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The Constitution of Patent Law The Court of Customs and Patent Appeals and the Shape of the Federal Circuit's Jurisprudence

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THE CONSTITUTION OF PATENT LAW: THE COURT OF CUSTOMS AND PATENT APPEALS AND THE SHAPE OF THE FEDERAL CIRCUIT'S JURISPRUDENCE

*Jeffrey A. Lefstin**

Recent critiques of the Court of Appeals for the Federal Circuit have focused on the court's reluctance to embrace cohesive policy approaches in its patent jurisprudence, particularly when it comes to questions of patent scope. This Article suggests that the Federal Circuit's tendency towards more formalistic decision making derives in part from the jurisprudential heritage of one of its predecessor courts, the Court of Customs and Patent Appeals. The modern doctrines of patent scope were shaped by the CCPA's decisions in the years following the 1952 Patent Act, especially its decisions interpreting §§ 103 and 112 of the Act. When the Federal Circuit adopted the CCPA's precedent in its first decision, the CCPA's law displaced that of other courts previously charged with administering aspects of the patent system. However, the CCPA's patent decisions were uniquely shaped by three imperatives peculiar to the court and its place in the patent system: the nature of the court itself; its need to exert and legitimize its control over Patent Office decisions; and its exclusive focus on patentability rather than patent enforcement. Though the modern Federal Circuit has far different jurisprudential needs than did the CCPA, the CCPA's legal methodologies are so deeply engrained in patent law that they continue to shape Federal Circuit decision making today. Those doctrines and methodologies may have served the CCPA well; but they may not answer the needs of the modern patent system.

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INTRODUCTION

In 1915, patent treatise-writer William Macomber published a remarkable essay in the *Yale Law Journal* entitled *Judicial Discretion in Patent Causes*.¹ His inspiration was the U.S. Court of Appeals for the Second Circuit's ruling of non-infringement in the famous Selden automobile patent litigation.² Though Selden had obtained a patent whose claims literally encompassed every practical combination of the internal combustion engine and an automobile chassis, in litigation against Ford Motor Company, the Second Circuit confined Selden's claim to a "fair and reasonable" scope.³ Despite the lack of any limiting language in the claims, the Second Circuit construed the claims to cover only automobiles employing Selden's two-cycle constant pressure engine. Since nearly all automobile manufacturers used the more modern four-cycle constant volume engine, the Second Circuit's decision ended control of the automobile industry by Selden's licensees.⁴

Macomber celebrated the *Selden Case* for the death of legal formalism in patent law, and as a herald for a new era whose growth in industrial progress and complexity demanded a concomitant growth in judicial discretion to achieve policy goals.⁵ In comparison, the U.S. Supreme Court's decision fourteen years prior to uphold the Bell Telephone Company's broad patent on the telephone⁶ seemed as archaic a relic of "judicial literalism" as the *Dred Scott Case*⁷ seemed in Macomber's day:

However one may view the facts in these two cases, the truth remains that the decision of the Supreme Court in the Berliner Case could be repeated to-day no more than the decision in the *Dred Scott Case*. No matter if the logic of the Circuit Court of Appeals does appear strained in the

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1. William Macomber, *Judicial Discretion in Patent Causes*, 24 YALE L.J. 99 (1915).
 2. *Columbia Motor Car Co. v. C. A. Duerr & Co. (Selden Case)*, 184 F. 893 (2d Cir. 1911).
 3. *Id.* at 912.
 4. JAMES J. FINK, *THE AUTOMOBILE AGE* 54-55 (1988).
 5. Macomber, *supra* note 1, at 103.
 6. *United States v. American Bell Tel. Co.*, 167 U.S. 224 (1897).
 7. *Dred Scott v. Sandford*, 60 U.S. 393 (1857).

light of the cases, it resulted in the exercise of judicial discretion which was justice rather than academic law.⁸

For Macomber, the *Selden Case* showed that judges had transcended the old literalism of patent claim construction and were adopting a new and pragmatic approach to patent law.⁹ This new pragmatism demanded a creative judicial mind, with “the genius to read an old statute in the light of new economic and industrial condition,” beyond the ordinary judicial function of choosing between the arguments of two parties in a case.¹⁰ For appellate judges to exercise this power, their review had to extend to facts as well as law, for otherwise excessive deference would ossify errors of the trial court and interfere with the proper exercise of judicial discretion.

An essay like Macomber’s would not be written today. The appellate court in control of modern patent law, the U.S. Court of Appeals for the Federal Circuit, is rarely praised for its flexibility or for its exercise of judicial discretion in pursuit of policy goals. Far more typical are criticisms like those of Professors Dan Burk and Mark Lemley, who argue that today’s patent law is sorely in need of such policy discretion, and that the Federal Circuit has not been exercising it, or at least not exercising it consciously and in an organized fashion.¹¹ Burk and Lemley describe the court as “particularly resistant to considering patent policy in making its decisions.”¹² Other leading scholars reproach the Federal Circuit for its embrace of “simple rules and formalism,” for its excessive focus on the facts of individual cases rather than policy issues, and for its reluctance to sanction any doctrine not specifically grounded in the text of the patent statutes.¹³

My aim in this contribution to the symposium “The Federal Circuit as an Institution” is not to assess whether the Federal Circuit ought to be exercising more or less explicit policy discretion in

8. Macomber, *supra* note 1, at 101.

9. *See id.* at 103.

10. *Id.* at 104.

11. *See* Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1671–75 (2003) [hereinafter *Policy Levers*]; *see also* DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009).

12. Burk & Lemley, *Policy Levers*, *supra* note 11, at 1671.

13. *See id.* at 1671–75 (collecting criticisms).

patent law today. It is instead to ask *why* the decision-making process of the Federal Circuit does not function in the way that Macomber celebrated or that Burk and Lemley urge. The answer I propose is that the Federal Circuit's jurisprudential outlook derives in large part not from its current circumstances, but instead from its ancestry.

The Federal Circuit was created from the merger of the Court of Customs and Patent Appeals (CCPA) and the appellate division of the Court of Claims.¹⁴ In its first decision, *South Corp. v. United States*,¹⁵ the new Federal Circuit adopted the caselaw of its predecessor courts as controlling precedent.¹⁶ That choice seemed unremarkable at the time. But by adopting the precedent of its predecessor courts, the Federal Circuit adopted a body of patent law that had been designed for use by a particular court, the CCPA, in a particular context, the review of patentability decisions by the Patent Office.¹⁷ That act of adoption at once set the contours of the Federal Circuit's patent jurisprudence, and hence the contours of modern patent law. I will argue in this Article that the particular structure and needs of the CCPA shaped both its substantive patent law and its jurisprudential orientation. The question for modern patent law is whether the stamp of the CCPA's jurisprudence has left us a patent law that can adequately cope with the demands of patent litigation today. Part I will sketch the nature and circumstances of the CCPA and how it viewed its relationship with the Patent Office. Part II contends that those circumstances uniquely shaped both the substantive doctrines of patentability the CCPA developed and the jurisprudential methods the CCPA used to implement them. Part III shows how the doctrinal heritage of the CCPA continues to shape Federal Circuit decision making in the critical question of patent scope. Part IV argues that as a consequence of that heritage, patent law may have lost the ability to integrate *ex ante* and *ex post* information in the determination of patent scope.

14. Federal Courts Improvements Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (1982).

15. 690 F.2d 1368 (Fed. Cir. 1982).

16. *S. Corp. v. United States*, 690 F.2d 1368, 1370-71 (Fed. Cir. 1982).

17. The Patent Office was renamed the Patent and Trademark Office in 1975, Pub. L. No. 93-596, § 1, 88 Stat. 1949 (1975), and renamed the U.S. Patent and Trademark Office in 1999, Pub. L. No. 106-113, § 1000(a)(9), 113 Stat. 1501A-572 (1999). I use "Patent Office" as that term described the Office for most of the CCPA's existence.

I. THE CCPA AS AN INSTITUTION

A. *Structure: A Nice Little Five-Judge Court*

The CCPA was created in 1929, when Congress divested the Court of Appeals for the District of Columbia of jurisdiction over appeals from the Patent Office, and joined that jurisdiction with the jurisdiction of the Court of Customs Appeals over customs cases to create the CCPA.¹⁸ The court lasted until 1982, when Congress created the Court of Appeals for the Federal Circuit by combining the CCPA's jurisdiction with the appellate jurisdiction of the Court of Claims, and adding to that combination a new and exclusive jurisdiction over all appeals from the district courts in patent infringement cases.¹⁹

The Federal Circuit is often described as a specialized court.²⁰ But this was far truer of the CCPA. Although the CCPA lacked judges with prior patent expertise during the first half of its existence,²¹ the CCPA even then was necessarily more familiar and more experienced than the modern Federal Circuit when it came to issues of patentability. Like today's Federal Circuit, the CCPA heard appeals from the Patent Office where the Office had refused a patent to an applicant, or from interferences between rival claimants for priority of invention.²² But the CCPA's docket was far more

18. See Act of March 2, 1929, ch. 488, §§ 1, 2, 45 Stat. 1475, 1475–76. The reason for transferring jurisdiction was that the Court of Appeals for the District of Columbia was overburdened with appeals, while the Court of Customs Appeals was underworked. See P.J. Frederico, *Evolution of Patent Office Appeals (Part II)*, 22 J. PAT. OFF. SOC'Y 920, 946 (1940). According to Judge Giles Rich, the District of Columbia courts were overburdened with litigation over Prohibition. See James F. Davis, *Interview with Judge Giles S. Rich*, 9 FED. CIR. B.J. 55, 56 (1999). The Court of Appeals retained appellate jurisdiction over civil actions filed against the Commissioner. See *infra* note 22.

19. Federal Courts Improvement Act, Pub. L. No. 97-164, 96 Stat. 25 (1982).

20. See, e.g., Rochelle C. Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1 (1989).

21. According to Judge Rich, of the CCPA's judges, only himself (1956–82), Arthur M. Smith (1959–68), Donald E. Lane (1969–79), and Howard M. Markey (1972–82) were patent lawyers. See Giles S. Rich, *Thirty Years of This Judging Business*, 14 AIPLA Q.J. 139, 143 n.2 (1986).

22. Since 1927, appeal from an examiner's rejection has first been taken to the Board of Appeals (now the Board of Patent Appeals and Interferences) within the Patent Office. See Frederico, *supra* note 18, at 945. Rather than directly appeal the Board's decision, a rejected applicant or a losing party to an interference may instead commence a civil action—which is necessary if the appellant wishes to introduce evidence beyond the record generated before the Patent Office. See 35 U.S.C. §§ 145–146 (2006) (providing for civil action to obtain patent or in case of interference). Under modern law, the Court of Appeals for the Federal Circuit retains

specialized than that of the Federal Circuit, with about 80–85 percent of cases originating from decisions by the Patent Office.²³ None of these cases involved the diverse and difficult issues arising in patent litigation with which the Federal Circuit must now contend.²⁴ And of course, the CCPA was not vested with the Federal Circuit's extensive non-patent jurisdiction, which by number comprises the majority of its current docket.²⁵

No doubt on account of its restricted jurisdiction, the CCPA was also a leisurely court that had the time to invest in careful review of patentability decisions. According to Judge Rich, when he joined the CCPA in 1956, “[t]he court sat from October to May and occasionally skipped a month for want of enough to do. . . . I *did* have time for deliberation.”²⁶ Shortly after he became a judge on the Federal Circuit, however, Judge Rich noted, “People soon started asking me how I liked it and I developed a stock answer: ‘I am not delighted, I am diluted.’”²⁷ The Federal Circuit certainly does not recess for four months of the year, and with its larger and more complex docket, its judges do not have the same luxury of devoting the same time and attention to cases as their predecessors enjoyed.

The CCPA may have also been a more collegial and flexible court. The Federal Circuit is undoubtedly no less collegial and flexible than other courts of appeals, but the CCPA, by reason of its structure, was inherently more so. Judge Rich, from his vantage point as a Federal Circuit judge, almost wistfully described the intimacy of the CCPA: “The CCPA was a nice little five-judge court pretty much specializing in patents which in recent years had managed to have

exclusive jurisdiction over an appeal from the district court in such an action, ensuring uniform appellate review regardless of which avenue is taken. *See* 28 U.S.C. § 1295(a)(4)(C) (2006). However, prior to the creation of the Federal Circuit, appeal in a civil action remained with the Court of Appeals for the District of Columbia Circuit, rather than the CCPA. *See* Frederico, *supra* note 18, at 947.

23. *See* Rich, *supra* note 21, at 140–41.

24. Judge Rich describes how the Federal Circuit's new jurisdiction over patent infringement litigation required its judges to grapple with new substantive and procedural issues which were completely unfamiliar to them. *See id.* at 147.

25. *See id.* at 141–43.

26. *Id.* at 141.

27. *Id.* at 146.

two or three patent lawyers on it at the same time. It always sat in banc.”²⁸

Aside from the purely social aspects of a smaller court, a court in which all cases are heard en banc may retain more doctrinal consistency and flexibility than is possible with a court that sits in panels. The Federal Circuit, like other intermediate courts, follows the rule of “interpanel accord.”²⁹ Under that rule, precedent established by an earlier panel of the court binds all future panels, unless the court overrules it en banc.³⁰ The rule of interpanel accord exacerbates the path dependency of common law adjudication: legal doctrine is shaped not only by the nature of disputes that reach the appellate court (and how those cases are framed by their advocates), but also by the random composition of the particular panel hearing the case.³¹ Hence, as compared to the CCPA’s jurisprudence, the Federal Circuit’s jurisprudence may correspond less closely to the policy preferences of its judges as a collective group, being in part the idiosyncratic product of the panel first presented with an issue.

Furthermore, though the CCPA adhered to the general principle of stare decisis and would not overrule its past precedents absent strong justification,³² the court’s practice of sitting en banc meant that precedent was relatively free to change should the court so desire. At the Federal Circuit, in contrast, en banc review is an extraordinary occurrence. Even doctrine that does not command a majority of the court may persist for long periods of time given the hurdles to securing en banc review. Thus, as compared to today’s Federal Circuit, the CCPA may have been more free to evolve legal doctrines in tentative or experimental steps, and adjust those doctrines as later experience or conditions showed their faults.

28. *Id.* at 147. Judge Rich explains that the CCPA used the term “in banc” rather than “en banc” following the Federal Rules of Appellate Procedure. *Id.* at 146–47; FED. R. APP. P. 35(b).

29. *See, e.g.,* Kimberly-Clark Corp. v. Fort Howard Paper Co., 772 F.2d 860, 863 (Fed. Cir. 1985) (“Counsel is apparently unaware that a panel of this court is bound by prior precedential decisions unless and until overturned *in banc.*”) (italics in original).

30. *Id.*

31. Comparing the panel adjudication of the Federal Circuit to the en banc regime of the CCPA, Judge Rich noted, “I felt much more secure in the sense of less likelihood of a mistake being made with the CCPA where three had to agree to decide a case. Three-judge panels sometimes make me very itchy; it take only two judges to decide a case The chance factor is very great.” Rich, *supra* note 21, at 148.

32. *See, e.g.,* *In re Tarczy-Hornoch*, 397 F.2d 856, 868–69 (C.C.P.A. 1968) (Kirkpatrick, J., dissenting).

B. Context: The Imperative of Control

The CCPA's patent jurisprudence was, except with respect to interferences,³³ articulated almost exclusively in the context of reviewing patentability determinations by the Patent Office.³⁴ This consideration, more than anything else, shaped the CCPA's patent jurisprudence, and through the adoption of the CCPA's precedent, it continues to hold sway over modern patent doctrine.

The CCPA's patent jurisprudence was a unique product of its context in two key respects. First, the CCPA's patentability jurisprudence was constructed to facilitate control over the Patent Office. And the CCPA was not shy about exercising that control. At least during its later years, the CCPA's major goal was to bring the Patent Office to heel on key points of patentability doctrine such as nonobviousness, utility, patentable subject matter, and the nature of 35 U.S.C. § 112's disclosure requirement.³⁵ Prior to the late 1950s, the CCPA and the Patent Office seemed largely in accord on major issues such as the standards of nonobviousness and utility.³⁶ But from that point on, the CCPA—primarily under the guidance of Judge Rich—began to impose on the Patent Office many of the contours of modern patent law.³⁷

The CCPA's method of imposing control over Patent Office decisions was to articulate a relatively complex and precise body of legal doctrine on patentability. Appellate courts have long used the development of legal doctrine to control the behavior of lower tribunals.³⁸ But compared to an ordinary appellate court, the CCPA's peculiar disposition left a distinct stamp on its patentability

33. Prior to the revision of 35 U.S.C. § 135 in 1984 (and hence during the CCPA's entire existence), interferences generally resolved only priority issues and could not address patentability.

34. Under section 337 of the Tariff Act of 1930, as amended by the Trade Act of 1974, 19 U.S.C. § 1337, the CCPA in its last years heard a handful of appeals from decisions of the International Trade Commission, in which the Commission could bar importation of articles that would infringe U.S. patents. *See Coleco Indus. v. U.S. Int'l Trade Comm'n*, 573 F.2d 1247, 1249 (C.C.P.A. 1978) ("This case presents the first appeal under [§ 1337], as amended, in which we reach the merits.").

35. *See infra* Part II.

36. *See* Edwin L. Reynolds, *The Standard of Invention in the Patent Office*, in 1 DYNAMICS OF THE PATENT SYSTEM (William B. Ball ed., 1960).

37. *See generally* Rich, *supra* note 21.

38. *See infra* Part II.A.

jurisprudence. First, the CCPA's patent jurisprudence was articulated within the statutory framework of the patent statutes, not within a common law regime. Second, the law of patentability was developed in the course of maintaining control over an administrative agency, not in the course of asserting control over a trial judge or jury. And third, within its sphere, the CCPA's control (or perhaps its insularity) was more complete than that of most reviewing courts. Though the courts of appeals reviewed patentability matters in infringement cases, and the Court of Appeals for the District of Columbia occasionally reviewed Patent Office decisions, neither the CCPA nor the Patent Office paid much heed to the decisions of other courts.³⁹

Moreover, the nature of the CCPA's review over Patent Office decisions did not remotely resemble what is expected from a reviewing court today. Whatever the nominal standard of review applied to Patent Office decisions might have been, certainly in its later days, the CCPA gave little or no deference to Patent Office determinations.⁴⁰ Judge Rich was remarkably candid in comparing the CCPA's review to the Federal Circuit's review of district court fact findings under the "clearly erroneous" standard of the Federal Rules of Civil Procedure⁴¹: "In the CCPA, we were not reviewing trials, and Rule 52(a) was not applicable. Or if it was, we ignored it. Reviewing the PTO Boards, our attitude was we reversed them if they were wrong."⁴² Thus, far from the deferential review we might expect from a reviewing court today, the CCPA's isolation from the mainstream of administrative law permitted it to exert exceptional control over Patent Office practice and individual patentability decisions.

39. See Third Annual Judicial Conference of the United States Court of Customs and Patent Appeals, 72 F.R.D. 239, 295 (1976) (comments of Gerald Rose) (noting that the CCPA rarely cited precedent from courts other than itself); Reynolds, *supra* note 36, at 10 (noting that three-fourths of decisions cited by Patent Office Board of Appeals decisions were from the CCPA).

40. See *In re Zurko*, 142 F.3d 1447, 1455-56 (Fed. Cir. 1998) (en banc), *rev'd sub nom.* Dickinson v. Zurko, 527 U.S. 150 (1999) (discussing CCPA review of Patent Office decisions).

41. FED. R. CIV. P. 52(a)(6).

42. Rich, *supra* note 21, at 149. See also *In re Zurko*, 142 F.3d at 1455 n.5 (suggesting that Patent Office decisions received less deference from the CCPA beginning in the early 1950s). In contrast, the Court of Appeals for the District of Columbia reviewed Patent Office decisions even more deferentially than it reviewed those of other agencies, at least with respect to technical determinations. See *Abbott v. Coe*, 109 F.2d 449, 451 (D.C. Cir. 1944). However, the CCPA exerted far more influence on the Patent Office than the D.C. Circuit did, due to the greater number of cases reviewed by the CCPA and the greater thoroughness of its opinions. See Reynolds, *supra* note 36, at 9-10.

C. Outlook: The Prospective Perspective

Perhaps the most significant determinant of the CCPA's patentability jurisprudence was its timing. The CCPA's view of the patent system was through the lens of the Patent Office and the patent procurement process. Most appellate court decision making is at least partially retrospective, in that the real-world consequences of a legal rule become evident in the dispute between the parties before the court. However, the effects of the CCPA's decisions were almost entirely prospective: the court considered only patentability and not patent enforcement. Because the CCPA lacked jurisdiction over patent infringement actions, the CCPA's perspective was confined to the review of Patent Office actions denying patentability, except in the context of interferences, in which the court reviewed disputes between rival inventors claiming priority of invention.⁴³

Patent Office decisions were (and still are) prospective in the sense that the agency has little or no ability to gauge the consequences of granting a patent of broad or narrow scope to any particular applicant. The successful applicant takes his patent off into the world to enforce, and in nearly all cases the Patent Office's role has ended.⁴⁴ Even if the Patent Office was inclined to pursue particular policies of patent scope, the limitation of the agency's responsibility to granting or denying patents means that the agency cannot readily incorporate information about post-grant policy consequences into its decision-making process.⁴⁵

Though one step removed from the trenches, the CCPA was also not inclined to pursue an integrated vision of patent policy. Being limited to reviewing Patent Office determinations, the court no less

43. See 35 U.S.C. § 141 (2006).

44. Issued patents may be reopened before the Patent Office in a re-examination procedure, and the Patent Office will be notified if that patent is involved in litigation. See 35 U.S.C. §§ 290, 301–318.

45. Historically, the Patent Office appeared little influenced even by the external influences most directly relevant to its responsibilities. See Reynolds, *supra* note 36, at 6–9. Though trial and appellate courts repeatedly held patents invalid for obviousness in patent litigation in the decades leading up to the 1952 Act, the long lapse of time between the Patent Office's grant of the patent and its invalidation during litigation, and the lack of any formal mechanism to recognize and communicate such information to the examining corps, made the Patent Office unable or unwilling to change its standards of patentability in response. See *id.* at 9. If the agency could not even take into account information about outcomes of patent litigation in its decision-making process, then it was unlikely to have taken into account long-range policy consequences. See *id.*

than the Patent Office was confined to prospective decision making. It evaluated each case without knowing how any one grant or denial would affect innovation, competition, or other economic activity. Even in those rare instances where the importance of a particular patent grant was evident, the court (at least ostensibly) treated the consequences of patent scope as a question beyond its concern.

Perhaps the prime example is *In re Hogan*.⁴⁶ *Hogan* dealt with a claim to a synthetic polymer of 4-methyl-1-pentene;⁴⁷ at the time the appeal was decided, the patent application had been pending for more than twenty years after the first priority applications were filed.⁴⁸ The Patent Office had rejected the applicants' claims for lack of enablement under § 112.⁴⁹ The Patent Office's rejection derived, in part, from a concern that the applicants' general claims to "polymers" could be construed to cover so-called "amorphous" forms of the pentene polymer that were not known when the original application was filed in 1953, and which could not be synthesized by the applicants' process.⁵⁰ In other words, later developments in the art demonstrated that an unqualified claim to "polymers" might grant the applicants exclusive rights over later-developed polymers that were not enabled by the applicants' disclosure. The CCPA, however, rejected the argument that such considerations should influence the question of whether the priority applications enabled the claims in question.⁵¹ According to Chief Judge Markey,

[t]he PTO position, that claim 13 is of sufficient breadth to cover the later state of the art (amorphous polymers) shown in the "references," reflects a concern that allowance of claim 13 might lead to enforcement efforts against the later developers. Any such conjecture, if it exists, is both

46. 559 F.2d 595, 607 (C.C.P.A. 1977).

47. The application in *Hogan* was a divisional of the same application that ultimately established Phillips Petroleum's priority of invention in the protracted polypropylene litigation, but the claim in *Hogan* was directed to a 4-methyl-1-pentene polymer rather than a propylene polymer.

48. The original priority application was filed in 1953, and *Hogan* was decided in 1977. See *In re Hogan*, 559 F.2d at 595.

49. *Id.* at 603.

50. *Id.* at 602.

51. *Id.* at 607.

irrelevant and unwarranted. The business of the PTO is patentability, not infringement.⁵²

Judge Markey regarded these concerns as exclusive matters for the courts in deciding infringement suits, and not for the Patent Office in deciding patentability.⁵³ And, according to Judge Markey, the courts would ensure that no such mischief would ensue in patent litigation: the judicially created reverse doctrine of equivalents “may be safely relied upon to preclude *improper* enforcement against later developers.”⁵⁴ However, as most students of patent law know, that optimistic prediction has not described the later reception of the reverse doctrine of equivalents at the hands of the Federal Circuit.⁵⁵

Likewise, the CCPA was not inclined to credit arguments that the grant of particular patents, or even patents in general, might impede innovation.⁵⁶ In a case raising the question of whether novel chemical compounds were patentable even though the applicant had not demonstrated any practical utility for the compound, Judge Rich dismissed the objection that such patents would impede basic research: “To dispose quickly of a collateral point of law, experimental use is not infringement.”⁵⁷ Despite Judge Rich’s

52. *Id.* at 607.

53. *Id.*

54. *Id.*

55. See *Tate Access Floors, Inc. v. Interface Arch. Res., Inc.*, 279 F.3d 1357, 1368 (Fed. Cir. 2002) (“Not once has this court affirmed a decision finding noninfringement based on the reverse doctrine of equivalents.”). Indeed, when defendants who were sued on a patent related to the one in *Hogan* tried to raise the reverse doctrine of equivalents as a defense, arguing that their polypropylene product was so diverged from the principle of the polypropylene disclosed in the 1953 application that they should escape infringement, Markey (now Chief Judge of the Federal Circuit) neatly neutered the defense by defining the principle of the claimed invention exceedingly broadly: “[T]he production for the first time of crystalline polypropylene.” *U.S. Steel Corp. v. Phillips Petroleum Co.*, 865 F.2d 1247, 1253 (1989) (quoting *Phillips Petroleum Co. v. U.S. Steel Corp.*, 673 F. Supp. 1278, 1354 (D. Del. 1987)). Since the defendants also made crystalline polypropylene, they had made no change in that principle and were liable for infringement. *Id.*

56. One might speculate that the CCPA’s vantage point inclined it to be more “pro-patent” than a court that also reviewed litigation might have been. The court was presented only with the benefits of the patent system: inventions and inventors spurred by the prospect of a patent. It did not see the costs, such as infringers who were forced to abandon otherwise legitimate and productive activity.

57. *In re Kirk*, 376 F.2d 936, 965 (C.C.P.A. 1967) (Rich, J., dissenting). The Supreme Court in *Brenner v. Manson* ruled that an inventor must demonstrate that “specific benefit exists in currently available form” to comply with the utility requirement of § 101. *Brenner v. Manson*, 383 U.S. 519, 534–35 (1968); see *infra* text accompanying notes 59–74.

confidence, experimental use has fared even worse than the reverse doctrine of equivalents as a post-grant mechanism for limiting the effects of patent scope.⁵⁸

In summary, the CCPA's patentability jurisprudence was the product of a uniquely situated court. First, the court's structure and vantage point gave rise to a body of law to be wielded by experienced judges with the time and inclination to delve deeply into questions of patentability. Those judges would be free to decide appeals largely according to their own views, unhindered by the constraint of deference to a lower tribunal. The CCPA's intimacy meant that positions adopted by the court usually commanded a majority of the court's judges, while the flexibility provided by always sitting *en banc* permitted the court to revise its doctrine and policy choices relatively freely. Second, the court's patentability jurisprudence was created to control and direct the Patent Office, meaning that both its substance and its justification would have to be tailored to the problem of administrative control. Finally, because decisions of the Patent Office were nearly always made in the absence of information about how the patent claim in question would be enforced, the CCPA's review of such decisions was either inherently or explicitly anti-consequentialist. Even on those occasions where the court was informed of the social cost of any one patent grant, the court was not inclined to consider the repercussions of patent scope.

II. THE CCPA'S BODY OF PATENTABILITY LAW

How did the CCPA's unique setting shape its patentability jurisprudence? In other words, how was the course of patent law different than it might have been had patentability been entrusted to an ordinary court of appeals? We cannot answer that counterfactual definitively, except where we can compare the CCPA's doctrines with the contemporary doctrines of other courts.⁵⁹ But we can identify distinct aspects of the CCPA's patentability jurisprudence that likely derived from the court's peculiar setting, and that unquestionably laid the foundation for the modern regime of patent scope.

58. See *Madey v. Duke Univ.*, 307 F.3d 1351, 1361–63 (Fed. Cir. 2002) (describing experimental use defense as “very narrow and strictly limited”).

59. See *infra* Part IV.C for a discussion of comparative doctrines.

The first is methodological. The CCPA employed specific jurisprudential tools to shape patent law and exert control over the Patent Office. Those methods left their mark on the substance of patent law as well, and have been carried forward in the jurisprudential outlook of the Federal Circuit today. The second is substantive. Intertwined with the CCPA's jurisprudential methodology were particular doctrinal choices the court made in its implementation of the 1952 Patent Act—most notably in the law of nonobviousness and in the law of disclosure. Because those two doctrines essentially define the extent of patent scope, the CCPA's choices defined both the substance and the scope of the doctrine handed down to the Federal Circuit and the doctrinal tools available to the court to resolve patent scope issues.

A. The CCPA's Jurisprudential Methodology

In the years following the 1952 Patent Act, the CCPA's patentability decisions employed two key jurisprudential methods to articulate the law of patentability and to impose it upon the Patent Office. The first method I will term "statutory fidelity": a commitment to grounding the law of patentability firmly in the specific text of the 1952 Patent Act. The other method I will term "conceptual differentiation": a commitment to crystallizing separate and distinct patentability doctrines out of the relatively undifferentiated body of patent law as it stood midcentury.

The two methods were related, of course: the court justified most of its newly defined and clarified doctrines by tethering them closely to particular sections of the 1952 Patent Act. Both methodologies were also essentially formalist in their commitment to sharply defined categories and their commitment to a system of patentability that could be derived from a small set (in this case statutory) of fundamental principles. Both may also be understood as responses to the CCPA's needs in its relationship with the Patent Office: they provided doctrinal levers for the court to control the Patent Office's decisions, and they provided legitimacy for the court's exercise of that control.

1. Statutory Fidelity

The key CCPA decisions following the 1952 Patent Act emphasized above all else that Patent Office rejections must be firmly grounded in one (and only one) of the provisions of the 1952 Patent Act.⁶⁰ Fidelity to the statutory text may well have been a cherished judicial goal in and of itself. However, at least for some judges of the CCPA, the court's emphasis on the attachment of patent law to statutory text provided the means to achieve and legitimize the imposition of judicial control over the Patent Office. Again, Judge Rich's description is revealing. In describing the salient achievements of the CCPA, he noted:

There were some other law questions which the CCPA cleared up along the way such as abolishing some favorite Patent Office grounds of rejection you consequently do not hear of any more, including "aggregation," "undue breadth" of claims, and "mere function of apparatus." In general, the grounds were that there was no basis for them in the 1952 statute (or its predecessors) and that it was necessary that there be such a basis. The one exception to this, as matters evolved, was "obviousness-type double patenting," which is pure case law.⁶¹

Judge Rich no doubt valued the principle of adherence to statutory text for its own sake.⁶² Yet the CCPA judges could readily have used the principle of textual fidelity as a means to pursue other goals as well. As Judge Rich's comment on "obviousness-type" double patenting shows, he was enough of a pragmatist to rely on common law development when he sought to implement a particular policy, notwithstanding the lack of a foundation in the statutory text.⁶³ But to the extent the court was concerned about the scope of the CCPA's authority to control Patent Office policy, justifying decisions by the principle of statutory fidelity provided incontestable

60. See, e.g., *In re Nelson*, 280 F.2d 172 (C.C.P.A. 1960).

61. Rich, *supra* note 21, at 144.

62. Of course, Judge Rich, as one of the architects of the 1952 Patent Act, would naturally be committed to fostering adherence to the statute.

63. Rich, *supra* note 21, at 144.

legitimacy to the court's efforts to impose its views on the Patent Office.⁶⁴

2. Conceptual Differentiation

Adherence to statutory text provided legitimacy to the CCPA's control over the Patent Office, but it was not the only (or even the primary) vehicle for the CCPA's program. The court's most effective means of control was to replace the existing body of relatively vague patentability laws with a more complex and detailed patentability jurisprudence. To do so may have provided a more intellectually rigorous and satisfying body of patent laws; however, it also provided the doctrinal framework permitting the court to cabin the Patent Office's discretion and implement its own patentability policies.

Appellate courts have a long tradition of articulating complex doctrinal frameworks that, consciously or unconsciously, serve to control the judgments of lower tribunals.⁶⁵ Leon Green described the process as follows:

If [appellate courts] are to review each step of a case with intelligent appreciation, then they must have devices which lay open those steps and make it possible to give effect to their own judgments. And a more plentiful supply of intellectual machinery has probably never been mobilized in any other field or any other science. . . . This machinery is made up of a network of theories, doctrines, formulas and rules of the utmost flexibility in the hands of judges who understand their uses.⁶⁶

64. The statutes providing for CCPA review of Patent Office decisions, like the current statutes providing for appeal to the Federal Circuit, did not specify any standard of review or particular grounds for reversal. The 1952 Act simply provided that the court "shall hear and determine such appeal on the evidence produced before the Patent Office, and the decision shall be confined to the points set forth in the reasons of appeal." 35 U.S.C. § 144 (1952). The predecessor statute was similar: the court "shall hear and determine such appeal, and revise the decision appealed from in a summary way, on the evidence produced before the commissioner, at such early and convenient time as the court may appoint; and the revision shall be confined to the points set forth in the reasons of appeal." 35 U.S.C. § 62 (1934).

65. See LEON GREEN, *JUDGE AND JURY* 383-85 (1930). Green was describing the development of tort law.

66. *Id.* at 381-82. Green noted the array of procedural devices created to control the trial process, but maintained that procedural rules such as jurisdiction, evidence, and jury instruction were secondary means of control. *Id.* at 383-84. Rather, appellate courts exercised power

Though the CCPA sought to control an agency rather than a trial court, the mechanisms were the same. The CCPA's program to banish Patent Office reliance on vague concepts like "undue breadth" or "aggregation" necessarily limited the discretion of the Patent Office to reject patent applications. Judge Baldwin noted this when the court articulated inadequate disclosure and claim indefiniteness as two distinct grounds of rejection rooted in separate paragraphs of 35 U.S.C. § 112:

Beginning in 1970, we departed from a vast line of authority which permitted the PTO to reject claims under the second paragraph of [section] 112 for "undue breadth." Up to that time, examiners quite frequently determined what they felt the invention was and rejected all claims which were broader than their conception of the invention, using the second paragraph of [section] 112 as the statutory basis.⁶⁷

We may term this doctrinal approach "conceptual differentiation." Patentability doctrines were divided into distinct categories, and legal argument or inquiry usually had to be classified into one category to the exclusion of any others. As a corollary, once particular facts—for example, the differences between the prior art and the claimed invention—were assigned to one inquiry or another, those facts tended to be confined to that inquiry and excluded from the others. Wherever possible, these inquiries took the form of binary decisions, and again the information relevant to one inquiry was frequently discarded once the question had been answered yes or no.

An example will illustrate these methodologies. Consider Judge Rich's opinion in *In re Nelson*.⁶⁸ The facts in *Nelson* were nearly the same as those arising later in *Brenner v. Manson*.⁶⁹ As in *Brenner*,

primarily "through far more subtle theories and formulas"—the legal doctrines particular to each field of law. *Id.* at 384. "It is these which for lack of a better name we look upon as substantive law, and through which appellate judges control the judgments below, whether of trial judges or juries." *Id.* at 385.

67. *In re Mayhew*, 527 F.2d 1229, 1235 (C.C.P.A. 1976) (Baldwin, J., concurring).

68. 280 F.2d 172 (C.C.P.A. 1960).

69. 383 U.S. 519 (1966). In *Brenner*, the Supreme Court held that applicants claiming a process of synthesizing chemical compounds needed to show more than that the process worked and that the resulting compounds were of interest in scientific research; they needed to demonstrate that the compounds yielded "specific benefit exist[ing] in currently available form" to satisfy the utility requirement of § 101. *Id.* at 534–35.

the applicants in *Nelson* had discovered how to synthesize novel steroid molecules, but did not identify any use for the new compounds.⁷⁰ Their disclosure asserted that the claimed steroids were “valuable intermediates” in the synthesis of another class of steroid molecules assumed to have physiological activity.⁷¹

The Patent Office rejected Nelson’s claims for lack of utility.⁷² The rejection was based not on the requirement of 35 U.S.C. § 101 that the invention be “useful,” but rather on 35 U.S.C. § 112’s requirement that a patent’s specification disclose “the manner and process of making and *using*”⁷³ the invention.⁷⁴ Because the applicants had “not shown how their intermediate may be used to prepare a single useful steroid,”⁷⁵ their specification did not satisfy the disclosure requirements of 35 U.S.C. § 112.⁷⁶

Judge Rich strongly believed that any novel and nonobvious chemical compound should per se be regarded as useful and therefore patentable, regardless of whether any use for the molecule was then known.⁷⁷ But he spoke of policy only after the battle was lost. In his dissent in *In re Kirk* (subsequent to *Brenner v. Manson*), he eloquently and powerfully set forth policy rationales for a rule of per se utility.⁷⁸ However, such discussion is nearly absent from his opinion in *Nelson*. In *Nelson*, Judge Rich justified reversal not on account of the Patent Office’s poor policy choice, but on account of the Patent Office’s “scrambling of the separate statutory requirements”⁷⁹ that an invention must be *useful*, and the requirement that the application must adequately teach one of skill in the art *how*

70. *In re Nelson*, 280 F.2d at 176.

71. *Id.* at 175–76. The application claimed 14-hydroxy androstenes, which could be hydrogenated to yield 14-hydroxy steroids. *Id.* The disclosure stated generally that “[i]mportant physiological properties are attributed” to 14-hydroxy steroids. *Id.* at 175.

72. *Id.* at 176.

73. 35 U.S.C. § 112 (2006) (emphasis added).

74. *In re Nelson*, 280 F.2d at 176.

75. *Id.*

76. *Id.*

77. *In re Kirk*, 376 F.2d 936, 957 (C.C.P.A. 1967) (Rich, J., dissenting) (arguing that the patent statute should be amended to provide per se patentability for new and nonobvious chemical compounds if *Kirk* were not overruled).

78. *See id.* at 957–63 (arguing on multiple administrative and policy grounds that novel and nonobvious compounds should be patentable without demonstration of practical utility).

79. *In re Nelson*, 280 F.2d at 177.

to use the invention.⁸⁰ For Judge Rich, the long-standing requirement in patent law that an invention possess utility was a question of compliance with 35 U.S.C. § 101 alone.⁸¹ And under 35 U.S.C. § 101, it was sufficient that the claimed intermediates could be useful to chemists doing research on steroids.⁸²

Judge Rich's strategy to eliminate any requirement for practical utility was to divide and conquer. The argument against patentability in *Nelson* depended on the "how to use" language of 35 U.S.C. § 112. Even if we were to concede that "useful" under 35 U.S.C. § 101 demands no more than that the claimed invention works, we might plausibly still demand that the inventor disclose a practical use for the invention to comply with the separate "how to use" language of 35 U.S.C. § 112. This was the position of the Patent Office and of Judge Kirkpatrick's dissent in *In re Nelson*:

The requirements of Section 112 as to showing manner of using are inseparable from those of Section 101 as to usefulness. The provision of Section 112 that the specification shall describe the manner of using a process or composition of matter (unless it is obvious) certainly means, in view of Section 101, that the applicant must show how his invention can be employed usefully.⁸³

But in Judge Rich's view, such reasoning merely confused the requirements of 35 U.S.C. §§ 101 and 112. Having set the bar of the 35 U.S.C. § 101 requirement exceedingly low, Judge Rich exploited the division between the statutes to nearly eliminate the requirement in practice:

If we assume . . . that all chemical compounds are inherently useful and so have the "utility" required by section 101, we are still left with the problem of compliance with section 112, which is not directed to the *existence* of

80. *Id.*

81. *See id.* at 181.

82. *See id.* at 180–81.

83. *Id.* at 191 (Kirkpatrick, J., dissenting); *see also id.* at 190 (arguing that Congress added § 112 to supplement the requirement of § 101). Chief Judge Worley dissented on policy grounds, advancing essentially the same arguments the Supreme Court was later to endorse in *Brenner*. *See id.* at 190 (Worley, C.J., dissenting).

usefulness but to what an inventor must disclose as the quid pro quo for patent protection.⁸⁴

Note that in Rich's formulation, the *existence* of utility is divorced from the question of whether the inventor has disclosed a utility for the invention. If the legal question is whether utility exists or not, then presumably any method of demonstrating utility—such as knowledge of those skilled in the art, expert testimony, or judicial notice—would suffice to establish patentability. No specific disclosure and, by implication, no knowledge on the part of the applicant, was necessary to comply with 35 U.S.C. § 112.⁸⁵ Given that the applicants in *Nelson* explicitly stated that their compounds were useful as intermediates and enabled one skilled in the art to use them as intermediates, Judge Rich held that the applicants had satisfied the requirements of 35 U.S.C. § 112.⁸⁶

Judge Rich lost the battle, but he largely won the war. The Supreme Court in *Brenner v. Manson* held that an inventor must demonstrate practical utility for an invention to be patentable.⁸⁷ However, despite contemporary criticism of *Nelson's* rigid separation between 35 U.S.C. §§ 101 and 112,⁸⁸ the Supreme Court characterized the issue in *Brenner v. Manson* solely as a question of

84. *Id.* at 184.

85. *See id.* at 184–85 (stating that specific recitations of use were not required where use was inherent in description, where disclosure of a sufficient number of properties would make use obvious, or where use would be apparent to those with ordinary skill in the art). *Nelson* was decided against the backdrop of the D.C. Circuit's recent decision in *Petrocarbon Ltd. v. Watson*, 247 F.2d 800 (D.C. Cir. 1957). In *Petrocarbon*, the application had merely disclosed that the claimed process yielded a polymer film resistant to various solvents. *See id.* at 801. Bringing suit against the Commissioner in the District Court for the District of Columbia, the applicant had sought to introduce expert testimony showing that the film yielded by the process had utility as a protective coating. *See id.* Over a dissent by then-Judge Burger, the D.C. Circuit affirmed the district court's exclusion of the evidence, holding that § 112 required the applicant to disclose the utility of the claimed process in his specification. *See id.* at 801–02. Judge Rich rejected the reasoning of *Petrocarbon* in *Nelson*. *See In re Nelson*, 280 F.2d at 186.

86. *See In re Nelson*, 280 F.2d at 186.

87. *See Brenner v. Manson*, 383 U.S. 519 (1966).

88. *See Note, The Utility Requirement in Patent Law*, 53 GEO. L.J. 154, 189 (1964) (criticizing the CCPA's "rigid adherence to the proposition that sections 101 and 112 are completely distinct."). Judge Rich's reasoning that the "useful" language of § 101 preempts considerations of utility in other sections of the Patent Act is intellectually appealing but difficult to sustain. Section 101 also demands that the invention be "new," but no one would suggest this preempts consideration of novelty in § 102. *See P.J. Federico, Commentary on the New Patent Act*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 161, 178 (1993) (noting committee report stating that § 102 amplifies and defines the meaning of "new" in § 101).

compliance with 35 U.S.C. § 101 without reference to 35 U.S.C. § 112.⁸⁹ Judge Rich was left free to erode the standard of practical utility under 35 U.S.C. § 101 in subsequent cases.⁹⁰ But those developments are beside the point of the present discussion. *Nelson* illustrates perfectly how the CCPA—and Judge Rich in particular—employed the tools of statutory fidelity and conceptual differentiation to impose policy upon the Patent Office. In *Nelson*, the CCPA's action was provoked, according to Judge Rich, because the Patent Office was “developing its own brand new theories and philosophy about what the statute means by ‘useful.’”⁹¹ Insistence that the notion of utility was a single concept confined to 35 U.S.C. § 101 permitted the CCPA to impose its own policy on the law of chemical patentability while ostensibly insisting on no more than a logical interpretation of the patent statutes.

*B. Substantive Doctrines of Patent Scope:
35 U.S.C. §§ 103 and 112*

The CCPA's methodological legacy thus was a commitment to relatively formalist principles of statutory fidelity and conceptual differentiation. But what was the court's legacy for the substantive law of patentability? Of course, thirty years of decisions following the 1952 Patent Act shaped nearly every aspect of patentability law. However, the CCPA truly fashioned the heart of modern patent law through its decisions regarding two key aspects of patentability: the law of nonobviousness under 35 U.S.C. § 103 and the law of disclosure under 35 U.S.C. § 112.

Why are these two aspects of patent law so fundamental? Perhaps the most basic question in any patent system is this: given that an inventor has created a particular invention at a particular point in time, how broad are the patent rights to which the inventor is entitled? The limits on a patentee's entitlement are defined largely by

89. See *Brenner*, 383 U.S. at 528–36.

90. See, e.g., *Nelson v. Bowler*, 626 F.2d 853, 856 (C.C.P.A. 1980) (holding that “adequate proof of any [pharmacological] activity” suffices to establish practical utility).

91. *In re Kirk*, 376 F.2d 936, 952 (1967) (Rich, J., dissenting). According to the Supreme Court, the conflict between the Patent Office and the CCPA over chemical utility originated when the CCPA broke from past precedent in *Nelson*. See *Brenner*, 383 U.S. at 530. In contrast, Judge Rich maintained that around 1950, the Patent Office began to deviate from long-established principles by demanding a disclosure of practical utility, and that *Nelson* sought only to stop this excursion. See *In re Kirk*, 376 F.2d at 950–51.

two constraints: the state of the art at the time of the invention and the extent of the patentee's disclosure.⁹² Every student of modern patent law knows those limits as the "nonobviousness" requirement of 35 U.S.C. § 103 and the "enablement" and "written description" requirements of 35 U.S.C. § 112. But that understanding of the problem is very much the legacy of the CCPA. Doctrinally, the CCPA's most significant accomplishments in the decades following the 1952 Patent Act were the implementation of the doctrine of nonobviousness under 35 U.S.C. § 103, and the differentiation of the various requirements for disclosure and claims in 35 U.S.C. § 112.

The story of the CCPA's efforts to implement the 1952 Patent Act's requirement of nonobviousness is fairly well known thanks to its ultimate evolution into the Federal Circuit's "teaching, suggestion, or motivation" test.⁹³ In *Graham v. John Deere*,⁹⁴ the Supreme Court outlined the factual predicates of the new nonobviousness inquiry under 35 U.S.C. § 103, but it did not specify how the inquiry itself was to proceed. It was left to the CCPA to establish that a showing of obviousness required the Patent Office to demonstrate a reason why one of ordinary skill in the art would combine or modify the prior art to arrive at the claimed invention.⁹⁵

The CCPA's advances in the law of 35 U.S.C. § 112 are perhaps less well known. Section 112 sets forth the statutory requirements that an inventor disclose and claim his invention in his patent application.⁹⁶ The 1952 Patent Act did not change these requirements significantly. Except for the express authorization of functional claiming, the text of 35 U.S.C. § 112 differs little from its

92. See Jeffrey A. Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L.J. 1141, 1182–89 (2008) (discussing the relationship between disclosure requirements and the nonobviousness requirement).

93. See *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (2007).

94. 383 U.S. 1, 17–18 (1966).

95. See S. Jay Plager & Lynne E. Pettigrew, *Rethinking Patent Law's Uniformity Principle: A Response to Nard and Duffy*, 101 NW. U. L. REV. 1735 (2007) (describing the CCPA's development of the "teaching, suggestion, or motivation" test); see also *In re Bergel*, 292 F.2d 955, 956–57 (C.C.P.A. 1961) ("The mere fact that it is possible to find two isolated disclosures which might be combined in such a way to produce a new compound does not necessarily render such production obvious unless the art also contains something to suggest the desirability of the proposed combination."). This test, as developed by the Federal Circuit and expanded (but not rejected) by the Supreme Court in *KSR*, remains the framework of the § 103 inquiry today. See generally *KSR*, 550 U.S. 398 (2007).

96. 35 U.S.C. § 112 (2006).

predecessor. However, in the late 1960s and early 1970s, the CCPA reshaped the intellectual architecture of patent disclosure and, consequently, the intellectual architecture of patent scope as well.

In the decades prior to and immediately following the 1952 Patent Act, the Patent Office and the courts frequently cited “undue breadth” to reject or invalidate claims for a wide variety of faults.⁹⁷ Subsumed under the category of “undue breadth” were rejections based on all of the following: inclusion of nonstatutory subject matter (such as mental steps); lack of utility; divergence between the applicant’s subjective view of the invention and the subject matter encompassed by the claim; failure of the claim to precisely delineate the subject matter of the patent; presence of inoperable species within the ranges defined by the claim; insufficient working examples or other guidance compared to the scope of the claim;⁹⁸ and even what we would today categorize as obviousness.⁹⁹

Starting in the 1960s, the CCPA began to impose the order we recognize today upon this heterogeneous collection of “undue breadth” doctrines. The techniques it used were again statutory fidelity and conceptual differentiation. The court first distinguished between the requirements of 35 U.S.C. § 112, paragraph 1 (relating to disclosure) and the requirements of 35 U.S.C. § 112, paragraph 2 (relating to claims).¹⁰⁰ By the mid-1970s, the court had crystallized three distinct doctrines of disclosure from the first paragraph of 35 U.S.C. § 112: the modern doctrines of written description, enablement, and best mode.¹⁰¹ Rejections under the second paragraph of 35 U.S.C. § 112, which requires the applicant to provide “one or more claims particularly pointing out and distinctly claiming the

97. See Paul M. Janicke, *Patent Disclosure—Some Problems and Current Developments* (pt. 2), 52 J. PAT. & TRADEMARK OFF. SOC’Y 757 (1970).

98. See *id.* (discussing confusion in Patent Office’s “undue breadth” rejections).

99. Under the doctrine of “criticality,” a claim reciting a range limitation on a prior art process would lack “invention” unless that numerical limitation corresponded to a transition at which the prior art process unexpectedly changed its behavior. Failure to identify the criticality of the recited transition could render the claim unpatentable under § 112. See, e.g., *Helene Curtis Indus. v. Sales Affiliates*, 233 F.2d 148, 153 (2nd Cir. 1956). In modern law, the question would be treated as whether a sub-genus (the process performed under limited conditions) is nonobvious over the prior art’s disclosure of a broader genus (the process performed under broader conditions). See PATENT & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 2144.08 (8th ed., rev. July 2008).

100. *In re Moore*, 439 F.2d 1232, 1234 (C.C.P.A. 1971).

101. See, e.g., *id.* at 1235–36.

subject matter which the applicant regards as his invention,” were restricted to two grounds.¹⁰² The first was that the claim language did not adequately delineate the boundaries of the claim; this is the modern requirement for definite claims. The second ground for rejection was that the subject matter delineated by the claims did not correspond to the subject matter which the applicant (subjectively) regards as his invention.¹⁰³ Subsequently, the notion that the claims must correspond to what the applicant subjectively regards as his invention was more or less abandoned by the CCPA, leaving indefiniteness—lack of linguistic clarity in claim language—as the only grounds for rejection under 35 U.S.C. § 112, paragraph 2.¹⁰⁴

Ostensibly, the CCPA’s innovations in the interpretation of § 103 and § 112 did not change substantive standards of patentability. Requiring the Patent Office to be more precise in explaining the grounds of its rejections did not necessarily increase or decrease the scope of claims granted to applicants.¹⁰⁵ But articulating more detailed frameworks for 35 U.S.C. §§ 103 and 112 unquestionably gave the CCPA more control over Patent Office decisions. Whether or not the court chose to exercise its control, recasting vague doctrines like “invention” and “undue breadth” into specific factual and legal inquiries also transformed these doctrines from opportunities for Patent Office discretion into opportunities for judicial control. In both instances, the ostensible rationale for imposing more detailed doctrinal frameworks was to permit meaningful appellate review. According to the CCPA, the statutory grounds for rejection “must be identified and framed with sufficient clarity in the Patent Office so that we can determine with certainty the areas of our authority under 35 U.S.C. § 144 [the statute empowering the CCPA to review Patent Office decisions].”¹⁰⁶ Likewise, in the Federal Circuit’s view, the demand under 35 U.S.C.

102. 35 U.S.C. § 112 (2006).

103. See *In re Borkowski*, 422 F.2d 904, 909 (C.C.P.A. 1970).

104. See *In re Ehrreich*, 590 F.2d 902, 905–07 (C.C.P.A. 1979). Judge Baldwin objected to discarding this concept, see *id.* at 910 (Baldwin, J., concurring) (“I must strongly disagree with the suggestion that rejections under the second paragraph of [section] 112 are somehow limited only to a consideration of whether or not the claims are vague.”).

105. See Janicke, *supra* note 97, at 757 (suggesting that articulation of separate requirements under § 112 did not expand or contract traditional grounds of rejection).

106. *In re Wheeling*, 413 F.2d 1187, 1195 (C.C.P.A. 1969); see 35 U.S.C. § 144 (2006).

§ 103 that the Patent Office articulate a teaching, suggestion, or motivation to combine prior art references—rather than relying on “common sense” or “common knowledge”—was necessary for the court to review Patent Office actions under the standards of the Administrative Procedure Act.¹⁰⁷

III. THE FEDERAL CIRCUIT’S INHERITANCE

A. *The Regional Circuits: The Dustbin of History*

As we have just seen, by 1982 the CCPA had evolved a body of patentability jurisprudence that was devoted to the themes of statutory fidelity and conceptual separation. This body of doctrine was designed to be wielded by a court of specialized judges over an administrative agency with little concern for the niceties of appellate review. It was a body of law developed to answer the questions of patentability in a specific context—namely, Patent Office rejection of patent applications.

At the time the Federal Circuit was created, there was another body of patent jurisprudence beside the CCPA’s: the caselaw developed by the district courts and the courts of appeals through the administration of the patent litigation system. However, when the Federal Circuit decided, in its very first case, to adopt the law of its predecessor courts, it thereby rejected, without consideration, every aspect of the circuit courts’ patent jurisprudence insofar as it might conflict with the CCPA’s jurisprudence.

Of course, the Federal Circuit was created in large part because patent law (or at least the outcomes of patent actions) varied widely between the courts of appeals, leading to uncertainty and forum-shopping in patent litigation. But it does not follow from the argument for uniformity that the jurisprudence of the CCPA ought to have automatically displaced the jurisprudence of the courts of appeal. Just as the CCPA’s law of patentability was shaped by the particular demands and perspective of reviewing Patent Office

107. See *In re Sang-Su Lee*, 277 F.3d 1338, 1342 (Fed. Cir. 2000); *In re Zurko*, 258 F.3d 1447, 1386 (Fed. Cir. 1998) (“With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience—or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings. To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise.”) (footnote omitted).

determinations, the patent jurisprudence of the courts of appeals must have been shaped by the particular demands and perspective of patent litigation. Those who urged the creation of the Federal Circuit to promote uniformity probably would not have argued that in every case where the law of litigation and the law of patentability conflicted, the law of litigation must yield. Yet that is exactly what happened in the Federal Circuit's first decision, *South Corp. v. United States*.¹⁰⁸ To the extent that any of the precedents evolved by the circuit courts conflicted with those of the CCPA, the former was discarded without ceremony or consideration.¹⁰⁹

For example, 35 U.S.C. § 282 provides that “[a] patent shall be presumed valid.” Several of the courts of appeals interpreting § 282 had either set a relatively low standard for a challenger to overcome this presumption, or had held that the presumption was weakened or destroyed when the challenger introduced prior art that had not been before the examiner when the patent was granted.¹¹⁰ Early in its history, the Federal Circuit held that the presumption of validity must be overcome by clear and convincing evidence,¹¹¹ and is not affected by the introduction of prior art not before the examiner.¹¹² Both principles are commonly criticized today; what is all but forgotten is that they too are an inheritance from the CCPA.¹¹³

108. 690 F.2d 1368 (Fed. Cir. 1982).

109. The Federal Circuit in *South Corp.* adopted the precedent of both of its predecessor courts. The court therefore also adopted the patent jurisprudence of the Appellate Division of the Court of Claims, which occasionally decided appeals from patent infringement actions brought against the United States under 28 U.S.C. § 1498. See generally James F. Davis & Frederick S. Frei, *The New Court of Appeals for the Federal Circuit: Its Patent Law Legacy from the Court of Claims*, 10 APLA Q. J. 243 (1982). Those patent decisions were too few to have much influence on the Federal Circuit's jurisprudence. See Douglas A. Strawbridge, Daniel W. McDonald & R. Carl Moy, *Patent Law Developments in the United States Court of Appeals for the Federal Circuit During 1986*, 36 AM. U. L. REV. 861, 879 n.150 (1987) (noting paucity of Court of Claims patent cases). A notable exception is *Pitcairn v. United States*, 547 F.2d 1106 (Ct. Cl. 1976), whose narrow view of the common law experimental use exception was adopted by the Federal Circuit. See *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858, 863 (Fed. Cir. 1984) (following *Pitcairn*).

110. See Gerald Sobel, *The Court of Appeals for the Federal Circuit: A Fifth Anniversary Look at Its Impact on Patent Law and Litigation*, 37 AM. U. L. REV. 1087, 1092–93 (1988) (surveying pre-Federal Circuit jurisprudence).

111. See *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1147 n.2 (Fed. Cir. 1983).

112. See *SSIH Equip. S.A. v. U.S. Int'l Trade Comm'n*, 718 F.2d 365, 375 (Fed. Cir. 1983).

113. The CCPA held in *Stevenson v. International Trade Commission*, 612 F.2d 546, 551 (C.C.P.A. 1979), that the presumption of validity conferred by 35 U.S.C. § 282 must be overcome by clear and convincing evidence. The Federal Circuit adopted this precedent in a footnote in

Judge Nichols, who came to the Federal Circuit from the Court of Claims rather than from the CCPA, wondered if the court was too hastily discarding the experience of other courts:

I further think that our exclusive jurisdiction, over certain areas of law, is not to be construed as a legislative direction to ignore the efforts of other courts to deal with the same problems, efforts exerted when over many years they shared the responsibility that is now ours. Not only are such efforts not to be ignored, but sporadic notice of them, when it occurs, is not to take the form of selecting decisions that happen to agree with our thinking, without regard to their place in the development of the case law in that jurisdiction.¹¹⁴

But Judge Nichols's disquiet was not shared by the other judges of the new court. The abandonment of the circuit courts' patentability law set the pattern for the Federal Circuit's treatment of circuit court jurisprudence; even where the Federal Circuit was not bound by CCPA precedent, the new court paid relatively little heed to the law of infringement that had been developed by the regional courts of appeal when it held a contrary view.¹¹⁵

In *South Corp.*, Chief Judge Markey justified wholesale adoption on the grounds that it would allow for reasoned deliberation of patent issues rather than mire the court immediately in the question of how to resolve conflicting bodies of precedent.¹¹⁶ Resolving the conflicts then inherent in the law of patent litigation would, in Markey's words, require a "careful, considered, cautious,

D.L. Auld. See *D.L. Auld*, 714 F.2d at 1147 n.2 (citing *Astra-Sjuco, A.B. v. Int'l Trade Comm'n*, 629 F.2d 682 688 (C.C.P.A. 1980), in turn citing *Stevenson*, 612 F.2d at 550). The CCPA held in *Solder Removal Co. v. International Trade Commission*, 582 F.2d 628, 632-33 (C.C.P.A. 1978), that the presumption remains regardless of whether the pertinent prior art was considered by the examiner. *Solder Removal* was adopted by the Federal Circuit in *SSIH Equipment*, 718 F.2d at 375. Both *Stevenson* and *Solder Removal* were among the handful of infringement cases decided by the CCPA under § 337 of the Tariff Act, 19 U.S.C. § 1337. In fact, precedent from the Court of Claims had held that pertinent prior art not before the examiner "seriously weakens" the presumption of validity. *Gen. Elec. Co. v. United States*, 572 F.2d 745, 761 (Ct. Cl. 1978). Despite adopting the Court of Claims' precedent in *South Corp.*, the Federal Circuit ignored without mention *General Electric*, in favor of the CCPA's precedent.

114. *Weinar v. Rollform Inc.*, 744 F.2d 797, 811 (Fed. Cir. 1984) (Nichols, J., concurring).

115. For example, in *Weinar*, Judge Markey dismissed suggestions from prior Circuit Court cases that special interrogatories were especially attractive in patent cases. See *id.* at 809.

116. *South Corp. v. United States*, 690 F.2d 1368, 1370 (Fed. Cir. 1982).

and contemplative approach.”¹¹⁷ Yet the court made one of its most significant decisions in modern patent law in its very first opinion, and not even a patent case at that. Decades’ worth of circuit court jurisprudence was discarded without any contemplation at all.

Whether Judge Markey was conscious of this choice or not, his jurisprudential outlook, like that of his fellow CCPA judges, would have been shaped by his experience on the CCPA. The CCPA provided a setting in which the court’s precedent could evolve relatively freely, unconstrained by the rule of interpanel accord and not particularly confined by standards of appellate review. If the CCPA’s patentability rules needed revision to meet the demands of patent litigation, then perhaps those rules could be changed in a future case. But jurisprudential evolution is more difficult at the Federal Circuit because it is a larger court than the CCPA and adheres to the rule of interpanel accord. Of course, the Federal Circuit can and does sit en banc to resolve panel conflicts and overhaul precedents that no longer appear viable.¹¹⁸ But as in any legal regime, once the fundamental contours and methodologies of the law have been established, changing them is even more difficult than changing individual rules. The CCPA’s jurisprudential heritage is in many respects the constitution of our patent law. The Federal Circuit has been constrained to operate within the CCPA’s doctrinal framework, and its doctrinal methods continue to shape modern patent law today. The question we must answer is how well those methods are serving the demands of the patent system today.

B. The Challenge for the Federal Circuit

The intellectual descent of modern patent law from the CCPA may explain why today’s Federal Circuit cannot, or does not, play a more active policy role in questions of patent scope. This thesis seems paradoxical at first. The CCPA’s jurisprudence was articulated to control the Patent Office’s use of discretion on key points of patentability law. If the CCPA’s jurisprudence was designed to exert control over the Patent Office, then presumably that jurisprudence should also provide the Federal Circuit with ample means to control

117. *Id.* at 1371.

118. *See, e.g., In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc) (overruling *Underwater Devices Inc. v. Morrison-Knudsen Co.*, 717 F.2d 1380 (Fed. Cir. 1983)).

patent policy. But a system designed to provide control in one context does not necessarily facilitate control in another. Specifically, adaptation of the CCPA regime to the constraints of patent litigation may not have yielded a system amenable to coherent policy direction.

Consider how the newly created Federal Circuit was situated compared to its predecessor. Aside from the challenges of deciding new aspects of law, the Federal Circuit's new role in reviewing patent litigation at the appellate level radically diverged from the experience of its predecessor in two salient ways. First, the volume of cases increased significantly.¹¹⁹ As glimpsed in Judge Rich's laments, the combination of new substantive fields of law and the increased number of appeals left the judges with less time to consider the merits of individual cases, despite the increase in the number of judges from five to twelve.¹²⁰ Second, the court's decisional freedom became much more constrained by adherence to standards of review. As Judge Rich's comments reveal, the court was no longer free to impose its own views without regard for the factual findings of the lower tribunal:

One of the things that changed in the transition from CCPA to CAFC is much greater emphasis in the new court on standard of review. . . . Today there is less likelihood of the court upsetting trial courts' fact finding than there used to be, and I am sorry to say that this is true even where a lazy trial judge, who may even have been inattentive during the trial or clearly incompetent to deal with the technology in a complex case, has made all of his fact findings by adopting proposed findings of the winning party. The attitude tends to be: "Well he adopted them; they are his findings."¹²¹

Thus, in any individual case, outcomes at the Federal Circuit depend more on the idiosyncrasies of the proceeding at the lower tribunal and less on policy directions that the appellate judges might prefer.

More generally, how might the court's new authority over patent litigation have shaped the Federal Circuit's patent jurisprudence? To understand how patent law at the appellate level may have changed

119. See Rich, *supra* note 21, at 146–47 (describing increased caseload resulting from the Federal Circuit's expanded jurisdiction).

120. See *id.* at 140–41, 143, 147.

121. *Id.* at 148–49.

in response to the new demands of patent litigation, it is useful to draw a historical comparison with the common law of contracts.

Clinton Francis describes how the English common law courts responded to the explosion of contracts litigation in the sixteenth and seventeenth centuries.¹²² The volume of litigation necessitated the bifurcation of law and fact, the former being resolved by the judges at Westminster and the latter by the jury.¹²³ But in a system with judicial power centralized in the hands of a small number of judges, the common law courts faced a dilemma: how could they maintain judicial control over the litigation process with limited judicial resources? The courts responded by adopting what Francis calls a “controlled delegation” strategy.¹²⁴ Rather than structure the litigation process themselves, the courts would rely on the litigants (through pleadings) to narrow and define the factual questions to be put to the jury.¹²⁵

Moreover, for complex legal questions, the courts streamlined the litigation process by relying more heavily on formalistic doctrines. For example, the common law courts confronted the question of when a plaintiff’s non-performance would excuse the defendant’s breach.¹²⁶ Rather than adopt an interpretative approach such as the modern doctrine of material breach—which would require close judicial scrutiny of the facts of each case—the courts developed the law of conditions. Under the law of conditions, the issue of a plaintiff’s breach was one “that the litigants could answer during pleading by mechanically interpreting the language of the contract in accordance with the law of conditions.”¹²⁷ Such developments tended to reduce judges to a relatively passive role, and reduced the law of contracts to a rigid and formal system in which errors of form could divest litigants of their rights notwithstanding the merits of their claims.¹²⁸

122. See Clinton W. Francis, *The Structure of Judicial Administration and the Development of Contract Law in Seventeenth-Century England*, 83 COLUM. L. REV. 35 (1983).

123. *Id.* at 39–41.

124. *Id.* at 41.

125. *See id.* at 41–51.

126. *See id.* at 54–55.

127. *Id.* at 58.

128. *See id.* at 95–96.

C. Separation and Formalism: The Atomization of Patent Law

The same responses that Francis noted in common law contract litigation are evident in the Federal Circuit's jurisprudence. Several commentators have noted the court's tendency to rely on formal doctrines in many aspects of patent law.¹²⁹ This tendency may derive directly from the legacy of the CCPA's jurisprudence. The techniques of statutory fidelity and conceptual separation were essentially formalist, and this orientation may have been carried forward into the Federal Circuit's jurisprudence. But as was the case for English common law judges, the trend towards formalism may be a mechanism for coping with the increased volume of litigation the Federal Circuit faces. The evolution of the Federal Circuit's jurisprudence may therefore represent the superimposition of a "controlled delegation" framework onto the basic structure of patent law established by the CCPA. The question is whether that basic structure, designed for leisurely and flexible application by an 'activist' court, is still suitable for the exercise of policy control given the Federal Circuit's far different circumstances.

There is reason to doubt that it is still suitable, particularly with respect to the court's jurisprudence of patent scope. Though it articulated a detailed doctrinal framework to replace the doctrine of "undue breadth," the CCPA did not lose sight of the basic policy questions at stake. For example, in *Hogan*, while Chief Judge Markey dismissed concerns about broad enforcement as beyond the scope of the Patent Office's business, he still thought of the enablement problem in terms of the underlying policy concerns: "Rejections under § 112, first paragraph, on the ground that the scope of enablement is not commensurate with the scope of the claims, orbit about the more fundamental question: To what scope of protection is this applicant's particular contribution to the art entitled?"¹³⁰

It is more difficult to imagine the Federal Circuit making a similar statement today. As an example, consider the Federal Circuit's first opinion in *Amgen Inc. v. Hoechst Marion Roussel*,

129. See Timothy R. Holbrook, *The Supreme Court's Complicity in Federal Circuit Formalism*, 20 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1 (2003); John R. Thomas, *Formalism at the Federal Circuit*, 52 AM. U. L. REV. 771 (2003).

130. *In re Hogan*, 559 F.2d 595, 605-06 (C.C.P.A. 1977).

Inc.,¹³¹ a significant biotechnology case decided in 2003. *Amgen*—like the *Selden* litigation—was a classic case in which the patentee, having obtained claims based on an earlier invention, sought to assert them against a rather different technology developed later. In the early 1980s, Amgen had cloned the gene for a natural product, human erythropoietin (EPO).¹³² Amgen introduced that DNA into the then-standard gene expression systems to yield, for the first time, quantities of EPO that were practical for use in treating anemia.¹³³ Amgen obtained patents directed to the cloned EPO gene and its use.¹³⁴ But more than a decade after the applications were first filed, Amgen also secured broader claims. These new patents still claimed priority from the original invention, but also included claims that were not limited to any particular technique or expression system, nor to the use of the cloned EPO gene.¹³⁵ Essentially, these patents claimed all synthetic EPO compositions that had the biological function of natural EPO and all cells that were engineered to produce functional EPO.¹³⁶ Amgen asserted these claims against Transkaryotic Therapies, whose method of producing EPO used neither the EPO DNA that Amgen had cloned nor the expression system that Amgen had developed.¹³⁷

The case thus presented a significant biotechnology policy question for the Federal Circuit: would the disclosure of one method of synthesizing a natural product permit the patentee to claim essentially all synthetic versions of the product?¹³⁸ But the Federal Circuit's majority opinion explicitly disavowed any role in addressing that policy question. Though acknowledging that a broad entitlement question was at issue in the case, it considered the appellate role to be largely limited to determining whether the district

131. 314 F.3d 1313 (Fed. Cir. 2003).

132. *See id.* at 1321.

133. *See id.* at 1352.

134. *See id.* at 1321–22.

135. *See id.* at 1322–23.

136. The patents in suit claimed a “non-naturally occurring” EPO molecule having the same biological activity as human EPO, *see id.* at 1322, and “vertebrate cells” engineered to produce synthetic EPO, *see id.* at 1323.

137. *See id.* at 1325–26.

138. *See id.* at 1359 (Clevenger, J., dissenting).

court's factual findings were clearly erroneous or not.¹³⁹ The majority saw little reason to consider "broader arguments seemingly based upon policy considerations."¹⁴⁰ Nor was it particularly concerned with Federal Circuit precedent that was neither raised by the defendant nor discussed by the district court.¹⁴¹ Such an attitude—in its limited view of the appellate role and the delegation of legal inquiry to the efforts of the litigants—seems very much akin to that adopted by the English common law courts.

The *Amgen* opinion is also a good example of how the heritage of conceptual separation and statutory fidelity may impede policy analysis, even assuming the court was inclined to undertake it. The issues in *Amgen* were not novel; in a similar case from 1884,¹⁴² the Supreme Court considered whether a patentee who was the first to produce a synthetic version of a natural dye was entitled to claim all artificial versions of that dye, whether produced by the patentee's process or not.¹⁴³ The Supreme Court laid out the policy question quite clearly: was the patentee entitled to claim the artificial dye, no matter by what process it was made?¹⁴⁴ For the Supreme Court, the answer was no.¹⁴⁵ To do so would mean granting the patentee a claim "wider in its scope than the original actual invention."¹⁴⁶

In reaching this result, the Court explored a number of alternative approaches: claim construction, lack of disclosure, and the product-by-process doctrine.¹⁴⁷ The Court did not find it necessary to select which doctrinal framework most precisely disposed of the case; instead, it concluded that no matter how the case was viewed, patentability and infringement could not both be sustained.¹⁴⁸ The doctrinal vehicle was less important than the policy of limiting the patentee to what it had actually invented. Likewise, in a 1928 case, *Holland Furniture Co. v. Perkins Glue Co.*,¹⁴⁹ the

139. *See id.* at 1337.

140. *Id.*

141. *See id.*

142. *Cochrane v. Badische Anilin & Soda Fabrik*, 111 U.S. 293 (1884).

143. *Id.*

144. *Id.*

145. *Id.* at 312–13.

146. *Id.* at 313.

147. *Id.* at 311–12.

148. *Id.* at 313.

149. 277 U.S. 245 (1928).

Supreme Court considered a patent for a starch-based glue that could act as a substitute for the animal-based glues then used for furniture manufacturing.¹⁵⁰ Like the patentee in *Amgen*, the patentee in *Holland Furniture* broadly claimed all starch glues with the same general composition and the same functional activity.¹⁵¹ The Court held that where a patentee had disclosed only a particular composition that would perform the claimed function, the patent law's disclosure statute did not entitle the patentee to claim all similar compositions having the same function.¹⁵² Such a claim would unacceptably preclude other inventors from developing superior starch glues, and would thereby "extend the monopoly beyond the invention."¹⁵³

That perspective is absent from the decision in *Amgen*, though in that respect, the case is no different than most Federal Circuit jurisprudence. Following the model of conceptual differentiation, the analysis was atomized into isolated components, each resolved according to formal doctrines. For the court, arguments falling in the interstices between doctrines were not to be considered; rather, the court should: "decid[e] the challenges to validity under each requirement as presented to it by the accused infringer."¹⁵⁴ Notwithstanding limiting statements in the specification, the court held that there was no justification for limiting the claims to the technology the patentee disclosed, because the claims themselves were linguistically unambiguous.¹⁵⁵ The written description inquiry became less a question of whether the specification disclosed the claimed subject matter, and more a question of whether the specification used the same words found in the claims.¹⁵⁶ The question of whether the patentee enabled other synthetic processes was irrelevant to enablement because the claims were drafted as

150. *Id.*

151. *Id.* at 252.

152. *See id.* at 256–57.

153. *Id.* at 257.

154. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1337 (Fed. Cir. 2003).

155. *Id.* at 1325–29.

156. *See id.* at 1330–31.

“product” claims for which only one method of making must be disclosed.¹⁵⁷

The defect in such an atomized analysis is that the whole becomes less than the sum of its parts. When the question of patent scope is reduced to a series of isolated inquiries with yes or no answers, information tends to be lost between the steps. For example, in *Amgen*, there were reasonably strong arguments, based on the prosecution history and written description, that the claims ought to be limited to the technology disclosed by the patentee.¹⁵⁸ Those arguments did not prevail over the plain meaning of the claims, which lacked such limitations.¹⁵⁹ But that information thereafter disappeared from the case, not being relevant to the questions of infringement or validity as they were subsequently framed.¹⁶⁰

Likewise, the defendant in *Amgen* had persuaded the district court that some of the patents at issue in the suit failed to satisfy the written description and enablement requirements, although not by the clear and convincing standard necessary to invalidate the patent.¹⁶¹ But the information that the patents, in the words of the district court, “barely” satisfied the disclosure requirements disappeared from the case once the court held that the challenger’s arguments did not meet the clear and convincing standard.¹⁶² I am not arguing for the imposition of some supermajority requirement on every element of a patentee’s case. However, if patent law is to carry out a policy of balancing incentives between earlier and later inventors (not to mention the public), a system of disaggregated and binary inquiries does not seem well suited to the task. If, for example, we were to attach some numerical rating to the strength of the patentee’s case, it seems odd that in a case where the patent is only 40 percent nonobvious, 40 percent described, 40 percent enabled, and 51

157. *See id.* at 1335.

158. *See id.* at 1325–26. The examiner had stated that the specification did not enable forms of EPO expression technology beyond the exogenous DNA technology known at the time, and the written description stated that the claimed invention was uniquely characterized by expression from exogenous DNA sequences. *Id.* The defendant’s product was not the product of exogenous DNA expression. *Id.*

159. *See id.* at 1328.

160. *See id.* at 1337.

161. *See id.* at 1331; *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 126 F. Supp. 2d 69, 164 (D. Mass. 2001) (finding patent in suit insufficiently enabled, but only by a preponderance of the evidence).

162. *See Amgen*, 314 F.3d at 1337.

percent infringed, the rights of the patentee are precisely the same as those of a patentee whose case is overwhelming.¹⁶³

There are certainly examples where the Federal Circuit has taken a more nuanced approach to the problem of later-developed technology and a more active policy role in setting the balance between earlier and later inventors. For example, the court relied on such an interpretive approach in *Plant Genetic Systems, N.V. v. DeKalb Genetics Corp.*¹⁶⁴ Unlike *Amgen*, where the court refused to read into the claims a limitation that would restrict the claims to the technology enabled at the time of filing, the *Plant Genetic Systems* court interpreted the claim to be restricted to the technology enabled at the time of filing, despite the lack of an explicit limitation in the claim.¹⁶⁵

Still, even where the court has consciously embraced a policy role in the question of patent scope, the court gravitates towards formalist solutions. In *Chiron v. Genentech*,¹⁶⁶ the court was again faced with the problem of a patentee's entitlement to exclude later-developed technology. In contrast to *Plant Genetic Systems*, the *Chiron* court eschewed an interpretive approach in favor of erecting more formal and binary categories. The question of entitlement to later-developed technology would be decided not as a matter of individualized interpretation, but instead as a question of whether the later-developed technology should be classified as "nascent" at the time the application was filed.¹⁶⁷

163. I am assuming in this example that the threshold of clear and convincing evidence needed to invalidate an issued patent corresponds to something like 60 percent certainty, if we take a preponderance of the evidence to be greater than 50 percent certainty.

164. 315 F.3d 1335 (Fed. Cir. 2003).

165. The court held that a claim reciting plants "susceptible to infection and transformation by *Agrobacterium*" was limited to plants that could be transformed by *Agrobacterium* at the time the application was filed—namely, dicots. *Id.* at 1338, 1346. Although transformation of monocot plants was possible by the time the patent was asserted, the claim was interpreted not to reach monocot plants, notwithstanding the lack of an explicit dicot limitation. *See id.* at 1345. One view of the difference between *Plant Genetic Systems* and *Amgen* is that in *Plant Genetic Systems*, the examiner required an explicit limitation of the claim to the technology enabled by the patentee. *See id.* at 1345–46. In *Amgen*, the examiner's similar view appeared only in the prosecution history, and therefore disappeared from consideration because there was no claim language to which that restriction could clearly be attached. *See Amgen*, 313 F.3d at 1326–27.

166. *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247 (Fed. Cir. 2004).

167. *See id.* at 1254. Judge Bryson endorsed the interpretive approach in his concurrence. *See id.* at 1263 (Bryson, J., concurring).

The court's preference (or at least the preference of some of its judges) for the formal mechanisms of conceptual separation and statutory fidelity inherited from the CCPA extends beyond questions of later-arising technology. *SmithKline v. Apotex*,¹⁶⁸ a pharmaceutical case, illustrates this trend.

SmithKline presented a knotty dilemma. The patentee held a patent claiming a particular hemihydrate crystalline form of the antidepressant paroxetine.¹⁶⁹ According to the patentee, once that crystalline form had been synthesized and widespread in the environment, it inevitably would seed the conversion of other forms of paroxetine into the patented form.¹⁷⁰ Thus, any attempt by the defendant to produce non-infringing paroxetine would unavoidably lead to production of at least trace amounts of the infringing crystalline form.¹⁷¹

None of the judges considering the case were inclined to let the patentee prevail on this theory. The interesting question was, on what grounds could it be denied? The district court, Judge Posner sitting by designation as a trial judge, reasoned that the defendant "should enjoy the right to practice the prior art" by manufacturing the old composition.¹⁷² The district court therefore proposed several alternative resolutions to the problem.¹⁷³ Although the claim simply recited "crystalline paroxetine hydrochloride hemihydrate" without any limitation on quantity, Judge Posner construed the claim to exclude compositions containing only trace amounts of the patented crystalline form.¹⁷⁴ Alternatively, if the claim were not construed to exclude mere traces of the patented form, the accused infringer should be entitled to an equitable defense on the grounds that the patentee's own conduct—seeding the world with his crystalline form—had made noninfringement impossible.¹⁷⁵ Finally, because a potential infringer could not determine whether his composition

168. *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331 (Fed. Cir. 2005).

169. *Id.* at 1334–35.

170. *Id.*

171. *See id.* at 1335–36 (discussing patentee's "seeding" or "disappearing polymorph" theory).

172. *Id.* at 1331, 1336.

173. *Id.* at 1335.

174. *Id.* at 1336.

175. *Id.* at 1342.

contained trace amounts of the patented form or not, the claim would be indefinite under 35 U.S.C. § 112 if it were construed to cover compositions including only trace amounts of the hemihydrate crystalline form.¹⁷⁶

On appeal, Judge Gajarsa viewed the problem as a failure of the public notice function of patents, arguing in a concurrence that “[e]ffective notice is impossible if a natural physical process can convert a noninfringing product into an infringing one.”¹⁷⁷ In his view, a patent claim drawn broadly enough to cover subject matter that spreads and reproduces was unpatentable under 35 U.S.C. § 101, and was therefore invalid.¹⁷⁸

Judge Rader, writing for the majority, would have none of either position. Contrary to the district court’s inclination, for Judge Rader policy concerns could have no place in the process of claim construction, which was solely a question of linguistic interpretation.¹⁷⁹ According to Judge Rader, “[c]laim construction . . . is not a policy-driven inquiry. . . . [I]t is a contextual interpretation of language. The scope of patent claims can neither be broadened nor narrowed based on abstract policy considerations regarding the effect of a particular claim meaning.”¹⁸⁰ Similarly (but contrary to the Supreme Court’s suggestion in *Holland Furniture*¹⁸¹), the district court’s concern that a potential infringer could not determine if she was infringing the patent was not a concern under the definiteness requirement of 35 U.S.C. § 112; all that mattered for § 112 was that the claim language was clear and unambiguous on its face.¹⁸² Neither was it relevant that the accused infringer sought to practice the prior art. As the court had previously made clear, the conceptual separation between infringement and anticipation meant that “practicing the prior art” was not a defense to infringement.¹⁸³ For the

176. *Id.* at 1340.

177. *Id.* at 1359 (Gajarsa, J., concurring).

178. *See id.* at 1361 (Gajarsa, J., concurring).

179. *See id.* at 1339.

180. *Id.*

181. *See supra* notes 148–52.

182. *See SmithKline*, 403 F.3d at 1340–41.

183. *See Tate Access Floors, Inc. v. Interface Architectural Res., Inc.*, 279 F.3d 1357, 1365 (Fed. Cir. 2002) (“[T]here is no ‘practicing the prior art’ defense to literal infringement.”). If the infringer is practicing the prior art, and the claim is construed to cover that prior art, then the

majority, Judge Gajarsa's solution based on 35 U.S.C. § 101 also ran afoul of the principles of conceptual differentiation and statutory textualism. To resolve the problem via the subject matter requirement would impermissibly mingle 35 U.S.C. § 101 with other doctrines of patent law, such as claim scope and anticipation.¹⁸⁴

Instead, the majority's resolution depended on imposing a new formal and binary stamp upon the law of anticipation.¹⁸⁵ Judge Rader brushed aside long-standing precedent which had suggested that trace or accidental production of a compound in the prior art does not anticipate a claim. Rejecting this approach in favor of an absolute rule, the court held that production of even trace quantities of the claimed hemihydrate compound would anticipate the claim, even if the existence of the hemihydrate form was unknown at the time.¹⁸⁶ Therefore, because trace amounts of the claimed compound might have existed before the patentee first discovered it, the claim was invalid as inherently anticipated by the prior art.¹⁸⁷

Thus, the Federal Circuit's "controlled delegation" strategy parallels the approach developed by the common law courts: reduce doctrines to discrete and binary inquiries and rely primarily on the litigants to determine which doctrines will be available for the exercise of control on appeal. This approach does permit the court to exercise policy choices, as Judge Rader did in *SmithKline*. But it is not necessary for the court to adopt this approach to exercise policy

claim ought to be invalid for lack of novelty under § 102. But the categorization of "practicing the prior art" as a question of novelty rather than of infringement is not simply a matter of form, due to the elevated standard of proof for patent invalidity. The patentee might establish infringement by showing via a preponderance of the evidence that the accused subject matter has the properties recited by the claim. But if the infringer could establish that the prior art met the claim limitations only by a preponderance of the evidence, and not by clear and convincing evidence, the patentee would prevail on novelty as well.

184. See *SmithKline*, 403 F.3d at 1342 (stating that "the concurrence confuses patent eligibility under § 101 with patentability under other provisions in the Patent Act, such as 35 U.S.C. § 102," and "[t]he scope of the claims is not relevant to subject matter eligibility").

185. See *id.* at 1341-46.

186. See *id.* at 1344-45.

187. The court decided that even the first attempts to make the anhydrate must necessarily have yielded trace quantities of the hemihydrate. See *id.* at 1343-44. The court distinguished *In re Seaborg* as a case in which there was "no positive evidence" that the claimed isotope was inherently produced in the prior art, in contrast to the present case where production was "undisputed." *Id.* at 1346. Yet the "undisputed" evidence consisted largely of the patentee's inability to disprove the district court's speculation that the hemihydrate "may have existed" since the 1970s and that "it may also be possible" for the anhydrate to coexist with low levels of the hemihydrate without further conversion. *Id.* at 1345.

choices. Cloaking the exercise of policy preferences in the guise of statutory textualism may have been necessary to provide legitimacy for the CCPA's control over the Patent Office, but the Federal Circuit has no need to abstain from traditional common law development. Moreover, the use of binary statutory inquiries is not the optimal instrument by which to exercise policy preferences.

First, such doctrines tend to be blunt instruments. For example, in *SmithKline*, Judge Rader solved the dilemma by resorting to an absolutist conception of the anticipation doctrine. Manipulating the doctrine of anticipation may have solved the perceived problem in *SmithKline*, but the creation of a new rigid and absolute rule of inherency may have unforeseen consequences for other cases. Addressing the problem directly yields a more narrowly tailored solution, and one that is more intellectually forthright as well. Judge Gajarsa contrasted these alternatives in *SmithKline*. Noting that "something 'feels wrong' about holding an infringer liable for inevitable, spontaneous infringement," he argued for the direct approach of resolving the question under the subject matter doctrine of 35 U.S.C. § 101:

We therefore face a choice. We can either address the issue head-on and explain why an attempt to patent unpatentable subject matter leads to so many apparent anomalies, or we can try to contort the aspects of patent law raised by the parties in order to avoid those anomalies. I believe that the law is best served by adopting the straightforward approach.¹⁸⁸

Moreover, as Judge Gajarsa's argument suggests, the particular arguments framed by the litigants, tailored to suit each party's interest in the case under appeal, may not be the ones best suited to resolve the larger policy questions. This was not an obstacle for the CCPA, whose nonchalance about the niceties of appellate review let it reframe appeals from the Patent Office according to its own views of the real issues at stake. Because the CCPA freely reframed appeals, its insistence upon strong conceptual separation did not preclude it from choosing the optimal doctrine to resolve a particular case. But at the Federal Circuit, conceptual separation—coupled with

188. *Id.* at 1355 n.5.

emphasis on the standard of review—may tend to make cases more path-dependent. Outcomes will depend strongly on the doctrinal framing of the issues by the parties and the standard of review applicable to that doctrine, and on whether the particular judges hearing the case view their role as merely choosing between the parties' arguments (as in *Amgen*¹⁸⁹) or adopting a more active role in exercising policy choices (as in *SmithKline*). Formalism may be defended if it brings more certainty to patent law. But if idiosyncratic choice among inflexible doctrines itself leads to unpredictability, then formalism's primary advantage over more flexible doctrines is lost.

IV. THE LOSS TO PATENT LAW: A FAILURE OF INTEGRATION

A. Integrative Versus Reductionist Doctrines

The greatest loss in an atomized patent law, however, may not be a loss of predictability. It may be that in the drive towards reductionism and conceptual separation we have lost the ability to integrate pre- and post-invention information in deciding the extent of the patentee's rights. Consider the following statement by a practicing attorney in the late 1950s on how courts decided what scope should be accorded to a patent:

So you must, in deciding whether or not a patent is infringed, make up your mind on the basis of the prior art and what has happened in the market place, what the impact of this patent has been, whether it has been a real advance, and then decide what the scope is, based on how much it advanced the art, and go on from there to interpret the claims of the patent.¹⁹⁰

Of course, such an approach seems anything but predictable. Yet it does have the advantage of *integrating* specific information about the innovation process into the infringement inquiry. As Dan Burk and Mark Lemley note, inquiries that integrate information about *ex post* developments carry the insuperable advantage of hindsight; while it is difficult to forecast the consequences of granting a patent

189. See *supra* notes 153–62.

190. Floyd H. Crews, *Patent Claims and Infringement*, in DYNAMICS OF THE PATENT SYSTEM 128, 136 (William B. Ball ed., 1960).

with a particular scope at the time of the grant, at the time of infringement those consequences are clear.¹⁹¹ Thus, if we desire optimal tailoring of patent law to the landscape of innovation, we ought to favor integrative doctrines.

Unfortunately, integrative approaches seem to have all but disappeared from patent law today. The CCPA, as *Hogan* so clearly showed,¹⁹² consciously eschewed integrative doctrines in considering patentability because “[t]he business of the PTO is patentability, not infringement.”¹⁹³ The regional courts of appeals, whose experience was shaped by patent enforcement rather than by patent procurement, may have permitted integrated tendencies in their patentability jurisprudence. But because the Federal Circuit adopted the CCPA’s patentability jurisprudence, any integrative tendencies the courts of appeals may have embraced in their patentability jurisprudence were discarded when the Federal Circuit adopted the CCPA’s caselaw in 1982.

B. *The Fate of Infringement Law*

Doctrines relating solely to patent infringement were generally not within the purview of the CCPA’s caselaw, and were therefore not explicitly jettisoned by the Federal Circuit’s adoption of CCPA precedent. But the commitment to conceptual separation so deeply rooted in the law of patentability would inevitably have permeated the Federal Circuit’s developing law of infringement as well. Almost by definition, integrative doctrines violate the principle of conceptual separation. Starting with a well-developed law of patentability that was strictly isolated from enforcement concerns, it is not surprising that the Federal Circuit’s law of infringement has tended to limit or eliminate integrative aspects in the law of patent infringement.

There are three doctrines in the law of infringement that are potentially integrative: (1) the reverse doctrine of equivalents, because it shields an accused infringer who has radically altered the principle of the invention despite remaining within the literal bounds of the claims; (2) the doctrine of equivalents, because it takes into

191. See Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PA. L. REV. 1743, 1781–82 (2009) [hereinafter *Fence Posts*].

192. See *supra* notes 45–55 and accompanying text.

193. *In re Hogan*, 559 F.2d 595, 607 (1977).

account the magnitude of the differences between the claimed inventor and the accused subject matter; and (3) claim construction, because the interpretation of the claim defines the extent of the patentee's rights.¹⁹⁴

Of these doctrines of infringement, the reverse doctrine of equivalents is, in theory, the doctrine with the most potential to integrate information about disclosure, the prior art, and the technological context of the alleged infringement.¹⁹⁵ However, since its founding, the Federal Circuit has viewed the reverse doctrine of equivalents with exceeding skepticism, describing it as a defense "rarely invoked and virtually never sustained."¹⁹⁶

With respect to the ordinary doctrine of equivalents, the court's general aversion to the doctrine of equivalents has limited any integrative role the doctrine might play. But dedication to conceptual separation has also likely discouraged the use of the doctrine of equivalents as an integrative device. For example, in a case early in the court's history, Judge Newman took into consideration the pace and direction of subsequent technological development in a "complex and rapidly-evolving"¹⁹⁷ field to find non-infringement of a means-plus-function claim, taking into account the "entirety of the technology embodied in the accused devices."¹⁹⁸ The court found that "the total of the technological changes beyond what the inventors disclosed transcends the equitable limits" of 35 U.S.C. § 112, and "propels the accused devices beyond a just scope of the . . . claims."¹⁹⁹ Professor Dreyfuss, quite rightly, criticized the court for

194. The law of remedies may in some instances play an integrative role. If the claimed invention is only a trivial advance over the prior art, then the patentee's entitlement to a reasonable royalty may be limited if the infringer could readily have adopted a non-infringing alternative. But this is not the case if the patentee can demonstrate lost profits, in which case the patentee is entitled to recover for all sales lost on account of the infringement—even sales of products not embodying the patented invention. *See Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538 (Fed. Cir. 1995) (en banc). The new flexibility given to courts in granting injunctions under *eBay v. MercExchange* may in the future allow courts to more closely calibrate equitable relief to the context of the case. *See eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

195. *See Burk & Lemley, Policy Levers*, *supra* note 11, at 1657–58.

196. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1338 (Fed. Cir. 2009). The *DePuy* court at least reversed the district court's imposition of a \$10 million sanction against the defendant for asserting the defense. *See id.* at 1339.

197. *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 805 F.2d 1558, 1569 (Fed. Cir. 1986).

198. *Id.* at 1570.

199. *Id.* at 1571.

“manag[ing] to muddy the waters on the significance of being first in a field, the application of means expressions to new technologies, and both the doctrine of equivalents and the reverse doctrine of equivalents.”²⁰⁰ Those criticisms are entirely correct, but they illustrate the tension between the doctrinal clarity we may seek in patent law, and the law’s ability to make flexible and integrated policy judgments in individual cases.

C. Claim Construction as an Integrative Doctrine

1. Prospective and Retrospective Scope

This leaves claim construction. Claim interpretation is in some respects the ideal vehicle for both integration and the exercise of judicial policy control. As Craig Nard has suggested (and Burk and Lemley have reiterated) claim construction—if carried out with the conscious goal of tailoring patent scope—permits the courts to exercise retrospective calibrations of patent scope in response to the course of innovation since the patent was granted.²⁰¹ And from a doctrinal perspective, claim construction has other advantages as well. Claim construction is individualized justice. Because interpretation of each claim is largely *sui generis*, a determination of scope in one case has few implications for other cases.²⁰² Moreover, at least under the current claim construction regime, claim construction is reviewed *de novo* by the Federal Circuit.²⁰³ Though criticisms of this regime are legion, *de novo* review essentially gives the court the flexibility the CCPA once enjoyed, allowing it to adjust determinations on appeal without being constrained by a deferential standard of review or the idiosyncratic development of facts at the trial below.

Claim construction has not developed into a general integrative doctrine, though there are individual cases in which it has performed

200. Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 11–12 (1989).

201. Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH. 1, 38–40 (1999).

202. Contrast this approach with cases like *SmithKline*, which enunciated a rule of anticipation with potentially far-reaching consequences in response to the demands of that case. *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1342–43 (Fed. Cir. 2005).

203. *Id.* at 1336.

this function.²⁰⁴ In part, this failure is a direct result of the drive towards conceptual differentiation. If patent law is to be conceived as a series of separate, binary inquiries, then it is necessary that the boundaries of the claim be precise so that each inquiry may be structured as a question of inclusion or exclusion of subject matter from the scope of the claim. As a result, rather than being integrative, claim construction has become more formalistic. While the Federal Circuit has rejected rigid procedures for the process of claim construction,²⁰⁵ the court continues to focus solely on the linguistic sense of the claim, prizing certainty above all other goals. The court has made clear that claim interpretation is intellectually divorced from validity or infringement concerns,²⁰⁶ and so long as that separation remains, claim construction cannot serve an integrative role.

2. Claim as Contract

The insistence that claim construction be a separate (and perhaps formalistic) issue derives clearly from a basic desire for certainty and predictability in ascertaining the boundaries of a patentee's rights. Yet in some sense, the modern emphasis on certain and predictable boundaries is a legacy of the CCPA as well. The modern language of patent claims tends to be the language of property.²⁰⁷ The conception of patents as property justifies the demand that the peripheral claim define the boundaries of the patentee's right to exclude; the boundaries of a patent define the patentee's rights to exclude as precisely as the boundaries of real property define the landowner's right to exclude.²⁰⁸ But historically, another conception of patents has been prominent in U.S. patent law: patent as contract. In this conception, the patent represents a contract between the government and the inventor: the inventor discloses the invention in exchange for the grant of a limited monopoly term.²⁰⁹ Though the patent right itself

204. See *supra* text accompanying notes 164–65.

205. In *Phillips v. AWH Corp.*, 415 F.3d 1303, 1324 (Fed. Cir. 2005) (en banc), the court declined to mandate a defined procedure or hierarchy for claim construction.

206. See *supra* text accompanying note 180.

207. See, e.g., *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (“[T]he resulting claim interpretation must, in the end, accord with the words chosen by the patentee to stake out the boundary of the claimed property.”).

208. See BURK & LEMLEY, *PATENT CRISIS*, *supra* note 11, at 74–75.

209. See, e.g., *Grant v. Raymond*, 31 U.S. 218, 241–42 (1832).

was recognized a species of property early in the history of American law,²¹⁰ the obligations of both the inventor (in securing the patent) and the government (in enforcing the patent) were considered fundamentally contractual in nature.²¹¹

Why is the characterization of patents as property or contract significant for claim interpretation? The question arose when the Federal Circuit debated en banc the standard of review for district court claim construction in *Markman v. Westview Instruments*; those judges who would have classified claim construction as a question of fact bolstered their argument by analogizing patents to contracts.²¹² But the classification of claim construction as law or fact is perhaps the least significant consequence of the contract analogy. A contract analogy suggests a very different framework of claim interpretation—one in which the object of interpretation is *not* to establish the meaning of words in the abstract, or even the words in the context of the contract, but to effectuate the exchange contemplated by the parties in light of subsequent events. In *Markman*, the majority opinion perhaps rightly rejected the notion that claim interpretation requires an inquiry into the intent of the patentee or of the Patent Office, just as we would inquire into the intent of parties to a contract.²¹³ But it does not follow that the purposive orientation of contract interpretation should be rejected as well.

If we consider seriously the notion of patent as contract, then it becomes irresistible at this point to draw an analogy with relational contract theory. One aspect of relational theory, particularly regarding contracts governing a continuing course of conduct, espouses a view of contract as an ongoing relationship “which may require periodic intervention . . . by . . . judges, given changing

210. See generally Adam Mossoff, *Who Cares What Thomas Jefferson Thought About Patents? Reevaluating the Patent “Privilege” in Historical Context*, 92 CORNELL L. REV. 953 (2007).

211. William Robinson, whose 1890 treatise was perhaps the most influential work on American patent law ever written, went so far as to declare that patent rights and duties simply constituted “one branch of the Law of Contracts.” 1 WILLIAM C. ROBINSON, *THE LAW OF PATENTS FOR USEFUL INVENTIONS* § 41 (1890).

212. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 997–98 (Fed. Cir. 1995) (en banc) (Mayer, J., concurring); *id.* at 1000–01 (Newman, J., dissenting).

213. See *id.* at 985–86.

circumstances, expectations, and interests.”²¹⁴ Though courts lack the expertise of contracting parties, a court considering a dispute *ex post* has the advantage of information the parties lacked at the time of contract formation.²¹⁵ Therefore, rather than solely seeking to effectuate the parties’ intent at the time of contract formation, a court ought to be willing to adjust a contract in light of unforeseen circumstances.²¹⁶

This conception very much evokes Burk and Lemley’s conception of judicial supervision, in which judges make retrospective and industry-specific determinations in light of the current technological landscape, rather than rely upon a scope fixed at patent issuance.²¹⁷ Contract theorists debate whether the retrospective vantage point of the judge—compared to the prospective vantage point of the parties—compensates for the judge’s presumed unfamiliarity vis-à-vis the parties with the subject matter of the contract.²¹⁸ These debates seem to parallel the question in patent law of whether appellate judges’ retrospective vantage point provides them with superior decision-making ability, as compared to the prospective but (allegedly) expert judgment of the Patent Office.²¹⁹

Remarkably, in the period just prior to the creation of the Federal Circuit, at least some of the regional courts of appeals continued to adhere to the patent-as-contract theory as the guiding principle of interpretation.²²⁰ Thus, as late as 1980, the Fifth Circuit could state that “[a] patent is to be construed as a contract with the

214. RANDY E. BARNETT, *CONTRACTS: CASES AND DOCTRINE* 1112 (4th ed. 2008).

215. See Robert A. Hillman, *Court Adjustment of Long-Term Contracts: An Analysis Under Modern Contract Law*, 1987 DUKE L.J. 1, 26 (1987) (arguing that hindsight advantages judges over parties).

216. See *id.* at 12–13.

217. See Burk & Lemley, *Fence Posts*, *supra* note 191, at 1781–82.

218. See Robert E. Scott, *The Case for Formalism in Relational Contract*, 94 NW. U. L. REV. 847, 858–59 (2000) (summarizing and criticizing *ex post* information theory).

219. See Burk & Lemley, *Fence Posts*, *supra* note 191, at 1781–82. The arguments for expertise carry less weight in the patent context than in contract. The parties to a contract might be assumed to reach optimal terms. But in patent law, there is no necessary correlation between the current value of a patent and the incentive that was necessary or optimal to foster development of the invention. Nor is there any necessary correlation between the deadweight loss from monopoly pricing and the value gained by society from development or disclosure of the invention. It is therefore difficult to argue that patent scope decisions need be expertly calibrated to optimize *ex ante* incentives.

220. See, e.g., *Stearns v. Beckman Instruments, Inc.*, 669 F.2d 1095 (5th Cir. 1982).

intent of the parties as the lodestar. It is the real invention claimed and granted protection which we seek to determine.”²²¹ The Ninth Circuit voiced similar sentiments in 1978.²²² The use of the patent-as-contract interpretive model by the regional courts of appeals may very well have reflected a relational outlook derived from their retrospective view of patent litigation. However, this was clearly not the case with the CCPA. The CCPA was consistent in its views that a patent was nothing more than a grant bound firmly to statute; indeed, according to the court, the contract analogy was only a “popular myth.”²²³ As Judge Rich explained:

The examiner’s notion about the United States granting a contract is inapt. The Government grants only a right to exclude. There is no other agreement. While a patent has often been likened to a contract on the theory that it is issued in exchange for the disclosure of the invention (the “consideration”), the analogy is inexact. A patent is a statutory right. It is granted to “Whoever” fulfills the [statutory] conditions [of patentability] . . . unless fraud has been committed.²²⁴

Given that heritage, it is unsurprising that the Federal Circuit rejected the contractual analogy in *Markman*. But that rejection was not significant because of what it might imply about whether judges or juries should interpret patent claims. It was significant because it entailed the rejection of a relational or retrospective perspective in the claim construction process. Indeed, in *Markman*, Judge Archer explained that patents could not be regarded as contracts *because* they entailed no further obligations: “A patent, however, is not a contract. Contracts are executory in nature—they contain promises

221. *Id.* at 1098 (citing *Laitram Corp. v. Deepsouth Packing Co.*, 443 F.2d 928, 933 (5th Cir. 1973)).

222. *See Photo Elecs. Corp. v. England*, 581 F.2d 772, 776 (9th Cir. 1978) (“The starting point is the rule that patent claims should be construed liberally to uphold the patent’s validity rather than to destroy the inventor’s right to protect the substance of his invention. . . . Interpreting patent claims calls for more than application of a rigid literalism. The patent is a contract between the government and the patentee.”).

223. *Krantz v. Olin*, 356 F.2d 1016, 1020 (C.C.P.A. 1966).

224. *In re Breslow*, 616 F.2d 516, 518 n.3 (C.C.P.A. 1980); *see also In re Yardley*, 493 F.2d 1389, 1395 (C.C.P.A. 1974) (“The Commissioner’s argument based on the ‘failure of consideration’ concept borrowed from the law of private contracts is inappropriate here. A patent is not a contract.”).

that must be performed. Once a patent is issued, any purported exchange of promises between the applicant and the Patent and Trademark Office (Patent Office) has been fully executed.”²²⁵ Thus the legacy of the CCPA doomed the conception of patent-as-contract, and the flexible model of patent enforcement as well.

CONCLUSION: THE HERITAGE OF PATENT LAW

The CCPA bequeathed to us the constitution of modern patent law. Its heritage was a rich and well-developed system of patentability, admirable for its intellectual clarity and dedication to coherence. But that body of law was also shaped by the unique nature of the CCPA and fashioned by judges who only saw the patent system *ex ante*. When the Federal Circuit adopted that body of law in its first decision, it adopted not only the substantive law of patentability but also the jurisprudential outlook and methodology that the CCPA had developed in the years following the 1952 Patent Act. That orientation may have served the CCPA well in its role as overseer of the Patent Office, but it has not necessarily served the very different needs of the Federal Circuit. Moreover, in adopting the precedent of the CCPA, the Federal Circuit was also—knowingly or not—discarding the doctrine of those courts whose *ex post* perspective had been shaped by their experience in patent litigation. The Federal Circuit has for the most part succeeded in its mission to bring uniformity and coherence to patent law, thanks largely to its heritage from the CCPA. Its challenge now is to reclaim the pragmatic and integrative doctrines that have been the heritage of patent law as well.

225. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 985 n.14 (Fed Cir. 1995) (citation omitted).