a "tangible copy" like a CD or hard drive—is akin to a "blueprint" or "a schematic, template, or prototype." *Id.* at 449–50. If someone abroad builds an infringing product based upon a blueprint that exists in the United States, for example, then the product was still made abroad. *See id.* at 442. So too, software is not tangible—or capable of infringing the asserted claims—until tethered in a *particular copy* of the software encoded in a computer-readable medium. *See id.* at 450–51. Under the logic of *Microsoft*, we conclude, as a matter of law, that the products sold to Norton's foreign customers were made outside the United States. Therefore, and for the reasons further discussed below, Columbia's damages theory must fail under each of the four asserted claims.

The four claims at issue here reflect one system claim, two method claims, and one computer-readable-medium claim. The system claim, '322 patent, claim 27, includes a "processor." Like the apparatus claim at issue in *Microsoft*, this claim is not infringed until a particular instance of software is installed onto a computer with a processor. *See Centillion Data Sys., LLC v. Qwest Commc'ns. Int'l, Inc.*, 631 F.3d 1279, 1288 (Fed. Cir. 2011). Because the instances of software sold to customers located abroad are not installed on a computer in the United States, those instances were not made in or distributed from the United States.

The same conclusion follows as to the other claims asserted here. A method claim is only infringed when the claimed process is performed; it is not infringed by the

mere existence of software that, if installed on a computer, could perform the method. *See Ericsson, Inc. v. D-Link Sys.*, 773 F.3d 1201, 1219 (Fed. Cir. 2014). Because the infringing software is only capable of performing either of the claimed methods once installed on a computer, the versions installed abroad also cannot give rise to domestic infringement. In any event, "[t]here is no established recognition in patent law of direct infringement by 'making' a 'method.'" *See Brumfield*, 97 F.4th at 879. The methods here were not "made" in the United States nor "distributed" from the United States.

This leaves only claim 11 of the '322 patent, the computer-readable medium claim. Columbia argues that this claim must be treated differently, because it does not require that a particular version of software be first installed on a computer with a processor to be infringing. It is true that claim 11 does not require software to be installed on a device with a processor, but claim 11 does still require that the software be encoded in a particular "non-transitory computer-readable medium." '322 patent, claim 11. While a non-transitory computer-readable medium may be created on a server in the United States, that medium is not exported abroad. The computer-readable media sold to foreign customers are only created once the foreign computer encodes the software on its hard drive, which occurs outside the United States. These computer-readable media are—like the apparatuses in *Microsoft*—created outside the United States and therefore cannot be domestically infringing. Under the logic the Court applied in *Microsoft*, these cannot constitute infringing products that were made in or distributed from the United States.

Nonetheless, Columbia points out that under our decision in *Brumfield, Trustee for Ascent Trust v. IBG LLC* (which relied on the Supreme Court's decision in *Western-Geco LLC v. Ion Geophysical Corp.*, 585 U.S. 407 (2018) and was decided after the trial in this case), a finding of domestic infringement allows a patent owner to recover

"complete compensation," including damages based on foreign activity shown to be caused by domestic infringement. 97 F.4th at 872, 875. Columbia argues that this was the case here—the foreign damages verdict was supported by substantial evidence because, under *Brumfield*, the jury could have found that the domestic infringement involved in creating its master copies, which enabled the foreign sales, were the cause of the foreign sales damages. However, the jury was not instructed, and Columbia did not seek an instruction, that they could grant a reasonable royalty for foreign sales based on this theory. We cannot reform the damages theory actually presented to the jury in favor of an alternative that was not, even if the alternative would have been legally valid. *See Promega Corp. v. Life Techs. Corp.*, 875 F.3d 651, 666 (Fed. Cir. 2017) ("[A] patent owner may waive its right to a damages award when it deliberately abandons valid theories of recovery in a singular pursuit of an ultimately invalid damages theory."). We thus need not reach the question of whether Columbia's theory of foreign damages was proper under the causation theory of *Brumfield*.

The district court relied on two other grounds to support the jury's award of foreign damages, but they both fail. First, the district court held that Norton could be liable for joint infringement based on its domestic actions. This theory was not clearly articulated, and it fails in any event because in order for Norton to be liable for joint infringement, under the district court's instruction, the product must be "made in" or "distributed from" the United States, a condition that is not sustained even under a joint infringement theory.[8] Second, the district court held that the jury could

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8   On appeal, Columbia attempts to salvage this theory by arguing that Norton is liable for joint infringement of claim 2 of the '115 patent based on the theory that Norton's customers abroad perform the majority of the claimed

reasonably find that Norton induced its foreign customers to infringe the patents. But again, the induced infringement would have to have occurred within the United States. *See Microsoft*, 550 U.S. at 443 (citing *Deepsouth*, 406 U.S. at 526–29).

D. ENHANCED DAMAGES

Norton challenges the district court's imposition of enhanced damages, arguing that the district court improperly weighed the factors we articulated in *Read Corp. v. Portec, Inc.*, 970 F.2d 816 (Fed. Cir. 1992), *abrogated in part on other grounds by Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996)). Enhanced damages under 35 U.S.C. § 284 may be warranted if infringement is willful and the district court finds that the infringer's conduct is sufficiently egregious to warrant the enhanced damages. *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 875 F.3d 1369, 1382 (Fed. Cir. 2017). A district court is not required to analyze the *Read* factors in making an enhancement determination, *id.*, but we have held that the *Read* factors are an appropriate method of weighing the particular circumstances of the case to determine whether the relevant conduct is sufficiently egregious to warrant enhanced damages, *see SRI Int'l, Inc. v. Cisco Sys., Inc.* ("*SRI II*"), 14 F.4th 1323, 1330–31 (Fed. Cir. 2021). We

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steps in the method, but that Norton performed the step of notifying the application community domestically. This argument fails because joint infringement of that method claim could only occur if all the steps of the method are performed domestically. *See NTP, Inc. v. Rsch. In Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005) ("We therefore hold that a process cannot be used 'within' the United States as required by section 271(a) unless each of the steps is performed within this country."), *abrogated in part on other grounds by Zoltek Corp. v. United States*, 672 F.3d 1309 (Fed. Cir. 2012) (en banc).

review a district court's grant of enhanced damages for abuse of discretion. *Id.* at 1327. "[A] clear error of fact, an error of law, or a manifest error of judgment" would constitute an abuse of discretion. *Id.* at 1330 (quoting *Va. Panel Corp. v. MAC Panel Co.,* 133 F.3d 860, 867 (Fed. Cir. 1997)).

Here, after weighing the *Read* factors, the district court enhanced damages by a factor of 2.6. Norton takes issue with the district court's analysis of two of the *Read* factors in particular. First, Norton argues that the district court's analysis of factor three—litigation misconduct—requires vacatur of the enhanced damages order. We agree. In the district court's contempt order sanctioning Quinn for failing to comply with its order to disclose communications with Dr. Dacier, it imposed as a penalty "a negative inference of egregiousness regarding any unproduced communications . . . for the purpose of deciding Columbia's pending motion[] for enhancement of the jury's damage award under 35 U.S.C. § 284." J.A. 60. In consideration of this negative inference, and in light of the alleged misconduct notwithstanding the inference, the court found that this factor weighed "as heavily in favor of enhancement as it could." J.A. 130. Because we reverse the contempt order in the companion case also decided today, the award of enhanced damages cannot be sustained.[9] If, following the

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[9]   Columbia argues that vacating the Contempt Order does not necessitate revisiting the district court's enhanced damages award because the district court stated that "even without considering the . . . negative inference . . . Norton's conduct in this case has been sufficiently egregious to warrant enhanced damages." J.A. 120–21. However, the district court relied on the negative inference at least in determining the magnitude of enhanced damages awarded and gave that factor particular weight. *See* J.A. 139 ("As a whole, the clear weight of the *Read* factor

remand proceedings, the claims are determined to be patent eligible, the district court may reweigh the relevant factors to determine if an enhancement is warranted, and if so, the magnitude of the enhancement.

Norton also argues that the district court erred under *Read* factor three in inaccurately characterizing other conduct as litigation misconduct. Litigation misconduct refers to "bringing vexatious or unjustified suits, discovery abuses, failure to obey orders of the court, or acts that unnecessarily prolong litigation." *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 859 (Fed. Cir. 2010). The district court repeatedly chastised Norton for "relitigating" and "rehashing settled issues." *E.g.*, J.A. 106, 142. Repetitive arguments are generally not the kind of litigation misconduct warranting enhancement. *See Jack Guttman, Inc. v. Kopykake Enters., Inc.*, 302 F.3d 1352, 1361 (Fed. Cir. 2002) (noting that claim construction may be revisited and altered on a "rolling" basis as "understanding of the technology evolves"). It appears that some of the alleged misconduct falls into this category, which would also require the district court to revisit whether, and to what degree, this factor supports enhanced damages if the claims are found to be patent eligible.

Finally, Norton argues that the district court erred in not finding that the case was a close case in analyzing *Read* factor five, closeness of the case. The district court "[did] not find that this case was close," largely relying on its conclusion that "this was not a close case for the jury," and declined to address the strength of Norton's affirmative defenses. J.A. 133–34. The court further concluded that the fact that other asserted patents were found to not be

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analysis weighs heavily in favor of enhancement, *especially in light of the Court's negative inference . . . .*" (emphasis added)).

infringed was "not relevant" to the enhancement inquiry. J.A. 133.

By limiting its analysis to solely the case as submitted to the jury, the district court improperly failed to consider the overall circumstances of the case at least because, as to the asserted claims for which infringement was found, the district court failed to address Norton's non-infringement theories and affirmative defenses. This was error. *See Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1461 (Fed. Cir. 1998) (en banc), *abrogated in part on other grounds by Teva Pharms.*, 574 U.S. 318 (finding of infringement as to all claims did not mean case was not close where party made "justifiable albeit unsuccessful arguments" as to other aspects of the case). The district court was required to address whether the legal defenses raised by the defendant presented close questions, even if they were unsuccessful. *See Polara*, 894 F.3d at 1355 (vacating award of enhanced damages and remanding where district court failed to recognize the closeness of defendant's affirmative defense).

We today find that substantial questions are presented on the issue of patent eligibility under § 101. Norton also raised other questions as to infringement. After the first claim construction opinion, Columbia conceded that it could not prove infringement. Though we reversed the claim construction, the initial decision indicates that Norton's construction was reasonable. If the claims are found to be patent eligible, the district court must consider the closeness with respect to each of these questions, not merely the ultimate question submitted to the jury. In light of these considerations and the fact that it may ultimately be unnecessary to address the question of enhancement, we think that we should not, at this time, address Norton's argument that the district court, in considering the closeness of the case, was required to consider other patent claims that were previously and unsuccessfully asserted in this case.

E. ATTORNEYS' FEES

Finally, the district court based its decision on attorneys' fees in part relying on the negative inference awarded as a sanction in its contempt order. While Norton has not otherwise challenged the district court's analysis of the attorneys' fees issue, on remand the attorneys' fees issue requires reconsideration. The district court must reconsider the issue of fees unburdened by the negative inference from the contempt finding.

CONCLUSION

We reverse the district court's determination that the '322 and '115 patents are not directed to an abstract idea at *Alice* step one and remand for further proceedings under step two, and if the patent claims are determined to be eligible, to reduce the damages award to eliminate the royalty based on foreign sales and reconsider its attorneys' fees and enhanced damages decisions consistent with this opinion.

REVERSED-IN-PART, VACATED-IN-PART, AND REMANDED

COSTS

No costs.