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The Arc of History in Patent Subject Matter¹

ROBIN FELDMAN

In law, as in so much of life, there is an arc of history. We may move forward with a slow and fitful gait, but the trajectory is clear. The question for those who must apply or interpret patent law is whether to follow that arc or to push against it.

With patentable subject matter, the modern arc began with the first of the *Alice* quartet of Supreme Court cases.² In its 2010 decision, *Bilski*, the Supreme Court reversed the Federal Circuit and rejected the machine-or-transformer test in a case related to hedging strategies.³ In *Mayo*, the Supreme Court again rejected the Federal Circuit's analysis, overturning the Federal Circuit's attempt to apply the machine-or-transformer test in a case related to medical diagnostics.⁴ In *Myriad*, the Supreme Court, for a third time, rejected the Federal Circuit's test and analysis in a case related to patenting genes.⁵ In *Alice*, the Supreme Court delineated its own rule and

1. This essay is based on remarks by Professor Robin Feldman, the Arthur J. Goldberg Professor and Director of the Center for Innovation, University of California Hastings College of the Law, to the US Patent and Trademark Office. See U.S. Patent and Trademark Office, *Roundtable 2: Exploring the Legal Contours of Patent Subject Matter Eligibility Before the US Patent and Trademark Office* (Dec. 5, 2016) (statement by Prof. Robin Feldman at 37).

2. The *Alice* quartet refers to the four Supreme Court cases between 2010 and 2014 on patentable subject matter jurisdiction. The four cases are *Bilski v. Kappos*, 561 U.S. 593 (2010); *Mayo Collaborative Servs. v. Prometheus Labs., Inc. (Mayo)*, 566 U.S. 66 (2012); *Ass'n for Molecular Pathology v. Myriad Genetics, Inc. (Myriad)*, 569 U.S. 576 (2013); and *Alice Corp. Pty. v. CLS Bank Int'l (Alice)*, 573 U.S. 208 (2014). For a discussion on the *Alice* quartet and the progression of the Federal Circuit, see generally Robin Feldman, *Coming of Age for the Federal Circuit*, 18 GREEN BAG 2D 27, 30-33 (2014) [hereinafter Feldman, *Coming of Age for the Federal Circuit*]. See also Robin Feldman, *A Conversation on Judicial Decision Making*, 5 HASTINGS SCI. & TECH. L.J. 1 (2012) [hereinafter Feldman, *A Conversation on Judicial Decision-Making*].

3. *Bilski*, 561 U.S. at 612. See Feldman, *Coming of Age for the Federal Circuit*, *supra* note 2, at 31.

4. *Mayo*, 566 U.S. at 88, 92. See Feldman, *Coming of Age for the Federal Circuit*, *supra* note 2, at 31 ([T]he Justices suggested that they disagreed with everything the Federal Circuit had ever said about this area of patent law in the Circuit's 30-year history.).

5. *Myriad*, 569 U.S. at 596. See Robin Feldman, *Coming of Age for the Federal Circuit*, *supra* note 2, at 32.

“established a two-part test for distinguishing ineligible patents that merely claim laws of nature, natural phenomena, and abstract ideas from eligible patents that appropriately claim applications of those basic building blocks.”⁶

With each additional step along this broader trajectory, some on the bench and bar have tried to wave it away by arguing that the trajectory is no more than an optical illusion.⁷ It cannot be. It must not be. I confess there are times I have joined that chorus of dissenters as well.⁸ This has had no more effect than whistling into the wind, and there is little reason to believe that pressing against the arc of history will be any more successful going forward.

For example, after *Bilski*, we said, “the Court didn’t eliminate machine-or-transformation, so everything is business as usual”;⁹ after *Mayo* and *Myriad*,¹⁰ the refrain was “well, that’s only for life science cases,”¹¹ and since *Alice*, the refrain has been, “they didn’t ban software patenting, so we will find a way.”¹² Many Circuit decisions during this quartet period

6. See Feldman, *Coming of Age for the Federal Circuit*, *supra* note 2, at 32. See *Alice*, 573 U.S. at 218, 221 (describing the two part test as first, whether the patent is directed at an ineligible category and second, looking at additional elements of the claim to determine whether the inventive concept makes the patent more than a patent based on an ineligible concept) (citing *Mayo*, 566 U.S. at 72, 80 (2012)).

7. See *Chamberlain Grp., Inc. v. Linear LLC*, 114 F. Supp. 3d 614, 622-23 (N.D. Ill. 2015) (stating that the “preemptive concern [in *Alice*] is construed carefully, however, ‘lest it swallow all of patent law.’”) (citing *Mayo*, 566 U.S. at 70-71); *Gust, Inc., v. Alphacap Ventures, LLC*, 905 F.3d 1321, 1329 (Fed. Cir. 2018) (“[P]atent eligibility after *Alice* was settled.”); *CG Tech. Dev., LLC v. Bwin. Party (USA), Inc.*, No. 216CV00871RCJVC, 2017 WL 58575, at n.4 (D. Nev. Jan. 4, 2017) (“... *Alice Corp.* did not create the abstractness bar to patentability but rather introduced new language to apply an old rule, just as other cases in this line had done.”).

8. See Brief of Amici Curiae Professor Robin Feldman and the U.C. Hastings Institute for Innovation Law in Support of Neither Party at, 22-29, *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014) (suggesting that a concept of commercial application, which could be distinguished from the Supreme Court’s field of use doctrine, could separate patentable subject matter from unpatentable subject matter in the areas in which the doctrine has struggled); see also ROBIN FELDMAN, *RETHINKING PATENT LAW* 128-134 (Harvard 2012) (suggesting that logical tension in the area could be resolved if the Supreme Court approached the area of field of use restrictions in a different manner); Feldman, *A Conversation on Judicial Decision-Making*, *supra* note 2, at 28-30 (elaborating on the concept in the context of life science inventions).

9. *Bilski*, 561 U.S. at 612. See also Feldman, *Coming of Age for the Federal Circuit*, *supra* note 2, at 30 (“[A] majority of the Supreme Court Justices ruled in *Bilski* that machine-or-transformation, while a useful clue, certainly was not the sole test for determining subject matter patentability.”).

10. *Mayo*, 566 U.S. 66; *Myriad*, 569 U.S. 576. See also Feldman, *A Conversation on Judicial Decision-Making*, *supra* note 2, at 22-23.

11. See *Mayo*, 566 U.S. at 70; *Myriad*, 569 U.S. at 589.

12. See *Alice*, 573 U.S. at 226.

have come perilously close to what I would call, “reversal from below.”¹³ And through the entire time, the fervently whispered prayer has been that the Supreme Court will get tired of patent law, or tired of being criticized, and will leave us to do what we do best. The Justices have not tired of patent law—in fact it continues to occupy a remarkable amount of their docket.¹⁴ Reversal from below, is a treacherous path, one that is usually unsuccessful in the long run.

The latest wave of Federal Circuit decisions again pushes back on the Supreme Court’s trajectory. Yes, many, many software patents have been invalidated under *Alice*¹⁵, and its two-step process, in which a court must determine first, whether the claim is directed to a forbidden category such as abstract ideas, and second, whether the claim adds significantly more.¹⁶ But after taking some time, the Federal Circuit has found ways to ease the two-step tango. The *Amdocs* case opined that there is no workable definition of an abstract idea.¹⁷ The *Enfish* case held that courts must be careful not to apply too high a level of abstraction.¹⁸ And the *McRO*

13. See Brief of Amici Curiae Professor Robin Feldman, et al., in Support of Petitioner at 3, *Impression Products, Inc. v. Lexmark International, Inc.*, 137 S. Ct. 1523 (2017) (No. 15-1189) (“With each battle, the Circuit has tried to introduce concepts that would have the effect of nullifying the doctrine [of patent exhaustion], in a manner that is tempting to characterize as reversal from below.”).

14. For a list of Supreme Court patent cases, See Written Description, <http://writ.tendescription.blogspot.com/p/patents-scotus.html> (last visited Mar. 28, 2019) (Reporting that the United States Supreme Court reviewed two patent cases in its 2019 term and 3 patent cases in its 2018 term). See also U.S. Gov’t Accountability Off., GAO-16-490, Intellectual Property: Patent Office Should Define Quality, Reassess Incentives, and Improve Clarity (2016) (“GAO found that district court filings of new patent infringement lawsuits increased from about 2,000 in 2007 to more than 5,000 in 2015, while the number of defendants named in these lawsuits increased from 5,000 to 8,000 over the same period.”); Paul R. Gugliuzza, *How Much Has the Supreme Court Changed Patent Law?*, 16 CHI.-KENT J. INTELL. PROP. 330, 330 (2017) (“The U.S. Supreme Court has decided a remarkable number of patent cases in the past decade, particularly as compared to the first twenty years of the Federal Circuit’s existence.”).

15. E.g., *Secured Mail Sols. LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 909 (Fed. Cir. 2017), cert. denied, 138 S. Ct. 2000 (2018); *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121 (Fed. Cir. 2018); *In re Marco Guldenaar Holding B.V.*, 911 F.3d 1157 (Fed. Cir. 2018); *Roche Molecular Sys., Inc. v. CEPHEID*, 905 F.3d 1363, 1365 (Fed. Cir. 2018); *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281 (Fed. Cir. 2018); *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1343 (Fed. Cir. 2018).

16. *Alice*, 573 U.S. at 217-18, 221. See also Feldman, *Coming of Age for the Federal Circuit*, supra note 2, at 32.

17. *Amdocs (Israel) Ltd. v. Openet Telecom, Inc. (Amdocs)*, 841 F.3d 1288, 1294, 1306 (Fed. Cir. 2016).

18. *Enfish, LLC v. Microsoft Corp. (Enfish)*, 822 F.3d 1327, 1337 (Fed. Cir. 2016) (“However, describing the claims at such a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to [35 USCA § 101] swallow the rule.”).

holding is best summed up by the Patently-O headline, “Step One: Don’t Assume an Abstract Idea.”¹⁹ As much as one might hope, it’s hard to imagine that this wave of Federal Circuit decisions will be greeted any more warmly by the Supreme Court than the last.

Some individuals on both sides of the question of how broadly patents should reach have hoped that Congress will intervene. Congress has the authority to overturn the Supreme Court’s subject matter decisions, accelerate and enhance the Court’s decisions, or even cut back on aspects of post-grant review from the America Invents Act.²⁰ None of the tea leaves of Congress’ prior behavior suggest that Congress is likely to weigh in.²¹

So what is the United States Patent and Trademark Office to do, as it is buffeted by the winds of this less than cordial interchange between two levels of the judiciary? And of course, the agency itself may have internal cheering sections for particular viewpoints, not to mention pressure from those who use its services.²² The patent office, however, has an unusual level of responsibility, given 1) the twenty-year lag time once a patent has been granted²³ and 2) the nature of modern patent markets.²⁴

19. *McRO, Inc. v. Bandai Namco Games Am. Inc. (McRO)*, 837 F.3d 1299, 1314-16 (Fed. Cir. 2016) (“Claim 1 is not directed to an abstract idea and recites subject matter as a patentable process under [35 USCA § 101].”).

20. America Invents Act, Post-Grant Review, 35 U.S.C.A. § 321 (2012).

21. Since *Alice* was decided, many bills have been introduced into Congress that deal with patent subject matter, but only one directly targeted the *Alice* decision. In the Restoring America’s Leadership in Innovation Act of 2018, H.R. 6264, 115th Cong. (2018), section 7(b)(3) sought to amend Section 102 of title 35 of the United States Code to “abrogate *Alice Corp. v. CLS Bank International*, 134 S. Ct. 2347 (2014) and its predecessors to ensure that life sciences discoveries, computer software, and similar inventions and discoveries are patentable, and that those patents are enforceable.” However, after being introduced, the bill failed, never emerging from its assigned committee. Similarly, fourteen bills have been introduced into Congress since 2014 related to post-grant review but only one, H.R. 6264, *supra*, at section 4(c)(1), derides it stating, “[I]nter partes review and post-grant review proceedings introduced by the Leahy-Smith America Invents Act have harmed the progress of science and the useful arts by subjecting inventors to serial challenges to patents.” See also Support Technology and Research for Our Nation’s Growth and Economic Resilience Patents Act of 2017, S. 1390, 115th Cong. (2017); Support Technology and Research for Our Nation’s Growth Patents Act of 2015, S. 632, 114th Cong. (2015).

22. See generally *General Information Concerning Patents*, United States Patent and Trademark Office (Oct. 2015), <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> (last visited Mar. 26, 2019) (noting that “Interpretations of the statute by the courts have defined the limits of the field of subject matter that can be patented, thus it has been held that the laws of nature, physical phenomena, and abstract ideas are not patentable subject matter.”).

23. 35 U.S.C.A. § 154 (West 2015).

24. Sara Jeruss, Robin Feldman & Joshua Walker, *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 DUKE L. & TECH. REV. 357, 369 (2012) (“In the modern patent market, however, one sees the emergence of numerous

For example, there was a time when we could say with confidence that 90% of patents would never garner a return.²⁵ These shadow patents hovered on the periphery of the innovation system, doing little damage.²⁶ But the world has changed. With modern secondary markets, patents are easily traded, grouped, and launched as a bundle against product-producing companies.²⁷ In particular, the 2016 Federal Trade Commission report on Patent Assertion Entities concluded that for an entire category of players in the patent market, the business model is a nuisance one.²⁸ And, while the number of patent lawsuits has gone up and down in the last few years,²⁹ the down years are still vastly above the number twelve years ago, even accounting for changes brought about by the America Invents Act.³⁰

entities whose core activity is creation of an income stream from the patent market itself. These entities are developing in new and unusual ways—a reminder that any term describing such entities must be sufficiently flexible and broad.”).

25. Robin Feldman, *Intellectual Property Wrongs*, 18 STAN. J.L. BUS. & FIN. 250, 264 (2013) (“The vast majority of patents have never directly earned a return for the patent holder. Estimates suggest that the number is well above 90%.”). See also Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 5 (2005) (referring to estimates that suggest less than 5 percent of patents hold any value); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 267 (1977).

26. Feldman, *Intellectual Property Wrongs*, *supra* note 25, at 272-73.

27. Feldman, *Intellectual Property Wrongs*, *supra* note 25, at 254, 267-68 (“We need a mechanism for restraining inappropriate use of intellectual property and for signaling the difference between the acceptable pursuit of a return from your intellectual property and the inappropriate oppression of others, using the legal system and societally granted privileges as a weapon.”). See also Mark A. Lemley & Robin Feldman, *Is Patent Enforcement Efficient*, 98 B.U. L. REV. 649, 658 (2018).

28. Federal Trade Commission, *Patent Assertion Entity Activity: An FTC Study 8* (2016) (“Ninety-three percent of reported Litigation [Patent Assertion Entity] licenses followed a lawsuit against the eventual licensee and 77% were valued at less than the estimated cost of defending a patent lawsuit through the end of discovery—a threshold below which litigation settlements might be considered nuisance value.”). See *Id.* at 101 (“The FTC likewise observed Litigation [Patent Assertion Entity] behavior that was consistent with nuisance-value litigation.”).

29. U.S. Gov’t Accountability Off., GAO-16-490, *Intellectual Property: Patent Office Should Define Quality, Reassess Incentives, and Improve Clarity* 15 (2016), (discussing the increase in patent litigation from 2007 to 2015 with a decrease in litigation in 2014 being attributable to the decision in *Alice*).

30. See Robin Feldman, Tom Ewing, Sara Jeruss, *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 UCLA J.L. & TECH. 1, 77 (2013) (“Although the number of defendants decreased in 2012, possibly in response to changes in joinder rules from the America Invents Act, the number of defendants sued by patent monetization entities, as well as the percentage of litigation filed by patent monetization entities, is far higher today than it was six years ago.”). See generally U.S. Gov’t Accountability Off., GAO-16-490, *Intellectual Property: Patent Office Should Define Quality, Reassess Incentives, and Improve Clarity* 15 (2016). But see B. Zorina Khan, *Property Rights and Patent Litigation in Early Nineteenth-Century America*, 55 J. ECON. HIST. 58, 837 (1995) (analyzing the rates of litigation from 1790 to 1860 to refute the alleged “explosion” of litigation).

The burden on innovation industries is not small. As we sit in Silicon Valley, I note that the work of many scholars has carefully documented the damage modern patent assertion is causing for startups and small enterprises—not to mention more mature companies.³¹

31. See Robin Feldman, *Patent Demands & Startup Companies: The View from the Venture Capital Community*, 16 YALE J.L. & TECH. 236, 263-64 (2014) (reporting the findings of a surveying study where 70% of responding venture capitalists reported that they have portfolio companies that received a patent demand and 79% of responding venture capitalists reported that the number of demands received increased in the last 5 years); See *Id.* at 280-81 (“[T]he venture-backed company community overwhelmingly views patent demands as a negative for their industry, does not think about the potential for reselling patents when deciding whether to invest in a company, and would pause before investing in a company that had an existing patent demand against it.”); Robin Feldman and Evan Frondorf, *Patent Demands and Initial Public Offerings*, 19 STAN. TECH. L. REV. 52, 89 (2015) [hereinafter Feldman, *Patent Demands and Initial Public Offerings*] (reporting the results of a survey of companies before or after their IPO and concluding that “[R]espondents continued to overwhelmingly agree that patent demands were problematic in their sectors, with many also believing that patent demands had specific negative impacts on their companies.”); Feldman, *supra* note 30, at 7 (“[I]n 2012, litigation by patent monetization entities represented a majority of the patent litigation filed in the United States.”); Lemley, *supra* note 27, at 651 (“[Non-Practicing Entities] now account for the majority of patent lawsuits filed in the United States.”). See also Colleen Chien, *Patent Assertion and Startup Innovation*, Open Technology Institute, New America Foundation 4 (2013), <https://www.newamerica.org/oti/policy-papers/patent-assertion-and-startup-innovation/> [hereinafter Chien, *Patent Assertion and Startup Innovation*] (“[Patent] assertions have added friction to technology transactions, reduced the value of pursued startups, and triggered large indemnities, according to study subjects.”); see also Colleen Chien, *Patent Assertion and Startup Innovation*, Open Technology Institute, New America Foundation 4 (2013), <https://www.newamerica.org/oti/policy-papers/patent-assertion-and-startup-innovation/> [hereinafter Chien, *Patent Assertion and Startup Innovation*] (“[Patent] assertions have added friction to technology transactions, reduced the value of pursued startups, and triggered large indemnities, according to study subjects.”); Colleen Chien, *Patent Assertion Entities*, Presentation at Federal Trade Commission and U.S. Department of Justice Workshop, 2-3 (Dec. 10, 2012) (“[Patent Assertion Entities] make it economical to bring suit, and economical for the defendant to settle, regardless of the merits.”); *Tracking PAE Activity: A Post-script to the DOJ Review*, RPX Rational Patent: Intelligence, <http://www.rpxcorp.com/intelligence/blog/tracking-pae-activity-a-post-script-to-the-doj-review/> (Mar. 19, 2019), (“For the first time, in 2012, PAEs filed the majority of patent suits: 2,921 of 4,701 suits, representing 62% of all patent suits.”); James Bessen & Michael Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 389 (2014) (describing the Patent Assertion Entities as exacting a tax on innovation in the amount of \$29 billion in 2011); Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1312 (2013) (“NPEs account for more than two-thirds of suits and over 80% of infringement claims litigated in the final three years of the patent term.”); JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* 16 (Princeton Univ. Press, 2008) (arguing that outside the pharmaceutical and chemistry industries, the costs of litigating patents outweigh the earnings gained from patents). *But see* Stephen Haber, *Patents and the Wealth of Nations*, 23 GEO. MASON L. REV. 811, 832 (“There is also no convincing evidence that PAEs negatively affect innovation.”);

And the patent office has faced more than its fair share of blame. The 2013 GAO report pointed at poor patent quality as a cause of pain in the patent system.³² However, the problems are not just in the tech industry—weak life science patents contribute to schemes that fuel popular outrage about rising drug prices.³³

In short, the patent office experiences a great burden to “get it right.” When the agency follows the ebb and flow of the battle between different levels of the judiciary, that strategy leaves long-term damage in its wake. The rules may change when issues reach the Supreme Court, but for patents granted in the interim, there is a twenty-year tail.³⁴ Thus, I urge a large dose of caution. The temptation to jump forward as the Federal Circuit pushes back on Supreme Court doctrine misses the arc of history. And while we may not like it, the arc of history is there.

Alexander Galetovic, Stephen Haber & Ross Levine, *An Empirical Examination of Patent Holdup*, 11 J. COMPETITION L. & ECON. 549, 561 (2015) (an empirical study suggesting that there is a one-to-one relationship between changes in quality-adjusted relative prices and differential rates of productivity growth across industries); Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457, 458-60 (2012) (arguing that NPEs are a microcosm of innovative markets and concluding that “an NPE bringing a lawsuit could just as well be the entity that sought the patent initially in the first place.”); Khan, *supra* note 30, at 833. B. Zorina Khan, *Trolls and Other Patent Inventions: Economic History and the Patent Controversy in the Twenty-First Century*, 21 GEO. MASON L. REV. 825, 832-33 (2014).

32. See U.S. Gov’t Accountability Off., GAO-13-465, *Intellectual Property: Assessing Factors That Affect Patent Infringement Litigation Could Help Improve Patent Quality*, 32 (2013) (“[T]he prevalence of low quality patents was driving recent increases in litigation more than PME suits.”); Chien, *Patent Assertion and Startup Innovation*, *supra* note 31, at 15 (“Poor patent quality harms startups and small companies, said respondents, when ‘[l]arge companies use their arsenal of patents to file frivolous lawsuits,’ ‘[d]eserving patents get same timeline as undeserving ones,’ and ‘[obvious] [s]oftware patents hurt innovation and destroy jobs,’ in the words of respondents.”) (citing from the study documented in the article). See also Feldman, *Patent Demands and Initial Public Offerings*, *supra* at note 31, at 58-59.

33. See Feldman, *supra* note 30, at 365-66. See also Robin C. Feldman and Mark A. Lemley, *The Sound and Fury of Patent Activity*, (Stanford Law and Economics Olin Working Paper No. 521; Stanford Public Law Working Paper; UC Hastings Research Paper No. 290), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3195988. Robin Feldman, Evan Frondorf, Andrew K. Cordova & Connie Wang, *Empirical Evidence of Drug Pricing Games - A Citizen’s Pathway Gone Astray*, 20 STAN. TECH. L. REV. 39, 42 (2017) (“[A]necdotal evidence has percolated in recent years about new forms of strategic behavior designed to keep drug prices artificially inflated by blocking generic entry.”); Robin Feldman and Connie Wang, *A Citizen’s Pathway Gone Astray – Delaying Competition from Generic Drugs*, 376 NEW ENG. J. MED. 1499 (2017); Feldman, *Intellectual Property Wrongs*, *supra* note 25, at 268-69.

34. 35 U.S.C.A. § 154 (2015).
