United States Court of Appeals
for the Federal Circuit

STEVEN E. BERKHEIMER,
Plaintiff-Appellant

v.

HP INC., FKA HEWLETT-PACKARD COMPANY,
Defendant-Appellee

2017-1437

Appeal from the United States District Court for the Northern District of Illinois in No. 1:12-cv-09023, Judge John Z. Lee.

Decided: February 8, 2018

Before MOORE, TARANTO, and STOLL, Circuit Judges.
MOORE, Circuit Judge.

Steven E. Berkheimer appeals the United States District Court for the Northern District of Illinois’ summary judgment holding claims 1–7 and 9 of U.S. Patent No. 7,447,713 (‘713 patent) invalid as ineligible under 35 U.S.C. § 101. Mr. Berkheimer also appeals the district court’s decision holding claims 10–19 of the ’713 patent invalid for indefiniteness. For the reasons discussed below, we affirm-in-part, vacate-in-part, and remand for further proceedings.

BACKGROUND

The ’713 patent relates to digitally processing and archiving files in a digital asset management system. ’713 patent at 1:11–12. The system parses files into multiple objects and tags the objects to create relationships between them. Id. at 1:13–18, 16:26–36. These objects are analyzed and compared, either manually or automatically, to archived objects to determine whether variations exist based on predetermined standards and rules. Id. at 13:14–20, 16:37–51. This system eliminates redundant storage of common text and graphical elements, which improves system operating efficiency and reduces storage costs. Id. at 2:53–55, 16:52–54. The relationships between the objects within the archive allow a user to “carry out a one-to-many editing process of object-oriented data,” in which a change to one object carries over to all archived documents containing the same object. Id. at 15:65–16:2, 16:52–60.

Mr. Berkheimer sued HP Inc. in the Northern District of Illinois, alleging infringement of claims 1–7 and 9–19 of the ’713 patent. Following a Markman hearing, the district court concluded that the term “archive exhibits minimal redundancy” in claim 10 is indefinite and renders claim 10 and its dependents invalid. HP moved for summary judgment that claims 1–7 and 9 are patent ineligible under 35 U.S.C. § 101, and the district court
granted the motion. Mr. Berkheimer appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I. Indefiniteness

We review indefiniteness determinations de novo except for necessary subsidiary fact findings, which we review for clear error. Cox Communications v. Sprint Communications Co., 838 F.3d 1224, 1228 (Fed. Cir. 2016). Under 35 U.S.C. § 112, patent claims must “particularly point[] out and distinctly claim[] the subject matter” regarded as the invention. A lack of definiteness renders the claims invalid. Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 2120, 2125 (2014). Claims, viewed in light of the specification and prosecution history, must “inform those skilled in the art about the scope of the invention with reasonable certainty.” Id. at 2129; see Interval Licensing LLC v. AOL, Inc., 766 F.3d 1364, 1371 (Fed. Cir. 2014) (“The claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art.”). This standard “mandates clarity, while recognizing that absolute precision is unattainable.” Nautilus, 134 S. Ct. at 2129. “Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” Interval Licensing, 766 F.3d at 1370.

The district court analyzed the term “archive exhibits minimal redundancy” in claim 10 and determined that the intrinsic evidence “leaves a person skilled in the art with a highly subjective meaning of ‘minimal redundancy.’” Berkheimer v. Hewlett-Packard Co., 2015 WL 4999954, at *9–10 (N.D. Ill. Aug. 21, 2015). It relied on the declaration of HP’s expert, Dr. Schonfeld, to find that an ordinarily skilled artisan would not have known what the term “minimal redundancy” meant in claim 10. Id. at *10. We hold that the district court’s subsidiary factual
finding based on Dr. Schonfeld’s declaration was not clearly erroneous and affirm its indefiniteness determination for claims 10–19.

We look first to the language of the claim to determine whether the meaning of “minimal redundancy” is reasonably clear. Claim 10 recites “a storage medium, and a set of executable instructions for establishing an archive of documents represented by linked object oriented elements stored in the medium, wherein the archive exhibits minimal redundancy with at least some elements linked to pluralities of the elements.” Claims 11–19 depend from claim 10 and therefore include the same limitation. This claim language is not reasonably clear as to what level of redundancy in the archive is acceptable.

The specification uses inconsistent terminology to describe the level of redundancy that the system achieves. For example, it describes “minimiz[ing] redundant objects,” 713 patent at 16:50–51, “eliminating redundancy,” id. at 16:52, and “reducing redundancies,” id. at 15:18–19. The only example included in the specification is an archive that exhibits no redundancy. 713 patent at 13:5–13. The claim language, however, does not require elimination of all redundancies from the archive. For example, the specification discloses providing users with “user interfaces and tools for examining and choosing the elimination of document and document element redundancies.” Id. at 6:60–65 (emphasis added). Indeed, Mr. Berkheimer acknowledges that “the invention attempts to minimize redundancy but may not in all cases achieve absolute [elimination of] redundancy.” Appellant Br. at 64. The specification contains no point of comparison for skilled artisans to determine an objective boundary of “minimal” when the archive includes some redundancies. Sonix Tech. Co., Ltd. v. Publ’ns Int’l, Ltd., 844 F.3d 1370, 1379 (Fed. Cir. 2017) (holding that specific examples in the specification provided “points of compari-
son” that helped form an objective standard of the claim’s scope).

The prosecution history does not add clarity. In response to an indefiniteness rejection during prosecution, Mr. Berkheimer explained that the claim “desires to eliminate redundancy” but includes the word “minimal” because “to eliminate all redundancy in the field of the claimed invention is not likely.” J.A. 656. This does not explain how much redundancy is permitted.

In light of the lack of objective boundary or specific examples of what constitutes “minimal” in the claims, specification, and prosecution history, the district court properly considered and relied on extrinsic evidence. Relying on the specification’s lack of explanation and specific examples of this term, HP’s expert Dr. Schonfeld opined that the patent does not inform a skilled artisan of the meaning of “archive exhibits minimal redundancy” with reasonable certainty. Mr. Berkheimer did not provide the court with expert testimony of his own. While Dr. Schonfeld’s explanation for his opinion was brief, it was not clear error for the district court to find that a skilled artisan would not have known the meaning of “minimal redundancy” with reasonable certainty.

Mr. Berkheimer’s argument that “the archive” provides an objective baseline to measure what exhibits “minimal redundancy” misses the point. He is correct that it is “the archive” that must exhibit “minimal redundancy,” but the issue is not what must exhibit minimal redundancy, but rather how much is minimal. Mr. Berkheimer’s only arguments on this point are that terms of degree are not required to have an objective boundary and a contrary holding would invalidate a large swath of patents relying on terms of degree such as “minimal” or “substantial.” Our case law is clear that the objective boundaries requirement applies to terms of degree. In Sonix, we held that the term “visually neglige-
ble” had an objective baseline to interpret the claims. 844 F.3d at 1378. In Interval Licensing, we held that the phrase “unobtrusive manner” lacked objective boundaries. 766 F.3d at 1371. We do not hold that all terms of degree are indefinite. We only hold that the term “minimal redundancy” is indefinite in light of the evidence in this case.

Accordingly, we affirm the district court’s determination that claims 10–19 are invalid as indefinite.

II. Patent Eligibility


First, we address whether Mr. Berkheimer waived his ability to argue that the dependent claims are separately patent eligible. Courts may treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim or if the parties agree to treat a claim as representative. Elec. Power Grp., LLC v. Alstom
Mr. Berkheimer never agreed to make claim 1 representative. In his opposition brief to HP’s motion for summary judgment, he argued that claim 1 is not representative of the limitations found in the dependent claims. J.A. 1280. In particular, he argued that limitations in claim 5 drawn to effecting a one-to-many change add inventive concepts. Id. Other portions of his brief below argued that reducing redundancy and enabling one-to-many editing are patent eligible concepts. See, e.g., J.A. 1278 (“The innovative aspects of the claims improve computerized digital asset and content management systems by enabling control of object and object relationship integrity, reducing redundancy, [and] linking objects to enable one to many editing . . . . Such improvements to computer functionality are precisely the kind of improvements that have been found patent eligible under Alice.” (internal citations omitted)). Because claim 1 does not recite reducing redundancy or enabling one-to-many editing, we interpret these arguments as applying to dependent claims 4–7, which include these limitations. Mr. Berkheimer makes these same arguments to us on appeal.

The district court stated that it was treating claim 1 as representative because claim 1 is the only asserted independent claim and Mr. Berkheimer focused “all of his
primary arguments” on claim 1.\footnote{Though the district court stated it was treating claim 1 as representative, it separately analyzed the dependent claims.} Berkheimer v. Hewlett-Packard Co., 224 F. Supp. 3d 635, 643 n.6 (N.D. Ill. Dec. 12, 2016). Neither rationale justifies treating claim 1 as representative. A claim is not representative simply because it is an independent claim. Indeed, Mr. Berkheimer advanced meaningful arguments regarding limitations found only in the dependent claims. In acknowledging that Mr. Berkheimer focused his “primary arguments” on claim 1, the district court necessarily recognized that he raised arguments regarding the dependent claims. Thus, Mr. Berkheimer’s separate arguments regarding claims 4–7 are not waived.

Turning to the merits of the § 101 inquiry, anyone who “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. 35 U.S.C. § 101. Because patent protection does not extend to claims that monopolize the “building blocks of human ingenuity,” claims directed to laws of nature, natural phenomena, and abstract ideas are not patent eligible. Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S. Ct. 2347, 2354 (2014). The Supreme Court instructs courts to distinguish between claims that claim patent ineligible subject matter and those that “integrate the building blocks into something more.” Id. “First, we determine whether the claims at issue are directed to” a patent-ineligible concept. Id. at 2355. If so, “we consider the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.” Id. (quoting Mayo Collaborative
Independent claim 1 recites:

1. A method of archiving an item in a computer processing system comprising:
   
   presenting the item to a parser;
   
   parsing the item into a plurality of multi-part object structures wherein portions of the structures have searchable information tags associated therewith;
   
   evaluating the object structures in accordance with object structures previously stored in an archive;
   
   presenting an evaluated object structure for manual reconciliation at least where there is a predetermined variance between the object and at least one of a predetermined standard and a user defined rule.

The district court construed “parser” as “a program that dissects and converts source code into object code” and “parsing” as using such a program. J.A. 47. It construed “evaluating the object structures in accordance with object structures previously stored in an archive” as “analyzing the plurality of multi-part object structures obtained by parsing and comparing it with object structures previously stored in the archive to determine if there is variance between the object and at least one of a predetermined standard and a user defined rule.” Id. These constructions are not challenged on appeal.

At Alice step one, we must “determine whether the claims at issue are directed to a patent-ineligible concept.” Alice, 134 S. Ct. at 2355. The district court held claim 1 is directed to the abstract idea of “using a generic computer to collect, organize, compare, and present data for recon-
ciliation prior to archiving.” *Berkheimer*, 224 F. Supp. 3d at 644. Mr. Berkheimer argues the district court characterized the invention too broadly and simplistically, ignoring the core features of the claims. We hold that claims 1–3 and 9 are directed to the abstract idea of parsing and comparing data; claim 4 is directed to the abstract idea of parsing, comparing, and storing data; and claims 5–7 are directed to the abstract idea of parsing, comparing, storing, and editing data.

These claims are similar to claims we held directed to an abstract idea in prior cases. See, e.g., *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014). In *Content Extraction*, the claims at issue generally recited “a method of 1) extracting data from hard copy documents using an automated digitizing unit such as a scanner, 2) recognizing specific information from the extracted data, and 3) storing that information in a memory.” 776 F.3d at 1345. We held those claims were directed to the abstract idea of “1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory.” *Id.* at 1347. Similarly, in *TLI*, the claims recited a “method for recording and administering digital images,” which involved “recording images using a digital pick up unit in a telephone unit,” digitally storing them, transmitting the digital images and classification information to a server, and storing the digital images in the server based on the classification information. 823 F.3d at 610. We held the claim at issue used only conventional computer components to implement the abstract idea of “classifying and storing digital images in an organized manner.” *Id.* at 613. Here, the specification explains that the parser “determines and extracts components of the standardized document or item representation” and reassembles the components “into composite output files.” '713 patent at
3:61–4:17. Even though the parser separates the documents or items into smaller components than the claims determined to be abstract in *Content Extraction* and *TLI*, the concept is the same. The parsing and comparing of claims 1–3 and 9 are similar to the collecting and recognizing of *Content Extraction*, 776 F.3d at 1347, and the classifying in an organized manner of *TLI*, 823 F.3d at 613. Claim 4 adds the abstract concept of storing, and claims 5–7 add the abstract concept of editing.

Mr. Berkheimer argues that the claims are not abstract because the “parsing” limitation roots the claims in technology and transforms the data structure from source code to object code. Limiting the invention to a technological environment does “not make an abstract concept any less abstract under step one.” *Intellectual Ventures I*, 850 F.3d at 1340. That the parser transforms data from source to object code does not demonstrate non-abstractness without evidence that this transformation improves computer functionality in some way. See *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1258 (Fed. Cir. 2017) (“[W]e must . . . ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea.” (internal quotations omitted)); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) (“[T]he first step in the *Alice* inquiry in this case asks whether the focus of the claims [was] on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.”). No such evidence exists on this record. Indeed, Mr. Berkheimer admitted that parsers had existed for years prior to his patent. J.A. 1106. Because the claims are directed to an abstract idea, we proceed to the second step of the *Alice* inquiry.

At step two, we “consider the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the
nature of the claim’ into a patent eligible application.” 

Alice, 134 S. Ct. at 2355 (quoting Mayo, 566 U.S. at 78–79). The second step of the Alice test is satisfied when the claim limitations “involve more than performance of ‘well-understood, routine, [and] conventional activities previously known to the industry.’” Content Extraction, 776 F.3d at 1347–48 (quoting Alice, 134 S. Ct. at 2359).

The question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact. Any fact, such as this one, that is pertinent to the invalidity conclusion must be proven by clear and convincing evidence. See Microsoft Corp. v. i4i Ltd. P’ship, 564 U.S. 91, 95 (2011). Like indefiniteness, enablement, or obviousness, whether a claim recites patent eligible subject matter is a question of law which may contain underlying facts. Akzo Nobel Coatings, Inc. v. Dow Chem. Co., 811 F.3d 1334, 1343 (Fed. Cir. 2016) (“Indefiniteness is a question of law that we review de novo, [] subject to a determination of underlying facts.”); Alcon Research Ltd. v. Barr Labs., Inc., 745 F.3d 1180, 1188 (Fed. Cir. 2014) (“Whether a claim satisfies the enablement requirement of 35 U.S.C. § 112 is a question of law that we review without deference, although the determination may be based on underlying factual findings, which we review for clear error.”); Apple Inc. v. Samsung Elecs. Co., Ltd., 839 F.3d 1034, 1047 (Fed. Cir. 2016) (en banc) (“Obviousness is a question of law based on underlying facts.”). We have previously stated that “[t]he § 101 inquiry ‘may contain underlying factual issues.” Mortg. Grader, 811 F.3d at 1325 (emphasis in original) (quoting Accenture Global Servs., GmbH v. Guidewire Software, Inc., 728 F.3d 1336, 1341 (Fed. Cir. 2013)). And the Supreme Court recognized that in making the § 101 determination, the inquiry “might sometimes overlap” with other fact-intensive inquiries like novelty under § 102. Mayo, 566 U.S. at 90.
As our cases demonstrate, not every § 101 determination contains genuine disputes over the underlying facts material to the § 101 inquiry. See, e.g., Content Extraction, 776 F.3d at 1349 (patent owner conceded the argued inventive concept “was a routine function of scanning technology at the time the claims were filed”); Intellectual Ventures I LLC v. Capital One Bank (USA), 792 F.3d 1363, 1370 (Fed. Cir. 2015) (patent owner argued an “interactive interface” is “a specific application of the abstract idea that provides an inventive concept” and did not dispute that the computer interface was generic). Whether a claim recites patent eligible subject matter is a question of law which may contain disputes over underlying facts. Patent eligibility has in many cases been resolved on motions to dismiss or summary judgment. Nothing in this decision should be viewed as casting doubt on the propriety of those cases. When there is no genuine issue of material fact regarding whether the claim element or claimed combination is well-understood, routine, conventional to a skilled artisan in the relevant field, this issue can be decided on summary judgment as a matter of law.

Here, the district court concluded that the claims do not contain an inventive concept under Alice step two because they describe “steps that employ only ‘well-understood, routine, and conventional’ computer functions” and are claimed “at a relatively high level of generality.” Berkheimer, 224 F. Supp. 3d at 647–48 (quoting Content Extraction, 776 F.3d at 1348). Mr. Berkheimer argues portions of the specification referring to reducing redundancy and enabling one-to-many editing contradict the district court’s finding that the claims describe well-understood, routine, and conventional activities. He argues, both below and on appeal, that summary judgment is improper because whether the claimed invention is well-understood, routine, and conventional is an underlying fact question for which HP offered no evidence.
While patent eligibility is ultimately a question of law, the district court erred in concluding there are no underlying factual questions to the § 101 inquiry. *Id.* at 642. Whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination. Whether a particular technology is well-understood, routine, and conventional goes beyond what was simply known in the prior art. The mere fact that something is disclosed in a piece of prior art, for example, does not mean it was well-understood, routine, and conventional.

Mr. Berkheimer argues that the claimed combination improves computer functionality through the elimination of redundancy and the one-to-many editing feature, which provides inventive concepts. The specification of the '713 patent discusses the state of the art at the time the patent was filed and the purported improvements of the invention. Conventional digital asset management systems at the time included “numerous documents containing multiple instances of redundant document elements.” '713 patent at 1:24–27. This redundancy in conventional systems led to “inefficiencies and increased costs.” *Id.* at 2:22–26. The specification explains that the claimed improvement increases efficiency and computer functionality over the prior art systems:

By eliminating redundancy in the archive 14, system operating efficiency will be improved, storage costs will be reduced and a one-to-many editing process can be implemented wherein a singular linked object, common to many documents or files, can be edited once and have the consequence of the editing process propagate through all of the linked documents and files. The one-to-many editing capability substantially reduces effort needed to up-date files which represent packages or packaging manuals or the like as would be understood by those of skill in the art.
The specification describes an inventive feature that stores parsed data in a purportedly unconventional manner. This eliminates redundancies, improves system efficiency, reduces storage requirements, and enables a single edit to a stored object to propagate throughout all documents linked to that object. Id. The improvements in the specification, to the extent they are captured in the claims, create a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities, see Content Extraction, 776 F.3d at 1347–48, so we must analyze the asserted claims and determine whether they capture these improvements, Alice, 134 S. Ct. at 2357.

The parties dispute whether these improvements to computer functionality are captured in the claims. See Appellant Br. at 42; Appellee Br. at 39–40, 43–44. We conclude that claim 1 does not recite an inventive concept sufficient to transform the abstract idea into a patent eligible application. Claim 1 recites a method of archiving including parsing data, analyzing and comparing the data to previously stored data, and presenting the data for reconciliation when there is a variance. It does not include limitations which incorporate eliminating redundancy of stored object structures or effecting a one-to-many change of linked documents within an archive. It does not even require the storage of data after it is presented for manual reconciliation. Thus, it does not recite any of the purportedly unconventional activities disclosed in the specification. Mr. Berkheimer does not advance any separate arguments regarding claims 2–3 and 9. Even considering these claims separately, they recite patent ineligible subject matter for the same reason.

Mr. Berkheimer argues that claim 1 recites an improvement to computer functionality and digital asset management systems. Mr. Berkheimer, however, admit-
ted that parsers and the functions they perform existed for years before his patent. J.A. 1106. These conventional limitations of claim 1, combined with limitations of analyzing and comparing data and reconciling differences between the data, “fail to transform th[e] abstract idea into a patent-eligible invention.” Alice, 134 S. Ct. at 1357. The limitations amount to no more than performing the abstract idea of parsing and comparing data with conventional computer components. Because claims 1–3 and 9 do not capture the purportedly inventive concepts, we hold that claims 1–3 and 9 are ineligible.

Claims 4–7, in contrast, contain limitations directed to the arguably unconventional inventive concept described in the specification. Claim 4 recites “storing a reconciled object structure in the archive without substantial redundancy.” The specification states that storing object structures in the archive without substantial redundancy improves system operating efficiency and reduces storage costs. '713 patent at 16:52–58. It also states that known asset management systems did not archive documents in this manner. Id. at 2:22–26. Claim 5 depends on claim 4 and further recites “selectively editing an object structure, linked to other structures to thereby effect a one-to-many change in a plurality of archived items.” The specification states one-to-many editing substantially reduces effort needed to update files because a single edit can update every document in the archive linked to that object structure. Id at 16:58–60. This one-to-many functionality is more than “editing data in a straightforward copy-and-paste fashion,” as characterized by the district court. Berkheimer, 224 F. Supp. 3d at 645. According to the specification, conventional digital asset management systems cannot perform one-to-many editing because they store documents with numerous instances of redundant elements, rather than eliminate redundancies through the storage of linked object structures. '713 patent at 1:22–55, 4:4–9, 16:52–60.
Claims 6–7 depend from claim 5 and accordingly contain the same limitations. These claims recite a specific method of archiving that, according to the specification, provides benefits that improve computer functionality.

HP argues that redundancy and efficiency are considerations in any archival system, including paper-based systems. The district court agreed. Berkheimer, 224 F. Supp. 3d at 647. At this stage of the case, however, there is at least a genuine issue of material fact in light of the specification regarding whether claims 4–7 archive documents in an inventive manner that improves these aspects of the disclosed archival system. Whether claims 4–7 perform well-understood, routine, and conventional activities to a skilled artisan is a genuine issue of material fact making summary judgment inappropriate with respect to these claims.

We do not decide today that claims 4–7 are patent eligible under § 101. We only decide that on this record summary judgment was improper, given the fact questions created by the specification’s disclosure.

CONCLUSION

For the foregoing reasons, we affirm the district court’s decision that claims 10–19 of the ’713 patent are invalid as indefinite and its grant of summary judgment that claims 1–3 and 9 of the ’713 patent are ineligible under 35 U.S.C. § 101. We vacate the district court’s grant of summary judgment that claims 4–7 are ineligible under § 101 and remand for further proceedings.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED

COSTS

No costs.