

United States Court of Appeals for the Federal Circuit

IN RE: MARCO GULDENAAR HOLDING B.V.,
Appellant

2017-2465

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. 13/078,196.

Decided: December 28, 2018

CHRISTIAN D. EHRET, The Webb Law Firm, Pitts-
burgh, PA, argued for appellant. Also represented by
NATHAN J. PREPELKA.

MARY L. KELLY, Office of the Solicitor, United States
Patent and Trademark Office, Alexandria, VA, argued for
appellee Andrei Iancu. Also represented by THOMAS W.
KRAUSE, COKE MORGAN STEWART, PHILIP J. WARRICK.

Before CHEN, MAYER, and BRYSON, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* CHEN.

Concurring opinion filed by *Circuit Judge* MAYER.

CHEN, *Circuit Judge*.

Marco Guldenaar Holding B.V. (Appellant) appeals
the final decision of the Patent Trial and Appeal Board

(Board) affirming the rejection of claims 1–3, 5, 7–14, 16–18, and 23–30 of U.S. Patent Application No. 13/078,196 (the '196 patent application) under 35 U.S.C. § 101 for claiming patent-ineligible subject matter. Because the claims are directed to the abstract idea of rules for playing a dice game and the only arguable inventive concept relates to the dice markings, which constitute printed matter, we affirm.

BACKGROUND

Appellant filed the provisional application from which the '196 patent application claims priority on April 2, 2010. The '196 patent application, entitled “Casino Game and a Set of Six-Face Cubic Colored Dice,” relates to “dice games intended to be played in gambling casinos, in which a participant attempts to achieve a particular winning combination of subsets of the dice.” Joint App. (J.A.) 140. Claim 1, which the Board treated as representative, recites:

1. A method of playing a dice game comprising:

providing a set of dice, the set of dice comprising a first die, a second die, and a third die, wherein only a single face of the first die has a first die marking, wherein only two faces of the second die have an identical second die marking, and wherein only three faces of the third die have an identical third die marking;

placing at least one wager on at least one of the following: that the first die marking on the first die will appear face up, that the second die marking on the second die will appear face up, that the third die marking on the third die will appear face up, or any combination thereof;

rolling the set of dice; and

paying a payout amount if the at least one wager occurs.

J.A. 76. According to Appellant, the primary novelty of the claimed invention is the markings (or lack thereof) on the dice, which have only particular faces marked.

The examiner rejected claims 1–3, 5, 7–14, 16–18, and 23–30 as being directed to patent-ineligible subject matter under § 101. The examiner concluded that the claims were directed to the abstract idea of “rules for playing a game,” which fell within the realm of “methods of organizing human activities.” J.A. 35, 85. The examiner also concluded that the claims were unpatentable for obviousness in view of U.S. Patent No. 4,247,114 (Carroll) over “matters old and well known to dice games,” applying the printed matter doctrine. J.A. 88.

On appeal, the Board affirmed both rejections. Applying the two-step framework laid out in *Alice Corp. v. CLS Bank International*, 573 U.S. 208 (2014), the Board determined that claim 1 was directed to the abstract idea identified by the examiner and that the steps in claim 1, considered individually and as an ordered combination, lacked an “inventive concept” sufficient to transform the claimed abstract idea into patent-eligible subject matter. J.A. 8–12.

Appellant appealed to this court, and we have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. § 141(a).

STANDARD OF REVIEW

Patent eligibility under 35 U.S.C. § 101 is a question of law that may contain underlying issues of fact. *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1342 (Fed. Cir. 2018) (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018)). We review an ultimate conclusion on patent eligibility *de novo*. See *id.*

DISCUSSION

A. Section 101 Analysis

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has “long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013) (internal brackets omitted) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012)).

To determine whether claimed subject matter is patent-eligible, we apply the two-step framework introduced in *Mayo*, 566 U.S. at 77–78, and further explained in *Alice*, 573 U.S. at 218. First, we “determine whether the claims at issue are directed to a patent-ineligible concept” such as an abstract idea. *Id.* Second, we “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.” *Id.* at 221 (quoting *Mayo*, 566 U.S. at 72, 80).

In *Interval Licensing*, we explained the origins of the abstract idea exception and applied the exception to a computer software-based invention. *Interval Licensing*, 896 F.3d at 1342–46. We have also applied the abstract idea exception in other settings, for example to “fundamental economic practice[s] long prevalent in our system of commerce, including ‘longstanding commercial practice[s].’” *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1313 (Fed. Cir. 2016) (quoting *Bilski v. Kappos*, 561 U.S. 593, 611 (2010)) (omitting internal citations and quotation marks).

In re Smith, 815 F.3d 816 (Fed. Cir. 2016), is highly instructive in this case. In *Smith*, we concluded that the

claimed “method of conducting a wagering game” using a deck of playing cards was drawn to an abstract idea. We likened the claimed method to the method of exchanging financial obligations at issue in *Alice* and the method of hedging risk at issue in *Bilski*. *Id.* at 819. We agreed with the Board’s reasoning that “[a] wagering game is, effectively, a method of exchanging and resolving financial obligations based on probabilities created during the distribution of the cards.” *Id.* at 818–19. We also found that the method of conducting a wagering game was similar to the subject matter we previously held to be patent-ineligible in *OIP Technologies, Inc. v. Amazon.com*, 788 F.3d 1359, 1362 (Fed. Cir. 2015), and *Planet Bingo, LLC v. VKGS LLC*, 576 F. App’x 1005, 1007 (Fed. Cir. 2014). *Smith*, 815 F.3d at 819.

Here, Appellant’s claimed “method of playing a dice game,” including placing wagers on whether certain die faces will appear face up, is, as with the claimed invention in *Smith*, directed to a method of conducting a wagering game, with the probabilities based on dice rather than on cards. Given the strong similarities to the ineligible claims in *Smith*, Appellant’s claims likewise are drawn to an abstract idea.

In its brief, Appellant contends that the Patent Office uses a certain label—methods of organizing human activities—as a “catch-all abstract idea” and expresses concern that the Board has used the phrase improperly as an “apparent shortcut.” Appellant Op. Br. 16. We agree that this phrase can be confusing and potentially misused, since, after all, a defined set of steps for combining particular ingredients to create a drug formulation could be categorized as a method of organizing human activity. Here, however, where the Patent Office further articulates a more refined characterization of the abstract idea (*e.g.*, “rules for playing games”), there is no error in also observing that the claimed abstract idea is one type of method of organizing human activity. In sum, we agree

with the Board that Appellant’s claims are directed to the abstract idea of “rules for playing a dice game.”

“Abstract ideas, including a set of rules for a game, may be patent-eligible if [the claims] contain an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Smith*, 815 F.3d at 819 (quoting *Alice*, 573 U.S. at 221) (omitting quotation marks). Preemption is the underlying concern behind the abstract idea exception, but, at the same time, the Supreme Court has made clear that merely appending conventional steps to an abstract idea is not enough for patent eligibility. *Mayo*, 566 U.S. at 81. For example, a claim calling for a generic computer operating in conventional ways to perform an abstract idea lacks an inventive concept. *Alice*, 573 U.S. at 225. The claims here recite the steps of placing a wager, rolling the dice, and paying a payout amount if at least one wagered outcome occurs—none of which Appellant on appeal disputes is conventional, either alone or in combination. J.A. 76. Just as the claimed steps of shuffling and dealing playing cards fell short in *Smith*, and recitation of computer implementation fell short in *Alice*, the claimed activities here are purely conventional and are insufficient to recite an inventive concept. See *Alice*, 573 U.S. at 223–24; *Smith*, 815 F.3d at 819.

Appellant’s argument on appeal has a different focus from what it argued below. It now contends that “the specifically-claimed di[c]e” that have markings on one, two, or three die faces are not conventional and their recitation in the claims amounts to “significantly more” than the abstract idea. Appellant Op. Br. 20. The markings on Appellant’s dice, however, constitute printed matter, as pointed out by the Board, and this court has generally found printed matter to fall outside the scope of § 101. See *AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1064 (Fed. Cir. 2010). “Claim limitations directed to the content of information and lacking a requisite functional

relationship are not entitled to patentable weight because such information is not patent eligible subject matter under 35 U.S.C. § 101.” *Praxair Distrib., Inc. v. Mallinckrodt Hosp. Prod. IP Ltd.*, 890 F.3d 1024, 1032 (Fed. Cir. 2018). Each die’s marking or lack of marking communicates information to participants indicating whether the player has won or lost a wager, similar to the markings on a typical die or a deck of cards. Accordingly, the recited claim limitations are directed to information. Additionally, the printed indicia on each die are not functionally related to the substrate of the dice. Unlike in *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983), where digits were printed on a band in such a manner that the digits exploited the endless nature of the band, and the particular sequence of digits was critical to the invention disclosed in the claims, or *In re Miller*, 418 F.2d 1392 (CCPA 1969), where the volumetric indicia on the side of a cup created a specialized measuring cup, the markings on each of Appellant’s dice do not cause the die itself to become a manufacture with new functionality.

Appellant also argues that his claimed method of playing a dice game cannot be an abstract idea because it recites a physical game with physical steps. *See, e.g.*, Appellant Op. Br. at 13. We disagree, because the abstract idea exception does not turn solely on whether the claimed invention comprises physical versus mental steps. The claimed methods in *Bilski* and *Alice* also recited actions that occurred in the physical world. *See Bilski*, 561 U.S. at 599; *Alice*, 573 U.S. at 213–14. The same is true of the claimed method of conducting a wagering game in *Smith*. *Smith*, 815 F.3d at 817. Moreover, Appellant’s allegation that the Patent Office has asserted a “categorical rule against casino games” lacks any support. *See* Appellant Op. Br. at 28. As we explained in *Smith*, inventions in the gaming arts are not necessarily foreclosed from patent protection under § 101. 815 F.3d at 819.

Because the only arguably unconventional aspect of the recited method of playing a dice game is printed matter, which falls outside the scope of § 101, the rejected claims do not recite an “inventive concept” sufficient to “transform” the claimed subject matter into a patent-eligible application of the abstract idea.

2. Representative Claim

Finally, we reject Appellant’s argument on appeal that the Board improperly treated claim 1 as representative of the rejected claims. 37 C.F.R. § 41.37 (Rule 41.37). Appellant’s appeal brief to the Board included two claim group headings under its § 101 argument: one under which all rejected claims were discussed generally, and another under which Appellant merely quoted claim elements in dependent claims 10, 18, 24, and 26 (*e.g.*, “Claim 26 specifies that the dice ‘are rolled in an electronic tumbler.’”). J.A. 63, 71. Rule 41.37(c)(1)(iv) specifies that, when an applicant does not provide separate arguments for different patent claims, the Board may select a single claim from a group and decide the appeal on the basis of the selected claim alone. And our case law and Rule 41.37(c)(1)(iv) make clear that, for an applicant to receive separate consideration by the Board for each of its appealed claims, an applicant’s appeal brief must contain substantive argument beyond “a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art.” *In re Lovin*, 652 F.3d 1349, 1356 (Fed. Cir. 2011); *see also* Rule 41.37(c)(1)(iv). We agree with the Board that Appellant’s brief to the Board merely identified a few additional limitations in a subset of dependent claims—no more than one per claim—without any explanation as to why the additional limitations rendered the claims patent-eligible. Under the circumstances, the Board reasonably grouped all of the claims together, and the Board did not err in treating claim 1 as representative of Appellant’s rejected claims.

We have considered Appellant's remaining arguments and find them unpersuasive. Because we affirm the Board's rejection of the appealed claims under § 101, we need not review the Board's alternative § 103 rejection of the claims. We find that the claims are drawn to the abstract idea of rules for playing a dice game and lack an "inventive concept" sufficient to "transform" the claimed subject matter into a patent-eligible application of that idea. Accordingly, we affirm.

AFFIRMED

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MAYER, *Circuit Judge*, concurring in the judgment.

I agree that the claims at issue here are patent ineligible, but write separately to make two points. First, subject matter eligibility under 35 U.S.C. § 101 is a pure question of law, one that can, and should, be resolved at the earliest stages of litigation. Second, claims directed to dice, card, and board games can never meet the section 101 threshold because they endeavor to influence human behavior rather than effect technological change.

I.

I cannot agree with the court when it states that the patent eligibility inquiry “may contain underlying issues of fact.” *Ante* at 3. “Perhaps the single most consistent factor in this court’s § 101 law has been our precedent that the § 101 inquiry is a question of law. Stated differently, there is no precedent that the § 101 inquiry is a question of fact.” *Berkheimer v. HP Inc.*, 890 F.3d 1369, 1377 (Fed. Cir. 2018) (Reyna, J., dissenting from the denial of the petition for rehearing en banc); *see, e.g., Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306,

1331 (Fed. Cir. 2015) (“We review questions concerning compliance with the doctrinal requirements of § 101 of the Patent Act (and its constructions) as questions of law, without deference to the trial forum.”); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015) (“Patent eligibility under 35 U.S.C. § 101 is an issue of law reviewed de novo.”). Panels of this court, *see, e.g., Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369–70 (Fed. Cir. 2018), are without authority to disregard established precedent. *See, e.g., Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 765 (Fed. Cir. 1988) (“This court has adopted the rule that prior decisions of a panel of the court are binding precedent on subsequent panels unless and until overturned *in banc*.”).

Tellingly, the Supreme Court has taken up four subject matter eligibility challenges in recent years, but has never once suggested that the section 101 calculus includes any factual determinations. *See Alice Corp. Pty. v. CLS Bank Int’l*, 573 U.S. 208, 134 S. Ct. 2347, 2354–60 (2014); *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 590–96 (2013); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–80 (2012); *Bilski v. Kappos*, 561 U.S. 593, 610–13 (2010). To the contrary, the Court has uniformly treated subject matter eligibility as a question of law. *See, e.g., Alice*, 134 S. Ct. at 2355 (“First, *we* determine whether the claims at issue are directed to one of [the] patent-ineligible concepts. If so, *we* then ask, [w]hat else is there in the claims before us?” (second alteration in original) (emphases added) (citations and internal quotation marks omitted)); *Mayo*, 566 U.S. at 73 (examining the claims in light of the Court’s precedents and concluding that they covered laws of nature coupled with “conventional activity previously engaged in by researchers in the field”). Significantly, moreover, the Court has never suggested that the “clear and convincing” standard applies in eligibility determinations, a standard which would almost certainly be impli-

cated if eligibility were a fact-intensive inquiry. *See, e.g., Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 115 (2011) (Breyer, J., joined by Scalia and Alito, JJ., concurring) (“By isolating the facts (determined with help of the ‘clear and convincing’ standard), courts can . . . ensure the proper interpretation or application of the correct legal standard (without use of the ‘clear and convincing’ standard).”).

In *Alice*, the patent owner sought to inject factual inquiries into the section 101 calculus, arguing that its computer-implemented settlement technique differed in material respects from conventional escrow methods. *See* Brief for Petitioner, *Alice*, 573 U.S. 208, 2014 WL 262088, at *47 (“Nothing in the concept of escrow requires electronic shadow records, much less the particular use of electronic shadow records required by Alice’s claims. Moreover, Alice’s claims do not prescribe that the electronic intermediary (or any other third party) receives any money or property, and the only ‘deliveries’ required by Alice’s claims occur to the accounts of the actual parties after the transaction has been effected. Alice’s invention and the concept of escrow may both seek to mitigate transactional risk, but they do so in materially different ways.”). Notably, moreover, the patent specifications stated that the claimed settlement method was a significant advance over prior art systems. *See, e.g.,* U.S. Patent No. 5,970,479, col. 2 ll. 33–36 (“There are disadvantages or limitations associated with . . . available economic risk management mechanisms. Particularly, they provide, at best, only indirect approaches to dealing with the risk management needs.”). Furthermore, certain claims recited the use of a “communications controller,” an arguably unconventional element. *See, e.g.,* U.S. Patent No. 7,725,375, col. 67 ll. 8–23.

The Supreme Court, however, firmly rebuffed the effort to turn the patent eligibility analysis into a factual quagmire. The Court did not remand the case to allow a

factfinder to determine whether the recited claim elements were well-understood, routine, or conventional. Instead, it made quick work of the claims before it, concluding that they fell outside section 101 based on its analysis of its precedents and the claim language, *Alice*, 134 S. Ct. at 2354–60, as well as on the recognition that, as a matter of basic historical fact, “the use of a computer to obtain data, adjust account balances, and issue automated instructions” is “well-understood [and] routine,” *id.* at 2359 (citations and internal quotation marks omitted).

“Eligibility questions mostly involve general historical observations, the sort of findings routinely made by courts deciding legal questions.” *Cal. Inst. of Tech. v. Hughes Commc’ns Inc.*, 59 F. Supp. 3d 974, 978 n.6 (C.D. Cal. 2014). Indeed, the Supreme Court has not hesitated to turn to dictionaries and other publically available sources when resolving legal questions. *See DePierre v. United States*, 564 U.S. 70, 80 (2011) (citing to “the scientific and medical literature” when interpreting the term “cocaine base” in a statute); *District of Columbia v. Heller*, 554 U.S. 570, 581–92 (2008) (ascertaining the meaning of the phrase “keep and bear Arms” in the Second Amendment by examining dictionary definitions from the founding period); *see also Bilski*, 561 U.S. at 611 (citing to a series of textbooks when concluding that hedging against economic risk is a well-known practice).

Berkheimer, 881 F.3d at 1369–70, deviated from precedent when it concluded that statements made by a patentee in the specification were sufficient to raise a genuine issue of material fact regarding whether claimed elements were conventional. Applicants write their specifications with a view to clearing the obviousness hurdle; it would be anomalous, to say the least, if an applicant used his specification to confess that his claims contained nothing new. Rather than relying upon a patentee’s self-serving statements about the purported advantages of his claimed invention, a court must inde-

pendently examine the claims, read in view of the specification, and determine whether they are directed to the “type of discovery,” *Parker v. Flook*, 437 U.S. 584, 593 (1978), that the patent laws were designed to protect. This is a pure legal inquiry. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015) (“As all parties agree, when the district court reviews only evidence intrinsic to the patent (the patent claims and specifications, along with the patent’s prosecution history), the judge’s determination will amount *solely to a determination of law.*” (emphasis added)).

Because patent eligibility is a pure question of law, section 101 can, and should, be used to strike down patents at the earliest stages of litigation, or even before, as in this case from the PTO. Patent disputes are notoriously time-consuming and costly. *See, e.g., Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1326–28 (Fed. Cir. 2011). Resolving subject matter eligibility challenges early conserves scarce judicial resources, provides a bulwark against vexatious infringement suits, and protects the public by expeditiously removing the barriers to innovation created by vague and overbroad patents. Before the Supreme Court stepped in to resuscitate section 101, a scourge of meritless infringement suits clogged the courtrooms and exacted a heavy tax on scientific innovation and technological change. Injecting factual inquiries into the section 101 calculus will topple the *Mayo/Alice* framework and return us to the era when the patent system stifled rather than “promote[d] the Progress of Science and useful Arts,” U.S. CONST. art. I, § 8, cl. 8.

Indeed, inserting factual determinations into the eligibility decision will make section 101 a “dead letter,” *Mayo*, 566 U.S. at 89. An obviousness determination under 35 U.S.C. § 103 typically includes factual inquiries into “the scope and content of the prior art” and “the differences between the prior art and the claims at issue.”

Graham v. John Deere Co., 383 U.S. 1, 17 (1966). Inserting such inquiries into the eligibility determination is not only redundant, but will also make the section 101 framework so cumbersome and time-consuming that it will cease to function as an expeditious tool for weeding out patents clearly lacking any “inventive concept,” *Mayo*, 566 U.S. at 72 (citations and internal quotation marks omitted). Thus, contrary to Supreme Court guidance, compliance with section 101 will no longer be a “threshold test,” *Bilski*, 561 U.S. at 602. Instead, eligibility determinations, in many instances, will be made only after a full trial to resolve factual disputes related to the scope and content of the prior art and the purported differences between the prior art and the asserted claims.

II.

The fault line for patent eligibility generally runs along the divide between man and machine. Simply put, while new machines and mechanized processes can potentially be patent eligible, ideas about how to improve or influence human thought and behavior fail to pass section 101 muster. This is why claims telling people how to mitigate settlement risk, *Alice*, 134 S. Ct. at 2356–60, how to hedge against risk in consumer transactions, *Bilski*, 561 U.S. at 610–13, or how to play a game of cards, *In re Smith*, 815 F.3d 816, 818–19 (Fed. Cir. 2016), are directed to non-statutory subject matter.

Claims can remain abstract, moreover, even when they call for human activity to be conducted through computer hardware and software. *See Alice*, 134 S. Ct. at 2358–60; *see also Intellectual Ventures I LLC v. Capital One Bank*, 792 F.3d 1363, 1371 (Fed. Cir. 2015) (concluding that claims directed to entering data into a computer database and organizing and transmitting information were patent ineligible). Computers are, of course, “machines” which operate through the physical manipulation of switches. But because they have become the substrate

of our daily lives—the “basic tool[],” *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972), of a great many of our social and economic interactions—generic computer functions, such as storing, analyzing, organizing, and communicating information, carry no weight in the eligibility analysis. *See Alice*, 134 S. Ct. at 2357 (“The introduction of a computer into the claims does not alter the analysis at *Mayo* step two.”).

Alice, for all intents and purposes, articulated a “technological arts” test for patent eligibility. 134 S. Ct. at 2359 (concluding that the claims at issue fell outside section 101 because they did not “improve the functioning of the computer itself” or “effect an improvement in any other technology or technical field”); *see also In re Musgrave*, 431 F.2d 882, 893 (CCPA 1970) (explaining that patentable processes must “be in the technological arts so as to be in consonance with the Constitutional purpose to promote the progress of ‘useful arts.’” (quoting U.S. CONST. art. I, § 8, cl. 8)). While games may enhance our leisure hours, they contribute nothing to the existing body of technological and scientific knowledge. They should therefore be deemed categorically ineligible for patent. *See Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 809 F.3d 1282, 1289 (Fed. Cir. 2015) (Dyk, J., concurring in the denial of the petition for rehearing en banc) (“In my view, claims to business methods and other processes that merely organize human activity should not be patent eligible under any circumstances.”).