

Law, Fact, and Patent Validity

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ABSTRACT: Judges, not juries, typically decide questions of law. Likewise, it is judges who usually review the legality of actions taken by government agencies. And when judges or juries decide fact-laden issues in civil litigation, those decisions commonly receive deference on appeal. Patent law, however, does all of this precisely backwards. In patent infringement cases, juries often decide the legal question of patent validity. When a jury rules on a patent's validity, it is reviewing the work of an administrative agency, the U.S. Patent and Trademark Office. And decisions on the case-specific, fact-specific issue of patent validity are reviewed de novo by the U.S. Court of Appeals for the Federal Circuit, which has exclusive jurisdiction over patent cases.

These unusual features of patent litigation create significant inefficiencies: patent jury trials are expensive and jury decisions on technologically complex questions of patentability can be unpredictable; stringent standards of appellate review encourage prolonged litigation and result in costly post-appeal do-overs. All of this occurs because the Federal Circuit has drawn a strict, bright line between questions of law and questions of fact, leaving little room for a middle category of questions that require applying the law to the facts of a particular case. In most areas of law—but not often in patent law—those questions are called mixed questions of law and fact.

This Article advances a simple thesis: that all questions of patent validity are, ultimately, mixed questions of law and fact. This approach would greatly simplify Federal Circuit doctrine, which currently treats some validity issues as questions of law, others as questions of fact, and still others as questions of law based on underlying facts. It would also clarify ambiguities in Supreme Court precedent on the law-fact distinction in patent litigation, which similarly resists using the phrase “mixed question.” In addition, treating patent validity as a mixed question would improve the procedure of patent

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litigation in numerous ways: patent validity would be resolved in reasoned opinions by a judge rather than in the black box of a general jury verdict, those on-the-record judicial decisions would receive appropriate deference on appeal, and judicial review of Patent Office actions would be brought further into the mainstream of administrative law.

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I. INTRODUCTION

Let's begin with a story: Lionel is a lawyer. His client has just been served with a complaint for patent infringement. The client has a lot of questions. The patent being asserted looks pretty trivial—it's a minor variation on one of the client's own successful products. "So," the client asks Lionel, "can we get this case tossed right away, on a motion to dismiss?" "I'm not sure that's

possible,” Lionel replies. “Summary judgment at least?” Lionel shrugs. “Okay, are we looking at a jury trial here?” “Don’t know—might be that a judge decides the case.” “Do you at least know what the standard of proof will be?” “Nope.” “Well, if we lose—and it sounds like we will if we keep you on the case—and we want to appeal, what’s the standard of review?” “No idea.”

It probably seems like Lionel is a bad lawyer. But Lionel is actually providing the best advice he can about U.S. patent law. The questions Lionel has been asked all turn on whether patent validity—a fundamental issue in any patent infringement dispute—is a question of law, a question of fact, or something in between. Lionel, like any conscientious patent lawyer, just isn’t sure.

* * *

The distinction between law and fact is one of the most perplexing concepts in all of law. Some deride the distinction as a myth,¹ and not unreasonably so. Whether we call a question one of law or one of fact, it is, in the end, simply something that a party must prove (or disprove) in a given case.² That said, the distinction provides a useful heuristic for allocating decision-making authority between judge and jury.³ And the most significant complications mainly involve so-called mixed questions, which require applying law to fact to decide what is often the ultimate issue in any given case.⁴ Yet those mixed questions cover all manner of topics, from breach of contract⁵ to negligence⁶ to fair use in a copyright case⁷ to whether probable cause existed to justify a police search.⁸

Though the distinctions between questions of law, questions of fact, and mixed questions can be elusive, the categorization of a particular issue is massively consequential. As Lionel’s exchange with his client illustrates, numerous procedural and institutional features of American litigation turn on that categorization, including whether a judge or jury will decide the

1. Ronald J. Allen & Michael S. Pardo, *The Myth of the Law-Fact Distinction*, 97 NW. U. L. REV. 1769, 1793 (2003).

2. GARY LAWSON, EVIDENCE OF THE LAW: PROVING LEGAL CLAIMS 167 (2017).

3. See RICHARD A. POSNER, THE PROBLEMS OF JURISPRUDENCE 198 (1990).

4. Gary Lawson, *Proving the Law*, 86 NW. U. L. REV. 859, 863 n.10 (1992).

5. See, e.g., *Trainum v. Rockwell Collins, Inc.*, 765 F. App’x 514, 516–17 (2d Cir. 2019).

6. See, e.g., *Edwards & Hanly v. Wells Fargo Sec. Clearance Corp.*, 602 F.2d 478, 485 (2d Cir. 1979).

7. See, e.g., *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 560 (1985).

8. See, e.g., *Ornelas v. United States*, 517 U.S. 690, 696–97 (1996).

issue,⁹ the stage of the case at which the issue can be resolved,¹⁰ the standard of proof,¹¹ and the standard of appellate review.¹² But, despite the significant implications of the law-fact designation, one of the Supreme Court's leading decisions readily concedes that there is no "rule or principle that will unerringly distinguish a factual finding from a legal conclusion."¹³

The uncertainty surrounding the law-fact distinction is particularly acute in patent litigation, especially on the crucial issue of patent validity.¹⁴ Invalidity is a primary way a defendant accused of patent infringement can avoid liability.¹⁵ A defendant presenting an invalidity defense is arguing, essentially, that the Patent Office should never have issued the patent-in-suit because it does not satisfy the provisions of the Patent Act requiring patented inventions to be, among other things, novel,¹⁶ nonobvious,¹⁷ and clearly and fully described.¹⁸

The Supreme Court's opinions on the legal-versus-factual nature of the patent validity inquiry are actually quite clear on their face. The Court has

9. The right to a jury trial on certain factual matters is enshrined in the Constitution. *See* U.S. CONST. amend. VII. Questions of law, by contrast, are typically decided by the judge alone. *See* Jabez Fox, *Law and Fact*, 12 HARV. L. REV. 545, 551 (1899).

10. Federal Rule of Civil Procedure 12(b)(6), for instance, "authorizes a court to dismiss a claim on the basis of a dispositive issue of law." *Neitzke v. Williams*, 490 U.S. 319, 326 (1989). By contrast, questions that turn on facts outside the parties' pleadings can usually be resolved no earlier than summary judgment, *see* 10A CHARLES ALAN WRIGHT, ARTHUR R. MILLER & MARY KAY KANE, FEDERAL PRACTICE AND PROCEDURE § 2712 (4th ed. 2016), which typically occurs toward the end of or after discovery.

11. Fact-laden questions are subject to standards of proof that range from a preponderance of the evidence in the mine run of civil cases, *see* *Addington v. Texas*, 441 U.S. 418, 423 (1979), to beyond a reasonable doubt in criminal cases, *see* *In re Winship*, 397 U.S. 358, 361 (1970). Legal questions, by contrast, are typically subject to no particular standard of proof.

12. The usual rule is that decisions on questions of law are reviewed *de novo*, while factual findings are reviewed under a deferential standard, either "clear error" for findings by a judge or "substantial evidence" for findings by a jury. *See* Paul D. Carrington, *The Power of District Judges and the Responsibility of Courts of Appeals*, 3 GA. L. REV. 507, 520 (1969).

13. *Pullman-Standard v. Swint*, 456 U.S. 273, 288 (1982).

14. The two definitive treatises on federal practice and procedure each single out patent litigation as an area in which "it particularly has been difficult to distinguish between findings of fact . . . and conclusions of law." 9C WRIGHT ET AL., *supra* note 10, § 2591; *accord* 9 JAMES WM. MOORE, MOORE'S FEDERAL PRACTICE § 52.34(3)(a) (Daniel R. Coquillette et al. eds., 3d ed. 2020) ("[T]he task of distinguishing between law and fact has been particularly difficult in patent litigation because of the complex, technical and scientific issues that are usually involved.").

15. The other primary defense is that the defendant does not, in fact, infringe the patent. *See generally* 35 U.S.C. § 282(b) (2018) (setting out the defenses to a claim of patent infringement). On the considerations that inform a defendant's choice about how much to emphasize each defense, *see* Roger Allan Ford, *Patent Invalidity Versus Noninfringement*, 99 CORNELL L. REV. 71, 76 (2013).

16. 35 U.S.C. § 102.

17. *Id.* § 103.

18. *Id.* § 112.

unequivocally stated that the ultimate issue of patent validity is a question of law based on underlying questions of fact.¹⁹ To a lawyer (or law student) not steeped in the intricacies of patent litigation, that statement probably seems easy to translate. The Court is saying that patent validity is, essentially, a mixed question of law and fact, in that it requires a decision about whether, on the evidentiary record in the case at hand, the patent-in-suit satisfies the legal requirements of the Patent Act.²⁰

But things are rarely so simple when it comes to the U.S. Court of Appeals for the Federal Circuit, which has exclusive jurisdiction over appeals in patent cases.²¹ The Federal Circuit refers to patent validity as a mixed question in only rare cases;²² practically all of those outlier cases were decided in the past decade and involve a single validity doctrine, nonobviousness.²³ The bulk of Federal Circuit precedent on the law-fact distinction, Rebecca Eisenberg explained in a recent article, “rests on a strict bifurcation . . . between legal conclusions and factual findings, with no room for an intermediate category of mixed questions of law and fact.”²⁴

Consequently, the Federal Circuit treats some validity disputes as presenting pure or nearly pure questions of law,²⁵ despite the Supreme Court’s admonition that fact-finding underlies the validity inquiry and despite the case-specific nature of the analysis. At the other extreme, the Federal Circuit treats several validity requirements as presenting pure questions of

19. See *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 96–97 (2011) (“While the ultimate question of patent validity is one of law, . . . the same factual questions underlying the PTO’s original examination of a patent application will also bear on an invalidity defense in an infringement action.” (citations omitted) (citing *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17 (1966))).

20. See *U.S. Bank Nat’l Ass’n v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960, 966 (2018) (“A mixed question asks whether ‘the historical facts . . . satisfy the statutory standard, or to put it another way, whether the rule of law as applied to the established facts is or is not violated.’” (alteration in original) (quoting *Pullman-Standard v. Swint*, 456 U.S. 273, 289 n.19 (1982))).

21. See Paul R. Gugliuzza, *Rethinking Federal Circuit Jurisdiction*, 100 GEO. L.J. 1437, 1441–42, 1461–62 (2012) (describing the Federal Circuit’s jurisdiction and various critiques of the court).

22. A quick Westlaw search reveals no more than 40 patent opinions in the nearly 40-year history of the court using the phrase “mixed question of law and fact” (or some close variant). And in at least a third of those opinions the court is discussing the precedent of another jurisdiction. See, e.g., *Reese v. Verizon Cal., Inc.*, 498 F. App’x 980, 982 (Fed. Cir. 2012) (discussing Ninth Circuit preclusion law); *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1235 (Fed. Cir. 2014) (discussing New York agency law); *Rambus Inc. v. Infineon Techs. Ag.*, 318 F.3d 1081, 1107 (Fed. Cir. 2003) (Prost, J., dissenting in part) (discussing Virginia tort law).

23. For more discussion of the Federal Circuit’s move toward characterizing nonobviousness as a mixed question, see *infra* note 248 and accompanying text.

24. Rebecca S. Eisenberg, *A Functional Approach to Judicial Review of PTAB Rulings on Mixed Questions of Law and Fact*, 104 IOWA L. REV. 2387, 2392 (2019).

25. See *infra* Section III.A (discussing the doctrine of patent-eligible subject matter).

fact²⁶—directly contrary to the Supreme Court’s declaration that the ultimate issue of patent validity is a question of law. The Federal Circuit also allows questions of patent validity to be resolved by juries.²⁷ That practice is unusual because juries typically do not decide questions of law²⁸ and because it is usually judges, not juries, who review the actions of administrative agencies,²⁹ which is essentially what juries do when they consider whether a patent issued by the Patent Office satisfies the validity requirements set by federal law. Compounding matters further, the Federal Circuit sometimes applies a deferential standard of review to the jury’s ruling on the ultimate, legal question of patentability.³⁰ Yet at other times the court purports to review the jury’s validity determination *de novo*,³¹ which is the usual standard of appellate review for questions of law.

The confusion surrounding the law-fact divide in patent litigation is remarkable because the stakes are so high. Jury trials in patent cases are expensive,³² and the mere threat of a jury trial significantly affects parties’ pre-trial strategy and behavior.³³ Resolution of patent validity by the judge—particularly when validity is treated as presenting only a question of law and is decided before trial (or even before discovery)—can dramatically reduce litigation costs.³⁴ Yet quick resolutions on a thin evidentiary record raise the

26. See *infra* Section III.B (discussing the doctrines of anticipation, written description, and utility).

27. See, e.g., *infra* Section III.C (discussing the doctrine of nonobviousness).

28. See *Sparf & Hansen v. United States*, 156 U.S. 51, 102 (1895) (“Upon the court rests the responsibility of declaring the law, upon the jury, the responsibility of applying the law so declared to the facts as they, upon their conscience, believe them to be.”).

29. See John F. Duffy, *Jury Review of Administrative Action*, 22 WM. & MARY BILL RTS. J. 281, 281 (2013) (citing *Cox v. United States*, 332 U.S. 442 (1947)).

30. See, e.g., *Everlight Elecs. Co. v. Nichia Corp.*, 719 F. App’x 1008, 1012 (Fed. Cir.) (“[S]ubstantial evidence supports the jury verdict of invalidity.”), *cert. denied*, 139 S. Ct. 183 (2018).

31. See, e.g., *Cir. Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1334 (Fed. Cir. 2015) (“In reviewing a jury’s obviousness verdict, ‘[w]e first presume that the jury resolved the underlying factual disputes in favor of the verdict winner and leave those presumed findings undisturbed if they are supported by substantial evidence. Then we examine the legal conclusion *de novo* to see whether it is correct in light of the presumed jury fact findings.’” (alteration in original) (quoting *Jurgens v. McKasy*, 927 F.2d 1552, 1557 (Fed. Cir. 1991))).

32. According to one often-cited estimate, it costs about \$4 million to litigate an infringement case through trial and appeal when more than \$25 million in damages is at stake. AM. INTELL. PROP. L. ASS’N, REPORT OF THE ECONOMIC SURVEY 50 (2019).

33. See Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2126 (2013) (discussing how “the high cost of patent litigation” can “induce . . . parties [sued for patent infringement] to settle for small amounts of money rather than pay millions to their lawyers”).

34. See Paul R. Gugliuzza, *Quick Decisions in Patent Cases*, 106 GEO. L.J. 619, 635 (2018).

risk that meritorious patents will be erroneously held invalid, undercutting patents as an incentive for innovation.³⁵

This Article makes two primary contributions to the growing literature on the institutions and processes of the patent system,³⁶ one descriptive and one normative. Descriptively, the Article is the first³⁷ to comprehensively document the widespread uncertainty surrounding the law-fact distinction in litigation over patent validity.³⁷ Normatively, the Article proposes a clear rule that would alleviate much of that uncertainty and significantly streamline patent litigation: Patent validity should be considered, simply, to present a mixed question of law and fact. Treating validity as a mixed question would, among other policy payoffs, provide district courts with useful flexibility about the procedural posture for deciding patent validity, clarify the role of the jury in patent validity disputes, reduce incentives for litigants to prolong cases in the hope of appellate reversal under a stringent standard of review, and modernize the process of judicial review of Patent Office actions.

The remainder of this Article proceeds as follows. Part II provides essential background on the law-fact distinction, introducing both the foundational academic literature and the governing patent law doctrines. Part III chronicles the profound uncertainty about the role of the law-fact distinction in litigation over patent validity, providing examples drawn from every significant requirement of patentability. Part IV then presents and defends the Article's thesis that the ultimate decision on patent validity should be viewed to present a mixed question of law and fact.

II. THE LAW-FACT DISTINCTION

This Part of the Article introduces the law-fact distinction. It begins by discussing the distinction's theoretical underpinnings (or lack thereof). It

35. See Anup Malani & Jonathan S. Masur, *Raising the Stakes in Patent Cases*, 101 GEO. L.J. 637, 686 (2013).

36. For an extensive bibliography, see Ryan Vacca, *The Federal Circuit as an Institution*, in 2 RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW 104, 155-57 (Peter S. Menell, David L. Schwartz & Ben Depoorter eds., 2019).

37. Prior scholarship has critiqued the Federal Circuit's treatment of the law-fact distinction on discrete issues of patent doctrine, see, e.g., J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 1, 68-73 (2013); Craig Allen Nard, *Deference, Defiance, and the Useful Arts*, 56 OHIO ST. L.J. 1415, 1437 n.83 (1995) (discussing nonobviousness); Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. REV. 123, 172 n.275 (2006) (noting various issues related to novelty and nonobviousness), and shown how the Federal Circuit's proclivity to manipulate the law-fact distinction amplifies the court's authority over the patent system as compared to the Patent Office, district courts, and Congress, see, e.g., Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1042-65 (2003). This Article, by contrast, takes a holistic approach by critiquing both the Supreme Court's and the Federal Circuit's treatment of the law-fact distinction on all issues of patent validity.

then examines how the law-fact distinction operates in the particular context of patent litigation.

A. CATEGORIES AND CONSEQUENCES

Whether we call a proposition one of law or one of fact, it is simply something that must be proven in a given case. The question might, for instance, be about what one word or phrase means in a statute.³⁸ Or it might be about the content of a judge-created common law rule.³⁹ Conventionally, we would call those pure questions of law, as answering them will require the court to formulate general principles that can be applied in many future cases.⁴⁰

Conversely, the question could be about historical events: who did what, when, where, how, and why? For instance, disputes over patent validity often involve questions such as: On what date was a particular prior art reference available to the public?⁴¹ What technology, exactly, does that prior art reference disclose?⁴² Those questions, which inquire into things that exist (or did not exist) or events that occurred (or did not occur) outside the courtroom, would conventionally be called questions of fact.⁴³

In between, the question might require applying law to facts. For instance, would an invention have been obvious given the technology that previously existed in the world?⁴⁴ Does the patent disclose enough information that a person of ordinary skill in the art could recreate the invention without undue experimentation?⁴⁵ Questions of that sort are typically labeled mixed questions of law and fact⁴⁶ (though, as I explain

38. For an example from a recent Supreme Court patent case, see *Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.*, 139 S. Ct. 628, 630 (2019) (“This case requires us to decide whether the sale of an invention to a third party who is contractually obligated to keep the invention confidential places the invention ‘on sale’ within the meaning of [35 U.S.C.] § 102(a).”).

39. *E.g.*, *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 217–18 (2014) (distilling from the Court’s prior decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), a two-step test for analyzing patent eligibility under the judge-made exception to the categories of eligible inventions listed in § 101 of the Patent Act).

40. Lawson, *supra* note 4, at 882–83 n.68.

41. *E.g.*, *TransWeb, LLC v. 3M Innovative Props. Co.*, 812 F.3d 1295, 1302–03 (Fed. Cir. 2016).

42. *E.g.*, *Mettler-Toledo, Inc. v. B-Tek Scales, LLC*, 671 F.3d 1291, 1297 (Fed. Cir. 2012).

43. Stephen A. Weiner, *The Civil Jury Trial and the Law-Fact Distinction*, 54 CALIF. L. REV. 1867, 1869–70 (1966). More precisely, historical or adjudicative facts—events or circumstances that help the tribunal determine how the law applies to a particular case. *See Fact*, BLACK’S LAW DICTIONARY (11th ed. 2019).

44. *See* 35 U.S.C. § 103 (2018).

45. *See id.* § 112(a).

46. *See* Francis H. Bohlen, *Mixed Questions of Law and Fact*, 72 U. PA. L. REV. 111, 112 (1924); Frederick Green, *Mixed Questions of Law and Fact*, 15 HARV. L. REV. 271, 272 (1901); *see also* 9C WRIGHT ET AL., *supra* note 10, § 2589 (noting that “[m]any issues in a lawsuit involve elements of both law and fact” and that those issues are alternatively “referred to as mixed questions of law

throughout the remainder of this Article, patent law generally resists the “mixed question” terminology).

Mixed questions present the trickiest issues in the law-fact realm because they are sometimes treated like questions of law and other times like questions of fact. As the Supreme Court recently observed, “[m]ixed questions are not all alike,” and so the standard of appellate review, for example, “depends” on whether the particular question in the case “entails primarily legal or factual work.”⁴⁷ Similarly, the Supreme Court has approved of judges deciding mixed questions in some circumstances,⁴⁸ but in other cases, the Court has ruled that the Seventh Amendment requires submitting mixed questions to a jury.⁴⁹

As those examples suggest, the distinction between questions of law, questions of fact, and mixed questions carries important practical consequences, regardless of whether the various types of questions differ from each other in any ontological sense. As discussed in the introduction, the law-fact distinction can determine who decides an issue (the judge or a jury), the standard of proof (if any), the stage of the case at which an issue can be resolved, and the standard of review on appeal. It can also dictate whether the rules of evidence apply to a particular question and the precedential weight given to the court’s decision.⁵⁰

B. PATENT VALIDITY: A QUESTION OF LAW?

Despite the important practical consequences that flow from the law-fact designation, locating the border between law and fact is difficult in patent cases, most notably on the crucial issue of patent validity. The Supreme Court’s modern case law clearly and consistently holds that patent validity is a question of law based on underlying findings of fact.⁵¹ Yet confusion sets in as soon as you start to explore the historical basis for that rule.

In numerous opinions from the nineteenth century, the Court suggested that key validity requirements presented questions of *fact* and that those

and fact, or legal inferences to be drawn from the facts, or the application of law to the facts”). For an attempt to further divide mixed questions into a variety of subcategories, see Randall H. Warner, *All Mixed Up About Mixed Questions*, 7 J. APP. PRAC. & PROCESS 101, 128 (2005).

47. U.S. Bank Nat’l Ass’n v. Vill. at Lakeridge, LLC, 138 S. Ct. 960, 967 (2018).

48. See, e.g., *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391 (1996) (patent claim construction).

49. See, e.g., *Barney v. Schneider*, 76 U.S. 248, 250 (1869) (determining the similarity of goods for assessing customs duties). These examples illustrate that the categories of legal questions, factual questions, and mixed questions are not necessarily monolithic; rather, there is a spectrum running from all-law to all-fact. See Jonathan Remy Nash, *Unearthing Summary Judgment’s Concealed Standard of Review*, 50 U.C. DAVIS L. REV. 87, 96–97 (2016). As I argue below, patent validity is a mixed question that lies closer to the fact end of that spectrum than the legal end. See *infra* Section IV.A.

50. See *Allen & Pardo*, *supra* note 1, at 1769.

51. See *supra* note 19.

requirements should, accordingly, be decided by a jury.⁵² For instance, in an 1886 opinion, the Court wrote that the question of whether a patent “sprang from a genuine effort of invention”—the common law predecessor to today’s statutory requirement of nonobviousness—“was a question of fact properly to be left for determination to the jury.”⁵³ Other mid-nineteenth century Supreme Court opinions giving the question of patent validity to the jury characterized validity more like a mixed question of law and fact. In an 1854 opinion, for instance, the Court wrote that “[i]t was the right of the jury to determine, from the facts in the case, whether the specifications, including the claim, were so precise as to enable any person skilled in the structure of machines, to make the one described.”⁵⁴ Still other opinions, however, said that patentability was a question of law to be answered by the court.⁵⁵ Those opinions treating validity as a question of law relied on a string of Supreme Court rulings from the 1870s and 1880s that appeared to decide the question of “invention” *de novo*, relying on “general knowledge” and conducting little inquiry into matters beyond the face of the patent.⁵⁶

The Court’s case law provides little indication about why the latter view—that patent validity is a question of law—prevailed. The best explanation seems to be that juries simply disappeared from patent litigation in the late-nineteenth century, leading courts to deemphasize any factual aspects of the validity analysis. As Mark Lemley has explained, a major innovation of the Patent Act of 1870 was that it allowed patentees to obtain both damages and an injunction in the same case, but only if they sued in equity, where there is no right to a jury trial.⁵⁷ Christopher Beauchamp has suggested that the shift of patent cases from law to equity actually pre-dated the 1870 Act, spurred by patentees who sought equity’s procedural flexibility and wanted to avoid juries, which, at the time, were perceived as hostile to the monopoly-like rights

52. See, e.g., *Bischoff v. Wethered*, 76 U.S. 812, 814 (1869) (“It is undoubtedly the common practice . . . where a patent under consideration is attempted to be invalidated by a prior patent . . . to submit all the evidence to the jury under general instructions as to the rules by which they are to consider the evidence. . . . [I]n all such cases the question [of validity] would . . . be treated as a question of fact for the jury, and not as a question of law for the court.”).

53. *Keyes v. Grant*, 118 U.S. 25, 37 (1886).

54. *Battin v. Taggart*, 58 U.S. 74, 85 (1854).

55. See, e.g., *Mahn v. Harwood*, 112 U.S. 354, 358 (1884) (“In cases of patents for inventions, a valid defense . . . often arises where the question is, whether the thing patented amounts to a patentable invention. This being a question of law, the courts are not bound by the decision of the commissioner”); *Dunbar v. Myers*, 94 U.S. 187, 196 (1876) (noting that it was “now well settled[] that the question whether the alleged improvement is or is not patentable, is, in an equity suit, a question for the court”).

56. See, e.g., *Mahn*, 112 U.S. at 358–59 (citing, among other cases, *King v. Gallun*, 109 U.S. 99, 101 (1883); *Brown v. Piper*, 91 U.S. 37 (1875)).

57. Mark A. Lemley, *Why Do Juries Decide If Patents Are Valid?*, 99 VA. L. REV. 1673, 1702–03 (2013) (citing Patent Act of 1870, ch. 230, § 55, 16 Stat. 198, 206).

conferred by patents.⁵⁸ Whatever the cause, by the late-nineteenth century, patent validity was usually decided by the judge⁵⁹ and, seemingly by default, viewed to present a question of law.

In 1938, the Federal Rules of Civil Procedure merged the law and equity courts, meaning that patentees could seek infringement damages outside of jury-less equity proceedings. But this did not result in an immediate increase in jury trials on patent validity.⁶⁰ And the view that patent validity was a legal question to be decided by the judge continued to dominate. As Justice Douglas put it in a concurring opinion often cited in the Supreme Court's modern cases on the law-fact distinction, "the question of validity of a patent is a question of law[] . . . which the Court must decide."⁶¹ "No 'finding of fact,'" Justice Douglas explained, "can be a substitute for it in any case."⁶²

Despite the Supreme Court's consistent modern view that patent validity is a question of law, juries have gradually returned to patent cases.⁶³ And, contrary to Justice Douglas' suggestion, juries are permitted to decide the ultimate, legal question of validity so long as the inquiry involves disputes about the underlying facts.⁶⁴ Juries' decisions often take the form of a general verdict, simply indicating a vote for the patentee or the accused infringer.⁶⁵ A paradigmatic jury verdict on patent validity is reproduced below.

58. Christopher Beauchamp, *The First Patent Litigation Explosion*, 125 YALE L.J. 848, 923 (2016).

59. *Id.* at 921–23.

60. Lemley, *supra* note 57, at 1704.

61. *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 155–56 (1950) (Douglas, J., concurring), *cited in* *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 96 (2011), and *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17 (1966).

62. *Great Atl. & Pac. Tea Co.*, 340 U.S. at 156.

63. On the potential causes of the jury's return, see David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 354 n.104 (2012) ("Until the late 1980s, relatively few patent infringement complaints contained a jury demand. By the 2000s, nearly all of them did. The reason for this increase has never been fully explained, but in part it may be due to the rise of big firm lawyers working on patent cases or advances in technology available in the courtroom to educate jurors." (citations omitted)).

64. See Lemley, *supra* note 57, at 1726–27.

65. For examples, see Verdict Form at 3–5, *Liqwd, Inc. v. L'Oreal USA, Inc.*, No. 17-00014 (D. Del. Aug. 12, 2019) (concerning obviousness and written description); and Verdict Form at 46–64, *CommScope Techs. LLC v. Dali Wireless Inc.*, No. 16-00477 (N.D. Tex. June 20, 2019) (concerning enablement and written description).

Verdict Form at 3-4, *SiOnyx, LLC v. Hamamatsu Photonics K.K.*, No. 15-13488
(D. Mass. May 9, 2019)

F. Defenses: Patent Invalidity

The following questions concern the contention of Hamamatsu Photonics K.K. that certain claims of the '467 patent are invalid for one or more reasons. Your verdict must be consistent: in other words, you may not find both that Hamamatsu Photonics K.K. is liable for infringement and that any defense as to that claim has been proved.

14. Obviousness. We find that the following claim of the '467 patent is invalid because it is obvious:

Claim 2: _____ Yes No

15. Anticipation. We find that the following claims of the '467 patent are invalid because they were anticipated:

Claim 1: _____ Yes No

Claim 3: _____ Yes No

16. Lack of Enablement. We find that the following claim of the '467 patent is invalid because it does not satisfy the enablement requirement:

Claim 1: _____ Yes No

A general jury verdict⁶⁶ is an odd way to decide a question of law. It is also a strange way for the judicial branch to review the legality of actions by an administrative agency such as the Patent Office. As explained in the introduction, judges, not juries, usually decide questions of law, and judges, not juries, typically conduct judicial review of administrative action.⁶⁷

66. A general jury verdict, in which the jury simply votes for the winner (plaintiff or defendant), can be contrasted with a special verdict, in which the jury makes findings on specific factual issues submitted to them by the judge, who then decides the legal effect of the jury's findings. See FED. R. CIV. P. 49. To be sure, the jury verdicts typically delivered in litigation over patent validity are not as "general" as they could be. Rather than delineating various grounds of invalidity, a jury could be asked, simply, whether the defendant has proved that the patent is invalid. That form of general verdict would potentially allow for what has been called in different contexts a "doctrinal paradox," in which the decisionmaker unanimously agrees on an outcome (for instance, the patent is invalid or not invalid), but cannot agree on a reason why. See Jonathan Remy Nash, *A Context-Sensitive Voting Protocol Paradigm for Multinember Courts*, 56 STAN. L. REV. 75, 157 n.309 (2003). Fortunately, because general jury verdicts in patent cases typically identify specific patent doctrines and particular patent claims, the opportunities for a doctrinal paradox to arise are limited.

67. See *supra* notes 28-29 and accompanying text. There are, to be sure, differences between judicial review of patent validity in the course of infringement litigation and direct review of agency action under the Administrative Procedure Act ("APA") (such as in an appeal of the Patent Office's denial of a patent application). For instance, under the APA, the record is typically limited to the materials that were before the agency, see *In re Gartside*, 203 F.3d 1305, 1314 (Fed. Cir. 2000), whereas in litigation over patent validity, the challenger may introduce evidence the Patent Office did not consider during examination. See *Am. Hoist & Derrick Co. v. Sowa & Sons*,

But the oddities do not stop there. When a jury decides the question of patent validity—which is ostensibly a question of law—it does so under a heightened standard of evidentiary proof. Section 282 of the Patent Act states that an issued patent is “presumed valid.”⁶⁸ In its 2011 decision in *Microsoft Corp. v. i4i Limited Partnership*, the Supreme Court confirmed that that presumption requires a patent challenger to prove invalidity by clear and convincing evidence rather than under the preponderance-of-the-evidence standard that applies in most civil cases.⁶⁹ As the Court had explained a few years earlier, the heightened standard for proving patent invalidity reflects the deference courts give to expert agencies such as the Patent Office.⁷⁰ The verdict form reproduced below—again typical of the verdict forms used in patent cases—illustrates a jury deciding the legal question of patent validity through a general verdict under the heightened, clear-and-convincing-evidence standard of proof.

Verdict Form at 51, *CommScope Techs. LLC v. Dali Wireless Inc.*, No. 16-00477
(N.D. Tex. June 20, 2019)

QUESTION NO. 6:

Has Dali proven by clear and convincing evidence that any asserted claim of the '982, '218, '286, and '402 patents is invalid because the patent does not provide a written description of that claim?

6a. Answer “yes” or “no” as to claim 1 of the '982 patent: No

6b. Answer “yes” or “no” as to claim 1 of the '218 patent: No

6c. Answer “yes” or “no” as to claim 12 of the '218 patent: No

6d. Answer “yes” or “no” as to claim ^{MF}23 of the '286 patent: No

6e. If you answered “no” as to claim ^{MF}23 of the '286 patent, answer
“yes” or “no” as to dependent claim 27 of the '286 patent: No

6f. Answer “yes” or “no” as to claim 1 of the '402 patent: No

6g. If you answered “no” as to claim 1 of the '402 patent, answer
“yes” or “no” as to dependent claim 14 of the '402 patent: No

Inc., 725 F.2d 1350, 1360 (Fed. Cir. 1984), *abrogated on other grounds by* *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276 (Fed. Cir. 2011). That said, the judge in an APA proceeding and the jury in a patent case are doing essentially the same work—assessing the facts relevant to the agency’s action and comparing those facts to the relevant legal standard.

68. 35 U.S.C. § 282 (2018).

69. *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 95 (2011).

70. See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 426 (2007) (describing the “rationale underlying the presumption” as being “that the PTO, in its expertise, has approved the [patent]”).

It is unusual for a court—much less a jury—to apply a standard of proof to what is ultimately a question of law.⁷¹ In a concurrence in *i4i*, Justice Breyer recognized this aberration, emphasizing that the clear-and-convincing-evidence standard of proving patent invalidity “applies to questions of fact and not to questions of law.”⁷² Accordingly, Justice Breyer wrote, “a factfinder must use the ‘clear and convincing’ standard where there are disputes about, say, when a product was first sold or whether a prior art reference had been published.”⁷³ As for the ultimate question of patent validity, however, Justice Breyer asserted that “today’s strict standard of proof has no application.”⁷⁴ To help manage the distinction between questions of fact, which are subject to the higher standard of proof, and questions of law, which are not, Justice Breyer suggested that courts “us[e] instructions based on case-specific circumstances . . . or . . . interrogatories and special verdicts to make clear which specific factual findings underlie the jury’s conclusions.”⁷⁵

Justice Breyer’s views did not resonate with the majority in *i4i*. To the contrary, the Court’s opinion supports the prevailing practice of giving the ultimate, legal question of patent validity to the jury under a heightened standard of proof. The Court repeatedly noted that the issue of nonobviousness had been given to the jury in the case at hand, and it did not question the propriety of that practice.⁷⁶ The Court also addressed the parties’ arguments about the proper form of jury instruction when a relevant prior art reference was not considered by the Patent Office during initial examination,⁷⁷ again without explaining why it was the jury that was deciding the legal question of validity. Most tellingly, on two separate occasions, the Court explicitly referred to “the jury” deciding “whether an invalidity defense has been proved by clear and convincing evidence.”⁷⁸ Nowhere in the opinion, however, did the Court acknowledge the fundamental tension that animates the remainder of this Article: Why is the case-specific, fact-specific issue of patent validity called a question of law, decided by juries (which usually do not decide questions of law), under a heightened standard of proof (which normally would not apply to a question of law)?

71. See LAWSON, *supra* note 2, at 46 (“When garden-variety questions of domestic law are at issue, the American legal system does not generally use the language and concepts that dominate discussion of questions of fact. Almost no one . . . speaks of proof, evidence, admissibility, standards of proof, [or] burdens of proof . . . in connection with questions of law.”).

72. See *i4i*, 564 U.S. at 114 (Breyer, J., concurring).

73. *Id.*

74. *Id.*

75. *Id.* at 115. On special versus general verdicts, see *supra* note 66.

76. See *i4i*, 564 U.S. at 98–99.

77. See *id.* at 111 (“[T]he jury may be instructed to evaluate whether the evidence before it is materially new, and if so, to consider that fact when determining whether an invalidity defense has been proved by clear and convincing evidence.”).

78. *Accord id.* (referring to “the challenger’s burden to persuade the jury of its invalidity defense by clear and convincing evidence”).

III. CONFUSION ABOUT THE LAW-FACT DISTINCTION IN PATENT VALIDITY DISPUTES

As the discussion in Part II hopefully illustrates, the status of patent validity, generally, as a question of law, a question of fact, or something in between, is highly uncertain. Because of that uncertainty, case law attempting to draw lines between law and fact in connection with specific patentability requirements is remarkably chaotic. In what is, to my knowledge, the first comprehensive analysis of that case law, this Part shows how the Federal Circuit has treated some grounds of patentability as questions of law, others as questions of fact, and still others as questions of law based on underlying facts. Those divergent approaches encompass nearly every requirement of patent validity, including eligibility and utility under § 101 of the Patent Act, novelty under § 102, nonobviousness under § 103, and the written description and enablement requirements of § 112. This deep dive into the Federal Circuit's case law reveals that there is little normative justification for the court's current precedent, and it sets the stage for Part IV of the Article, which sketches an improved framework for navigating the law-fact distinction in disputes over patent validity.

A. AN INTRODUCTORY EXAMPLE: PATENT ELIGIBILITY

The doctrine of patent eligible subject matter—one of several requirements of patent validity that this Part of the Article will cover—provides a useful introductory example of courts' confusion about the legal-versus-factual nature of particular validity doctrines. Some background to begin. Section 101 of the Patent Act recites eligibility in broad terms: “[A]ny new and useful process, machine, manufacture, or composition of matter” potentially qualifies for patenting.⁷⁹ Most litigation under § 101, therefore, involves a judge-made “exception” to the categories of eligible inventions listed in the statute. That exception places important limits on patents involving basic research tools, including naturally occurring scientific phenomena, pure mathematical concepts, and abstract mental processes. From the early 1980s until 2010, however, the exception was a dead letter.⁸⁰ The courts and the Patent Office approved of patents on computer software and business methods, even though those patents were often stated in abstract terms or consisted of mathematical formulas—they frequently did little more than recite a longstanding business practice and add the limitation of, essentially, “do it on a computer.”⁸¹ The courts and the Patent Office also approved of

79. 35 U.S.C. § 101 (2018).

80. Mark A. Lemley, Michael Risch, Ted Sichelman & R. Polk Wagner, *Life After Bilski*, 63 STAN. L. REV. 1315, 1318 (2011).

81. See DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* 27 (2009).

patents on DNA sequences and methods of medical diagnosis, even though they were closely tied to phenomena that occur in nature.⁸²

In four decisions in the past decade, the Supreme Court has significantly limited the patent eligibility of those sorts of inventions.⁸³ In the most recent decision, *Alice Corp. v. CLS Bank International*, the Court articulated a two-step test to determine eligibility. The first step asks whether a patent is directed to a “law[] of nature, natural phenom[en]on, or abstract idea[.]”⁸⁴ If it is, to satisfy the eligibility requirement, the patent must contain an “inventive concept” that “transform[s]” the ineligible principle into a “patent-eligible *application*” of that principle.⁸⁵ A patent does not recite an inventive concept, the Court has explained, if it covers “well-understood, routine, conventional activity already engaged in” by those who work in the field.⁸⁶

Many commentators—including members of Congress, judges of the Federal Circuit, and current and former Patent Office officials—have criticized the Supreme Court’s two-step eligibility test on the ground that it is difficult for lower courts to apply predictably.⁸⁷ But claims that the eligibility analysis is wildly unpredictable might be overstated;⁸⁸ more than anything

82. See Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77, 118–19 (1999).

83. See *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208 (2014); *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013); *Mayo Collaborative Servs. v. Prometheus Lab’y, Inc.*, 566 U.S. 66 (2012); *Bilski v. Kappos*, 561 U.S. 593 (2010).

84. *Alice*, 573 U.S. at 217.

85. *Id.* at 221 (emphasis added).

86. *Mayo*, 566 U.S. at 79–80.

87. See, e.g., *The State of Patent Eligibility in America: Part I: Hearing Before the Subcomm. on Intell. Prop. of the S. Comm. on the Judiciary*, 116th Cong. (2019), <https://www.judiciary.senate.gov/meetings/the-state-of-patent-eligibility-in-america-part-i> [<https://perma.cc/563E-5ETX>] (opening statement of Sen. Thom Tillis); Kevin E. Noonan, *Director Iancu Produces Glimmer of Patent Eligibility Hope*, PATENT DOCS (Sept. 24, 2018), <https://www.patentdocs.org/2018/09/director-iancu-produces-glimmer-of-patent-eligibility-hope.html> [<https://perma.cc/KB3V-HYJL>]; see also Kristen Osenga, *Institutional Design for Innovation: A Radical Proposal for Addressing § 101 Patent-Eligible Subject Matter*, 68 AM. U. L. REV. 1191, 1194 (2019) (collecting additional criticism about “the erosion of reliable patent rights”). The instantly classic citation for judicial critique of the Supreme Court’s case law is *Athena Diagnostics, Inc. v. Mayo Collaborative Services, LLC*, 927 F.3d 1333 (Fed. Cir. 2019), an eligibility dispute in which the Federal Circuit denied rehearing en banc by a vote of seven-to-five, with the court’s judges issuing eight separate opinions, mostly lamenting the state of eligibility doctrine.

88. See, e.g., Jason D. Reinecke, *Is the Supreme Court’s Patentable Subject Matter Test Overly Ambiguous? An Empirical Test*, 2019 UTAH L. REV. 581, 583 (surveying a sample of eligibility cases that had actually been litigated and finding that, based on the patent claims alone, patent prosecutors were able to correctly predict how the court ruled 67.3 percent of the time and patent litigators correctly predicted outcomes 59.7 percent of the time); see also Paul R. Gugliuzza & Mark A. Lemley, *Can a Court Change the Law by Saying Nothing?*, 71 VAND. L. REV. 765, 788 (2018) (finding that over 90 percent of the Federal Circuit’s post-*Alice* eligibility decisions found the patent invalid and that over 95 percent of the lower court and Patent Office decisions reviewed by the Federal Circuit had found the patent to be invalid).

else, they seem to reflect normative disagreement with the heightened standard of patentability the Supreme Court has embraced.⁸⁹ One thing that is definitely unclear, however, is which aspects of the Court's eligibility test present questions of law and which present questions of fact. Federal Circuit decisions on eligibility in the 1990s suggested, at least in dicta, that eligibility was a question of law based on underlying facts.⁹⁰ But after the Supreme Court reinvigorated the eligibility requirement in 2010, many lower courts and, later, the Federal Circuit, began to treat eligibility as a purely legal question.⁹¹ As a consequence, eligibility was often decided on a pre-discovery motion to dismiss,⁹² and district courts' eligibility decisions were reviewed de novo on appeal.⁹³

I have argued in prior work that one important policy function of eligibility doctrine is that it provides a quick-look filter to eliminate patents that are *plainly* invalid before the parties incur substantial litigation costs.⁹⁴ Though aspects of the eligibility analysis—particularly the question of whether the patent recites an “inventive concept”—appear redundant of other patentability requirements such as novelty and nonobviousness,⁹⁵ those requirements are almost always considered to raise disputed questions of fact, meaning that the earliest stage of litigation at which they can be resolved is summary judgment—after the parties have incurred most if not all of the costs

89. See Greg Reilly, *How Can the Supreme Court Not “Understand” Patent Law?*, 16 CHI-KENT J. INTELL. PROP. 292, 306 (2017) (arguing that though critics of the Supreme Court's patent decisions often claim that the Court does not “understand” patent law, those critics “really mean that the Supreme Court's decisions differ from their policy preferences regarding patent law”).

90. See *Arrhythmia Rsch. Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1055–56 (Fed. Cir. 1992) (“Whether a claim is directed to statutory subject matter is a question of law. Although determination of this question may require findings of underlying facts specific to the particular subject matter and its mode of claiming, in this case there were no disputed facts material to the issue.”).

91. See, e.g., *Intell. Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1325 (Fed. Cir. 2017) (“Patent eligibility under § 101 is an issue of law . . .”); *CMG Fin. Servs., Inc. v. Pac. Tr. Bank*, 50 F. Supp. 3d 1306, 1314 (C.D. Cal. 2014) (“[T]he determination of whether a claim is drawn to patent-eligible subject matter is a pure question of law.”), *aff'd*, 616 F. App'x 420 (Fed. Cir. 2015); *Becton, Dickinson & Co. v. Baxter Int'l, Inc.*, 127 F. Supp. 3d 687, 691 (W.D. Tex. 2015) (same), *aff'd*, 639 F. App'x 652 (Fed. Cir. 2016).

92. See Jeffrey A. Lefstin, Peter S. Menell & David O. Taylor, *Final Report of the Berkeley Center for Law & Technology Section 101 Workshop: Addressing Patent Eligibility Challenges*, 33 BERKELEY TECH. L.J. 551, 578 tbl.2 (2018) (reporting that, from June 2014 to February 2017, 69.4 percent of district court decisions on eligibility (249 of 359) were made on a motion to dismiss or for judgment on the pleadings and that 63.1 percent of those pleading-stage decisions (157 of 249) invalidated the patent).

93. See, e.g., *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.”).

94. Paul R. Gugliuzza, *The Procedure of Patent Eligibility*, 97 TEX. L. REV. 571, 587 (2019).

95. See John M. Golden, *Redundancy: When Law Repeats Itself*, 94 TEX. L. REV. 629, 701–03 (2016).

of discovery, which account for half or more of litigation expenses in a typical patent case.⁹⁶

But treating eligibility as a purely legal question in every single case may go too far. For one, it is inconsistent with older Federal Circuit precedent that treated eligibility as a legal question based on facts⁹⁷ and with the Supreme Court's admonition that "factual questions . . . bear on an invalidity defense in an infringement action."⁹⁸ Moreover, aspects of the Supreme Court's two-step test for eligibility seem like inquiries the law would conventionally characterize as factual, such as determining whether an invention occurs in nature or is well-known in a particular field.

With those considerations perhaps in mind, the Federal Circuit in 2018 issued two decisions in a single week—both authored by the same judge—making clear that the eligibility inquiry has factual aspects. In *Berkheimer v. HP, Inc.*, the Federal Circuit overturned a grant of summary judgment on eligibility grounds, ruling that a genuine dispute of material fact existed about whether the patent contained an inventive concept.⁹⁹ The court emphasized that the patent's specification¹⁰⁰ explained that the claimed invention "increase[d] efficiency and computer functionality over . . . prior art systems" and determined that those statements "create[d] a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities."¹⁰¹

Similarly, in *Aatrix Software, Inc. v. Green Shades Software, Inc.*, the Federal Circuit overturned the grant of a motion to dismiss on eligibility grounds because the patentee's complaint alleged that the patent "contain[ed] inventive components and improve[d] the workings of [a] computer."¹⁰² Those allegations about the patent's inventiveness, which the court viewed itself bound to accept as true at the pleading stage, doomed the accused infringer's motion to dismiss.¹⁰³

96. Greg Reilly, *Linking Patent Reform and Civil Litigation Reform*, 47 LOY. U. CHI. L.J. 179, 198 (2015).

97. See *supra* note 90.

98. *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 97 (2011).

99. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1370 (Fed. Cir. 2018) (Moore, J.), *cert. denied*, 140 S. Ct. 911 (2020).

100. The specification is the detailed description of the invention that precedes the patent's claims. Though the claims define the patentee's legal right to exclude, the specification is a key source for determining the meaning of words and phrases used in the claims. See generally David L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223, 228–30 (2008) (describing the components of the patent document and the basic principles of patent claim construction).

101. *Berkheimer*, 881 F.3d at 1369.

102. *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1125 (Fed. Cir. 2018) (Moore, J.).

103. *Id.* at 1130.

Because the Supreme Court's test for eligibility requires courts to consider evidence from outside the courtroom in at least some cases—such as whether the patent claims technology that is conventional in the field—the Federal Circuit is correct to recognize that the eligibility analysis “may contain” issues of fact.¹⁰⁴ But even so, the Federal Circuit has made missteps in applying this new rule. For instance, in *Berkheimer*, the court found that a factual dispute existed based entirely on statements in the patent's specification.¹⁰⁵ Yet the Supreme Court has emphasized, in the context of patent claim construction, that adjudicating disputes based on evidence entirely intrinsic to the patent is for the judge to do as a matter of law.¹⁰⁶

Moreover, in *Aatrix*, the Federal Circuit credited the patentee's allegations of inventiveness without scrutinizing those allegations to determine whether they could plausibly support a claim of patent infringement, as is seemingly required by the Supreme Court's landmark decisions in *Twombly* and *Iqbal*.¹⁰⁷ Though the Federal Circuit did conduct a plausibility analysis in a more recent case involving a motion to dismiss on eligibility grounds,¹⁰⁸ district courts have been noticeably inconsistent in the amount of scrutiny given to eligibility-related allegations in patentees' complaints. Some courts have granted almost unquestioned deference to allegations of inventiveness¹⁰⁹ or assertions about the need for claim

104. *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1342 (Fed. Cir. 2018).

105. *Berkheimer*, 881 F.3d at 1363–64.

106. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015) (“[W]hen 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, and the Court of Appeals will review that construction *de novo*.”). Indeed, the Federal Circuit itself has approved of district courts resolving the issue of infringement at the pleading stage when noninfringement is plain from the patent document itself. *See Eagle Pharms. Inc. v. Slayback Pharma LLC*, 958 F.3d 1171, 1177–78 (Fed. Cir. 2020).

107. *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (“To survive a motion to dismiss, a complaint must contain sufficient factual matter, accepted as true, to ‘state a claim to relief that is plausible on its face.’” (quoting *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007))). Had the Federal Circuit conducted a plausibility analysis in *Aatrix*, it might have affirmed the lower court's dismissal because the key issue was whether it was inventive to use a “data file” to import information into a database in 2003—well into the age of computers. *See Aatrix*, 882 F.3d at 1126.

108. *See Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1317 (Fed. Cir. 2019) (“While we do not read *Aatrix* to say that any allegation about inventiveness, wholly divorced from the claims or the specification, defeats a motion to dismiss, plausible and specific factual allegations that aspects of the claims are inventive are sufficient.”).

109. *See, e.g., GroupChatter, LLC v. Agile Sports Techs., Inc.*, No. 18-35, slip op. at 16 (D. Neb. June 20, 2018) (“[A]t this stage of the proceedings, the Court, though dubious of [the patentee's] allegations, accepts [the patentee's] factual contentions and finds an ordered combination that is sufficient to create an inventive concept . . .”); *Kaniadakis v. Salesforce.com, Inc.*, No. 17-1346, slip op. at 1–2 (M.D. Fla. Oct. 9, 2018) (noting that “the Court's first instinct was to grant the motion to dismiss, primarily because the patent is poorly written as a matter of English usage, and it is difficult to decipher exactly what it does from a concrete ‘invention’ standpoint” but concluding that the complaint met the “low bar” set by *Aatrix* for surviving a

construction before deciding eligibility,¹¹⁰ but other courts have continued to invalidate patents as a matter of law on pleading-stage motions.¹¹¹

Another uncertainty in the wake of *Berkheimer* and *Aatrix* is whether juries ought to decide the question of eligibility. Before those decisions, eligibility—because it was viewed to present a purely legal question—was almost never decided by a jury.¹¹² With Federal Circuit precedent now recognizing that the eligibility analysis has factual aspects, it would seem that, under prevailing assumptions about how the Seventh Amendment operates in patent cases, eligibility should be a jury question if a case gets to trial.¹¹³ In the immediate aftermath of *Berkheimer* and *Aatrix*, many observers thought that jury decisions on eligibility would become commonplace.¹¹⁴ Yet, in most cases, district judges have continued to decide eligibility themselves, even when other validity questions, such as novelty and nonobviousness, are submitted to the

motion to dismiss); *Blackbird Tech. v. Uber Techs., Inc.*, No. 19-561, slip op. at 12 (D. Del. Jan. 6, 2020) (“Defendants argued that [the patentee’s] pleading must point to portions of the specification that support its contention that certain limitations are not well-understood, routine or conventional. I disagree.”).

110. See, e.g., *Quest NetTech Corp. v. Apple, Inc.*, No. 19-118, slip op. at 2 (E.D. Tex. Feb. 18, 2020) (denying motion to dismiss because the patentee “asserts that claim construction is necessary to fully understand the inventive concept of the [patent-in-suit]”); see also *Slyce Acquisition Inc. v. Syte-Visual Conception Ltd.*, No. 19-257, slip op. at 16 (W.D. Tex. Jan. 10, 2020) (denying motion to dismiss on eligibility grounds: “because an issued patent enjoys the presumption of validity which requires clear and convincing evidence to prove otherwise, because claim construction and fact discovery can completely change the Court’s § 101 analysis, and because the Court gains a greater understanding of the patents and the technology by delaying the resolution of eligibility, the Court believes that delaying the determination of a patents [sic] § 101 eligibility is the wisest course of action”).

111. See, e.g., *PTP OneClick, LLC v. Avalara, Inc.*, No. 19-640, slip op. at 20 (W.D. Wash. Sept. 27, 2019) (granting a motion to dismiss on eligibility grounds, noting that “the court is required to focus on the . . . [p]atent’s description and claims, rather than conclusory recitations about novelty in the complaint”); *Checksum Ventures, LLC v. Dell Inc.*, No. 18-6321, slip op. at 19 (N.D. Ill. Sept. 30, 2019) (“[S]ince the *patent itself* raises no factual dispute as to the inventiveness of checksum computation and writing technology, dismissal pursuant to a Rule 12(b)(6) motion is appropriate, even after *Berkheimer* and *Aatrix*.” (emphasis added) (citation omitted)).

112. I have been able to find only one pre-*Berkheimer* jury decision on eligibility, *VS Techs., LLC v. Twitter, Inc.*, No. 11-43, slip op. at 4–5 (E.D. Va. Apr. 27, 2012) (upholding a jury verdict of ineligibility).

113. See Lemley, *supra* note 57, at 1690 (“Today we tend to give juries responsibility for deciding ultimate questions [of patent validity] as long as those questions involve issues of fact.”).

114. See, e.g., Ryan Davis, *Getting Juries to Ax Patents Under Alice May Be Hard Sell*, LAW360 (Mar. 5, 2018, 6:56 PM), <https://www.law360.com/articles/1017998> [<https://perma.cc/T7AL-BQRM>] (“If judges find that there are [factual] disputes [relevant to eligibility], that will in many cases require a jury trial”); see also Gregory H. Lantier & Richard A. Crudo, *Can Juries Decide Patent Eligibility Under 35 U.S.C. § 101?*, 27 FED. CIR. BAR J. 45, 60 (2017) (“Based purely on a comparison of how courts treat other invalidity issues, there is no obvious reason why factual issues underlying patent-eligibility challenges should not be given to juries.”).

jury¹¹⁵ and even if resolving eligibility requires the court to consider evidence, such as trial testimony about the state of the art, that would conventionally be viewed to raise disputes of fact.¹¹⁶ Though observers continue to predict that jury decisions on eligibility will eventually become the norm,¹¹⁷ for now, jury verdicts remain few and far between.¹¹⁸

Even setting aside the uncertainty about who decides eligibility and at which stage of the case, there remains the fundamental problem of distinguishing the factual aspects of the two-step eligibility test from the legal aspects. Though the Federal Circuit has unequivocally held that whether a patent involves well-understood, routine, or conventional activity is a question of fact,¹¹⁹ that is only one component of the second step of the eligibility test adopted by the Supreme Court. Recall that that second step asks whether, setting aside the ineligible abstract idea, law of nature, or natural phenomenon, the patent contains “additional elements” that “transform” the claim into a “patent-eligible *application*” of the underlying abstract idea, law of nature, or natural phenomenon.¹²⁰ Showing that the patent recites “well-understood, routine, [and] conventional activity” is one way to show that the

115. See, e.g., *Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 315 F. Supp. 3d 977, 986 (N.D. Ill. 2018), *aff'd in part, vacated in part, rev'd in part sub nom.*, *Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 935 F.3d 1341 (Fed. Cir. 2019) (judge deciding eligibility on a motion for judgment as a matter of law; anticipation and obviousness questions were submitted to the jury, see Jury Instructions at 34, *Chamberlain Grp.*, 315 F. Supp. 3d 977 (No. 16-6097)); *iLife Techs., Inc. v. Nintendo of Am., Inc.*, No. 13-4987, slip op. at 1–2 (N.D. Tex. Jan. 17, 2020) (granting judgment as a matter of law that the patent-in-suit was invalid as ineligible after a jury had found the patent was not invalid for lack of written description or enablement).

116. See, e.g., *EcoServices, LLC v. Certified Aviation Servs., LLC*, 340 F. Supp. 3d 1004, 1015–16 (C.D. Cal. 2018) (observing that “patent eligibility was not submitted to the jury and [was] properly raised as a post-trial motion” even though the “[d]efendant relie[d] on trial testimony and the jury’s verdict for part of its argument”); *iLife Techs.*, slip op. at 3 n.2, 5 n.3 (noting that eligibility was “not presented to the jury” because it is a “matter[] of law,” but relying on “[e]vidence introduced at trial” to invalidate the patent).

117. See Malathi Nayak, *Texas Verdict May Pave Path to More Juries Judging Patents*, BLOOMBERG L. (Oct. 3, 2019, 3:45 AM), <https://news.bloomberglaw.com/ip-law/texas-verdict-may-pave-path-to-more-juries-judging-patents> [<https://perma.cc/8UZZ-DEGE>].

118. For a post-*Berkheimer* case in which the jury returned a special verdict on the second-step of the eligibility test (whether the patent contains an inventive concept), see Verdict Form at 3–4, *PPS Data, LLC v. Jack Henry & Assocs., Inc.* (E.D. Tex. Sept. 12, 2019) (No. 18-7) (finding all of the asserted claims ineligible). And for a post-*Berkheimer* case in which the district court appeared prepared to submit the issue of eligibility to a jury before it granted judgment as a matter of law, see *Genetic Veterinary Scis., Inc. v. LABOklin GmbH & Co., KG*, 314 F. Supp. 3d 727, 733–34 (E.D. Va. 2018) (finding the asserted claims ineligible), *aff'd*, 933 F.3d 1302 (Fed. Cir. 2019). See also Brief for Appellants at 12, *Genetic Veterinary Scis.*, 933 F.3d 1302 (No. 2018-2056) (“The district court presided over a three day jury trial during which the only issue was subject matter eligibility under § 101.”).

119. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018).

120. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217–18 (2014).

patent does not qualify as an application of the underlying, ineligible principle.¹²¹

But some Federal Circuit decisions on step two are relatively unconcerned with how the claimed invention compares to previously known technology, instead emphasizing the *specificity* of the claims themselves.¹²² And the Federal Circuit, in deciding the second step of the test, has frequently refused to consider evidence of the patent's supposed novelty or nonobviousness¹²³—evidence that is surely relevant if the only question is whether the patent covers activity that is well-understood, routine, or conventional. Instead, the court has at times pinned its step-two ruling on the breadth of the patent's claims, regardless of how the patent compares to the prior art.¹²⁴ This approach to the second step of the eligibility test looks a lot like claim construction—the process by which a court determines the precise scope of the patent and the meaning of its claims.¹²⁵ Claim construction is ultimately a question of law,¹²⁶ and a claim construction-like resolution of eligibility is quite different from the fact-driven inquiry into the conventionality of the technology claimed in the patent that the Federal Circuit was contemplating in *Berkheimer* and *Aatrix*.

The continuing lack of clarity on the legal-versus-factual nature of the eligibility analysis extends to the first step of the test, too. On its face, that step appears to contain some aspects that are legal and others that are factual. The first step begins by asking whether a patent claim is “directed to” an ineligible

121. *Mayo Collaborative Servs. v. Prometheus Lab'ys, Inc.*, 566 U.S. 66, 79–80 (2012).

122. *See, e.g., Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016) (upholding eligibility because the claims do not “preempt all ways of filtering content on the Internet; rather, they recite a specific, discrete implementation of the abstract idea of filtering content”).

123. *See, e.g., Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339–40 (Fed. Cir. 2017) (rejecting the patentee's argument that “the district court erred by excluding its proffered evidence . . . relating to the purported technological innovations of its invention” and finding “the court correctly concluded that the material was relevant to a novelty and obviousness analysis, and not whether the claims were directed to eligible subject matter”). The Federal Circuit's case law, it is worth noting, is not entirely consistent on this issue. *Cf. Internet Pats. Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1347 (Fed. Cir. 2015) (“[P]ragmatic analysis of § 101 is facilitated by considerations analogous to those of §§ 102 and 103 as applied to the particular case.”).

124. *See Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1263 (Fed. Cir. 2016) (rejecting the patentee's argument its claimed invention “was novel as of the priority date of the patent” and stating “[e]ven assuming that is true, it does not avoid the problem of abstractness”).

125. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) (articulating “the basic principles of claim construction”). For an exemplary district court decision deciding the second step of the eligibility test in a claim construction-like fashion, see *Genetic Techs. Ltd. v. Agilent Techs., Inc.*, 24 F. Supp. 3d 922, 932 (N.D. Cal. 2014), in which the court, though finding the patent directed to a law of nature, denied a motion to dismiss because “[t]he steps of the . . . patent claims, as a whole, are not overly generalized.”

126. *See supra* note 106 and accompanying text.

concept (that is, an abstract idea, natural phenomenon, or law of nature). Figuring out precisely what a patent claim is “directed to” sounds, again, like the legal task of claim construction.¹²⁷ Indeed, at least one district court has ruled that, even after *Berkheimer* and *Aatrix*, the first step of the eligibility test still presents a “pure[.]” question of law.¹²⁸ The Federal Circuit, for its part, has instructed that the best way to determine whether a patent is directed to an abstract idea is by comparing the claimed invention to prior precedent.¹²⁹ That also looks like a legal inquiry, not a factual one. And the Federal Circuit has held that, in deciding whether a patent is directed to an abstract idea, a district court is within its discretion to ignore any evidence besides the patent itself and its prosecution history.¹³⁰ Perhaps most tellingly, the Federal Circuit has sometimes not even remanded the issue of eligibility for further proceedings after finding that patent claims are not directed to an ineligible principle, instead holding the claims to be eligible as a matter of law.¹³¹

Still, in deciding whether a patent is directed to an abstract idea, courts—including both the Supreme Court and the Federal Circuit—have occasionally relied on evidence extrinsic to the patent, such as textbooks and treatises,¹³² which indicates a more fact-driven analysis. And both the Federal

127. See, e.g., *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1151–52 (Fed. Cir. 2019) (finding that the patent-in-suit was not directed to an abstract idea because “the claims . . . capture the inventors’ asserted technical contribution” and “the specification makes clear . . . the technological benefit of” the claimed invention); *Music Choice v. Stingray Digit. Grp. Inc.*, No. 16-586, slip op. at 14 (E.D. Tex. Nov. 22, 2019) (“The claims possess specific limitations regarding how and when video identifiers are transmitted. . . . These limitations show that the claim is not directed to simply selecting and viewing videos. Instead, the claim is directed to particular way of linking from one media asset to a video.”).

128. E.g., *Intell. Ventures II LLC v. FedEx Corp.*, No. 16-980, 2019 WL 2297048, at *11, *13 (E.D. Tex. Mar. 29, 2019) (“*Alice* Step One is a purely legal question . . .”).

129. See, e.g., *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (“The Supreme Court has not established a definitive rule to determine what constitutes an ‘abstract idea’ Rather, both this court and the Supreme Court have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases.” (citation omitted)).

130. *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358, 1372, 1374 (Fed. Cir. 2020) (“*Alice* step one presents a legal question that can be answered based on the intrinsic evidence. . . . [The framework] does not require an evaluation of the prior art or facts outside of the intrinsic record regarding the state of the art at the time of the invention.”).

131. *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1309 (Fed. Cir. 2020) (reversing grant of motion to dismiss on eligibility grounds).

132. See *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 220 (2014); *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (each citing textbooks, treatises, and journal articles to conclude that the patents claimed the abstract ideas of intermediated settlement and risk hedging, respectively); see also *Intell. Ventures I LLC v. Cap. One Bank (USA)*, 792 F.3d 1363, 1369 (Fed. Cir. 2015) (“[N]ewspaper inserts had often been tailored based on information known about the customer—for example, a newspaper might advertise based on the customer’s location. Providing this minimal tailoring—e.g., providing different newspaper inserts based upon the location of the individual—is an abstract idea.”).

Circuit and the Supreme Court have written that a patent recites an abstract idea when it claims “a fundamental economic practice long prevalent in our system of commerce”¹³³—a standard that seems to invite inquiry into matters that would conventionally be considered factual, not legal.¹³⁴

In addition, the other two categories of patent-ineligible concepts—laws of nature and natural phenomena—seem even more plainly to have factual aspects in that they require the court to determine whether the patent involves something that exists in the world without human intervention.¹³⁵ For instance, in *Association for Molecular Pathology v. Myriad Genetics, Inc.*, the Supreme Court invalidated patents on DNA sequences because those sequences naturally occur in the human body.¹³⁶ In reaching that result, the Court wrote: “It is *undisputed* that Myriad did not create or alter any of the genetic information encoded in the [claimed] genes. The location and order of the nucleotides existed in nature before Myriad found them.”¹³⁷ The implication of that passage is that a future case could raise a factual “dispute” about whether the claimed invention occurs in nature.¹³⁸ Indeed, courts, including the Federal Circuit, have considered witness testimony and other evidence outside the patent to determine whether a patent is directed to a law of nature or natural phenomenon.¹³⁹

All of this uncertainty about the legal-versus-factual nature of the eligibility inquiry has pernicious effects. Most simply, litigants and lower

133. *Alice*, 573 U.S. at 219; *Bilski*, 561 U.S. at 611; *Solutran, Inc. v. Elavon, Inc.*, 931 F.3d 1161, 1167 (Fed. Cir. 2019) (“The desire to credit a merchant’s account as soon as possible is [a] . . . long-standing commercial practice.”).

134. *CardioNet*, 955 F.3d at 1377 (Dyk, J., dissenting in part) (“In making the determination that practices are longstanding . . . , the Supreme Court and our cases have . . . repeatedly recognized the relevance of extrinsic evidence, such as facts determined by judicial notice and party admissions.”).

135. See, e.g., *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1048 (Fed. Cir. 2016) (upholding eligibility because the patent was not directed to a natural phenomenon—“the ability of hepatocytes [liver cells] to survive multiple freeze-thaw cycles”—but to “a new and useful laboratory technique for preserving hepatocytes”).

136. *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 580 (2013).

137. *Id.* at 590 (emphasis added).

138. The portion of the Court’s opinion upholding the eligibility of synthetic DNA (cDNA) is similarly factual-looking, though there was apparently no dispute about the relevant facts on that issue either. See *id.* at 594–95 (“[C]reation of a cDNA sequence . . . results in a[] . . . molecule that is not naturally occurring. . . . [T]he lab technician *unquestionably* creates something new when cDNA is made.” (emphasis added) (footnote omitted) (citations omitted)).

139. See, e.g., *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 939 F.3d 1355, 1362 (Fed. Cir. 2019) (“[B]oth parties’ witnesses agree that Hooke’s law undergirds the design of a liner [for a propeller shaft] so that it exhibits a desired [vibration] damping frequency pursuant to the claimed invention.”); *In re BRCA1- & BRCA2-Based Hereditary Cancer Test Pat. Litig.*, 3 F. Supp. 3d 1213, 1264 (D. Utah) (relying on an expert declaration to conclude that the patent was “drawn to compositions specifically expressed in terms of the nucleotide sequences derived or isolated from the naturally occurring . . . genes”), *aff’d*, 774 F.3d 755 (Fed. Cir. 2014).

courts do not know what the appropriate procedure for deciding eligibility is.¹⁴⁰ Can eligibility be resolved on the pleadings, before discovery? Maybe, but maybe not if the complaint contains allegations about the patent's purported inventiveness. Do those allegations need to satisfy the plausibility standard of *Twombly* and *Iqbal*? Maybe.¹⁴¹ Or maybe not.¹⁴² If eligibility makes it to trial, must the court empanel a jury? Maybe. Or maybe not. If there is a jury, which issues will it decide? The overall question of eligibility? Or specific, underlying questions of fact? And which trial-level decisions (if any) will get deference on appeal? The lack of clear answers to any of these questions makes it hard for litigants to assess their likelihood of success and to make decisions about whether to settle a case or forge ahead. And though it is a long chain of causal links from the law-fact divide in patent litigation to the primary behavior of firms developing new technology, uncertainty about whether a patent will be enforceable—and how much it will cost to find out—dulls the innovation incentives patents are supposed to provide. As the discussion below will illustrate, one could repeat this exercise of cataloging harmful consequences of uncertainty over the law-fact divide for nearly every requirement of patent validity.

B. PATENT VALIDITY AS A QUESTION OF FACT

Patent eligibility doctrine provides a useful first example of confusion about the law-fact distinction in litigation over patent validity. But the notion that any ground of validity could be *purely* legal—which appeared in numerous judicial opinions before the Federal Circuit decided *Berkheimer* and *Aatrix*—is unique to the eligibility requirement. Courts and commentators often say that patent validity is a question of law—without qualification. But those statements are usually referring to the ultimate *conclusion* on validity. In any given case, that conclusion might (or might not) turn on underlying disputes of fact.¹⁴³ Yet several important patent validity doctrines, including anticipation, written description, and utility, are considered by the Federal Circuit to present pure questions of fact—directly contrary to the Supreme Court's explicit instruction that the determination of patent validity ultimately presents a question of law.

140. Cf. *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354, 1360 (Fed. Cir. 2018) (Lourie, J., concurring) (noting that, by injecting factual considerations into the eligibility inquiry, *Berkheimer* and *Aatrix* “complicat[e] what used to be a fairly simple analysis of patent eligibility under § 101”).

141. See *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1317 (Fed. Cir. 2019) (discussed *supra* note 108).

142. See *supra* note 107 (questioning whether the allegations about inventiveness in *Aatrix* supported a plausible inference of eligibility).

143. See, e.g., ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 913 (7th ed. 2017) (stating that “[m]ost basic requirements of patent validity have been held to be questions of law,” but also noting that “[i]ssues of patent validity are normally treated as questions of law with subsidiary questions of fact” (emphasis omitted)).

1. Anticipation

A patent is invalid for anticipation if it does not satisfy § 102 of the Patent Act. Speaking generally, § 102 imposes what patent lawyers call the novelty requirement. The basic principle is easy to state. To get a patent, the exact same invention cannot have previously been disclosed. In practice, things are more complicated because § 102 distinguishes between (a) prior inventions by other people (a true lack of novelty) and (b) the patentee's own disclosure of the claimed invention (which is often said to create a "statutory bar" to patentability). Things are further complicated by the America Invents Act ("AIA"), which took effect in 2013 and significantly amended § 102. So, before discussing the law-fact divide on the question of anticipation, some substantive background is essential.

For patents with applications filed before the AIA took effect (which includes most patents in force today),¹⁴⁴ subsection (a) of § 102 addresses the issue of anticipation by another person's prior invention, providing that a patent is invalid if "the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the [date of the patentee's invention]."¹⁴⁵ For pre-AIA patents, subsection (b) of § 102 addresses the statutory bar that can arise from the inventor's own disclosure of the invention and subsequent delay in seeking a patent, providing that a patent is invalid if "the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, *more than one year prior to the date*" the patentee filed its application.¹⁴⁶

The AIA, which applies to all patents whose applications were filed on or after March 16, 2013, combined old §§ 102(a) and 102(b). New § 102(a) provides that a patent is invalid if "the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the [application's] filing date," or if the invention was described in a published patent application that was filed before the patentee's application.¹⁴⁷ The AIA preserves the statutory bar of old § 102(b) by providing that disclosures *by the inventor* within one year prior to filing the application do not serve as invalidating prior art.¹⁴⁸

Back to the law-fact distinction. Given that the Supreme Court has repeatedly said that patent validity is a question of law, it is surprising how much case law exists stating that compliance with § 102—unquestionably an

144. The pre-AIA novelty regime applies to all patents with applications filed before March 16, 2013. See America Invents Act, Pub. L. No. 112-29, § 3(n), 125 Stat. 284, 293 (2011).

145. 35 U.S.C. § 102(a) (2006), amended by America Invents Act (2011).

146. *Id.* § 102(b) (emphasis added).

147. 35 U.S.C. § 102(a)(1)-(2) (2018).

148. See *id.* § 102(b).

essential element of patent validity—is a question of fact. As the Federal Circuit put it in a 2001 decision: “Anticipation under 35 U.S.C. § 102 means lack of novelty, and is a question of fact.”¹⁴⁹ The Federal Circuit’s view, however, is not without a basis in Supreme Court precedent. Several decisions from the nineteenth and early-twentieth century state—contrary to the Court’s later opinions stating that patent validity is a question of law—that anticipation is a factual question.¹⁵⁰

Further confounding matters is that many of the questions *underlying* the (factual) determination of anticipation are considered to present questions of law. For instance, the question of whether a prior art document incorporates extraneous material by reference is a question of law.¹⁵¹ The same goes for whether a reference qualifies as a “printed publication”—one of the categories of references that can serve as invalidating prior art under both pre- and post-AIA law.¹⁵² The Federal Circuit has also held that questions about when an invention was conceived and reduced to practice—crucial to determining validity under pre-AIA § 102,¹⁵³ which tied the novelty assessment to the date of the patentee’s invention—present issues of law subject to *de novo* review on appeal.¹⁵⁴ Nevertheless, the Federal Circuit has recognized that fact-finding can *underlie* the ultimate, legal determinations of conception and reduction to practice.¹⁵⁵ And, in one of its most recent decisions on reduction to practice, the Federal Circuit characterized the issue as a “mixed question of law and fact,” applying a deferential standard of review to a jury verdict finding no anticipation based on a failure to reduce the invention to practice before the critical date.¹⁵⁶

The Federal Circuit has not used the “mixed question” terminology in other § 102 cases, but the court has held that whether an invention was put

149. *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001). For additional examples, see *In re Gleave*, 560 F.3d 1331, 1334–35 (Fed. Cir. 2009) (“[T]he outcome in this case depends largely on the facts. After all, anticipation is a question of fact”); and *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1071 (Fed. Cir. 2017) (“Although Microsoft’s arguments are not unreasonable, we do not review this question *de novo*; anticipation is a question of fact”).

150. *See, e.g., Busch v. Jones*, 184 U.S. 598, 604 (1902) (“Anticipation is a question of fact [T]he lower courts, passing on the evidence, found against [the anticipation argument]. Such united judgment this court accepts unless there is a clear showing to the contrary.”); *Reckendorfer v. Faber*, 92 U.S. 347, 352 (1875) (“The defence of want of novelty is set up every day in the courts, and is determined by the court or the jury as a question of fact upon the evidence adduced”).

151. *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1283 (Fed. Cir. 2000).

152. *GoPro, Inc. v. Contour IP Holding LLC*, 908 F.3d 690, 693 (Fed. Cir. 2018).

153. *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 60–61 (1998).

154. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986).

155. *See, e.g., id.*

156. *Barry v. Medtronic, Inc.*, 914 F.3d 1310, 1332–33 (Fed. Cir. 2019) (“We uphold the jury’s rejection of Medtronic’s . . . challenge because there is substantial evidence to support a finding that Dr. Lenke did not reduce the claimed inventions to practice before February 2006”).

into public use or on sale—crucial to analyzing validity under both pre- and post-AIA § 102—is likewise a question of law based on underlying findings of fact.¹⁵⁷ Similarly, the Federal Circuit views the question of whether an inventor’s use of an invention was an experimental use—and hence not an invalidating “public use”—to present a question of law determined based on “the totality of the circumstances.”¹⁵⁸

There is potentially a way to reconcile case law treating anticipation as a question of fact but treating subsidiary determinations, such as conception, reduction to practice, and whether an invention was in public use or on sale, as questions of law based on underlying facts. To establish anticipation, each element of the claimed invention must be found in a single prior art reference¹⁵⁹—that is what distinguishes novelty under § 102 from nonobviousness under § 103, which permits invalidity to be proved from a combination of prior art references. When assessing anticipation under § 102, courts often draw on the law of patent infringement, which similarly requires a finding that each element of the patent is found in the product or process accused of infringement.¹⁶⁰ Under longstanding Supreme Court precedent, infringement is a question of fact for the jury.¹⁶¹ Thus, when courts say that anticipation presents a question of fact, what they may actually be trying to say is that *whether each element of the claimed invention is found in a particular prior art reference* is a question of fact.¹⁶² Under that understanding, legal questions about conception, reduction to practice, and so on serve a gatekeeping function—they determine whether a particular prior art reference qualifies for the factual, element-by-element comparison that will ultimately determine the issue of anticipation.¹⁶³

That nuance, however, is largely absent from the Supreme Court and Federal Circuit’s case law on the legal-versus-factual nature of the anticipation inquiry. Most appellate opinions simply say that anticipation is a question of fact, while other aspects of the § 102 inquiry are treated—without explanation—as ultimately legal. No statement captures the bewildering state of doctrine regarding the law-fact distinction under § 102 quite like this

157. *Netscape Commc’ns Corp. v. Konrad*, 295 F.3d 1315, 1320 (Fed. Cir. 2002).

158. *Lough v. Brunswick Corp.*, 86 F.3d 1113, 1120 (Fed. Cir. 1996).

159. *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001).

160. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40 (1997).

161. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 384 (1996) (citing *Winans v. Denmead*, 56 U.S. 330, 338 (1853)).

162. For language from a Federal Circuit opinion that arguably supports this proposition, see *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992) (“Identity of invention is a question of fact, and one who seeks such a finding must show that each element of the claim in issue is found . . . in a single prior art reference . . .”).

163. For an argument that this element-by-element comparison is, in most cases, a question of law because there is no dispute about the nature of the accused product or process, see Joshua L. Sohn, *Reassessing the Role of Trial in Patent Litigation*, 27 FED. CIR. BAR J. 187, 194 (2018).

sentence from the Federal Circuit's 2007 decision in *Liebel-Flarsheim Co. v. Medrad, Inc.*: "Anticipation is a question of fact, but validity is a question of law."¹⁶⁴ What anticipation could be other than a ground of patent invalidity is not at all clear.

2. Written Description (Compare: Enablement)

The written description requirement, which the Federal Circuit also considers to present a question of fact, stems from § 112 of the Patent Act.¹⁶⁵ Put as simply as possible, the requirement polices claim breadth by ensuring the inventor *actually invented* what the patent claims. It does this in two ways. First, it prevents a patent applicant from adding, during prosecution, claims that are not supported by the disclosure in the original application. For example, in the leading case of *Gentry Gallery, Inc. v. Berkline Corp.*, the Federal Circuit invalidated a patent claiming a sectional sofa with recliner controls at various locations on the sofa because the original application indicated that placing the controls specifically on the sofa's center console was an "essential element" of the invention.¹⁶⁶

The second way in which the written description doctrine polices claim breadth is by invalidating patents when the specification indicates that the inventor was not actually in possession of the claimed invention. A prominent example is *Regents of the University of California v. Eli Lilly & Co.*, in which the Federal Circuit invalidated a patent claiming a synthetic DNA molecule encoding human insulin because the specification disclosed only the nucleotide sequence of rat insulin.¹⁶⁷

The Federal Circuit has held—in a landmark en banc opinion, no less—that compliance with the written description requirement is a question of fact.¹⁶⁸ That opinion, however, gave no reason for treating this particular validity ground as entirely factual. Numerous other Federal Circuit opinions similarly assert that written description is a question of fact, doing nothing more than citing an older case stating the same proposition, but likewise not offering any rationale.¹⁶⁹ Tracing the lines of citations back far enough reveals some attempted justifications for treating written description as factual. For instance, in a 1976 decision in a case called *In re Wertheim*, the Federal Circuit's predecessor, the Court of Customs and Patent Appeals, emphasized that the

164. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371, 1377 (Fed. Cir. 2007).

165. 35 U.S.C. § 112(a) (2018) ("The specification shall contain a written description of the invention . . .").

166. *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1478–79 (Fed. Cir. 1998).

167. *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1568–69 (Fed. Cir. 1997).

168. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1355 (Fed. Cir. 2010) (en banc).

169. See, e.g., *Gentry Gallery, Inc.*, 134 F.3d at 1479 (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991) (citing *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989) (citing *In re Wertheim*, 541 F.2d 257, 262 (C.C.P.A. 1976))).

written description inquiry “depends on the nature of the invention and the amount of knowledge imparted to those skilled in the art by the disclosure.”¹⁷⁰ The *Wertheim* opinion cited an even older case decided by the same court, *In re Ruschig*, that it believed highlighted “[t]he factual nature of the [written description] inquiry.”¹⁷¹ But the court in *Ruschig* offered no citation for treating the question as factual; it simply observed that the question before the court was tied to the specific patent and technology in the case: “Does the specification convey clearly to those skilled in the art, to whom it is addressed, in any way, the information that appellants invented that specific compound?”¹⁷²

The notion that written description is a question of fact is, it almost goes without saying at this point, inconsistent with Supreme Court precedent stating that patent validity is ultimately a question of law. Moreover, treating written description as a question of fact is odd given the nature of the inquiry. True, as the *Ruschig* opinion indicates, a written description analysis is specific to the technology in the case at hand, and it is conducted from the perspective of a person of ordinary skill in the relevant art. In the end, however, written description analysis mostly requires reviewing documentary evidence. In a case like *Gentry Gallery*, the decisionmaker must compare the original application to the issued patent and determine whether the application disclosed the invention ultimately claimed. And in a case like *Eli Lilly*, the decisionmaker must examine the specification of the issued patent and ask whether it indicates the inventor actually invented what the patent claims.

That documentary comparison may, of course, be informed by expert testimony about how a person of ordinary skill in the art would understand the information contained in the relevant documents.¹⁷³ To that end, the written description looks a lot like claim construction,¹⁷⁴ in which the judge determines the scope of the patent based on its claims, specification, prosecution history, and (sometimes) extrinsic evidence, such as expert testimony, all from the perspective of a person of ordinary skill in the art.¹⁷⁵ Yet claim construction is, under Supreme Court precedent, ultimately a question of law for the judge, even when inquiry into underlying matters of fact is required.¹⁷⁶ In concluding that claim construction is a legal question for the judge, the Supreme Court emphasized the “functional consideration[.]” that “[t]he construction of written instruments is one of

170. *In re Wertheim*, 541 F.2d at 262.

171. *Id.* (citing *In re Ruschig*, 379 F.2d 990, 995–96 (C.C.P.A. 1967)).

172. *Ruschig*, 379 F.2d at 996.

173. *See, e.g., Ariad*, 598 F.3d at 1354.

174. *See* Jesse S. Keene, *Fact or Fiction: Reexamining the Written Description Doctrine's Classification as a Question of Fact*, 18 FED. CIR. BAR J. 25, 59 (2009).

175. *See* *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

176. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391 (1996).

those things that judges often do and are likely to do better than jurors unburdened by training in exegesis.”¹⁷⁷ Written description, however, is frequently decided by a jury when the issue makes it to trial,¹⁷⁸ even though the typical jury instruction will effectively ask the jury to interpret both the patent’s disclosure and its claims.¹⁷⁹ And that jury decision—often rendered in a general verdict¹⁸⁰—will be reviewed deferentially on appeal,¹⁸¹ in contrast to judge’s claim construction, which is reviewed *de novo*.¹⁸²

The Federal Circuit’s treatment of written description as factual is also inconsistent with how the court treats the enablement requirement—written description’s close cousin. The enablement requirement similarly stems from § 112 of the Patent Act—indeed, it appears in the very same sentence as the written description requirement.¹⁸³ Enablement doctrine ensures that the

177. *Id.* at 388.

178. *E.g.*, *AbbVie Deutschland GmbH & Co., KG v. Janssen Biotech, Inc.*, 759 F.3d 1285, 1302 (Fed. Cir. 2014); *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1342 (Fed. Cir. 2013).

179. For instance, the Federal Circuit Bar Association’s model jury instruction on written description asks the jury to take up “the viewpoint of a person having ordinary skill in the field of technology of the patent” and ask whether that person “would not have recognized that [the original patent application] describes the full scope of the invention as it is finally claimed in [the patent].” FED. CIR. BAR ASS’N, MODEL PATENT JURY INSTRUCTIONS § 4.2a (2020), <https://fedcirbar.org/IntegralSource/Model-Patent-Jury-Instructions> [<https://perma.cc/3CBF-JWP5>]. The instruction continues: “The [written description] requirement may be satisfied by any combination of the words, structures, figures, diagrams, formulas, etc.” *Id.* Similarly, the American Intellectual Property Law Association’s model jury instruction on written description asks the jury to “view[]” “the claim . . . as a whole” and indicates that “[t]he written description requirement is satisfied if persons of ordinary skill in the field of the invention would recognize, from reading the patent specification, that the inventor possessed the subject matter finally claimed in the patent.” AM. INTELL. PROP. L. ASS’N, MODEL PATENT JURY INSTRUCTIONS § 9 (2019), <https://www.aipla.org/home/news-publications/model-patent-jury-instructions> [<https://perma.cc/LH37-AE42>]; *see also* U.S. DIST. CT. N. DIST. CAL., MODEL PATENT JURY INSTRUCTIONS § 4.2a (2019) [hereinafter N.D. CAL. MODEL PATENT JURY INSTRUCTIONS], <https://www.cand.uscourts.gov/juryinstructions> [<https://perma.cc/A6V7-MF4T>] (“The written description requirement is satisfied if a person of ordinary skill in the field reading the original patent application at the time it was filed would have recognized that the patent application described the invention as claimed, even though the description may not use the exact words found in the claim.”).

180. See the example from the *CommScope* case, *supra* Section II.B, and from the *Everlight* case immediately below.

181. *See, e.g.*, *AbbVie*, 759 F.3d at 1302 (“We therefore conclude that substantial evidence supports the jury verdict of invalidity for lack of an adequate written description . . .”). That said, some Federal Circuit decisions on written description look a lot like *de novo* review. *See, for example*, *Idenix Pharms. LLC v. Gilead Scis. Inc.*, 941 F.3d 1149, 1163–65 (Fed. Cir. 2019), in which the court neither articulated a standard of review nor discussed the legal-versus-factual nature of the written description inquiry and invalidated the patent-in-suit for lack of written description, overturning a jury verdict to the contrary.

182. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015).

183. 35 U.S.C. § 112(a) (2018) (“The specification shall contain a *written description* of the invention, and of the manner and process of making and using it, . . . to *enable* any person skilled

patent's specification contains enough information that a person of ordinary skill in the art could recreate the claimed invention without "undue experimentation."¹⁸⁴ Like written description, determining enablement requires reading the patent document from the perspective of a person of ordinary skill in the art. Yet, unlike written description—but like claim construction—the Federal Circuit views enablement to present a question of law based on underlying findings of fact.¹⁸⁵ But, unlike claim construction, the question of enablement is frequently decided by a jury when the issue goes to trial,¹⁸⁶ and frequently by a general verdict—just like written description, as in the example below.

Verdict Form at 2, *Trustees of Boston University v. Everlight Electronics Co.*,
No. 12-11935 (D. Mass. Nov. 19, 2015)

B. Invalidity Defenses

5. Have Defendants proven that the '738 patent is invalid due to lack of enablement?

Yes

No

6. Have Defendants proven that the '738 patent does not contain an adequate written description of the claimed invention?

Yes

No

When a decision on enablement is underpinned by factual determinations, the Federal Circuit purports to review those determinations under a deferential standard of review.¹⁸⁷ But separating the legal conclusion of enablement from its factual underpinnings is not easy when the lower court's decision takes the form of a general jury verdict; appellate review of those verdicts often appears quite deferential.¹⁸⁸ At the other extreme, it is

in the art to which it pertains, or with which it is most nearly connected, to make and use the same" (emphasis added)).

184. *Consol. Elec. Light Co. v. McKeesport Light Co.*, 159 U.S. 465, 474-75 (1895).

185. *See, e.g., MagSil Corp. v. Hitachi Glob. Storage Techs., Inc.*, 687 F.3d 1377, 1380 (Fed. Cir. 2012). In one rare case, the Federal Circuit referred to enablement as a "mixed question of law and fact." *In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994).

186. *See, e.g., Trs. of Boston Univ. v. Everlight Elecs. Co.*, 896 F.3d 1357, 1364 (Fed. Cir. 2018); *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1378-79 (Fed. Cir. 2009).

187. *See, e.g., In re Vaeck*, 947 F.2d 488, 495 (Fed. Cir. 1991) ("Enablement, like obviousness, is a question of law which we independently review, although based upon underlying factual findings which we review for clear error.").

188. *See, e.g., Edwards Lifesciences AG v. CoreValve, Inc.*, 699 F.3d 1305, 1310 (Fed. Cir. 2012) ("We agree with the district court that substantial evidence supported the jury verdict that

also not difficult to find Federal Circuit opinions bluntly asserting that enablement is a legal issue reviewed *de novo*,¹⁸⁹ even when the enablement decision turns on witness testimony or other evidence extrinsic to the patent.¹⁹⁰

3. Utility

One final example of a validity ground the Federal Circuit has treated as presenting a question of fact is utility. The utility requirement, like the eligibility requirement, stems from § 101 of the Patent Act, which provides that “[w]hoever invents or discovers any new and *useful* process, machine, manufacture, or composition of matter, or any new and *useful* improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”¹⁹¹ In most cases litigated today, demonstrating utility is not difficult—only an invention that lacks any practical usefulness will fail the utility requirement.¹⁹² In the life and chemical sciences, however, the utility requirement continues to play an important role because the promise that an invention might work in a lab will not establish utility for a claim that covers the treatment of humans.¹⁹³

When courts decide utility, they almost always identify it as a question of fact.¹⁹⁴ The Federal Circuit’s opinions again offer little or no justification for this rule; most of them simply cite an older opinion that, likewise, provides no rationale.¹⁹⁵ Trace those lines of citations back far enough and you usually

invalidity on the ground of non-enablement had not been proved by clear and convincing evidence.”).

189. *E.g.*, *Fiers v. Revel*, 984 F.2d 1164, 1171 (Fed. Cir. 1993) (“Enablement is a question of law that we review *de novo*.”).

190. An excellent example is *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200 (Fed. Cir. 1991), in which the Federal Circuit applied a *de novo* standard of review, *id.* at 1212–13 (“Whether a claimed invention is enabled under 35 U.S.C. § 112 is a question of law, which we review *de novo*. . . . We believe the trial court arrived at the correct decision, although for the wrong reason.”), and upheld a district court ruling of lack of enablement after a bench trial, relying on the testimony of two witnesses and noting that “[w]hat is relevant [in determining enablement] depends on the facts, and the facts here are that [the patentee] has not enabled preparation of DNA sequences sufficient to support its all-encompassing claims.” *Id.* at 1213.

191. 35 U.S.C. § 101 (2018) (emphasis added).

192. *See, e.g.*, *Newman v. Quigg*, 681 F. Supp. 16, 23 (D.D.C. 1988) (rejecting an attempt to patent a perpetual motion machine), *aff’d*, 877 F.2d 1575, *modified*, 886 F.2d 329 (Fed. Cir. 1989).

193. *See* *Brenner v. Manson*, 383 U.S. 519, 534–35 (1966).

194. *See, e.g.*, *In re Fisher*, 421 F.3d 1365, 1369 (Fed. Cir. 2005) (“Whether an application discloses a utility for a claimed invention is a question of fact.”); *Newman*, 877 F.2d at 1581 (“Utility under 35 U.S.C. § 101 is a question of fact.”).

195. *See*, for example, *Newman*, 877 F.2d at 1581, citing *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956 (Fed. Cir. 1983), in turn citing *Wilden Pump & Eng’g Co. v. Pressed & Welded Prods. Co.*, 655 F.2d 984, 988 (9th Cir. 1981), in turn citing *Moore v. Shultz*, 491 F.2d 294, 300 (10th Cir. 1974).

reach a 1912 opinion by Judge Learned Hand, in which he observed that “[a] judge is entirely unadapted to decide such a question as an original question, and must rely upon the testimony of skilled artisans or of experts in mechanics.”¹⁹⁶

As a pure policy matter, the necessity of evaluating case-specific scientific testimony would be a good reason to label the question of utility as factual. But that does not distinguish utility from other questions of patent validity, such as enablement, that are viewed to present questions of law. More importantly, Judge Hand was not writing about the utility requirement in his frequently cited opinion. Rather, he was deciding what we would today consider a nonobviousness question: “Whether a skilled mechanic could have devised the second machine from what he saw of the first.”¹⁹⁷ Interestingly, *that* question, as I will explain next, is today viewed to present a question of law.

C. NONOBVIOUSNESS: A QUESTION OF LAW BASED ON UNDERLYING FACTS

This Article’s primary objective so far has been to highlight the difficulty of navigating the law-fact distinction in disputes over patent validity. The Federal Circuit treats some validity requirements, such as patent eligibility, as involving mostly, if not exclusively, legal questions. But the court considers other patentability doctrines, including anticipation, written description, and utility, to present questions of fact. These divergent approaches are hard to justify as a matter of history and policy, and they are in tension with Supreme Court precedent on the law-fact divide in patent litigation. They also make it difficult for litigants to make informed decisions about how to proceed in litigation. For instance, it can be hard to assess whether it is worthwhile to pursue a technically complex argument about, say, the written description requirement, when you do not know if the district judge will simply punt the issue to the jury for decision in a general verdict. And it is hard to know whether you are likely to succeed on appeal when you are not sure what standard of review the Federal Circuit will apply.

These problems stem in part from the Federal Circuit’s insistence that all questions that arise in patent validity disputes present *either* questions of law *or* questions of fact. For instance, in a dispute over enablement, the court will either decide an underlying question of fact (appropriately given to the jury and reviewed deferentially on appeal) or the ultimate legal question of validity (to be decided by the judge and reviewed *de novo*).¹⁹⁸ The same goes for

196. *Manhattan Book Casing Mach. Co. v. E.C. Fuller Co.*, 274 F. 964, 967 (C.C.S.D.N.Y. 1912), *aff’d*, 204 F. 286 (2d Cir. 1913), *cited in* *Gross v. Gen. Motors Corp.*, 521 F.2d 45, 49 (1st Cir. 1975), and *Lorenz v. Gen. Steel Prods. Co.*, 337 F.2d 726, 727 (5th Cir. 1964).

197. *Id.*

198. *See, e.g., Idenix Pharms. LLC v. Gilead Scis. Inc.*, 941 F.3d 1149, 1154 (Fed. Cir. 2019) (“Whether a claim satisfies the enablement requirement is a question of law that we review *de*

patent eligibility, which is a question of law—except when the dispute is whether the patent involves well-understood, routine, or conventional activity, in which case eligibility will be decided as an issue of fact.¹⁹⁹ Though the Federal Circuit often says that patent validity is a question of law based on underlying facts,²⁰⁰ in practice, the court’s approach leaves no room for a middle ground of questions that require *applying* the law to the facts of the case.²⁰¹ Nonobviousness—the most crucial validity doctrine of them all—provides perhaps the best illustration of the harmful consequences of the Federal Circuit’s either/or view of the law-fact distinction. It also sets the stage for the Article’s normative argument that all grounds of patent validity should be considered to present mixed questions of law and fact.

Nonobviousness is often called the “sine qua non”—the essential condition—of patentability.²⁰² Unlike novelty, which simply ensures that the claimed invention is different from prior technology, the nonobviousness requirement ensures that the claimed invention is *different enough* from prior technology to be “worth to the public the embarrassment of an exclusive patent.”²⁰³ The modern statutory requirement of nonobviousness stems from a nineteenth-century judge-made doctrine that required the technology claimed in a patent to “evidence more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business.”²⁰⁴ Since 1952, the nonobviousness requirement has been codified in § 103 of the Patent Act. In its current form, § 103 provides that “[a] patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102”—the portion of the Patent Act containing the novelty requirement—“if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious . . . to a person having ordinary skill in the art to which the claimed invention pertains.”²⁰⁵

novo. However, “in the context of a jury trial, we review the factual underpinnings of enablement for substantial evidence.” (citation omitted) (quoting *Trs. of Boston Univ. v. Everlight Elecs. Co.*, 896 F.3d 1357, 1361 (Fed. Cir. 2018))).

199. See *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018) (analogizing the analysis of eligibility to the analysis of indefiniteness, enablement, obviousness, and novelty).

200. See *supra* note 90 and accompanying text.

201. The Federal Circuit, it is worth noting, is not alone in trying to force all issues for decision into *either* the fact or law category. See Henry P. Monaghan, *Constitutional Fact Review*, 85 COLUM. L. REV. 229, 237 (1985) (“[I]t seems misguided to assume, as many courts apparently do, that all law application judgments can be dissolved into either law declaration or fact identification. Law application is a distinctive operation.” (footnote omitted)).

202. See *Roanwell Corp. v. Plantronics, Inc.*, 429 U.S. 1004, 1005 (1976) (White, J., dissenting from the denial of certiorari).

203. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 9 (1966).

204. *Id.* at 11 (citing *Hotchkiss v. Greenwood*, 52 U.S. 248, 267 (1850)).

205. 35 U.S.C. § 103 (2018).

Under longstanding Supreme Court precedent, nonobviousness is ultimately a question of law.²⁰⁶ But, in its landmark decision in *Graham v. John Deere Co.*, the Court wrote that the legal question “lends itself to several basic factual inquiries.”²⁰⁷ Specifically, “the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.”²⁰⁸ It is “[a]gainst this background,” the Court instructed, that a court should determine whether the invention would have been obvious.²⁰⁹ In addition, the Court indicated that “secondary considerations,” including “commercial success, long felt but unsolved needs, [and] failure of others . . . might be utilized” to determine nonobviousness.²¹⁰ Interestingly, in the *Graham* case itself, the Court did not actually apply this framework of determining facts and then making a legal judgment about obviousness. Instead, the Court offered only a conclusory statement that the claimed invention (which improved the flexibility of plow shanks by relocating a hinge) would have been “evident” to a person of ordinary skill in the art, who would have “immediately see[n] that the thing to do was what [the patentee] did.”²¹¹

In any event, Federal Circuit decisions from the 1980s indicated that nonobviousness should be decided as a matter of law by the judge and that it was incorrect for a district judge to “[g]iv[e] the jury a direct question to answer on the legal issue of obviousness.”²¹² At most, the court suggested, juries could be allowed to answer specific factual questions relevant to the obviousness analysis.²¹³ As jury trials became more common in patent cases, however, the Federal Circuit began to sanction jury decisions on the ultimate

206. *Graham*, 383 U.S. at 17.

207. *Id.*

208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.* at 24–25; see also Dmitry Karshedt, *Obviousness: Before and After*, 106 IOWA L. REV. (forthcoming 2021) (manuscript at 20) (on file with author) (critiquing the Court’s analysis in *Graham* as “basically conclusory”).

212. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 765 (Fed. Cir. 1988).

213. See *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 723 (Fed. Cir. 1984) (rejecting a jury instruction that simply restated the statutory standard of nonobviousness in § 103, noting: “a party has a right . . . to have the trial court delineate in its instructions what facts in the particular case must be found to reach a conclusion of obviousness and what facts require a contrary answer”).

conclusion of nonobviousness²¹⁴ and to review those verdicts under the deferential standards of review that apply to findings of fact.²¹⁵

Those changes coincided with developments in the substantive law of nonobviousness emphasizing the fact-based nature of the inquiry. For example, in 1986, the Supreme Court overturned a Federal Circuit decision that had reversed a trial judge's ruling on obviousness.²¹⁶ The Supreme Court, noting that the district judge had engaged in a detailed application of the *Graham* framework, chastised the Federal Circuit for not even mentioning the clear-error standard of review that applies to factfinding by a judge.²¹⁷ At minimum, the Court noted, the Federal Circuit should have "explain[ed] why" the clear-error standard "had no applicability."²¹⁸ Not long after the Supreme Court's decision, the Federal Circuit adopted a requirement that, to succeed on an obviousness argument, a patent challenger must identify in the prior art a specific "teaching[,] suggestion[,] or motivation" to make the claimed invention.²¹⁹ The Federal Circuit held that this so-called TSM test presented a question of fact,²²⁰ meaning that obviousness frequently "could not be decided without a multimillion dollar jury trial."²²¹

In the Supreme Court's most recent opinion addressing obviousness, *KSR International Co. v. Teleflex, Inc.*, the Court rejected the TSM test (or, at least the Federal Circuit's "rigid" application of it), and instead emphasized that "a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ."²²² Though the Court's emphasis on case-specific questions of creativity seems to reinforce the fact-driven nature of the inquiry, the Court in *KSR* also made clear that obviousness can sometimes be resolved before trial as a matter of law,

214. See, e.g., *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 & n.1 (Fed. Cir. 1997) (noting that "the only information we have about the jury's views are contained in a general verdict," which asked, "Do you find that defendants . . . have proven by clear and convincing evidence that any of the claims . . . of plaintiff['s] . . . patent [are] invalid because the differences between the subject matter of the claims and the prior art as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made[?]"); *In re Hayes Microcomputer Prods., Inc. Pat. Litig.*, 982 F.2d 1527, 1532 (Fed. Cir. 1992) ("On January 25, 1991, a jury returned a general verdict that the '302 patent was not invalid.").

215. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1356 (Fed. Cir. 2001) ("[I]t is not our place to elide the vagaries of a black box jury verdict by overriding the jury's decision.").

216. *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 811 (1986).

217. *Id.* at 809–11; see also FED. R. CIV. P. 52(a) ("Findings of fact . . . must not be set aside unless clearly erroneous.").

218. *Dennison*, 475 U.S. at 811.

219. See, e.g., *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (citing *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352 (Fed. Cir. 1998)).

220. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1348 (Fed. Cir. 2000).

221. John F. Duffy, *KSR v. Teleflex: Predictable Reform of Patent Substance and Procedure in the Judiciary*, 106 MICH. L. REV. FIRST IMPRESSIONS 34, 36–37 (2007).

222. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–19 (2007).

chastising the Federal Circuit for finding a genuine dispute of material fact (and reversing an order of summary judgment) based on “a conclusory affidavit” offered by the patentee.²²³ Moreover, the Court’s opinion suggests that “[t]he ultimate judgment of obviousness,” which, the Court emphasized, “is a legal determination,”²²⁴ should be rendered by the judge, not a jury. The opinion states in three places that the key inquiries in the obviousness analysis are to be made by the “court.”²²⁵ The Supreme Court in *KSR* also indicated that a court’s analysis of nonobviousness “should be made explicit,”²²⁶ suggesting that the issue should be decided in a reasoned order written by the trial judge.

Though *KSR* suggests that obviousness is ultimately a question of law for the court, that is not how lower courts have applied the Supreme Court’s opinion. Obviousness is still frequently decided by a jury, still frequently via a general verdict.²²⁷ And the Federal Circuit—in tension with the flexible analysis adopted in *KSR*—has continued to embrace several fact-driven, bright-line rules as essential components of a successful obviousness challenge. Most notably, the court has continued to require a patent challenger to demonstrate a motivation to combine prior art references²²⁸—a “pure question of fact,” in the Federal Circuit’s view.²²⁹ The Federal Circuit has also required that, for a prior art reference to be relevant to the obviousness inquiry, it must come from an “analogous art”²³⁰—another requirement the court views to present a question of fact.²³¹ Numerous Federal Circuit opinions appear to review jury verdicts on obviousness—in toto—under the deferential standard of review that applies to factfinding.²³²

223. *Id.* at 426.

224. *Id.* at 428.

225. *See id.* at 417–18 (“[A] court must ask whether the improvement is more than the predictable use of prior art elements according to their establish function. . . . [A] court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” (emphasis added)); *id.* at 418 (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents” (emphasis added)).

226. *Id.* at 418.

227. For just a few examples, see *Polar Eng’g Inc. v. Campbell Co.*, 894 F.3d 1339, 1347 (Fed. Cir. 2018); *Rembrandt Wireless Techs., LP v. Samsung Elecs. Co.*, 853 F.3d 1370, 1378 (Fed. Cir. 2017); *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 831 F.3d 1369, 1382 (Fed. Cir. 2016); and *Cir. Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1336 (Fed. Cir. 2015). Also see the example verdict from the *SiOnyx* case, *supra* Section II.B.

228. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1368 (Fed. Cir. 2016).

229. *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) (citing *Alza Corp. v. Mylan Lab’ys, Inc.*, 464 F.3d 1286, 1289 (Fed. Cir. 2006)).

230. *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1379 (Fed. Cir. 2019).

231. *Id.*

232. *See, e.g., Everlight Elecs. Co. v. Nichia Corp.*, 719 F. App’x 1008, 1012 (Fed. Cir. 2018) (“We agree with the district court that substantial evidence supports the jury verdict of invalidity.”); *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1295 (Fed. Cir. 2009) (“[I]n

By some accounts, the proportion of Federal Circuit cases applying a deferential standard of review has grown in recent years.²³³ That said, numerous Federal Circuit opinions purport to review the ultimate conclusion on nonobviousness *de novo*, giving deference only on underlying findings of fact.²³⁴

The deference the Federal Circuit sometimes gives to jury verdicts on obviousness—though questionable if obviousness truly presents a question of law—is driven by practical considerations. Because obviousness is frequently decided in a general “black box” verdict in which the jury does nothing more than vote for the patentee or the accused infringer,²³⁵ it is impossible for the court of appeals (or, for that matter, a district judge deciding a post-trial motion for judgment as a matter of law) to apply a bifurcated standard of review that would defer on findings of fact but not on the legal conclusion on obviousness.²³⁶

reviewing the jury’s verdict, ‘we must determine whether the jury had substantial evidence upon which to conclude that [the party alleging invalidity] met its burden of showing invalidity by clear and convincing evidence.’” (alteration in original) (quoting *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1149 (Fed. Cir. 2004))).

233. See, e.g., Eisenberg, *supra* note 24, at 2402 (“[The Federal Circuit’s] purported *de novo* review has become increasingly perfunctory, at least when the court finds sufficient evidence in the record to support the subsidiary findings. It is the evidentiary record behind these findings, not legal analysis of the conclusion, that dominates the decisions.”); accord Ted L. Field, *Obviousness as Fact: The Issue of Obviousness in Patent Law Should Be a Question of Fact Reviewed With Appropriate Deference*, 27 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 555, 607–08 (2017) (reviewing 24 Federal Circuit opinions from 2013 through 2015 in which juries decided the issue of obviousness and concluding that, in 21 of those “opinions, the district courts and the Federal Circuit effectively treated the ultimate issue of obviousness as a question of fact”).

234. See, e.g., *Ultratec, Inc. v. Sorenson Commc’ns, Inc.*, 733 F. App’x 535, 538 (Fed. Cir. 2018) (“In reviewing a jury’s obviousness verdict, ‘[w]e first presume that the jury resolved the underlying factual disputes in favor of the verdict winner and leave those presumed findings undisturbed if they are supported by substantial evidence.’ . . . Second, ‘we examine the legal conclusion *de novo* to see whether it is correct in light of the presumed jury fact findings.’” (first alteration in original) (citations omitted) (quoting *Cir. Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1334 (Fed. Cir. 2015))).

235. See, e.g., *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 843 F.3d 1315, 1341 (Fed. Cir. 2016) (upholding “a black box jury verdict” that a patent was not invalid for obviousness (quoting *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1326 (Fed. Cir. 2016))).

236. For an illustrative district court opinion, see *Hydrodynamic Indus. Co. v. Green Max Distributions, Inc.*, 21 F. Supp. 3d 1074, 1078, 1080 (C.D. Cal. 2014) (noting that “[b]ecause the jury did not make explicit factual findings in the form of special verdicts, the Court must discern the jury’s implied factual findings by interpreting the evidence consistently with the verdict and drawing all reasonable inferences in [the verdict winner’s] favor” and concluding that “there was substantial evidence to support the jury’s finding of nonobviousness”). For a dissenting opinion in a Federal Circuit case recognizing the difficulty of reviewing the ultimate conclusion on obviousness *de novo* when it is made in a general jury verdict, see *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1363 (Fed. Cir. 2001) (Michel, J., dissenting) (“I am concerned that after reading the majority opinion [upholding a general verdict of nonobviousness], trial courts and

Despite the Federal Circuit's seeming approval of treating nonobviousness as a fact-like question that can be resolved by the jury, plenty of other authority supports precisely the opposite approach: that nonobviousness is a question of law that must be decided by the judge. For instance, in a practice reminiscent of an earlier era, some district judges continue to reserve the legal issue of nonobviousness for themselves²³⁷ (sometimes making their decision in light of an advisory jury verdict)²³⁸ and providing a written order clearly delineating the factual and legal aspects of the analysis.²³⁹ Though some model patent jury instructions give the jury carte blanche to decide nonobviousness,²⁴⁰ the Northern District of California's model jury instructions make clear that the ultimate determination of obviousness should be made by the judge,²⁴¹ providing, in the alternative, instructions about specific factual questions that the jury should resolve to aid the judge in deciding the legal question of obviousness²⁴² and more general instructions for cases in which the jury will render an advisory verdict on the ultimate issue of obviousness.²⁴³ Similarly, the *Patent Case Management Judicial Guide* suggests that “[w]hen the jury is asked to determine obviousness, it is preferred that the jury be provided with special interrogatories regarding the *Graham* factors relevant to the case so that the jury's underlying factual findings are known.”²⁴⁴ “With the benefit of the answers to the special interrogatories,” the *Guide* explains, “the district court on a renewed motion for judgment as a matter of law and the Federal Circuit on appeal can then

our panels will hereafter consider such general verdicts on obviousness immune from meaningful review and that serious legal errors by juries will thus go uncorrected.”)

237. See, e.g., *Morpho Detection, Inc. v. Smiths Detection, Inc.*, 957 F. Supp. 2d 655, 659 (E.D. Va. 2013) (“Subsequent to the entry of the jury verdict, the Court made its own legal determination of ‘obviousness’ based on the jury’s factual findings . . .”).

238. See, e.g., *Server Tech., Inc. v. Am. Power Conversion Corp.*, 657 F. App'x 1030, 1033 (Fed. Cir. 2016) (“The jury also issued an advisory verdict pursuant to Fed. R. Civ. P. 39(c) finding that APC failed to prove by clear and convincing evidence that either of the claims at issue would have been obvious to a person of ordinary skill in the art at the time of the invention.”).

239. See, e.g., *ProBatter Sports, LLC v. Sports Tutor, Inc.*, 172 F. Supp. 3d 579, 582 (D. Conn. 2016), *aff'd*, 680 F. App'x 972 (Fed. Cir. 2017). This mode of resolving obviousness is particularly common in pharmaceutical patent cases under the Hatch–Waxman Act, in which the patentee has no claim for damages and hence there is no right to a jury trial, see, e.g., *Prometheus Lab'ys, Inc. v. Roxane Lab'ys, Inc.*, 805 F.3d 1092, 1097 (Fed. Cir. 2015), as well as on claims seeking a declaratory judgment of invalidity, where there is also no jury trial right, see, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1475–76 (Fed. Cir. 1998).

240. FED. CIR. BAR ASS'N, *supra* note 179, § 4.3c; see also AM. INTELL. PROP. L. ASS'N, *supra* note 179, § 7 (noting only that “[c]areful consideration should be given to the Court's and the jury's respective roles”).

241. N.D. CAL. MODEL PATENT JURY INSTRUCTIONS, *supra* note 179, § 4.3b.

242. *Id.* § 4.3b n.14.

243. *Id.* § 4.3b n.15.

244. PETER S. MENELL ET AL., PATENT CASE MANAGEMENT JUDICIAL GUIDE 8-32 (3d ed. 2016).

review the jury's ultimate conclusion on obviousness in light of its underlying factual determination."²⁴⁵

To summarize, nonobviousness is sometimes treated as a question of fact and other times it is treated as a question of law. As a consequence, the law governing the procedural aspects of determining nonobviousness is a mess. District courts often give the issue to the jury, but not always. Sometimes those jury decisions are special verdicts; other times they are general verdicts. And the Federal Circuit sometimes gives jury decisions deference on appeal, but sometimes not. This uncertainty incentivizes intense litigation over jury instructions,²⁴⁶ encourages disputes over verdict forms,²⁴⁷ leads to duplicative decisions by both the jury and the judge on the same issue (if, for example, the judge does not view the jury's verdict on the legal conclusion of obviousness to be binding),²⁴⁸ creates uncertainty about the appropriate level of appellate deference,²⁴⁹ and more.

Though most Federal Circuit decisions on nonobviousness view the issue in dispute to be *either* an underlying question of fact *or* the ultimate legal conclusion on validity, it is worth noting that, since 2012, the court has occasionally called nonobviousness a "mixed question of law and fact,"²⁵⁰ hinting that at least some panels of judges recognize that, in deciding nonobviousness, what the court is actually doing is *applying* legal doctrine to the facts of a particular case. That approach is in tension with longstanding Supreme Court and Federal Circuit precedent stating that patent validity is ultimately a question of law. Normatively, however, treating patent validity as a mixed question could clear up much of the confusion surrounding the law-fact distinction in patent cases, as I explain in the next Part of this Article.

245. *Id.*

246. *See, e.g.,* *Rentrop v. Spectranetics Corp.*, 550 F.3d 1112, 1116–18 (Fed. Cir. 2008).

247. *See, e.g.,* *Allen Organ Co. v. Kimball Int'l, Inc.*, 839 F.2d 1556, 1562 (Fed. Cir. 1988).

248. An excellent example is *Translogic Corp. v. Tele Engineering, Inc.* in which the judge instructed the jury that "[u]ltimately the issue of obviousness is one of law for the court to decide; however, you will advise me in your determination of whether the . . . patent was obvious." *Translogic Corp. v. Tele Eng'g, Inc.*, 132 F.3d 52 (unpublished table decision), 1997 WL 727527, at *2 (Fed. Cir. 1997) (first alteration in original). The jury returned a verdict of obviousness, but the district court rejected that verdict, ruling the patent to be nonobvious as a matter of law. *Id.* The Federal Circuit then reversed the district court's ruling because there was substantial evidence to support the "presumed fact finding" underlying the jury's verdict. *Id.*

249. *See, e.g.,* *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1356–60 (Fed. Cir. 2012) (containing an extended discussion of whether a jury verdict was binding or merely advisory and, in light of the jury's role, the appropriate standard of review for "explicit and implicit factual findings" versus the "legal conclusion of obviousness").

250. The first case to employ this phrasing seems to be *Kinetic Concepts*, 688 F.3d at 1356. For additional examples, see *ABT Sys., LLC v. Emerson Elec. Co.*, 797 F.3d 1350, 1354 (Fed. Cir. 2015); and *InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1339 (Fed. Cir. 2014). The "mixed question" terminology has also crept into model patent jury instructions. *See* AM. INTELL. PROP. L. ASS'N, *supra* note 179, § 7 ("Obviousness is a mixed question of fact and law.").

IV. PATENT VALIDITY AS A MIXED QUESTION OF LAW AND FACT

Courts should treat all grounds of patent validity as ultimately presenting mixed questions of law and fact. That approach would eliminate the doctrinal confusion catalogued above and improve the efficiency of patent litigation in numerous ways. Among other things, it would better define the jury's role in deciding patent validity (by largely eliminating it), clarify the appellate deference due to lower court decisions, modernize judicial review of Patent Office actions, and simplify courts' application of the statutory presumption of patent validity. This Part of the Article begins by presenting the doctrinal argument for treating patent validity as a mixed question. It then highlights the beneficial consequences of that new approach and concludes by responding to potential objections to my proposal.

A. *THE PATENT VALIDITY ANALYSIS: LEGAL QUESTIONS, FACTUAL QUESTIONS, AND, ULTIMATELY, A MIXED QUESTION*

Both the Federal Circuit and the Supreme Court frequently say that patent validity is a question of law based on underlying findings of fact. This framing creates the impression—reflected in the Federal Circuit's case law across numerous different patentability requirements—that disputes over patent validity involve only two types of questions: subsidiary questions of fact (for example, what, exactly, does the prior art disclose?) and the ultimate question of law (for example, is the patent invalid because the claimed invention would have been obvious based on the prior art?). The flaw in that either/or approach is that the latter question about patent validity is not *really* a question of law. Rather, reaching the conclusion about whether a patent is invalid (or not) involves a third type of question, one that requires applying the legal doctrines of patentability to the particular facts of the case. Outside the sometimes-hermetic sphere of patent practice, a question of law application like that would be called a mixed question of law and fact.

The Supreme Court's most recent opinion on the law-fact distinction in federal litigation more generally, its 2018 opinion in *U.S. Bank National Ass'n v. Village at Lakeridge*, makes clear that, as a doctrinal matter, patent validity should be categorized as a mixed question of law and fact.²⁵¹ That bankruptcy case presented the issue of whether a particular creditor was an "insider" and hence could not consent to a reorganization plan that would impair the interests of other creditors.²⁵² The specific question on which the Supreme Court granted certiorari was whether a bankruptcy judge's determination of a creditor's insider status should be reviewed de novo (the standard of review

251. See *U.S. Bank Nat'l Ass'n v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960, 966–77 (2018).

252. *Id.* at 963.

for questions of law) or for clear error (the standard of review for factfinding by a trial judge).²⁵³

Justice Kagan, in her opinion for the Court, began by noting that, to determine whether a creditor is an insider, “a bankruptcy judge must tackle three kinds of issues—the first purely legal, the next purely factual, the last a combination of the other two.”²⁵⁴ First, the court must “settle on a legal test,” which, in the *U.S. Bank* case, was whether the alleged insider’s transaction with the debtor was at arm’s length.²⁵⁵ Second, the court “must make findings of . . . ‘basic’ or ‘historical’ fact—addressing questions of who did what, when or where, how or why.”²⁵⁶ The key historical facts in *U.S. Bank* involved an apparent romantic relationship between the alleged insider and a board member of the debtor.²⁵⁷ Finally, the court must “determine whether the . . . facts found satisfy the legal test chosen”—the “‘mixed question’ of law and fact at the heart of [the] case.”²⁵⁸ In *U.S. Bank*, that mixed question was whether the relationship between the alleged insider and the board member rendered the transaction between the alleged insider and the debtor not at arm’s length.²⁵⁹

The three-step analysis of *U.S. Bank* maps neatly onto disputes about patent validity. First, there is the question of selecting the relevant legal test. For numerous issues in patent law, the legal test is well-settled. For instance, for anticipation under § 102: Were all the elements of the invention disclosed in a single prior art reference? For nonobviousness under § 103: Would the invention have been obvious to a person having ordinary skill in the art? For enablement under § 112: Based on the specification, could a person of ordinary skill in the art recreate the invention without undue experimentation? And for patent eligibility there is the two-step test drawn from the Supreme Court’s decisions in *Mayo* and *Alice*.

To be sure, aspects of those legal tests sometimes require elaboration. For instance, under § 102, does a sale that requires the purchaser to keep the details of the invention secret put the invention “on sale”?²⁶⁰ Is the existence of “a teaching, suggestion, or motivation” to make the claimed invention required to invalidate a patent for obviousness?²⁶¹ Does § 112 even “contain[] a written description requirement separate from the enablement

253. *Id.*

254. *Id.* at 965.

255. *See id.*

256. *Id.* at 966 (citing *Thompson v. Keohane*, 516 U.S. 99, 111 (1995)).

257. *See id.* at 964.

258. *Id.* at 966.

259. *See id.* at 967.

260. *See Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.*, 139 S. Ct. 628, 630 (2019) (yes).

261. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (no, but it is a “helpful” consideration).

requirement?”²⁶² Are business methods categorically ineligible for patenting?²⁶³ Those purely legal questions about the meaning and content of federal patent law should be decided by the judge and reviewed *de novo* on appeal, just like under current doctrine. But—importantly for this Article’s thesis that patent validity ultimately presents a mixed question of law and fact—those questions about the content of patent law do not tell us anything about the validity of a particular patent. They are, in other words, a far cry from “the ultimate question of patent validity” that the Supreme Court has nevertheless coded as “one of law.”²⁶⁴

To answer that ultimate question, a court must proceed to the second step of the analysis from *U.S. Bank*, which addresses case-specific questions about the underlying historical facts. In patent cases, those questions ask things like: What, exactly, do the prior art references disclose?²⁶⁵ When were those references publicly available?²⁶⁶ What is the level of ordinary skill in the art?²⁶⁷ To the extent a district court makes findings on those specific questions, those findings should be treated as factual and reviewed deferentially on appeal, again just like under current doctrine. But even though answering factual questions can be essential to determining patentability, those answers still do not tell us anything about the validity of a particular patent.

Which brings us to the final step of the analysis under *U.S. Bank*: The mixed question of whether the facts found at step two satisfy the legal test identified at step one. In patent cases, *that* is the ultimate determination of validity. Under *U.S. Bank*, that determination is not a question of law, as the Supreme Court and Federal Circuit claim patent validity is; rather, it is a mixed question of law and fact. For instance, based on what the prior art references say (as determined at step two), would it have been obvious to make the claimed invention (applying the legal test identified at step one)? Or, would a person with the designated, ordinary level of skill in the art (a fact found at step two) be able to recreate the claimed invention without undue experimentation (the test identified at step one)?

For some validity doctrines, the inferential leap between the facts found at step two and the ultimate determination of patentability at step three is small. For instance, in the anticipation analysis, once the content of the prior art is determined at step two, the only question that remains for step three is whether each element of the patent claim can be found in a single reference.

262. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1340 (Fed. Cir. 2010) (en banc) (yes).

263. *Bilski v. Kappos*, 561 U.S. 593, 609 (2010) (no).

264. *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 96 (2011).

265. *Cf. S. Clay Prods., Inc. v. United Catalysts, Inc.*, 43 F. App’x 379, 385 (Fed. Cir. 2002) (asking whether a prior art reference incorporated material by reference, viewing the inquiry to present a question of law).

266. *See, e.g., In re NTP, Inc.*, 654 F.3d 1279, 1296–97 (Fed. Cir. 2011).

267. *See, e.g., In re Costello*, 956 F.2d 1174, 1174 (Fed. Cir. 1992).

Similarly, for patent eligibility, if a claim directed to an abstract idea or law of nature covers nothing besides well-understood, routine, and conventional activity (a determination the Federal Circuit has coded as a step two-like question of fact), then the patent is simply invalid. Still, even in those examples, the step three analysis is *framed around* a legal principle: Each element of the claimed invention must be found in a single prior art reference for the patent to be anticipated. Certain patents that cover nothing but conventional activity are not patent eligible. Thus, prevailing law is wrong to characterize the ultimate determination of anticipation as a pure question of fact, and it is wrong to characterize the ultimate conclusion on eligibility—or any other ground of patent validity—as a question of law. Ruling on the validity of any particular patent requires applying legal doctrine to the facts of a given case and should be called what it is: a mixed question of law and fact.

B. *THE CONSEQUENCES OF TREATING PATENT VALIDITY AS A MIXED QUESTION*

Treating the ultimate determination of patent validity as a mixed question of law and fact would significantly improve patent litigation. Questions about the stage of litigation at which validity can be resolved, who decides it, and the standards of proof and appellate review would be resolved not by formalistic line drawing about whether the issue in dispute is factual or legal, but through pragmatic considerations that seek to ensure accurate decisions are made at the lowest cost possible.²⁶⁸

1. When Patent Validity Is Decided

If patent validity were viewed to ultimately present a mixed question of law and fact, it *could* be decided at the pre-discovery, pleading-stage of the case on a motion to dismiss or for judgment on the pleadings, but only when (1) the patentee cannot plausibly allege that its patent satisfies the legal requirements of patentability²⁶⁹ and (2) the patent's invalidity is clear based on materials a court may properly consider on a pleading-stage motion because they do not implicate matters of fact, namely, the complaint, the patent itself, and other materials whose veracity is so incontrovertible that they are subject to judicial notice.²⁷⁰

268. For a similar argument about the procedural framework for deciding patent claim construction, see John F. Duffy, *On Improving the Legal Process of Claim Interpretation: Administrative Alternatives*, 2 WASH. U. J.L. & POL'Y 109, 122 (2000) (discussing standards of review: "courts are making the choice on the basis of functional considerations, including the comparative abilities of the institutions in performing the interpretive task, the need for uniformity, and general considerations of procedural efficiency").

269. See *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009); *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 557 (2007).

270. See 5C WRIGHT ET AL., *supra* note 10, § 1371.

Doctrines of patent validity that require a court to consider extrinsic evidence that sheds light on legally relevant historical facts, such as prior art references or witness testimony about the knowledge of a person of ordinary skill in the art, would continue to be amenable to pleading-stage resolution in only rare circumstances. Nonobviousness, for example, would be difficult to resolve on the pleadings because it requires the court to examine various sources of evidence about the technology that pre-dated the patent. The same goes for the disclosure doctrines of § 112, which require the court to determine who a person of ordinary skill in the art is and how that person would understand the patent or its original application.

But, for other patentability requirements, treating validity as a mixed question would either clarify when those requirements can be resolved on pleading-stage motions or even expand the opportunities for resolving patentability at an early stage of the case. Patent eligibility is a prime example of a validity doctrine whose susceptibility to pleading-stage resolution would be clarified if it were relabeled a mixed question of law and fact. Characterizing eligibility as a pure question of law, as many courts did in the recent past (and as some courts still do when the patent's inventiveness as compared to prior technology is not at issue),²⁷¹ gives the impression that eligibility can *always* be decided on the pleadings because factfinding is unnecessary. After the Federal Circuit's decision in *Aatrix*, however, the law may have swung too far in the other direction by allowing a patentee to defeat a motion to dismiss with dubious allegations about its patent's inventiveness.²⁷²

Viewing eligibility as a mixed question strikes a middle ground. Sometimes it will be clear from a patent itself that it is directed to an abstract idea²⁷³ or a natural phenomenon²⁷⁴ and that it employs only conventional technology,²⁷⁵ meaning that—as a matter of law—the patent fails the

271. See *supra* notes 126–29.

272. For district court case examples, see *supra* note 109.

273. See, e.g., *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1286–87 (Fed. Cir. 2018) (finding that the patent-in-suit was directed to an abstract idea because the “specification makes clear that databases allowing users to post parametrized items were commonly used at the time of invention”).

274. See, e.g., *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360–61 (Fed. Cir. 2017) (affirming grant of motion to dismiss on eligibility grounds because the patents were directed to a “relation [between cardiovascular disease and heightened MPO levels that] exists in principle apart from human action” and because the patentee “provided no proposed construction of any terms or proposed expert testimony that would change the § 101 analysis” (alteration in original)).

275. See, e.g., *Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 935 F.3d 1341, 1348 (Fed. Cir. 2019) (finding that the patent-in-suit lacked an inventive concept because “[t]he specification describes each individual element of the asserted claims . . . as ‘well understood in the art’”).

eligibility requirement.²⁷⁶ In those sorts of cases, where the intrinsic record makes the patent's ineligibility clear, eligibility doctrine can continue to serve the policy function of providing a mechanism for courts to quickly dispose of infringement claims involving patents that are plainly invalid.²⁷⁷ In other cases, however, the intrinsic record might present a close call about eligibility. In that circumstance, any factual allegations in the complaint that speak to eligibility—for example, allegations about how the patent covers activity that is not conventional in the field—should be accepted as true²⁷⁸ and if they make a plausible case for eligibility,²⁷⁹ the case should be allowed to proceed to discovery.²⁸⁰

In addition, labeling patent validity a mixed question of law and fact would allow some validity requirements that are rarely resolved on the pleadings under current doctrine to be decided at that early stage in certain cases. Anticipation under § 102 is one example. Current doctrine treats anticipation as a pure question of fact, which leads courts and litigants to assume that it cannot be decided on the pleadings alone.²⁸¹ But when all elements of the relevant patent claim are plainly disclosed in a prior art document that is subject to judicial notice—say, a prior art patent (a public

276. Though patent invalidity is technically a defense to a claim of patent infringement (meaning that the defendant, not the plaintiff, bears the burden of establishing ineligibility at trial, *see* 35 U.S.C. § 282(b)(2)–(3) (2018)), it is well-established that defenses can form the basis for dismissal under Rule 12(b)(6) if it is clear from the plaintiff's pleading-stage filings that the defense applies. *See* 5B WRIGHT ET AL., *supra* note 10, § 1357 (“[T]he complaint . . . is subject to dismissal under Rule 12(b)(6) when its allegations indicate the existence of an affirmative defense that will bar the award of any remedy; . . . for this to occur, the applicability of the defense has to be clearly indicated and must appear on the face of the pleading to be used as the basis for the motion.” (footnote omitted)).

277. For an example of a district court (correctly) identifying eligibility as a mixed question of law and fact—and finding pleading-stage dismissal appropriate because “the complaint only generically references the . . . claims of the . . . [p]atent, which itself embraces both interchangeable ‘conventional’ components and interchangeable ‘configurations’ of those components”—*see* *Enco Sys., Inc. v. DaVincia, LLC*, No. 19-39, slip op. at 3-4 (E.D. Mo. May 5, 2020) (emphasis omitted).

278. *See, e.g.*, *Wanker v. United States*, No. 18-1660, 2020 WL 521896, at *13 (Fed. Cl. Jan. 31, 2020) (denying motion to dismiss because the patentee “ma[d]e concrete factual allegations in the complaint regarding functional improvements considered to be unconventional at the time of invention, with such improvements being tied specifically to the claims”).

279. *See* *Ashcroft v. Iqbal*, 556 U.S. 662, 679 (2009).

280. *See, e.g.*, *Ubiquitous Connectivity, LP v. City of San Antonio*, No. 18-718, slip op. at 20-21 (W.D. Tex. Sept. 26, 2019) (“The allegations in the Amended Complaint, which must be accepted as true, are sufficient at the pleading stage to survive the motion to dismiss. Whether these allegations are borne out remains to be determined at summary judgment or trial.”).

281. For a rare—and unsuccessful—motion to dismiss on anticipation grounds, *see* *Ariad Pharms., Inc. v. Eli Lilly & Co.*, No. 02-11280, 2003 WL 21087115, at *1 (D. Mass. May 12, 2003).

record whose veracity cannot be controverted)²⁸²—nothing should prohibit the court from deciding anticipation at the pleading stage. To be sure, in some cases, the key prior art reference will not be a judicially noticeable public record, or the parties may present a plausible disagreement about either claim construction of the patent-in-suit or the interpretation of the prior art reference. In those cases, the existence of factual disputes would preclude dismissal on the pleadings. But recasting anticipation as a mixed question of law and fact, rather than an entirely factual question, would make clear that anticipation can be resolved on the pleadings in some cases.

Another ground of patentability that would become more amenable to pleading-stage resolution if validity were viewed to present a mixed question of law and fact is indefiniteness. That requirement stems from § 112(b) of the Patent Act, which requires the patent to “particularly point[] out and distinctly claim[] the subject matter which the inventor . . . regards as the invention.”²⁸³ The Supreme Court has held that a patent is impermissibly indefinite if it “fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”²⁸⁴ The Federal Circuit has recognized that determining whether a patent satisfies the definiteness requirement is a matter of construing the patent’s claims.²⁸⁵ Yet, in contrast to settled doctrine on claim construction, which views the task as ultimately a legal question for the judge subject to *de novo* review, the Federal Circuit has approved of giving the question of indefiniteness to the jury²⁸⁶ and has reviewed jury verdicts on indefiniteness under the deferential “substantial evidence” standard.²⁸⁷

This aberrant rule is another consequence of the Federal Circuit’s strict bifurcation of law and fact: Either a question is purely legal, for the judge, and reviewed under a *de novo* standard,²⁸⁸ or it involves facts, in which case it

282. *X One, Inc. v. Uber Techs., Inc.*, 239 F. Supp. 3d 1174, 1182 n.1 (N.D. Cal. 2017) (“Patents are ‘matter[s] of public record and the proper subject of judicial notice.’” (alteration in original)).

283. 35 U.S.C. § 112(b) (2018).

284. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

285. *See, e.g., Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1378 (Fed. Cir. 2017) (“[I]ndefiniteness analysis involves general claim construction principles.”).

286. *See, e.g., Koninklijke Philips N.V. v. Zoll Med. Corp.*, 656 F. App’x 504, 527–28 (Fed. Cir. 2016).

287. *See BJ Servs. Co. v. Halliburton Energy Servs., Inc.*, 338 F.3d 1368, 1372 (Fed. Cir. 2003) (“[D]efiniteness . . . is amenable to resolution by the jury where the issues are factual in nature. Because the issues here are essentially factual, we review the jury’s verdict to determine if the ultimate conclusion reached is supported by substantial evidence.”).

288. Numerous Federal Circuit opinions bluntly state that indefiniteness is a question of law reviewable *de novo* on appeal. *See, e.g., Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1378 (Fed. Cir. 1999) (“A determination of claim indefiniteness is a legal conclusion that is drawn from the court’s performance of its duty as the construer of patent claims. Indefiniteness, therefore, like claim construction, is a question of law that we review *de novo*.” (citation omitted) (internal quotation marks omitted)).

goes to a jury and is reviewed under a deferential standard.²⁸⁹ Treating indefiniteness as a mixed question of law and fact would clarify the mode of deciding that issue. Indefiniteness could be decided at the pleading stage if the judge can confidently determine that the claims are impermissibly vague based on the intrinsic record (the patent, its specification, and its prosecution history), which the judge can evaluate as a matter of law.²⁹⁰ If, however, extrinsic evidence is needed to determine whether the claim is sufficiently definite, then a final decision on the issue should be postponed until later in the case. But, in all events, the mixed question of indefiniteness—and all other mixed questions of patent validity—should be decided by the judge, not a jury, as I explain next.

2. Who Decides Patent Validity?

If a case is not dismissed at the pleading stage, it moves forward into discovery, and the next opportunity for dispositive disposition is summary judgment. Viewing patent validity as a mixed question could change summary judgment practice significantly, too. Today, district courts regularly entertain motions for summary judgment on validity issues, regardless of whether the Federal Circuit denominates the particular patentability requirement in dispute as legal (for example, enablement),²⁹¹ factual (for example, written description),²⁹² or a question of law based on facts (for example, nonobviousness).²⁹³ But empirical evidence indicates that those motions are

289. See *BJ Servs.*, 338 F.3d at 1371; see also *Bombardier Recreational Prods. Inc. v. Arctic Cat Inc.*, 785 F. App'x 858, 867 (Fed. Cir. 2019) (“The evidence presented on [indefiniteness] was almost exclusively extrinsic, in large part encompassing warring expert testimony. The question of definiteness thus required the resolution of critical factual issues and was properly before the jury.”).

290. For a few, comparatively rare examples of courts deciding indefiniteness on the pleadings under current law, see *In re TLI Commc'ns LLC Pat. Litig.*, 87 F. Supp. 3d 773, 804–05 (E.D. Va. 2015) (granting motion to dismiss), *aff'd*, 823 F.3d 607 (Fed. Cir. 2016); and *Lexington Luminance LLC v. Amazon.com, Inc.*, 6 F. Supp. 3d 179, 195 (D. Mass. 2014) (granting motion for judgment on the pleadings), *vacated and remanded*, 601 F. App'x 963 (Fed. Cir. 2015).

291. See, e.g., *MagSil Corp. v. Hitachi Glob. Storage Techs., Inc.*, 687 F.3d 1377, 1384–85 (Fed. Cir. 2012) (affirming summary judgment of lack of enablement).

292. See, e.g., *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 927 (Fed. Cir. 2004) (upholding summary judgment of invalidity for lack of written description, noting that “although compliance with the written description requirement is a question of fact . . . a patent may . . . be held invalid on its face . . . based solely on the language of the patent specification” (citations omitted)).

293. See, e.g., *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007) (“Where . . . the content of the prior art, the scope of the patent claim, and the level of ordinary skill in the art are not in material dispute, and the obviousness of the claim is apparent in light of these factors, summary judgment is appropriate.”).

hard to win,²⁹⁴ likely because the relevant inquiries into the content of the prior art and the knowledge of a person of ordinary skill in the art raise technologically complex, case-specific questions that district judges tend to identify as factual disputes more appropriately decided by a jury after trial.

But viewing patent validity as a mixed question of law and fact would—paradoxically—remove the jury from most disputes over patent validity, for reasons I will explain in detail below. With no jury trial on the horizon, district judges might be more willing to simply decide validity at summary judgment. And even if removing the jury did not lead to more frequent summary judgments, it would still have significant ramifications for the importance of summary judgment by removing the *threat* of a jury trial.

Before unpacking those arguments, some background on summary judgment in patent cases is in order. In infringement litigation, summary judgment is often the tipping point. Patentees just want to get past summary judgment; defendants often do not want to face the prospect of trial before a jury because it is too risky. If a patent survives summary judgment, the patentee will likely obtain a settlement on favorable terms. For defendants, summary judgment is the last chance to invalidate a patent before paying that settlement (or betting the company in front of a jury).²⁹⁵ Accordingly, patentees have historically preferred to file their infringement suits in judicial districts that rarely grant summary judgment.²⁹⁶

The prospect of a jury trial looms large in patent litigation because of the widespread assumption that the Seventh Amendment guarantees a right to a jury trial on the issue of validity. But, as Mark Lemley has argued, that assumption is questionable as both a matter of Seventh Amendment jurisprudence and historical practice.²⁹⁷ The Supreme Court's 2018 decision in *Oil States*, which held that jury-less administrative proceedings to reconsider the validity of an issued patent violated neither Article III nor the Seventh Amendment, also casts doubt on any claim that parties have a constitutional right to a jury trial in validity disputes.²⁹⁸ Moreover, as discussed above, a jury

294. John R. Allison, Mark A. Lemley & David L. Schwartz, *Understanding the Realities of Modern Patent Litigation*, 92 TEX. L. REV. 1769, 1785–86 (2014) (reporting summary judgment win rates of less than 20 percent on many common grounds of validity).

295. Patentees, it is worth noting, are also happy to avoid the risk of their patent being held invalid. See *Blonder-Tongue Lab'ys, Inc. v. Univ. of Ill. Found.*, 402 U.S. 313, 350 (1971) (holding that a patentee is collaterally estopped from asserting a patent that has been ruled invalid in prior litigation).

296. See Daniel Klerman & Greg Reilly, *Forum Selling*, 89 S. CAL. L. REV. 241, 254 (2016); J. Jonas Anderson, *Court Competition for Patent Cases*, 163 U. PA. L. REV. 631, 655 (2015).

297. Lemley, *supra* note 57, at 1676.

298. *Oil States Energy Servs., LLC v. Greene's Energy Grp., LLC*, 138 S. Ct. 1365, 1379 (2018); see also Christopher Beauchamp, *Repealing Patents*, 72 VAND. L. REV. 647, 649, 685–86 (2019) (discussing inconsistent case law from the early-nineteenth century on whether juries

verdict is an unusual way to decide an issue, such as patent validity, that the Supreme Court has denominated as ultimately a question of law.

Paradoxically, characterizing patent validity as a mixed question of law *and fact* would support eliminating the jury from patent validity determinations. If there is no constitutional right to a jury decision on the ultimate question of validity, then the matter of who decides—a judge or a jury—becomes simply a policy question about institutional competence. As the Supreme Court wrote in allocating the question of patent claim construction—which has both legal and factual aspects—to the judge, not the jury: “[W]hen an issue ‘falls somewhere between a pristine legal standard and a simple historical fact,’ the judge/jury decision often ‘turn[s] on a determination that, as a matter of the sound administration of justice, one judicial actor is better positioned than another to decide the issue in question.’”²⁹⁹

Those considerations strongly point to the judge as the appropriate decisionmaker on the mixed question of patent validity. As the Supreme Court observed in *Markman*, “the claims of patents have become highly technical in many respects as the result of special doctrines relating to the proper form and scope of claims that have been developed by the courts and the Patent Office,” and “credibility determinations, which are the jury’s forte” are not terribly important in determining the meaning of those claims.³⁰⁰ Similar considerations hold for the analysis of patent validity: The patent document is highly technical, and doctrines such as novelty and nonobviousness require comparing that document to other highly technical prior art references. The validity inquiry, to be sure, sometimes entails witness testimony about the knowledge, motivation, and expectations of a (fictitious) person of ordinary skill in the art, particularly when nonobviousness or the disclosure doctrines of § 112 are at issue. But even then, “a jury’s capabilities to evaluate demeanor, to sense the mainsprings of human conduct, or to reflect community standards” are not terribly significant.³⁰¹ What is more important is a thorough understanding of what the patent’s claims mean, a clear grasp of the information disclosed in the specification, and familiarity with the (often complex and document-driven) prior art. Those considerations must then be weighed—usually from the perspective of the hypothetical, objective person of ordinary skill in the art—to make the ultimate judgment on patent validity. Because of the complexity of that

were required in suits to repeal a patent, casting doubt on claims that the Seventh Amendment “preserved” a right to a jury trial on patent validity).

299. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388 (quoting *Miller v. Fenton*, 474 U.S. 104, 114 (1985)).

300. *Id.* at 389 (quoting William Redin Woodward, *Definiteness and Particularity in Patent Claims*, 46 MICH. L. REV. 755, 765 (1948)).

301. *Id.* at 389–90 (citations omitted) (internal quotation marks omitted).

determination,³⁰² the Supreme Court in *KSR* emphasized that the court's analysis of obviousness "should be made explicit,"³⁰³ that is, supported by written reasoning on the record. Juries cannot provide that sort of on-the-record decision about patent validity. But judges can.³⁰⁴

Moreover, it is judges, not juries, who typically review the legality of the actions of an administrative agency, which is essentially what a court is doing when it decides whether a patent issued by the Patent Office satisfies the patentability requirements set by federal law. As John Duffy has explained, jury decisions on patent validity may have made sense as a matter of administrative practice in the nineteenth century, when patent examination was limited or nonexistent, so the jury was deciding patentability "in the first instance"³⁰⁵—providing some public input into whether the claimed invention deserved a patent. Today, however, the administrative processes of the Patent Office are far more elaborate. The agency reviews every patent application to ensure compliance with the legal requirements of patentability, its initial determinations are subject to appellate review (both within the agency and in court), and the validity of issued patents can be reviewed a second time both at the agency (through various mechanisms of post-issuance review) and in court (in infringement and in declaratory judgment suits). Moreover, the patent validity inquiry is more complex, both legally and factually, today than it was in the nineteenth century. And, thanks to the statutory presumption of validity, the Patent Office's initial decision to issue the patent is given more weight in court.³⁰⁶ "All of this," Duffy notes, "suggests that jury review of patent validity—which is already an anomaly in modern administrative law—might . . . soon be displaced by judicial review of patent validity."³⁰⁷

Judicial review of patent validity would be mostly a good thing. For accused infringers, removing the jury from the validity determination would encourage them to more frequently take that issue past summary judgment all the way to a merits decision—serving the public interest in ensuring that

302. Which, then-Professor now-Federal Circuit Judge Kimberly Moore speculated, may lead a jury "to allow nonmeritorious influence[s] and prejudices to impact their decisionmaking." Kimberly A. Moore, *Jury Demands: Who's Asking?*, 17 BERKELEY TECH. L.J. 847, 852 n.15 (2002).

303. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

304. For an analysis of the comparative advantages of judges over juries in evaluating the issue of obviousness, see Joshua L. Sohn, *Re-thinking the "Motivation to Combine" in Patent Law*, 48 AIPLA Q.J. 1, 29–31 (2020). And for an argument that, as a matter of Seventh Amendment doctrine, questions viewed from the perspective of a hypothetical, objective person (such as patent validity, as I have described it) should not be viewed to trigger a jury trial right, see Paul F. Kirgis, *The Right to A Jury Decision on Questions of Fact Under the Seventh Amendment*, 64 OHIO ST. L.J. 1125, 1170–71 (2003).

305. See Duffy, *supra* note 29, at 296 (emphasis omitted).

306. See *id.* at 297–98.

307. *Id.* at 299.

patents of questionable validity are challenged in court and potentially invalidated.³⁰⁸ On the patentee side, it is worth noting that the numerous recent changes in patent law encouraging quicker resolution of validity disputes (for example, the new administrative review proceedings created by the AIA, the use of eligibility doctrine to resolve patent validity on the pleadings, and the raising of pleading standards for claims of infringement) uniformly favor accused infringers.³⁰⁹ None of them serve to increase efficiency by providing quick and cheap relief to patentees with plainly *meritorious* claims of infringement. Eliminating the jury from disputes over patent validity could be one mechanism to facilitate quicker decisions in favor of patentees.

Juries would not completely disappear from patent litigation if validity were considered to present a mixed question of law and fact. For one, it is well-established that the Seventh Amendment provides a right to a jury trial on the issues of infringement and damages.³¹⁰ For another, judges could still convene juries to render advisory verdicts on patent validity or to resolve specific, subsidiary questions of fact.³¹¹ But the notion that patent validity should be resolved in a black box jury verdict would disappear if the question of “who decides” was answered as a straightforward question of relative institutional competence—as it should be for a mixed question of law and fact.

3. Appellate Deference to District Court Validity Rulings

With patent validity recast as a mixed question of law and fact, district courts’ ultimate rulings on patent validity would probably be subject to deferential appellate review. This, too, would represent a major change from current practice, under which the ultimate question of patent validity is reviewed *de novo* (or, at least it is supposed to be). Like reducing the jury’s role, a deferential standard of review for patent validity would significantly streamline patent litigation. Among other things, it would check the Federal Circuit’s tendency—perhaps driven by the court’s self-perception as *the* expert tribunal on patent law—to recast fact-driven issues as questions of law.³¹² And

308. See Megan M. La Belle, *Against Settlement of (Some) Patent Cases*, 67 VAND. L. REV. 375, 379–80 (2014).

309. For a discussion of the numerous significant changes to patent law over the past decade, see Paul R. Gugliuzza, *Patent Litigation Reform: The Courts, Congress, and the Federal Rules of Civil Procedure*, 95 B.U. L. REV. 279, 281–82 (2015).

310. See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 377 (1996) (infringement); *TCL Comm’n Tech. Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, 943 F.3d 1360, 1373 (Fed. Cir. 2019) (damages).

311. See Lemley, *supra* note 57, at 1731.

312. Cf. Rai, *supra* note 37, at 1088–90 (“[B]ecause any expertise that the Federal Circuit has rests on its familiarity with patent law, and, relatedly, generalizable principles of patent law

it would discourage appeals on case-specific issues that a trial court is better situated to decide.³¹³

If patent validity were viewed to present a mixed question of law and fact, the Supreme Court's decision in *U.S. Bank* makes plain that district court rulings should be reviewed deferentially. In that case, the Court explained that to determine the standard of review for a mixed question, the court must look at the particular "nature of the mixed question" and ask "which kind of court ([trial] or appellate) is better situated to resolve it?"³¹⁴ If "applying the law involves developing auxiliary legal principles of use in other cases," then a *de novo* standard of review should apply.³¹⁵ A deferential standard applies, however, if answering the "mixed question[] immerse[s] courts in case-specific factual issues—compelling them to marshal and weigh evidence, make credibility judgments, and otherwise address . . . 'multifarious, fleeting, special, narrow facts that utterly resist generalization.'"³¹⁶

The ultimate conclusion about a particular patent's validity, like the determination of whether the particular creditor in *U.S. Bank* was an insider,³¹⁷ almost certainly falls into the latter category. The patent validity analysis turns on case-specific considerations about the scope of the patent in suit, the knowledge of a person of ordinary skill in the patent's field of technology, and the content and teaching of certain prior art references. To use the words of the Supreme Court in *U.S. Bank*, in determining patentability, a "court takes a raft of case-specific historical facts, considers them as a whole, [and] balances them one against another" to determine whether the statutory patentability standard is satisfied.³¹⁸

It is of course true that any given decision on patent validity adds to the "mosaic" of patentability law. The eligibility requirement, for example, consists largely of judge-made doctrine and is best understood through examples of inventions that courts have determined do or do not satisfy the legal standard.³¹⁹ Similarly, even after *U.S. Bank*, the Federal Circuit has

application, there is no reason to believe that it will be familiar with the factual particulars of any given technology.").

313. Cf. Eisenberg, *supra* note 24, at 2403 ("A deferential approach to lower court rulings on nonobviousness makes sense . . . Appellate review of nonobviousness rulings requires exhaustive consideration of the record. The resulting conclusions are deeply entwined in analysis of the case-specific evidentiary record and are unlikely to have generalizable implications for other cases.").

314. *U.S. Bank Nat'l Ass'n v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960, 966 (2018).

315. *Id.* at 967.

316. *Id.* (quoting *Pierce v. Underwood*, 487 U.S. 552, 561–62 (1988)).

317. *Id.* at 968.

318. *Id.* (footnote omitted). For a similar argument that patent claim construction is better understood as, ultimately, a mixed question of law and fact and hence should be reviewed deferentially when factual considerations predominate, see J. Jonas Anderson, *Specialized Standards of Review*, 18 STAN. TECH. L. REV. 151, 182 (2015).

319. See Gugliuzza & Lemley, *supra* note 88, at 803.

claimed that the ultimate conclusion in a copyright fair use dispute is subject to de novo review because “the exercise of assessing whether a use is fair in one case will help guide resolution of that question in all future cases.”³²⁰

But de novo review of a case-specific issue such as patent eligibility or copyright fair use—on the ground that the decision will help illustrate “what the law is”—is in significant tension with *U.S. Bank*.³²¹ It is not unusual for courts to conduct deferential review in areas where the bulk of the law consists of judicial decisions.³²² Negligence provides but one notable example.³²³ It seems questionable to conclude, as the Federal Circuit has in the copyright context, that determining fair use is a “primarily legal exercise” because “[i]t requires a court to assess the inferences to be drawn from the historical facts found in light of the legal standards outlined in the statute and relevant case law.”³²⁴ Rather, that sounds precisely like the type of question the Supreme Court in *U.S. Bank* said should be subject to deferential review: “[t]he court takes a raft of case-specific historical facts” and “considers them as a whole” to determine whether the relevant legal test is satisfied.³²⁵

4. The Presumption of Validity

Finally, viewing patent validity to present a mixed question of law and fact would ease ongoing confusion about how the presumption of validity applies to the varied factual and legal aspects of the patentability analysis. The usual practice under current law is to apply the presumption to the overall question of validity. For instance, juries are frequently instructed to decide whether the defendant proved a particular invalidity defense by clear and convincing evidence.³²⁶ But it is odd to apply an evidentiary standard of proof to what is, under current doctrine, a question of law.

That difficulty would disappear if patent validity were viewed to present a mixed question of law and fact. Questions that require applying law to fact are decided under varying standards of proof, from preponderance of the evidence to determine liability in an ordinary civil case,³²⁷ to clear and convincing evidence for deprivations of certain individual rights (such as

320. *Oracle Am., Inc. v. Google LLC*, 886 F.3d 1179, 1193 (Fed. Cir. 2018), *cert. granted*, 140 S. Ct. 520 (2019).

321. See Ned Snow, *Who Decides Fair Use—Judge or Jury?*, 94 WASH. L. REV. 275, 279 (2019).

322. See 9C WRIGHT ET AL., *supra* note 10, §§ 2590–2591.

323. *Id.* § 2590 (citing cases).

324. *Oracle*, 886 F.3d at 1193.

325. *U.S. Bank Nat. Ass’n v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960, 968 (2018). To be fair, the Federal Circuit was applying the copyright precedent of the Ninth Circuit. See *Oracle*, 886 F.3d at 1193 (citing *Mattel, Inc. v. Walking Mountain Prods.*, 353 F.3d 792, 800 (9th Cir. 2003)).

326. See *supra* notes 69–78.

327. 21B WRIGHT ET AL., *supra* note 10, § 5122.

parental rights),³²⁸ to beyond a reasonable doubt for criminal convictions.³²⁹ Thus, in deciding patent validity as a mixed question, a judge could justifiably apply the clear-and-convincing-evidence standard to the overall determination of validity without deviating from the principle that standards of proof typically do not apply to questions of law.

On the margins, this broad application of the presumption might shield some questionable patents from invalidation (though, as noted, the overall question of validity is often decided under a heightened standard of proof, even under current law). But it would significantly clarify and streamline the validity analysis—there would no longer be a need for a conscientious judge to meticulously separate the factual aspects of the analysis from the legal aspects and to apply the presumption only to the factual aspects.³³⁰ For instance, in the analysis of nonobviousness, there would be no need to grapple with whether subsidiary questions about motivation to combine and expectation of success are factual or legal—they would simply be wrapped up in the ultimate, mixed question of validity under § 103. The judge would just *decide* the question of nonobviousness, with that decision informed by a heightened standard of proof.

C. OBJECTIONS AND RESPONSES

Throughout this Article, I have attempted to anticipate and respond to various counterarguments to my proposal of treating patent validity as a mixed question of law and fact. A few particular objections, however, are worth responding to directly before concluding.

First, a skeptic might suggest that treating patent validity as ultimately a mixed question would not actually change current doctrine. As mentioned in the introduction, many lawyers would understand a “mixed question of law and fact” to be essentially the same thing as a “question of law based on underlying facts,”³³¹ which is how the Supreme Court and Federal Circuit characterize many issues of patent validity.³³² But even if the Federal Circuit consistently *said* that patent validity is effectively a mixed question—which it

328. *Santosky v. Kramer*, 455 U.S. 745, 747–48 (1982).

329. *In re Winship*, 397 U.S. 358, 361 (1970). These examples, it is worth noting, cast doubt on Justice Breyer’s suggestion in *i4i* that heightened standards of proof are irrelevant when a decisionmaker is “apply[ing]” the law “to the facts as given.” *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 114 (2011) (Breyer, J., concurring).

330. Though some judges might not be very meticulous about those distinctions in the first place. See *Karshtedt*, *supra* note 211 (manuscript at 17) (discussing the difficulties, under current law, of determining exactly how underlying factfinding about the prior art, the level of ordinary skill in the art, and so on should affect the ultimate conclusion on nonobviousness).

331. See *supra* note 20.

332. See, e.g., *Sanofi-Aventis Deutschland GmbH v. Glenmark Pharms. Inc., USA*, 748 F.3d 1354, 1358 (Fed. Cir. 2014) (“Patent validity on the ground of obviousness is a question of law based on underlying facts.”).

does not³³³—it certainly does not *treat* patent validity like a mixed question would normally be treated. Rather, when deciding questions of law based on underlying facts, the Federal Circuit seems to view the issue as *either* a question of law (and, for example, automatically subject to de novo review on appeal) *or* an underlying question of fact (automatically subject to deferential review).³³⁴ But for a mixed question (or a “question of law based on underlying facts” as conventionally understood), such as the ultimate determination of patent validity, there is no automatically applicable standard of review. Rather, as the Supreme Court made clear in *U.S. Bank*, the standard of review “depends” on whether the mixed question entails primarily legal or factual work.³³⁵ For most issues of patent validity, the work is primarily factual, requiring case-specific analyses of prior art references and determinations about the level of ordinary skill in the art. Hence, those ultimate determinations should be reviewed deferentially, not de novo as is frequently the case under current law.

Relatedly, a skeptic might wonder whether recasting the ultimate question of patent validity as mixed would exacerbate the courts’ tendency to simply throw the validity question into the black box of the jury. But, again, there is no rule that juries automatically get to decide mixed questions. Rather, the appropriate decisionmaker should be identified through a functional inquiry into which entity, the judge or a jury, is better equipped to decide the issue.³³⁶ And for the reasons the Supreme Court gave about claim construction in *Markman*, as well as the additional reasons discussed above,³³⁷ the judge is probably the better decisionmaker. By reflexively characterizing issues in validity disputes as *either* legal *or* factual, the Federal Circuit misses an opportunity for a more pragmatic inquiry into institutional competence that could result in cheaper and more accurate decisions on the complex matter of patentability.³³⁸

333. See *supra* Sections III.A–B (describing numerous validity doctrines that the Federal Circuit describes as presenting pure questions of law or pure questions of fact).

334. See Eisenberg, *supra* note 24, at 2392.

335. *U.S. Bank Nat’l Ass’n v. Vill. at Lakeridge, LLC*, 138 S. Ct. 960, 967 (2018).

336. See *supra* note 299.

337. See *supra* Section IV.B.2.

338. Removing the jury from validity determinations and making patent litigation quicker and cheaper might, of course, increase the overall amount of litigation. But even if we assume that all litigation is a deadweight loss (a questionable assumption if patents are to retain any force as an incentive for innovation), it is not clear that the marginal litigation added by my proposal would be all that costly. With juries eliminated on the issue of validity, all patent litigation would resemble pharmaceutical patent litigation under the Hatch–Waxman Act. Because there is no right to a jury trial in those cases, summary judgment rates are particularly low. See *supra* note 239. Instead, judges often conduct a quick bench trial to develop a fuller record. See Katherine Rhoades, Note, *Do Not Pass Go, Do Not Stop for Summary Judgment: The U.S. District Court for the District of Delaware’s Seemingly Disjunctive Yet Efficient Procedures in Hatch–Waxman Litigation*, 14 NW. J. TECH. & INTEL. PROP. 81, 104 (2016). If the pharmaceutical model were applied to all patent litigation,

To be clear, the argument I am making is counterintuitive: By emphasizing that patent validity is ultimately a mixed question of law and fact, not simply a question of law, we would shift power *away* from the jury and to the judge. (Normally, we would think the jury's power would *increase* as a question becomes more factual and less legal.) But that result is counterintuitive only because of the Federal Circuit's questionable current practice of giving the ultimate decision on validity—coded as a question of law by current Supreme Court doctrine—to the jury. If we were writing on a clean slate, it seems clear that patent validity is a fact-heavy mixed question that, because of its complexity and its procedural posture of being essentially judicial review of administrative action, should be decided by the judge and reviewed deferentially on appeal.

V. CONCLUSION

The law-fact distinction is one of the most nettlesome concepts in American law. In litigation over patent validity, the distinction between questions of law and questions of fact is particularly fuzzy. That is unfortunate because the stakes are so high. As illustrated by the unhelpful but nevertheless accurate advice that Lionel, our imaginary patent lawyer,³³⁹ gave at the outset of this Article, important procedural features of patent litigation turn on an inquiry that, under existing doctrine, has few clear answers. A better path forward would be to recognize that all validity doctrines ultimately present mixed questions of law and fact. That simple rule would allow the procedure of patent litigation to be constructed in a less formalistic, more pragmatic fashion that would enable courts to resolve the question of patentability efficiently and accurately. And it would allow Lionel to give advice his client might actually find useful.

there may be more litigation at the margins, but it would provide full-blown merits decisions without too much additional effort. Of course, the pharmaceutical model cannot be fully imported into the mine-run of patent litigation because of the Seventh Amendment, which guarantees a jury on infringement and damages. *See supra* note 310. But district court judges can use claim construction to put a damper on the number of infringement jury trials needed. *See* David L. Schwartz, *Explaining the Demise of the Doctrine of Equivalents*, 26 BERKELEY TECH. L.J. 1157, 1160–61 (2011) (showing how the post-*Markman* “rise in the importance of claim construction” led to a sharp drop in the number of jury trials about infringement under the doctrine of equivalents). They can also bifurcate validity proceedings from a jury trial on other issues. *See* *Agfa Corp. v. Creo Prods. Inc.*, 451 F.3d 1366, 1372 (Fed. Cir. 2006).

339. *Cf.* Lionel Hutz, SIMPSONS WIKI, https://simpsons.fandom.com/wiki/Lionel_Hutz [https://perma.cc/B6ZB-7PXD].