

EOLAS, AT&T, & UNION CARBIDE: THE NEW EXTRATERRITORIALITY OF U.S. PATENT LAW

By Virginia Zaunbrecher

U.S. patent law, like all patent systems in the world, embodies the multi-faceted doctrine of territoriality: (1) it applies only within the territorial boundaries of the United States; (2) it is subject to the jurisdictional limitations of the U.S.; and (3) it is bound by principles of comity cautioning against the application of U.S. patent law in a manner which may interfere with the sovereignty of other nations.¹ At the same time, 35 U.S.C. § 271(f) extends liability to those who seek to evade patent protection by supplying

all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States.²

Reflecting both the globalization of commerce and the expansion of U.S. patent protection to software, several recent cases have resurrected this relatively unused provision and with it the relevance of the doctrine of territoriality. The Federal Circuit's expansive interpretation of this long-dormant provision extends liability well beyond Congress's intent and the limitations of the territoriality principle.

This Note proceeds in three parts. Part I examines the history of territoriality and U.S. patent law. It explores how patent law adapted to an increasingly global economy largely through the enactment of the Trade Related Aspect of Intellectual Property Rights (TRIPS) agreement. Part I also surveys some of the district court decisions leading up to the three main

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1. See PAUL GOLDSTEIN, INTERNATIONAL INTELLECTUAL PROPERTY LAW 16 (2001).

2. 35 U.S.C. § 271(f)(1) (2000).

cases considered by this Note. Part II discusses *Eolas Technologies Inc. v. Microsoft Corp.*,³ *AT&T Corp. v. Microsoft Corp.*,⁴ and *Union Carbide Chemicals & Plastics Technology Corp. v. Shell Oil Co.*,⁵ three recent cases implicating the doctrine of territoriality that provide the subject matter for this Note. Part III then analyzes the prudence of the modern interpretation of § 271(f) and the current enforcement scheme. From a historical perspective, Part III examines how the legislative history and commercial context surrounding the statute's enactment informs its intended scope. It discusses how the current interpretation of § 271(f) affects international law and American business interests, and concludes that by working multilaterally within the international scheme, rather than using § 271(f) in a unilateral manner, the regulation of intellectual property rights can be more fairly and equitably applied.

I. BACKGROUND: THE DOCTRINE OF TERRITORIALITY AND PATENT LAW IN THE UNITED STATES

A. The History of Territoriality in United States Patent Law

United States patent law has a long history of territoriality. This tradition dates back to the early adoption of patent law and continues through the twenty-first century.⁶ The convention of territoriality is also evident in new international intellectual property agreements, specifically in TRIPS. This section will chronicle the tradition of territoriality.

United States patent law is territorial in nature and is based upon the premise expounded in *Dowagiac Manufacturing Co. v. Minnesota Moline Plow Co.*⁷ that “[t]he right conferred by a patent under [U.S.] law is confined to the United States and its territories.”⁸ The Supreme Court first articulated this idea in *Brown v. Duchesne*,⁹ where the Court reasoned:

[T]hese acts of Congress do not, and were not intended to, operate beyond the limits of the United States; and as the patentee's right of property and exclusive use is derived from them, they cannot extend beyond the limits to which the law itself is con-

3. 399 F.3d 1325 (Fed. Cir. 2005).

4. 414 F.3d 1366 (Fed. Cir. 2005).

5. 425 F.3d 1366 (Fed. Cir. 2005).

6. The Patent Act of 1790 states that infringement only occurs if the act happens “within these United States.” Patent Act of 1790, Ch. 7, § 4, 1 Stat. 109, 111 (1790) (repealed 1793).

7. 235 U.S. 641, 650 (1915).

8. *Id.*

9. 60 U.S. (19 How.) 183 (1856).

fined. And the use of it outside of the jurisdiction of the United States is not an infringement of his rights, and he has no claim to any compensation for the profit or advantage the party may derive from it.¹⁰

Congress codified this concept in the language of 35 U.S.C. § 154(a)(1), which states that a patent shall protect “the invention *throughout the United States* or [against the] import[ation of] the invention into the *United States . . .*”¹¹ There is thus a common consensus that U.S. patent law is territorial,¹² and, in fact, one scholar claims that “[o]f the three principle forms of intellectual property, patent rights are [the] most explicitly territorial.”¹³

In the most recent Supreme Court decision involving territoriality, *Deepsouth Packing Co. v. Laitram Corp.*, the Court adamantly adhered to the doctrine of territoriality despite the defendant’s use of a “loophole” to avoid liability.¹⁴ There, plaintiff held two patents on a machine for deveining shrimp. Defendant assembled nearly complete infringing machines and shipped them overseas in three constituent parts.¹⁵ Once the parts arrived, the buyers could assemble the parts into a complete infringing machine in less than an hour.¹⁶

As none of the individual parts defendant manufactured infringed upon any of plaintiff’s patents, the infringement, if any, occurred when there was complete assembly and use abroad.¹⁷ The Supreme Court, however, rejected the idea that such foreign assembly constituted infringement under U.S. patent law.¹⁸ Citing *Brown v. Duchesne*¹⁹ and *Dowagiac Manufacturing Co. v. Minnesota Moline Plow Co.*,²⁰ the Court held that, with respect to § 271, “[t]he statute makes it clear that it is not an infringement to make or use a patented product outside of the United States.”²¹ The

10. *Id.* at 195-96.

11. 35 U.S.C. § 154(a)(1) (2000) (emphasis added).

12. *See, e.g.*, GRAEME B. DINWOODIE ET AL., INTERNATIONAL COMPARATIVE PATENT LAW 30-31 (2002). “Territorial” means that the reach of a particular law does not extend outside of the U.S.

13. Donald S. Chisum, *Normative and Empirical Territoriality in Intellectual Property: Lessons from Patent Law*, 37 VA. J. INT’L L. 603, 605 (1997).

14. 406 U.S. 518 (1972).

15. *Id.* at 523-24.

16. *Id.* at 524.

17. *Id.* at 522-23.

18. *Id.* at 526.

19. 60 U.S. (19 How.) 183 (1856).

20. 235 U.S. 641 (1915).

21. *Deepsouth*, 406 U.S. at 527.

court further noted that it would “require a clear and certain signal from Congress” before expanding United States patent protection to cover infringement of any kind in foreign countries.²²

Congress eventually responded to the *Deepsouth* decision, as the Court invited it to do, by enacting 35 U.S.C. § 271(f). Congress’s stated goal was to “prevent[] copiers from avoiding U.S. patents by supplying components of a patented product in this country so that the assembly of the components may be completed abroad.”²³ The statute reads:

(1) Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

(2) Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.²⁴

Congress made it clear that the intent of the statute was to close the loophole exposed by *Deepsouth*.²⁵ Descriptions of the statute during the hearings and debates included such phrases as “components are supplied for

22. *Id.* at 531.

23. 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984), reprinted in 1984 U.S.C.C.A.N. 5827, 5828. This statement also exemplifies another Congressional purpose of preventing people from avoiding U.S. patent law altogether by shipping the components abroad for production.

24. 35 U.S.C. § 271(f) (2000).

25. See 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984) (statement of Rep. Kasteneier) (“This proposal responds to the United States Supreme Court decision in *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518 (1972), concerning the need for a legislative solution to close a loophole in patent law.”); *Patent Law Improvement Act: Hearing Before the Subcomm. on Patents, Copyrights, and Trademarks of the House Comm. on the Judiciary*, 98th Cong. 26 (1984) (prepared statement of Gerald J. Mossinghoff).

assembly abroad”²⁶ and “a *product’s* patent protection cannot be avoided through the *manufacture* of component parts,”²⁷ suggesting that § 271(f) applied narrowly to articles of manufacture.

Despite the extraterritorial nature of this statute, for the most part, the tradition of territoriality in patent law continued in step with the globalization of intellectual property law generally. The first major step toward harmonization of international patent law came with the ratification of the TRIPS agreement.²⁸ The accord set minimum standards for intellectual property protection and required adoption by all World Trade Organization (WTO) member states.²⁹ As a general matter, it supported the territoriality of patent law by allowing member states to maintain additional standards so long as such standards did not conflict with the provisions of the TRIPS agreement.³⁰ It allowed members the freedom “to determine the appropriate method of implementing the provisions of th[e] Agreement within their own legal system[s] and practice[s],”³¹ further reaffirming the principle of territoriality. It is within this context of territoriality, from both a historical and an international perspective, that this Note reviews the decisions leading up to *Eolas, AT&T*, and *Union Carbide*.

B. Early § 271(f) Cases: Differing Interpretations

The district court cases interpreting § 271(f) reflect the uncertainty surrounding the application of the statute to technologies outside of the subject matter in *Deepsouth*, specifically with respect to method or process patents. This uncertainty created a mix of outcomes that are best understood when plotted by claim type and technology classification. To facilitate the subsequent analysis, this Note will use a grid to organize these

26. S. REP. NO. 98-663, at 3 (1984) (emphasis added).

27. 130 CONG. REC. H10529 (daily ed. Oct. 1, 1984) (statement of Sen. Kastenmeier) (emphasis added).

28. ROBERT P. MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 295 (2003). Ratification of TRIPS occurred at Marrakesh on April 15, 1994, with the agreement taking effect January 1, 1995. DANIEL GERVAIS, *THE TRIPS AGREEMENT: DRAFTING HISTORY AND ANALYSIS* 27 (2d ed. 2003). While the Paris Convention of 1883 was the first to address international patent law, it did not do so nearly as extensively. *See, e.g.*, Paris Convention for the Protection of Industrial Property art. 2, Mar. 20, 1883, *as revised* at Stockholm on July 14, 1967, art. 2, 21 U.S.T. 1583, 858 U.N.T.S. 305 (“(3) The provisions of the laws of each of the countries of the Union . . . are expressly reserved [for the states].”).

29. *See generally* GERVAIS, *supra* note 28.

30. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, art. 1.1, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) [hereinafter TRIPS Agreement].

31. *Id.*

cases, with claim type, either product or method, on one axis, and technology, either physical or intangible, on the other.

Table 1. Classification of Prior Extraterritorial Patent Infringement Cases

	Manufacturing/Physical Technologies	Intangible Technologies
Product Claims	<i>Deepsouth*</i> <i>Waymark</i> I	<i>Pellegrini</i> <i>Eolas</i> <i>AT&T</i> II
Method Claims	<i>Standard Havens</i> <i>Union Carbide</i> III	<i>Enpat</i> <i>Synaptic</i> IV

Key: *Case*—Defendants in bold were held liable, defendants in plain typeface were not held liable.

* Decided before the enactment of § 271(f).

Outside of the quadrant defined by *Deepsouth* (quadrant I), relating to product claims for manufacturing or physical technologies, consensus exists in only one other quadrant, that representing method claims for intangible technologies (quadrant IV). There, two cases, *Enpat, Inc. v. Microsoft Corp.*³² and *Synaptic Pharmaceuticals Corp. v. MDS Panlabs, Inc.*,³³ held that there could not be infringement of a method claim for an intangible technology under § 271(f).

In *Enpat*, plaintiff sued Microsoft for making and selling products that allegedly infringed on the method claims of a software patent.³⁴ Microsoft claimed it was not liable for damages from foreign sales because it in-

32. 6 F. Supp. 2d 537 (E.D. Va. 1998).

33. 265 F. Supp. 2d 452 (D.N.J. 2002).

34. 6 F. Supp. 2d at 537-38

fringed only method claims, and Congress intended § 271(f)(2) to only extend to components of an apparatus that are physically manufactured abroad.³⁵ The district court agreed with Microsoft, holding that “the language and legislative history of § 271(f) demonstrate[d] an exclusive focus on the sale of components patented in the United States for combination into a finished product, apparatus, or invention abroad.”³⁶ The court added that if Congress had intended to protect method patents under § 271(f) it would have done so explicitly.³⁷

In *Synaptic* the court granted summary judgment for defendant finding as a matter of law “that § 271(f) [did] not apply to method patents.”³⁸ Plaintiff *Synaptic* accused defendant of infringing *Synaptic*’s method claims for a patented receptor-binding assay under § 271(f) by shipping various supplies abroad for use in the assay.³⁹ The defendant claimed that method patents could not be infringed under § 271(f). The court agreed, relying on the *Enpat* court’s analysis of the statute’s legislative history.⁴⁰ Both cases interpreted the lack of discussion in the legislative history as an indication that method and process claims did not fall under the purview of § 271(f).⁴¹

*W.R. Grace & Co.-Conn. v. Intercat, Inc.*⁴² shortly followed *Enpat*, and drew the opposite conclusion with regard to the limitation to product patents from the same ambiguous legislative history. There, defendant *Intercat* internationally marketed compounds that allegedly infringed upon plaintiff’s patents on a composition of chemicals used to treat sulfur oxide release.⁴³ Defendant argued that because plaintiff’s patents were chemical patents and not apparatus patents they did not merit protection under § 271(f).⁴⁴ The court rejected this defense, holding that “[n]owhere in the statute or its legislative history is there a limitation to components of ma-

35. *Id.* at 538.

36. *Id.* at 539.

37. *Id.*

38. *Synaptic Pharm. Corp.*, 265 F. Supp. 2d at 464.

39. *Id.* at 454-55. The supplies included “cells, membrane preparations, validation studies, protocols and laboratory equipment . . .” *Id.* at 464.

40. *Id.*

41. *Id.*; *Enpat, Inc. v. Microsoft Corp.*, 6 F. Supp. 2d 537, 539 (E.D. Va. 1998). It is interesting to note that while both cases dealt with intangible technologies, both courts held that § 271(f) did not cover *any* method claim. Under these rulings there can be no liability for the situations covered by quadrant III or quadrant IV.

42. 60 F. Supp. 2d 316 (D. Del. 1999).

43. *Id.* at 319.

44. *Id.* at 320.

chines and other structural combinations.”⁴⁵ *Grace* dealt with a chemical composition patent and therefore the case does not fit into the grid laid out above. However, the case is noteworthy in its demonstration that the legislative history of § 271(f) is ambiguous enough to allow for courts to interpret the legislative intent regarding the breadth of the statute differently.

The Court of Appeals for the Federal Circuit also grappled with the intended scope of § 271(f) in three cases that preceded the *Eolas* line of cases. These decisions also demonstrate some of the difficulties involved in interpreting the statute. In a 1991 decision, *Standard Havens Products, Inc. v. Gencor Industries, Inc.*,⁴⁶ the Federal Circuit addressed a “method for producing asphalt.”⁴⁷ The court noted that the patent claimed a method for producing the asphalt and not “the apparatus for implementing the process”⁴⁸ and simply stated that it did “not find the provisions of 35 U.S.C. § 271(f) (1988) [to be] implicated.”⁴⁹ The *Synaptic* court reasonably interpreted this conclusion as an indication that method patents did not fall within the ambit of § 271(f).⁵⁰

Waymark Corp. v. Porta Systems Corp.,⁵¹ pertained to an apparatus claim for a manufactured technology, and thus fell into the same category as *Deepsouth* (quadrant I), but in its holding, the court made a noteworthy comment on the statute. The Federal Circuit addressed the issue of whether there had to be actual assembly of the infringing device abroad for liability to attach under § 271(f).⁵² By concluding that there need only be intent that the infringing device be completed abroad and not actual completion,⁵³ the Federal Circuit’s holding on this issue appeared to give §271(f) more breadth. However, the court continued, “[i]f 271(f)(2) required actual assembly abroad, then infringement would depend on proof of infringement in a foreign country. This requirement would both raise the difficult obstacle of proving infringement in foreign countries and pose

45. *Id.* at 321.

46. 953 F.2d 1360 (Fed. Cir. 1991).

47. *Id.* at 1374.

48. *Id.*

49. *Id.*

50. *Synaptic Pharm. Corp. v. MDS Panlabs, Inc.*, 265 F. Supp. 2d 452, 464 (D.N.J. 2002).

51. 245 F.3d 1364 (Fed. Cir. 2001).

52. *Id.* at 1367.

53. *Id.* at 1368 (“At no point does the statutory language require or suggest that the infringer must actually combine or assemble the components. A party can intend that a shipped component will ultimately be included in an assembled product even if the combination never occurs.”). Also notice the use of the word “assembled,” which denotes physical manufacture.

the appearance of 'giving extraterritorial effect to United States patent protection.'"⁵⁴ Thus, while making it easier to sue for infringement under a statute that is extraterritorial, the court re-asserted the historical mantra that United States patent law is territorial in nature.⁵⁵

In *Pellegrini v. Analog Devices, Inc.*,⁵⁶ the Federal Circuit held that designing an infringing product in the United States and shipping the instructions for its manufacture overseas did not constitute infringement under § 271(f).⁵⁷ The court noted that "§ 271(f) . . . applie[d] only where components of a patent invention [we]re physically present in the United States and then either sold or exported . . ."⁵⁸ The opinion quoted from earlier Supreme Court cases that affirmed the territoriality of U.S. patent law⁵⁹ and emphasized language from § 271(f)(2) requiring active inducement,⁶⁰ implying that there should be a strong causal link between activity in the United States and infringement that occurs abroad.⁶¹

Thus, the cases on point leading up to the *Eolas* decision consisted of an array of district court holdings, as well as opinions from the Federal Circuit that appeared to narrow the scope of the doctrine⁶² and implied that method claims were not protected by § 271(f).⁶³ With this background of mixed decisions, this Note turns to the *Eolas* line of cases.

54. *Id.*

55. There can be no contributory infringement without direct infringement under 35 U.S.C. § 271(c) (2000). *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 341-42 (1961).

56. 375 F.3d 1113 (Fed. Cir. 2004).

57. *Id.* at 1116.

58. *Id.* at 1117.

59. *Id.* at 1117, 1119.

60. *Id.* at 1117.

61. The Federal Circuit again addressed infringement of a method claim under § 271(f) five months after the *Eolas* decision, in *NTP, Inc. v. Research in Motion, Ltd.*, and declined to find liability. 418 F. 3d 1282 (Fed. Cir. 2005). In reviewing the alleged infringement of a patented method, some steps of which took place in Canada, the Federal Circuit found it "difficult to conceive of how one might supply or cause to be supplied all or a substantial portion of the steps of a patented method in the sense contemplated by the phrase 'components of a patented invention' in section 271(f)." *Id.* at 1322. Although stating, "*Eolas* was correct to observe that Congress did not expressly limit § 271(f) to a specific kind of invention," the court continued "we have held that the very nature of invention may compel a difference." *Id.* (citing *Minton v. Nat'l Ass'n of Sec. Dealers, Inc.*, 336 F.3d 1373, 1378 (Fed. Cir. 2003)).

62. See *Waymark Corp. v. Porta Sys. Corp.*, 245 F.3d 1364 (Fed. Cir. 2001); *Pellegrini v. Analog Devices, Inc.*, 375 F.3d 1113 (Fed. Cir. 2004).

63. See *Synaptic Pharm. Corp. v. MDS Panlabs, Inc.*, 265 F. Supp. 2d 452, 464 (D.N.J. 2002).

II. THE BROADENING OF § 271(f): *EOLAS, AT&T, & UNION CARBIDE*

Three recent cases illustrate an expansion of § 271(f) beyond its prior bounds, a move that could have huge implications for American industries generally and the software industry specifically. Two of these cases concern software patents in particular. In *Eolas Technologies Inc. v. Microsoft Corp.*⁶⁴ the Federal Circuit held that software code written in the United States and exported abroad was a “component of a patented invention” for the purposes of determining infringement under § 271(f),⁶⁵ thereby addressing the application of § 271(f) to quadrant II. In *AT&T Corp. v. Microsoft Corp.*,⁶⁶ the Federal Circuit, relying on *Eolas*, determined that copying software in a foreign country constituted “supplying” a component of a patented invention.⁶⁷ The most recent case, *Union Carbide Chemicals Plastics Technologies Corp. v. Shell Oil Co.*,⁶⁸ clarified prior case law and revisited the question of whether process claims have components for the purposes of liability under § 271(f).

A. *Eolas v. Microsoft*

1. *Facts and Procedural History*

In 1999 Eolas sued Microsoft alleging that Microsoft’s Internet Explorer software infringed Eolas’s patent, U.S. Patent No. 5,838,906 (“the ’906 patent”).⁶⁹ As part of its suit, Eolas claimed damages under § 271(f) for “golden masters” of Internet Explorer that Microsoft shipped abroad to Original Equipment Manufacturers (OEMs) who installed the resultant software on computers overseas.⁷⁰ The ’906 patent claims software that allows the automatic display of embedded objects on a given

64. 399 F.3d 1325 (Fed. Cir. 2005).

65. *Id.* at 1338.

66. 414 F.3d 1366 (Fed. Cir. 2005).

67. *Id.*

68. 425 F.3d 1366 (Fed. Cir. 2005).

69. *Eolas*, 399 F.3d at 1328. The patent claims a “distributed hypermedia method for automatically invoking external application proving interaction and display of embedded objects within the hypermedia document,” and was licensed exclusively to Eolas by the University of California. *Id.* at 1328 & n.1 (quoting U.S. Patent No. 5,838,906 (filed Oct. 17, 1994)). Although the patent characterizes the claim as a “method,” the claim in dispute in the case is actually a product. “Claim 6 reads: 6. A computer program *product* . . .” *Id.* at 1330 (emphasis added).

70. *Eolas Techs., Inc. v. Microsoft Corp.*, 274 F. Supp 2d 972, 973 (N.D. Ill. 2003).

“workstation” or computer.⁷¹ Foreign contractors thus “manufactured” allegedly infringing devices overseas by installing the Internet Explorer software onto the foreign-made computers.⁷² This raised the question of whether the software was considered a “component of a patented invention” for the purposes of § 271(f) liability. The district court answered that question in the affirmative, and Microsoft appealed.⁷³

2. *Analysis and Holding*

The Federal Circuit held that the golden masters were components for the purposes of § 271(f).⁷⁴ The court began its analysis by finding that software qualified as a patentable invention under 35 U.S.C. § 101.⁷⁵ It then concluded that “computer readable program code” could qualify as a component of patented software, effectively extending § 271(f) protection to include reproducible technologies in quadrant II of the grid.⁷⁶

The Federal Circuit supported its holding by relying largely upon the same legislative history as the *Enpat* and *Grace* courts. It suggested that if Congress meant to narrow the scope of § 271(f) it would have done so expressly.⁷⁷ The court thus determined that § 271(f) was not limited to physical elements, but rather protected every eligible invention, and every component of those eligible inventions,⁷⁸ and found that policy supported this decision.⁷⁹ It went on to distinguish this conclusion from the holding in *Pellegrini*, noting *Pellegrini* only required “that components [be] physically *supplied* from the United States,” not that the components themselves be physical.⁸⁰ Using this reasoning the court concluded that the golden masters encoding the software were “components” for the purposes of § 271(f) and therefore, Microsoft was liable for the infringing devices

71. *Eolas*, 399 F.3d at 1330. The court focused on claim 6 of the patent, a product claim, because “Eolas asserted that the computer program product in claim 6 embodies the method of claim 1.” *Id.*

72. *Id.* at 1339.

73. *Id.* at 1328.

74. *Id.* at 1341.

75. *Id.* at 1338-39.

76. *Id.* at 1339. It is important to note that while there are method claims in the patent at issue in this case, the court decides § 271(f) liability solely with respect to a product claim.

77. *Id.* at 1340. The court asserted this while also quoting from the legislative history, which specified that § 271(f) addressed “supplying components of a patented *product . . .*” *Id.* (emphasis added) (quoting 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984)).

78. *Id.* at 1339.

79. *Id.* at 1339-40.

80. *Id.* at 1341 (emphasis added).

made overseas from the golden masters.⁸¹ *Eolas* thus stands as the first case to find that software distribution creates liability under § 271(f).

B. *AT&T v. Microsoft*

AT&T v. Microsoft arose when Microsoft shipped golden masters of its Windows software, which allegedly infringed upon a software patent held by AT&T, to foreign OEMs who then replicated the software from the golden masters onto individual computers.⁸² Microsoft argued that even if software was a component it was not liable for all of the foreign computers containing the infringing software sold abroad because it had not “supplied” the software to each of those foreign sold computers.⁸³ The district court found Microsoft liable for the copies made abroad under § 271(f), and Microsoft appealed.⁸⁴

The Federal Circuit was left to decide whether providing a few copies to third parties for replication onto millions of computers constituted a “supply” of components for every computer the third party replicated the software onto.⁸⁵ The court⁸⁶ defined the word “supplied” specifically as it related to software, finding that within that context “the act of copying [wa]s subsumed in the act of ‘supplying,’ such that sending a single copy abroad with the intent that it be replicated invoke[d] § 271(f) liability for

81. *Id.* Microsoft’s liability was contingent on the validity of the patent, which was litigated separately. On September 27, 2005, the PTO reissued the patent. *See Eolas v. Microsoft: Patent Set to Reissue, Patently-O*, http://patentlaw.typepad.com/patent/2005/09/eolas_v_microso.html (Sept. 28, 2005).

82. *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1368 (Fed. Cir. 2005). The fact pattern was exactly the same as *Eolas*, but the Federal Circuit decided an additional issue here.

83. *Id.*

84. *AT&T Corp. v. Microsoft Corp.*, No. 01-CV-4872, 2004 WL 406640 (S.D.N.Y. Mar. 5, 2004).

85. *AT&T*, 414 F.3d at 1369.

86. Judge Rader wrote for the majority in *Eolas*. 399 F.3d at 1325. Oddly, however, he dissented in *AT&T*. 414 F.3d at 1372. While it is possible that Rader viewed the facts as being somehow distinguishable, the fact patterns were in fact identical. Thus, it seems likely that the views of at least one judge regarding § 271(f) are changing. In *Eolas*, § 271(f) was not litigated heavily and it is likely that the Federal Circuit devoted little consideration to the issue. Indeed, the parties in *Eolas* only devoted about four pages of briefing to the § 271(f) issue. Brief for Appellant at 23-24, *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir. 2005) (No. 04-1234). On the other hand, § 271(f) was the only issue presented in *AT&T*, forcing the Federal Circuit to look into it more deeply. 414 F.3d at 1368. It is perhaps expected that a judge’s view on a matter could change somewhat upon a more in-depth examination.

those foreign made copies.”⁸⁷ The court held that because a single disk may lead to the replication of a software program many times over, providing a disk for copying must be considered “supplying.”⁸⁸ The court again distinguished this situation from that in *Pellegrini*, which only involved instructions for infringement, by reiterating that software was an actual component of the patented invention.⁸⁹

The court rejected Microsoft’s contention that software sent over electronic transmission required different treatment, concluding that “[l]iability under § 271(f) [wa]s not premised on the mode of exportation, but rather the fact of exportation.”⁹⁰ The court further cited the legislative intent behind § 271(f), adding that the legislature would want the patent system to remain responsive to a changing world to protect the extraterritorial effect of the statute.⁹¹ Altogether, *AT&T* expands on *Eolas*, holding not only that software is a component, but also that its replication by third parties in foreign countries can constitute infringement under U.S. law.

C. *Union Carbide v. Shell*

In a very recent decision, the Federal Circuit decided affirmatively that § 271(f) covered the “components” of a patented process,⁹² analogizing the case to *Eolas* and *AT&T* even though it represented the first case to extend liability to process claims.⁹³ *Union Carbide* involved the sale, by defendant Shell, of a silver catalyst to foreign consumers who then used it abroad as a key component in a patented process for the production of ethylene oxide.⁹⁴ This scenario presented the Federal Circuit with its first opportunity to rule on the applicability of § 271(f) to method patents since

87. *AT&T*, 414 F.3d at 1369-70. This appears to be in conflict with the idea espoused in *Eolas* that software should be analyzed in the same manner as other types of inventions. 399 F.3d at 1339-41.

88. *AT&T*, 414 F.3d at 1370.

89. *Id.* at 1371. In *AT&T*, the court fails to address its reliance on the word “supplied” in *Pellegrini*. *Eolas*, 399 F.3d at 1341.

90. *AT&T*, 414 F.3d at 1371.

91. *Id.* The court did not suggest a reason why the legislature would not facilitate the responsiveness of the patent system.

92. *Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co.*, 425 F.3d 1366 (Fed. Cir. 2005).

93. *Id.* at 1378-80. The court analogized the case to *Eolas* despite the fact that the holding of that case did not technically extend liability to process claims. A group of scholars exemplified this, writing after the decision in *Eolas* that “§ 271(f) does not apply at all to process claims.” Mark A. Lemley et al., *Divided Infringement Claims*, 33 AIPLA Q.J. 255, 266 (2005).

94. *Union Carbide*, 425 F.3d at 1369-70.

its 1991 *Standard Havens* decision where it had simply stated that it did not “find the provisions of 35 U.S.C. § 271(f) [to be] implicated.”⁹⁵

Here, the court relied heavily on *Eolas*, even though that case involved a product claim and not a method claim,⁹⁶ finding that “the statute [made] no distinction between patentable method/process inventions and other forms of patentable inventions.”⁹⁷ At the same time, however, the court also quoted from its recent decision in *NTP* that “it [was] difficult to conceive of how one might supply or cause to be supplied all or a substantial portion of the steps of a patented method”⁹⁸ Nevertheless, the Federal Circuit acted to extend liability under § 271(f) to include process claims, effectively extending liability to quadrant III and possibly quadrant IV.

III. ANALYSIS: IMPLICATIONS OF THE FEDERAL CIRCUIT’S INTERPRETATION OF § 271(f)

All three of these cases significantly extended the purview of § 271(f) by imposing liability in areas where it had never before been imposed. However, when looking at both the history of § 271(f) and the implications of these cases, the unnecessary nature of the extension becomes evident. First, this Part will look at the context within which Congress enacted § 271(f), including both the legislative history and the development of the software industry. Second, it will examine the implications of the recent extension of this extraterritorial application of U.S. patent law. This includes both its effect on international law as well as its impact on domestic markets. The resulting analysis will demonstrate that the most effective and appropriate way to handle new challenges in global intellectual property law is to work within the existing multilateral framework rather than attempt to unilaterally force a solution as the broad interpretation of § 271(f) does.

A. The Context of § 271(f) Suggests a More Conservative Application

An inquiry into the circumstances surrounding the enactment of § 271(f) is telling from two perspectives. The first is the historical perspective, namely the legislative history surrounding § 271(f), from the *Deepsouth* case through the subsequent Congressional discussions, which

95. *Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 953 F.3d 1360, 1374 (Fed. Cir. 1991).

96. *Eolas*, 399 F.3d at 1330.

97. *Union Carbide*, 425 F.3d at 1379.

98. *Id.* at 1380.

shows the narrow intended scope of the statute. The second is the economic and developmental environment that existed when Congress enacted the statute. This includes the state of the software industry and software patenting, and an explanation of why § 271(f) should not extend to cover the modern software industry.

1. Legislative History

There is no doubt that 35 U.S.C. § 271(f) was the legislative answer to the Supreme Court's decision in *Deepsouth*.⁹⁹ It is, therefore, significant that *Deepsouth* exclusively addressed a mechanical device.¹⁰⁰ Because the opinion dealt entirely with whether "the substantial manufacture of the constituent parts of a machine constitute[d] direct infringement,"¹⁰¹ when the Court called upon Congress, requiring a "clear and certain signal . . . before approving the position of the litigant,"¹⁰² it appears to have simply sought an answer to the narrow question raised specifically as to *machines*.

An analysis of *Deepsouth*, and an acknowledgement of its role in shaping § 271(f), leaves questions open as to the breadth of the statute. While *Deepsouth* suggests that the scope is very narrow, the language of the statute is open-ended about its proper application. Because of this ambiguity, almost every court that examined the issue has turned to the legislative history as a possible guide to the proper interpretation.¹⁰³

Indeed, the Congressional record affirms that § 271(f) was a specific and narrow response to the *Deepsouth* case, labeling it as such on many occasions.¹⁰⁴ The language used to describe the bill within Congress included the terms like "assembly" and "manufacture,"¹⁰⁵ and even indicated that the statute would "prevent copiers from avoiding U.S. patents by supplying components of a patented *product*,"¹⁰⁶ which strongly sug-

99. See *supra* note 25 and accompanying text.

100. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 519 (1972) ("Petitioner and respondent both hold patents on machines. . .").

101. *Id.* at 528.

102. *Id.* at 531.

103. *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1340 (Fed. Cir. 2005); *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1371 (Fed. Cir. 2005); *Enpat, Inc. v. Microsoft Corp.*, 6 F. Supp. 2d 537, 538-39 (E.D. Va. 1998); *Synaptic Pharm. Corp. v. MDS Panlabs, Inc.*, 265 F. Supp. 2d 452, 464 (D.N.J. 2002) (quoting *Enpat*, 6 F. Supp. 2d at 539); *W.R. Grace & Co.-Conn. v. Intercat, Inc.*, 60 F. Supp. 2d 316, 321 (D. Del. 1999); *Waymark Corp. v. Porta Sys. Corp.*, 245 F.3d 1364, 1368 (Fed. Cir. 2001).

104. 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984), *reprinted in* 1984 U.S.C.C.A.N. 5827, 5828; see also *supra* note 25.

105. See *supra* notes 26 and 27.

106. 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984), *reprinted in* 1984 U.S.C.C.A.N. 5827, 5828 (emphasis added).

gests that Congress had only mechanical devices in mind. The representative who presented the bill in Congress explained that it pertained to "a *product's* patent protection."¹⁰⁷ Both the impetus for the statute and the history of its enactment make it clear that the statute was intended to apply only to product patents.

Additionally, the debate surrounding another potential statute also suggests that processes were never considered to be within the scope of § 271(f). Congress debated a bill to prevent the importation of products made abroad by a patented process during the same hearing that it considered § 271(f).¹⁰⁸ This bill was potentially of great importance to the pharmaceutical industry because it would have prevented generic producers from circumventing process patents held by name-brand companies by importing drugs manufactured abroad using those processes. Many of the witnesses present at the hearing were industry representatives from the chemical or pharmaceutical industries, both generic and name-brand, who were concerned about the importation of generic drugs produced abroad.¹⁰⁹

Both of these sectors would have had the same if not a greater interest in § 271(f), at the time, if there had been any reason to think that it would apply to process patents. If the brand-name pharmaceutical companies anticipated the possibility that § 271(f) might apply to process patents, surely they would have expressed their approval. Conversely, if the generic manufacturers thought this would prevent them from shipping "components" of process patents abroad, meaning that they would be barred from producing *anywhere*, they would have likely voiced adamant disapproval of the scope of the statute. As it was, these experts did not even consider that § 271(f) could apply to process patents. This suggests that such infringement, the exact same infringement found in *Union Carbide*, was not intended to fall under the statute. Rather, these intellectual property experts rubberstamped § 271(f), recognizing it as a simple fix for *Deep-south*.¹¹⁰

107. 130 CONG. REC. H10529 (daily ed. Oct. 1, 1984) (statement of Sen. Kastenmeier) (emphasis added).

108. 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984), *reprinted in* 1984 U.S.C.C.A.N. 5827, 5828.

109. *See, e.g., Patent Law Improvement Act: Hearing on H.R. 6286 Before the Subcomm. on Patents, Copyrights, and Trademarks of the H. Comm. on the Judiciary*, 98th Cong. 169 (1984) (statement of Richard C. Witte, Chemical Manufacturers Association); *id.* at 202 (statement of Alfred B. Engelberg, Chief Patent Counsel, Generic Pharmaceutical Industry Association).

110. *See, e.g., id.* at 55 (statement of Bernarr R. Pravel and Robert B. Benson of the American Intellectual Property Law Association).

The legislative history also suggests that § 271(f) liability should not apply in the *Eolas* and *AT&T* cases regardless of whether it is appropriate to extend § 271(f) to software. Both statements from Congress and testimony from business people confirm that § 271(f) should prohibit people from *avoiding* U.S. patent law by manufacturing abroad.¹¹¹ This understanding reflects the fact pattern in *Deepsouth* where the defendant only sold the machines abroad and specifically stated its purpose in doing so was to avoid liability.¹¹² In neither of the present cases did Microsoft seek to avoid liability. In fact, in both cases, the infringing product was sold in the U.S., exposing Microsoft to liability for those copies as well.¹¹³ Microsoft was simply using its standard supply system, and was not trying to circumvent U.S. patent law. It does not appear that Congress intended to prohibit these non-malevolent actions with § 271(f).

Altogether, an in depth analysis of the legislative history is informative and the subject matter of the case that precipitated the enactment of the statute is instructive. However, based on the wide range of interpretations by the courts, they are not dispositive. While all of the available signs suggest that Congress did not intend for this statute to extend beyond solving the mechanical issue in *Deepsouth*, more contextual evidence would prove useful. In this vein, studying the environment surrounding the enactment of § 271(f) is enlightening.

2. Commercial Context

The legislative history suggests that Congress did not consider § 271(f) as applicable to software, and the nascent state of the software industry at the time supports this hypothesis. The relative insignificance of software patents in 1984 indicates that Congress had no reason to consider § 271(f)'s effect on the software industry even if Congress had intended

111. 130 CONG. REC. H10525 (daily ed. Oct. 1, 1984), *reprinted in* 1984 U.S.C.C.A.N. 5827, 5828 (“[W]ill prevent copiers from avoiding U.S. patents”); Patent Law Improvement Act: Hearing on H.R. 6286 Before the Subcomm. On Patents, Copyrights, and Trademarks, Comm. on the Judiciary, 98th Cong. 46 (prepared statement of Donald W. Banner) (“[§ 271(f)] makes it infringement to supply components . . . for final assembly abroad, if supplied for the purpose of avoiding the patent[,]” and “[t]he existing patent law on this point is unfair. It permits a subterfuge. The law should not permit substantially all the manufacturing activity to take place in the United States and yet allow the patent to be avoided by a technicality.”).

112. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 524 n.5 (1972) (“*Deepsouth* is entirely straightforward in indicating that its course of conduct is motivated by a desire to avoid patent infringement.”).

113. *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1328 (Fed. Cir. 2005); *AT&T Corp. v. Microsoft Corp.*, No. 01 Civ. 4872 (WHP), 2003 WL 21459573, at *1 (S.D.N.Y. June 24, 2003).

for the statute to reach beyond mechanical inventions. The Supreme Court deemed software patenting possible in the *Diamond v. Diehr* decision, which came only three years before the enactment of the statute.¹¹⁴ Industry experts were still guarded about the unhindered existence of software patents.¹¹⁵ Empirical evidence also demonstrates the lack of software patents in the mid-1980s when Congress codified the statute.¹¹⁶ Thus, not only is there no evidence that Congress considered software to fall within the ambit of § 271(f) protection, contextual evidence shows it had no reason to.

However, even though software was not an issue when Congress enacted the statute, one could argue that jurisprudence should expand to accommodate new technologies. Although software patents are still sometimes claimed as products, probably as a relic of their troubled beginning, they are significantly more akin to processes. Process claims are found in a large portion of U.S. software patents.¹¹⁷ Intuitively, software falls into the process category because its role is to perform a function, not be a physical thing. Most software inventions are implemented by algorithms, which are “easily transferred into a description and claim using a method approach.”¹¹⁸ Even if the software patent uses product claims, they are of-

114. 450 U.S. 175 (1981).

115. One commentator explained, “[i]f not there already, the courts are clearly moving toward the position that computer programs are statutory subject matter . . . [and] this trend will probably continue absent further intervention by the Supreme Court.” William L. Anthony, Jr. & Robert C. Colwell, *Litigating the Validity and Infringement of Software Patents*, 41 WASH. & LEE L. REV. 1307, 1324 (1984); see James Besson & Robert M. Hunt, *An Empirical Look at Software Patents* 3 (Fed. Res. Bank of Phila., Working Paper No. 03-17/R, 2004), <http://www.researchoninnovation.org/swpat.pdf> [hereinafter *Besson & Hunt*] (positing that it was not until the 1994 decision in *In re Alapat* that some of the remaining questions about software patents were clarified).

116. In 1984 the percentage of software patents among total issued patents was 2.9%, indicating the nascent state of the software industry in the mid 1980s; by 2002 that number jumped to 14.9%. *Besson & Hunt, supra* note 115, at 47 tbl. 1. No public software product company existed until 1978. Software History Center, *An Overview of the History of the Software Industry*, <http://www.softwarehistory.org/history/Default.htm> (last visited Nov. 5, 2005). Microsoft did not sell its first version of Windows until 1985 and did not go public until 1986, two years after the enactment of the statute. Microsoft Visitor Center Timeline, <http://www.microsoft.com/visitorcenter/timeline.mspx#> (last visited Nov. 6, 2005).

117. Keith E. Witek, *Developing a Comprehensive Claim Drafting Strategy for U.S. Software Patents*, 11 BERKELEY TECH. L.J. 363, 385 (1996) (“Software process claims can be found in roughly 85% of all issued U.S. software patents.”).

118. Christopher E. Everett, Comment, *Software Terminology: How to Describe a Software Invention in a United States Patent Application*, 29 NOVA L. REV. 693, 701 (2005).

ten still interpreted as method claims. For example, the claim litigated in *Eolas* was technically a product claim,¹¹⁹ but even Judge Rader referred to it as “various method steps” in *Union Carbide*.¹²⁰ While software patents can still be filed as either product or process claims, the USPTO acknowledges that the product element of product-based software claims derives from the hardware it is installed upon, and not from the software itself.¹²¹ Because software is more similar to a process than a product, it should, like processes generally, be excluded from the purview of § 271(f). Thus, even if one believed the statute should expand to cover new product technologies, it should nevertheless still exclude software.

B. Territoriality Suggests § 271(f) Should Have a Limited Scope

There has been dramatic change in both the global market and the international intellectual property regime since the enactment of § 271(f) in 1984, altering the context within which the statute is applied. The globalization of business suggests that a narrow construction or even a possible abolition of § 271(f) is optimal. Thus, even if one takes the functionalist view that the scope of legislation should change with evolving contexts, the circumstances suggest that allowing a broadening change would be ill advised. Indeed, there is considerable concern that the statute affects international law in a manner it did not at its enactment, while influencing domestic industry in unproductive ways. There are also sizable questions as to how § 271(f) should apply to other new technologies that did not exist in 1984.

1. *Effects on International Law*

The Federal Circuit’s broad construction of § 271(f) forces the statute into the domain of international law. This unilateral application of American patent law to actions in foreign countries is contrary to the established system for international intellectual property enforcement.

Since 1984 the world has seen an enormous change in international intellectual property regulation. The adoption of TRIPS in 1994, after over a decade of negotiations, marked an enormous step forward in the stan-

119. *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1330-31 (Fed. Cir. 2005).

120. *Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co.*, 425 F.3d 1366, 1379 (Fed. Cir. 2005).

121. See UNITED STATES PATENT & TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE § 2106 (8th ed., rev. 2005), available at http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2106.htm (“Product claims are claims that are directed to either machines, manufactures or compositions of matter. The discrete physical structures or materials may be comprised of hardware or a combination of hardware and software.”).

dardization of international intellectual property law.¹²² While setting minimum standards for all WTO countries, the agreement also made it easier for foreign citizens to obtain patents in other countries.¹²³ This proves significant in an analysis of § 271(f) because at the time of its enactment no such guarantee existed. At the time, there were simply some places where U.S. citizens could not receive the same relative level of protection as with their domestic patents, making evasion possible. This meant that companies might not have an actionable infringement claim in a foreign nation if the product assembly occurred abroad, creating situations like that in *Deepsouth* where a potential infringer could ship components overseas specifically to avoid liability.

With the adoption of TRIPS, this is no longer the case. If a U.S. company requires protection in a foreign country it can apply for foreign patent protection and prevent anyone from making or using its patented invention in that country provided the country is TRIPS compliant.¹²⁴ This system protects U.S. inventors not only from other Americans, but also from foreign infringers. Thus, the increasing level of international protection, and greater ease in acquiring such protection, to a large extent, negates the need for § 271(f).¹²⁵

While TRIPS is quite comprehensive, it does allow for differences in patent policy between countries. For instance, the U.S. maintains its first

122. See generally MICHAEL BLAKENEY, TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS: A CONCISE GUIDE TO THE TRIPS AGREEMENT (1996); GERVAIS, *supra* note 28.

123. For a general overview of the filing of international patent applications, see INTERNATIONAL INTELLECTUAL PROPERTY (Insight Press 1998) [hereinafter IIP].

124. TRIPS Agreement, *supra* note 30. This approach increases the price of patent protection because of the cost of filing, prosecuting, and maintaining the patent in a foreign country. However, it also gives significantly more protection. For a comparison of filing and maintenance costs, and suggestions on how to lower those costs, see Jay L. Chaskin, *Reducing the Costs of International Patents*, in IIP, *supra* note 123, at 59, 68. For suggestions and considerations when deciding where to file, see generally Samson Helfgott, *Foreign Filing Decisions—What and Where to File*, in IIP, *supra* note 123, at 95.

125. The ease of filing in foreign countries involves a number of factors beyond the TRIPS agreement. Such factors include new telecommunications advances that make it much easier to do business abroad. See, e.g., Dale Bastian, *A Change of Image for Videoconferencing—The Carrier/Corporate Relationship*, TELECOMM. INT'L, Sept. 2002, http://www.findarticles.com/p/articles/mi_m0IUL/is_9_36/ai_92586878 (positing that videoconferencing will become more and more popular as businesses look for more cost effective ways to do business over long distances). The globalization of many law firms is also relevant as such firms can now provide prosecution services in many foreign countries. Global Policy Forum, *Globalization and Law*, <http://www.globalpolicy.org/globaliz/law/index.htm> (last visited Nov. 6, 2005) (“[I]n order to serve giant, transnational companies, law firms are globalizing their practice.”).

to invent rule over the otherwise universal first to file rule used elsewhere.¹²⁶ TRIPS also allows countries to set differing standards of patentability for certain technologies, such as software. Individual countries struggled to maintain these seemingly purposeful differences throughout the TRIPS negotiations.¹²⁷ However, § 271(f) allows the U.S. to override these meaningful differences in foreign patent law under certain circumstances. As an example, an American could obtain patent protection of software in Europe through § 271(f) even though the letter of European Union law does not permit software patents.¹²⁸ This is especially important in the context of the *Eolas* decision, where putatively it was not possible to obtain the key patent in Europe, where much of the infringement occurred. Section 271(f) thus allows Americans to override EU law and obtain protection via a U.S. patent.

The diversity of international patent law serves a number of purposes. Most importantly, it permits countries to choose what balance of intellectual property protection and public disclosure they prefer.¹²⁹ Diversity in patent law also allows for the testing of different intellectual property systems, creating a patent law “test tube” where experts can assess how particular patent laws function in practice. Imposition of U.S. patent law not only stifles this diversity, but also presumes that American intellectual property law is optimal. Here, the Federal Circuit’s broad reading of § 271(f) as including software could create a unilateral dismissal of foreign patentability and enforcement standards in certain situations. This creates a scenario where American companies can receive patent protection internationally, not only for a heavily discounted price,¹³⁰ but also in countries where they previously might not have received protection or

126. 35 U.S.C. § 102(g) (2000); European Patent Convention art. 60(2), Oct. 5, 1973, 1065 U.N.T.S. 199, available at <http://www.european-patent-office.org/legal/epc/e/ar60.html> [hereinafter *European Patent Convention*].

127. See GERVAIS, *supra* note 28.

128. *European Patent Convention*, *supra* note 126, art. 55, available at <http://www.european-patent-office.org/legal/epc/e/ar52.html>. The European Union’s official stance on software patentability indicates: “[t]he following in particular shall not be considered patentable . . . programs for computers.” *Id.*

129. WTO countries would still need to remain within the parameters set by TRIPS. It is important to emphasize that whatever constraints TRIPS effectuates are constraints that the sovereign country agreed to by its involvement in the WTO. In fact, they are constraints that the sovereign country had ample opportunity to discuss and contest in the many years leading up to the final TRIPS agreement. In short, any imposition by TRIPS represents an accepted change that is the product of a multilateral agreement.

130. By this I mean that, if the invention was patentable in the foreign country, the inventor would receive protection there without paying for the prosecution or maintenance of the patent.

would have received limited protection. This limits the diversity of international patent law and creates different standards based on a given inventor's country of origin.

2. *Impact on Domestic Businesses and Effects on Other Industries*

The ill effects of a broad application of § 271(f) will be felt not only by foreign patent regimes, but also by the U.S. companies that are the subjects of infringement suits. Given the broad application of the statute, potential defendants outside of the software industry might be affected as well. Because a company is only liable under § 271(f) if the component in question originates in the United States, the law has an adverse effect on American defendants. With a jury verdict against it for over \$520 million,¹³¹ Microsoft is a prime example of the adverse implications § 271(f) can have for a U.S. company. If Microsoft had moved its research and development facilities just a couple hundred miles north to Canada, and shipped the golden masters from there, it could have avoided the overseas infringement. The Federal Circuit's broad interpretation of § 271(f) essentially exposes U.S. companies to liability and potential costs that their foreign competitors do not face, putting them at a disadvantage in the global market.

Another threat, which Microsoft raised in the *AT&T* case as well as in its *Eolas* certiorari petition,¹³² is that with this type of liability being imposed upon U.S. software companies, some corporations might outsource their R&D abroad.¹³³ Given the importance of the U.S. software industry, both in terms of economics and employment,¹³⁴ the consequences of this

131. Brief of Petitioner at 3, *Microsoft Corp. v. Eolas Techs., Inc.*, 126 S. Ct. 568 (2005) (No. 05-288) [hereinafter *Microsoft Petition*]. This number includes the price of domestic as well as international infringement.

132. *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1372 (Fed. Cir. 2005); *Microsoft Petition*, *supra* note 131, at 10-11.

133. Indeed, in Microsoft's petition for certiorari, it asserts that the Federal Circuit's ruling creates "a powerful incentive . . . to avoid the potentially crippling liability." *Microsoft Petition*, *supra* note 131, at 11. This is especially interesting in view of suggestions that part of Congress's motivation for passing § 271(f) was to prevent American manufacturing jobs from being outsourced abroad. Brian E. Ferguson & Stephan K. Shihida, McDermott, Will & Emory, *From DeepSouth Shrimp to Microsoft Windows: Exporting Components of Patented Inventions Under 35 U.S.C. § 271(f)* (Oct. 2005), http://www.mwe.com/index.cfm/fuseaction/publications.nldetail/object_id/444601c1-55ac-46ef-b306-14776108043b.cfm.

134. In 2004, the top 500 software companies saw total revenues of \$330.7 billion dollars, which represents a 14% increase from 2003. John P. Desmond, *2004 Software 500: Growth Came in Segments*, *SOFTWARE 500 MAG.*, Oct. 2004, <http://www.>

shift may be substantial.¹³⁵ This concern also prompts an inquiry as to which other industries might be affected.

This raises the question of how much further § 271(f) could extend. From the matrix used to analyze the district court cases above, it is apparent that the statute was meant to affect physical product inventions in quadrant I. However, *Eolas* and *AT&T* illustrate an extension of the provision to include patents on intangible products in quadrant II. The effect of the Federal Circuit's extension to this quadrant could also implicate the growing biotechnology industry,¹³⁶ or any other industry based on replication technology. Additionally, *Union Carbide* exemplifies the further expansion of the recent decisions to cover physical process patents in quadrant III.

This leaves quadrant IV, intangible components of method patents, the only quadrant which the Federal Circuit has not affirmatively exposed to § 271(f) liability. One possible constraint to the expansion of quadrant IV is *Pellegrini*, which maintains that instructions cannot create liability under § 271(f). On the other side, is the notion that objects always embody information about themselves such that every object could contain the information needed for its own replication,¹³⁷ in which case everything sent

softwaremag.com/L.cfm?Doc=2004-09/2004-09software-500 (statistics include software services). The domestic software industry employs around one and a half million people and is predicted to be one of the fastest growing occupations in the next decade despite continued outsourcing. That number represents 675,000 computer software engineering employees, 256,000 software publishing employees, 499,000 software programmers, and part of the 758,000 computer support specialists. U.S. DEPT. OF LABOR, BUREAU OF LABOR STATISTICS, OCCUPATIONAL OUTLOOK HANDBOOK (2006-07), available at <http://www.bls.gov/search/ooah.asp?ct=OOH> (including all data for 2004); see ECONOMIC POLICY INSTITUTE, ECONOMIC SNAPSHOT (March 24, 2004), available at http://www.epinet.org/content.cfm/webfeatures_snapshots_archive_03242004 (showing graphically the decline in U.S. participation in software production).

135. Whether it is reasonable to assume that the U.S. software industry will take such a drastic step remains to be seen but, regardless, the industry will need to invest time and resources to avoid this kind of massive liability and, in doing so, the inefficiency costs will likely be passed on to consumers.

136. For instance, if Company A held a patent on a gene sequence that coded for a particular protein, and Company B sent one tube of plasmids that had been transformed with the sequence, would Company B be liable for every *E. Coli*. that then received the gene through a plasmid from the tube sent from the United States? Based on the precedent set in *Eolas* and *AT&T* it would seem so. Other variations prove interesting as well. If A held a patent not on the gene itself, but on a method for producing the resultant protein by transforming *E. Coli* with the gene, would B be liable for any protein it produced overseas from the plasmid, a component, it sent from the United States?

137. Andrew F. Knight, *Software, Components, and Bad Logic: Recent Interpretations of Section 271(f)*, 87 J. PAT & TRADEMARK OFF. SOC'Y 493, 505-09 (2005).

abroad could be considered a component. While this is certainly an extreme view, some have argued that software is effectively a set of instructions for a computer.¹³⁸ Under this reasoning, DNA is merely a set of instructions for a cell and parameters for machine settings are simply instructions for manufacturing. Given this potential expansion to quadrant IV, many exports may fall within the ambit of § 271(f). This could disrupt the way a multitude of U.S. industries are currently doing business even though they are not operating with the intent to circumvent U.S. patent law.

Given these potential difficulties and the ambiguous scope of the statute, using § 271(f) for international enforcement of U.S. patent law seems unsound at best. Alternatively, the existing international intellectual property protection framework is relatively comprehensive, more even-handed in its application, and multilateral in nature. The best apparent solution would be to prosecute infringement within the existing international framework¹³⁹ and judge infringement at its location.¹⁴⁰ This would avoid the effects of U.S. extraterritoriality and create a level playing field for the parties involved and their competitors.

IV. CONCLUSION

The legislative history demonstrates that Congress intended § 271(f) to specifically cover inventions that fell into quadrant I of Table 1. The recent cases decided by the Federal Circuit, as discussed in this Note, mark an expansion into quadrants II and III. While legislative history and context argue against this expansion, it could, on the other hand, be asserted that patent law should be altered to fit new technologies and that the Federal Circuit was doing just that in these cases. It is important to remember, however, that even if the legislative history is not dispositive, the impact on international law and domestic industry also counsels against giving § 271(f) a more expansive definition than that which existed at its enactment.

138. *Id.*

139. Some may argue that this will create a period of “under-protection” of IP rights. Such an argument would necessarily be founded on the premise that stronger IP rights are superior, an opinion that is far from conclusively substantiated.

140. This appears to be the conclusion of Judge Rader’s opinions. He authored the opinion in *Eolas* holding that software is a component, and thus extending § 271(f) outside of the bounds of *Deepsouth*. See *Eolas Techs. Inc. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir. 2005). However, he also wrote an adamant dissent in *AT&T* charging that the only components supplied from the U.S. are the golden masters, and that any copies made from those golden masters are not supplied from America. *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1372 (Fed. Cir. 2005) (Rader, J., dissenting).

Given the assertion that § 271(f) was never meant to reach as broadly as the Federal Circuit is now allowing it to, and the fact that the realm of international intellectual property is significantly more developed than it was twenty years ago when the provision first came into being, it is apparent that we need a new way of looking at this issue. As global trade and protective IP owners are pushing patent law into places it has never ventured before, this will become even more crucial. Some solutions, like TRIPS, call for a highly developed multilateral agreement. Here, however, the result has been the expansion of a law that never contemplated this subject matter, in a manner that is harmful to both American business interests and the sovereignty of foreign patent regimes. Given the suitable international framework that exists for prosecuting infringement, using that system seems less fraught with difficulty and more equitable for all parties involved.

