

January 2007

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Recommended Citation

Christopher R. Rogers, *AT&T v. Microsoft: Is This a Case of Deepsouth Déjà Vu?*, 59 Me. L. Rev. 191 (2007).

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Christopher Rogers

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AT&T V. MICROSOFT: IS THIS A CASE OF DEEPSOUTH DÉJÀ VU?

Christopher Rogers*

I. INTRODUCTION

It has been stated many times by various courts that the patent laws of the United States do not reach beyond the borders of the United States.¹ In an age of expanding world commerce, the territorial reach of our patent laws has sometimes made it difficult for U.S. inventors to meaningfully protect their intellectual property. For example, the Supreme Court holding in *Deepsouth Packing Co. v. Laitram Corp.*² opened up a loophole that allowed unlicensed U.S. manufacturers to essentially export patented inventions, thereby trampling on the patent rights of U.S. patent holders selling to foreign markets. The *Deepsouth* loophole has long since been closed by Congress. However, with the advent of the information age and the software patent, new loopholes loom.

The Supreme Court will have a chance to prevent a new loophole from opening when it decides *AT&T Corp. v. Microsoft Corp.*³ In *AT&T v. Microsoft*, Microsoft was alleged to have infringed an AT&T patent for a speech codec,⁴ an algorithm that transforms audible speech into compact, computerized numerical data.⁵ Microsoft incorporated the infringing codec into Microsoft Windows, which it provided to overseas distributors. If Microsoft had provided each salable copy of Windows by exporting it from the United States, it would have come squarely under § 271(f) of the Patent Act,⁶ which prohibits the export of patented articles. However, software being what it is, such a distribution system would have been needlessly inefficient and costly. Instead, Microsoft provided a single master copy to be replicated by the foreign distributors.

Thus, the central issue presented in the *AT&T* case becomes: is Microsoft liable for infringing AT&T's patent based solely on the export of the master disk alone, or is it also liable for the copies that were produced overseas? The Federal Circuit

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1. See, e.g., *Dowagiac Mfg. Co. v. Minn. Mfg. Co.*, 235 U.S. 641, 650 (1915) ("The right conferred by a patent under our law is confined to the United States and its Territories."); *Brown v. Duchesne*, 60 U.S. 183, 195 (1856) ("The [federal patent] power . . . is domestic in its character, and necessarily confined within the limits of the United States."); *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1313 (Fed. Cir. 2005) (noting that § 271(a), which deals with infringement of a patent, "is only actionable against patent infringement that occurs within the United States"); *Decca Ltd. v. United States*, 544 F.2d 1070, 1072 (Ct. Cl. 1976) ("United States Patent Laws . . . are not infringed by acts in foreign countries that would be infringements at home.").

2. 406 U.S. 518 (1972).

3. 414 F.3d 1366 (Fed. Cir. 2005), cert. granted, 127 S. Ct. 467 (Oct. 27, 2006) (No. 05-1056).

4. *Id.* at 1368.

5. *Id.* at 1368 n.1 (describing "speech codec").

6. 35 U.S.C. § 271(f) (2000).

responded by holding that Microsoft had essentially exported all of the infringing copies that were replicated in the foreign markets, and was therefore liable for the foreign copies as well—loophole closed. A strict territorial approach, however, as applied in *Deepsouth*, would demand the opposite result.

In October 2006, the Supreme Court granted Microsoft's certiorari petition, opening the possibility that the Court will reverse the Federal Circuit and open a new software patent loophole. The Supreme Court's decision will have significant repercussions in the software industry. On the one hand, holding infringing software manufacturers liable for copies produced overseas will drastically increase their potential liability; on the other hand, the strict territorial approach could create a tempting opportunity for domestic software manufacturers to skirt U.S. patent laws. If the Supreme Court reverses the Federal Circuit, the case of *AT&T v. Microsoft* may turn out to be a case of *Deepsouth déjà vu*.

This Note will discuss the territoriality principle, and the unexpected results that often flow from the territorial limitation on U.S. patent laws. The Note will focus, in particular, on the *Deepsouth* case and its modern counterpart, *AT&T v. Microsoft*, exploring the legal parallels between the two cases. This Note contends that the Federal Circuit's majority decision is correct, and should not be overturned by the Supreme Court. If the Supreme Court does overturn the Federal Circuit, the question will become: what should Congress do about it? This Note asserts that Congress should take action to close such a loophole, and that indeed, what is really needed is a separate congressional enactment that deals specifically with the protection of software, something that existing patent statutes were not designed to do.

II. TERRITORIALITY OF PATENT LAWS

The congressional authority to grant limited monopolies to inventors of new and useful technology comes directly from Article I of the Constitution.⁷ While the first Congress initially exercised that power in 1790,⁸ it is the Patent Act of 1836⁹ that created the patent system in a form comparable to what we have today. A patent granted after 1836 permitted the applicant, "for a term not exceeding fourteen years, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention or discovery."¹⁰ The statutory language, as with the constitutional grant of authority, made no mention of the extraterritorial effects of U.S. patents.

From the beginning, however, courts recognized that the monopoly power granted by the United States should not extend beyond the borders of the United States. The first Supreme Court case to state the territorial nature of the U.S. patent laws is *Brown v. Duchesne*.¹¹ The plaintiff in that case had patented an improvement in constructing

7. U.S. CONST. art. I, § 8, cl. 8 (Congress shall have the power "[t]o promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.").

8. Patent Act of 1790, ch. 7, 1 Stat. 109 (1790) (repealed 1793).

9. Patent Act of 1836, ch. 357, 5 Stat. 117 (1836).

10. *Id.* § 5.

11. 60 U.S. 183 (1856).

the gaff¹² of sailing vessels. The plaintiff alleged that a sailing vessel that was built in France, and owned and manned by French citizens, infringed his patent when the vessel temporarily docked in Boston.¹³ The Supreme Court agreed that the text of the patent laws “taken by themselves, and literally construed . . . would seem to sanction the claim of the plaintiff.”¹⁴ The Court held, however, that a foreign vessel using an improvement patented in the United States did not infringe the U.S. patent simply by entering U.S. ports.¹⁵ The Court reasoned that the separate grants of constitutional power to make treaties and regulate foreign commerce created an implied limitation on the Constitution’s grant of patent authority.¹⁶ In contrast to the foreign commerce power and the treaty power, the patent power was “domestic in character, and necessarily confined within the limits of the United States.”¹⁷ Furthermore, the Court presumed that Congress, in passing the Patent Act of 1836, was acting under its patent powers alone and not its foreign commerce powers. A U.S. patent could, therefore, not have extraterritorial effect.¹⁸ The Court further stated that Congress could not have intended for the patent laws to extend beyond the limits of the United States because such a construction interferes with Congress’s powers to regulate foreign commerce and foreign treaties.¹⁹

The Supreme Court, in *Dowagiac Manufacturing Co. v. Minnesota Moline Plow Co.*,²⁰ later reaffirmed that “[t]he right conferred by a patent under our law is confined to the United States . . . and infringement of this right cannot be predicated [on] acts wholly done in a foreign country.”²¹ On that basis, the Court declined to award a plaintiff damages for infringing drills that were sold in Canada when no part of the transaction occurred in the United States, and even though the drills were made in the United States by another party.

Congress later codified the territorial aspect of the patent laws when it passed the Patent Act of 1952.²² According to § 154 of the Act, the rights of a patent holder

12. A gaff is a support pole attached to a mast that holds up the upper edge of a sail. WEBSTER’S UNABRIDGED DICTIONARY 781 (2d ed. 1999).

13. *Brown*, 60 U.S. at 193.

14. *Id.* at 194.

15. *Id.* at 198-99.

16. *Id.* at 195.

17. *Id.*

18. *Id.*

19. *Id.* at 197-98. As an example of this interference, the Court pointed out that:

[I]f a treaty should be negotiated with a foreign nation, by which the vessels of each party were to be freely admitted into the ports of the other, . . . the United States would find itself unable to fulfill its obligations if the foreign ship had about her . . . anything for which a patent had been granted.

Id. at 197.

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

21. *Id.* at 650. The Court made no mention of its prior holding in *Brown v. Duchesne*, but rather found support in the opinion of Justice Holmes in *United Dictionary Co. v. G. & C. Merriam Co.*, 208 U.S. 260, 265-66 (1908) (holding that the notice requirements of U.S. copyright laws did not extend to copies printed abroad).

22. Patent Act of 1952, Pub. L. No. 82-593, 66 Stat. 792 (1952) (current version at 35 U.S.C. §§1-376 (2000)). The Patent Act of 1952 was an extensive overhaul of the U.S. patent laws, but it maintained the basic structure that had been created by the Patent Act of 1836 and its subsequent amendments.

would now explicitly include the right to “exclude others from making, using, or selling the invention *throughout the United States*”²³

The territorial nature of patent laws sometimes leads to unexpected results. For example, prior to 1988, the patent laws did not prohibit the importation of products manufactured by patented processes. This allowed foreign manufacturers to use processes developed and patented within the United States to manufacture products overseas that could then be imported into the United States, thus piggybacking on the research and development of U.S. manufacturers.²⁴ This practice discouraged many companies from obtaining process patent protection at all and was particularly harmful to the U.S. pharmaceutical industry and manufacturers of metals and fiber optics.²⁵

Congress later closed this loophole in 1988 by enacting § 271(g) of the patent code.²⁶ Section 271(g) now makes it a patent infringement to import into the United States products that are manufactured abroad by patented processes.²⁷ However, even with this added protection, loopholes still exist. One recent example is *Bayer AG v. Housey Pharmaceuticals, Inc.*²⁸ The defendant, Housey Pharmaceuticals, was the owner of a U.S. patent for a method of screening for chemical substances that either inhibit or activate protein expression in human cells. The usefulness of this method is that it allows one to identify chemicals that can be used in fighting diseases that are associated with the particular protein affected.²⁹ The plaintiff, Bayer AG, was a foreign corporation that manufactured a pharmaceutical substance using Housey’s patented process outside the United States, subsequently imported the resulting drug

23. *Id.* § 154 (emphasis added). The full text of 35 U.S.C. § 154 states:

Every patent shall contain . . . a grant to the patentee . . . the right to exclude others from making, using, offering for sale, or selling the invention *throughout the United States* or importing the invention *into the United States*, and, if the invention is a process, of the right to exclude others from using, offering for sale or *selling throughout the United States*, or importing *into the United States*, products made by that process

Id. (emphasis added).

24. Kelly L. Morron, *The Administration’s Legislation: The National Cooperative Research Act of 1984, The National Productivity and Innovation Act of 1983*, 18 J. MARSHALL L. REV. 607, 650-51 (1985); A. Paul Victor, *Preventing Importation of Products in Violation of Property Rights*, 53 ANTITRUST L.J. 783, 789 (1985). Prior to 1988, U.S. industries could bring an action against such an importer before the International Trade Commission under § 337 of the Tariff Act of 1930; however, this recourse was only available to whole industries, not individual companies, and the plaintiff was not assured of blocking the offending import even if he could show that the product was manufactured by a patented process. *Id.* at 789-90. For example, “even when a complainant has proven his case before the [International Trade Commission] and has been granted a remedy[,] the President may disapprove the determination or remedy for policy reasons.” *Id.* at 789. See also William A. Zeitler, *A Preventative Approach to Import-Related Disputes: Antidumping, Countervailing Duty, and Section 337 Investigations*, 28 HARV. INT’L L.J. 69, 90-91 (1987).

25. See, e.g., Donald W. Banner, Letter to the Editor, *Protecting Yankee Ingenuity*, N.Y. TIMES, Oct. 13, 1984, at A26; Gail Bronson, *Loophole Closing Time*, FORBES, May 1987, at 139, 144; *Patent Piracy Bill Advances*, N.Y. TIMES, May 14, 1987, at D17; *Trade Bill Incorporates IBA’s Legislative Priority: Process Patents*, BIOTECH BUSINESS, Oct. 1988.

26. Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107.

27. 35 U.S.C. § 271(g) (2000) (“Whoever without authority imports into the United States or offers to sell, sells, or uses within the United States a product which is made by a process patented in the United States shall be liable as an infringer”)

28. 340 F.3d 1367 (Fed. Cir. 2003).

29. *Id.* at 1369.

into the United States, and also communicated the research data into the United States for domestic production of the drug.³⁰ Bayer sought a declaratory judgment that the patent was invalid, and Housey brought a countersuit for patent infringement under § 271(g) of the Patent Act.³¹ The Supreme Court held that § 271(g) did not apply to the drug in question because the patented process did not produce the drug itself, but rather only identified its possible pharmaceutical use.³² The drug itself, therefore, was not actually produced by the patented process.³³ Furthermore, the Court held that “importation” of the research results did not qualify for § 271(g) protection because Congress intended § 271(g) to apply only to tangible goods resulting from a manufacturing process.³⁴

The case of *Johns Hopkins University v. CellPro, Inc.*,³⁵ provides another example of how the territorial extent of patent laws can lead to unexpected loopholes. The plaintiff, Johns Hopkins, had patented a method for creating a useful line of stem cells.³⁶ CellPro, aware of the Johns Hopkins patent, used a similar process to create a similar line of stem cells.³⁷ After the University’s patent issued, CellPro exported a sample of its stem cells to Canada to produce a “working Canadian cell bank.”³⁸ The exported cells were produced before the University’s patent issued.³⁹ In the ensuing patent infringement suit, the United States District Court for the District of Delaware held that CellPro was, in fact, infringing the University’s patent with regard to its ongoing activities within the United States. In addition to awarding damages, the court also ordered that CellPro return and destroy the stem cell samples exported to Canada.⁴⁰ On appeal, the Federal Circuit upheld the district court regarding patent infringement, but reversed the district court regarding the repatriation and destruction of the stem cell samples that were exported to Canada. The Federal Circuit held that the repatriation injunction constituted an abuse of discretion because it was not predicated on unlawful infringing activities.⁴¹ In other words, it was not unlawful to create the patented invention in the United States before the issuance of the patent, nor was it unlawful to possess the patented invention in the United States even after the patent issued as long as the invention was not being used or offered for sale. Furthermore, it was not unlawful to export the patented invention from the United States even though the patent was in effect at that time.⁴² Because there was no violation of U.S.

30. *Id.* at 1370.

31. *Id.* at 1369.

32. *Id.* at 1377-78.

33. *Id.*

34. *Id.* at 1376-77.

35. 152 F.3d 1342 (Fed. Cir. 1998).

36. *Id.* at 1347.

37. *Id.* at 1348.

38. *Id.* at 1353. A working cell bank is a collection of cells that is cultured from a master cell bank and is used to mass produce the cells for actual use in patients. EudraLex, *Medicinal Products for Human and Veterinary Use: Good Manufacturing Practice*, available at <http://ec.europa.eu/enterprise/pharmaceuticals/eudralex/vol-4/pdfs-en/glos4en200408.pdf> (last visited Nov. 16, 2006).

39. *CellPro*, 152 F.3d at 1353.

40. *Id.* at 1346.

41. *Id.* at 1366.

42. Exportation of a patented invention without an actual sale is not infringement. See 35 U.S.C. § 271 (2000) (an infringer is one who “without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention . . .”).

patent laws, the Canadian cell line was unreachable by American courts.⁴³ The court clarified that an injunction could reach extraterritorial activities, but only if the purpose of the injunction is to prevent violation of U.S. patent laws, such as when a patented device is manufactured abroad for use within the United States.⁴⁴

III. THE *DEEPSOUTH* DECISION

To understand the holding of *Deepsouth*, one must understand contributory infringement. Contributory infringement occurs when one person sells an article which, by itself, does not infringe, but is intended to be combined with other components so that the whole assembly constitutes a patented invention.⁴⁵ Before contributory infringement was codified in the Patent Act of 1952, the circuit courts developed a judicial doctrine of contributory infringement.⁴⁶ The Supreme Court tacitly endorsed the doctrine of contributory infringement in *Leeds & Catlin Co. v. Victor Talking Machine Co.*⁴⁷ when it upheld a lower court's holding that the unauthorized manufacture and sale of phonograph records for use with patented Victor record players constituted contributory infringement.⁴⁸ This doctrine was later codified in the 1952 Patent Act, which stated:

Whoever sells a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.⁴⁹

Leading up to the *Deepsouth* case, the circuit courts had consistently held that contributory infringement could only be found where the ultimate assembly of the patented device occurred within the United States.⁵⁰ This made it legal to manufacture one or more components of a patented device within the United States and then export them for final assembly outside the United States.⁵¹ This outcome resulted from the fact that there could be no contributory infringement without direct infringement.⁵² For

43. *CellPro*, 152 F.3d at 1366.

44. *Id.* at 1366-67.

45. See 35 U.S.C. §271(c) (2000).

46. See, e.g., *Philad Co. v. Lechler Labs.*, 107 F.2d 747 (2d Cir. 1939); *Sandusky Foundry & Mach. Co. v. De Lavaud*, 274 F. 607 (6th Cir. 1921); *Cortelyou v. Charles E. Johnson & Co.*, 145 F. 933 (2d Cir. 1906); *Goodyear Shoes Mach. Co. v. Jackson* 112 F. 146 (1st Cir. 1901).

47. 213 U.S. 325 (1909).

48. *Id.* at 337.

49. Patent Act of 1952, Pub. L. No. 82-593, 66 Stat. 792 (1952) (current version at 35 U.S.C. §§1-376 (2000)).

50. See, e.g., *Hewitt-Robbins, Inc. v. Link-Belt Co.*, 371 F.2d 225 (7th Cir. 1966); *Cold Metal Process Co. v. United Eng'g & Foundry Co.*, 235 F.2d 224 (3d Cir. 1956); *Radio Corp. of America v. Andrea*, 79 F.2d 626 (2d Cir. 1935).

51. See, e.g., *Hewitt-Robbins, Inc. v. Link-Belt Co.*, 371 F.2d 225 (7th Cir. 1966); *Cold Metal Process Co. v. United Eng'g & Foundry Co.*, 235 F.2d 224 (3d Cir. 1956); *Radio Corp. of America v. Andrea*, 79 F.2d 626 (2d Cir. 1935).

52. See *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661, 677 (1944) (Frankfurter, J., dissenting) (“[I]f there is no infringement of a patent there can be no contributory infringer.”); *Aro Mfg.*

example, in *Radio Corporation of America v. Andrea*,⁵³ the defendant in an infringement suit manufactured electrical components of a patented radio receiver, which were then exported to foreign manufacturers who assembled the patented invention.⁵⁴ The circuit court reversed the district court's preliminary injunction, holding that the defendant was not liable for *direct* infringement because direct infringement only took place when the claimed invention was fully assembled.⁵⁵ Furthermore, contributory infringement could not be established if the final assembly took place outside of the United States.⁵⁶

The practice of making the components of a patented invention for sale abroad was taken to its extreme by Deepsouth Packing Company. Deepsouth Packing Company and Laitram Corporation were both owners of patents for shrimp deveining machinery.⁵⁷ Laitram brought suit to establish a superior claim to the invention, and Deepsouth's patent was invalidated.⁵⁸ Deepsouth continued, however, to sell the deveiners to foreign customers.⁵⁹ To avoid infringement, Deepsouth shipped the deveiners in three parts that could then be easily assembled by Deepsouth's customers in less than one hour.⁶⁰ The District Court for the Eastern District of Louisiana followed the circuit courts in holding that Deepsouth's practice did not violate Laitram's patent.⁶¹ On appeal, the Fifth Circuit saw things differently, holding that when a patented device has been substantially completed, requiring only minor further assembly, the device has been "made" as that term is used in § 271(a).⁶² The Fifth Circuit criticized the other circuits that had addressed the issue, stating that by giving the term "made" an "artificial, technical construction" they had "worked themselves

Co. v. Convertible Top Replacement Co., 365 U.S. 336, 341 (1961) ("[Section] 271(c)—a part of the Patent Code enacted in 1952—made no change in the fundamental precept that there can be no contributory infringement in the absence of a direct infringement.").

53. 79 F.2d 626 (2d Cir. 1935).

54. *Id.* at 627.

55. *Id.* at 628 ("His monopoly does not cover the manufacture or sale of separate elements capable of being, but never actually, associated to form the invention.").

56. *Id.* ("Only when such association is made is there a direct infringement of his monopoly, and not even then if it is done outside the territory for which the monopoly was granted."). *But see* *Radio Corp. of America v. Andrea*, 90 F.2d 612 (2d Cir. 1937). The second *Andrea* case came about after a final hearing. In that hearing it was discovered that the defendant had fully manufactured and tested the radio within the United States, after which the vacuum tube was unplugged and placed in a different carton before the unit was exported. On these facts, the Second Circuit held for the plaintiff, stating that "[w]here the elements of an invention are thus sold in substantially unified and combined form, infringement may not be avoided by a separation or division of parts which leaves to the purchaser a simple task of integration . . . [o]therwise, a patentee would be denied adequate protection." *Id.* at 613.

57. *Laitram Corp. v. Deepsouth Packing Co.*, 443 F.2d 928, 931 (5th Cir. 1971).

58. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 519 (1972) (citing *Laitram Corp. v. Deepsouth Packing Co.* 443 F.2d 928 (5th Cir. 1971)).

59. *Id.* at 523-24.

60. *Id.*; *see also* *Laitram Corp. v. Deepsouth Packing Co.* 443 F.2d 936, 938 (5th Cir. 1971) (quoting a letter sent by Deepsouth to a Brazilian customer, wherein Deepsouth admits that the practice of shipping the deveiner less than fully assembled is designed specifically to circumvent the injunction imposed by the district court).

61. *Laitram Corp. v. Deepsouth Packing Co.*, 310 F. Supp. 926, 927 (E.D. La. 1970).

62. *Laitram Corp. v. Deepsouth Packing Co.*, 443 F.2d 936, 939 (5th Cir. 1971).

into . . . a conceptual box.”⁶³ The result of such a strict approach, according to the Fifth Circuit, would be to “subvert the Constitutional scheme of promoting ‘the Progress of Science and useful Arts,’” and to allow an infringer “to strip away a portion of the patentee’s protection.”⁶⁴ According to the Fifth Circuit, “[t]he infringer would then be allowed to reap the fruits of the American economy—technology, labor, materials, etc.—but would not be subject to the responsibilities of the American patent laws.”⁶⁵

Despite the apparent force of the Fifth Circuit’s logic, the Supreme Court sided with the district court and reversed.⁶⁶ The majority rested its holding on the fact that the other circuits which had addressed the issue held that a patentee’s rights are not infringed until a final assembly is accomplished.⁶⁷ Because these holdings pre-dated the Patent Act of 1952, the Court reasoned that Congress had acquiesced to the narrow protection afforded by those holdings. The Supreme Court could, therefore, not expand existing patent rights based on ambiguous statutory language; rather, such an expansion “would require a clear and certain signal from Congress.”⁶⁸

Taking its cue from the Supreme Court, Congress enacted 35 U.S.C. § 271(f), closing the loophole opened—or at least endorsed—by the *Deepsouth* decision.⁶⁹ Under § 271(f), it is now illegal to export from the United States all or some of the components of a patented invention if the components are to be assembled in way that would have constituted patent infringement had it occurred in the United States.⁷⁰ Interpretation of § 271(f) with regard to software would later become a central issue in *AT&T v. Microsoft*.

IV. THE FEDERAL CIRCUIT’S *AT&T v. MICROSOFT* DECISION

A. *The Software Patent*

To put *AT&T v. Microsoft* in proper context, a brief history of software patents must be considered. Until the 1980’s the patent office did not recognize the patentability of software because it ran afoul of the long-standing principle that abstract scientific knowledge, such as mathematical formulas, is not patentable.⁷¹ That changed

63. *Id.* at 938.

64. *Id.* at 939 (quoting U.S. CONST. art. I, § 8, cl. 8).

65. *Id.*

66. *Deepsouth*, 406 U.S. at 532.

67. *Id.* at 529.

68. *Id.* at 530-31.

69. 35 U.S.C. § 271(f)(1) (2000) states:

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.

70. *Id.*

71. *See, e.g., Gottschalk v. Benson*, 409 U.S. 63, 67, 71 (1972) (holding that a mathematical algorithm used in computers for converting decimal numerals into binary numerals was not patentable subject matter, and stating that “one may not patent an idea. But in practical effect that would be the result if the formula . . . were patented in this case.”); *Parker v. Flook*, 437 U.S. 584, 594 (1978) (holding that a patent application describing the computerized calculation and updating of alarm limits did not describe patentable

with *Diamond v. Diehr*,⁷² in which the Supreme Court held that “when a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect[,] . . . then the claim satisfies the requirements of § 101.”⁷³ In *In re Alappat*,⁷⁴ the Federal Circuit interpreted prior Supreme Court cases, including *Diehr*, to stand for the concept that mathematical formulas, *standing alone*, were not statutory subject matter until reduced to some *practical application*.⁷⁵ Therefore, a software program, when incorporated into a computer “creates a new machine,” and thus, “a computer operating pursuant to software *may* represent patentable subject matter. . . .”⁷⁶ The Federal Circuit later used this same reasoning to hold that a data processing program used to calculate mutual fund share prices was patentable simply because it produces “a useful, concrete and tangible result.”⁷⁷ The Federal Circuit further loosened the requirements for software patentability in *AT&T Corp. v. Excel Communications, Inc.*,⁷⁸ holding that physical limitations (i.e., incorporation into a physical machine such as a computer) are not necessary for a mathematical algorithm to qualify as statutory subject matter.⁷⁹

B. Application of § 271(f) to Infringing Software Patents

Despite the Federal Circuit’s requirement that a mathematical algorithm produce a tangible result, software and the resulting product of software are inherently intangible. Software, after all, is little more than a set of instructions, a mathematical recipe which, when followed by a computer, yields additional information such as email, a database, stock quotes, computer simulations, digital pictures, or streaming video.⁸⁰ The Patent Act and its amendments, however, were written at a time when patents were understood to cover only physical objects, such as machines or material substances. Even process claims had to be connected to some physical machinery or product. It is little wonder then that patent statutes are sometimes ambiguous when applied to software patents.

subject matter); 33 Fed. Reg. 1509-10 (1968) (stating that “a computer programming process which produces no more than a numerical, statistical or other informational result is not directed to patentable subject matter”).

72. 450 U.S. 175 (1981).

73. *Id.* at 192. Section 101 of the Patent Act describes the subject matter that is eligible for patent protection as “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof. . . .” 35 U.S.C. § 101 (2000).

74. 33 F.3d 1526 (Fed. Cir. 1994).

75. *Id.* at 1542-43.

76. *Id.* at 1545.

77. *State Street Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (quoting *In re Alappat*, 33 F.3d at 1544).

78. 172 F.3d 1352 (Fed. Cir. 1999).

79. *Id.* at 1359.

80. Of course, many computer programs do produce physical results, however, software patents are not limited to those instances in which computer software controls an electronic device that produces physical results. Additionally, all software can be thought of as producing physical results if one considers the electrical state of the millions of transistors that comprise computer memory; however, this would be analogous to saying that an abstract idea is made tangible by the effect it has on the human brain.

Having opened the software patent floodgates, the Federal Circuit has had to clarify some of the resulting ambiguity. One ambiguity that became important in *AT&T v. Microsoft* is that § 271(f) only applies to “components,” suggesting the requirement of a physical object.⁸¹ On several occasions, the Federal Circuit has interpreted § 271(f) in such a way as to seemingly limit the availability of such protection for software patents, leading some to argue that § 271(f) only applies to apparatus patents. For example, the Federal Circuit has held that the sale of a device within the United States used for carrying out a patented process did not infringe a process patent, where the process was practiced outside the United States.⁸² This is important in the realm of software because a computer program is essentially a set of instructions for carrying out a computer process. This holding, therefore, would seem to indicate that the sale of software from the United States could not infringe on a software patent under § 271(f) because the actual process itself—the execution of the computer program—would only take place outside of the United States. The Federal Circuit further limited application of § 271(f) with regard to process patents in *NTP, Inc. v. Research in Motion, Ltd.*⁸³ when it stated that “it is difficult to conceive of how one might supply . . . 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 [§] 271(f)”⁸⁴

Another ambiguity inherent in the language of § 271(f) involves what it means for a component to be *supplied*.⁸⁵ That question was answered by the Federal Circuit in *Pellegrini v. Analog Devices, Inc.*,⁸⁶ a case that presented facts analogous to those in *AT&T v. Microsoft*. In *Pellegrini*, the defendant, Analog, manufactured computer chips exclusively outside of the United States.⁸⁷ Also, most of the chips were sold to foreign customers.⁸⁸ The chips, however, were designed in the United States and instructions for their manufacture were sent from the United States.⁸⁹ The plaintiff argued that because the instructions were sent from the United States, Analog should be held liable as an infringer under § 271(f).⁹⁰ The Federal Circuit disagreed, holding that § 271(f) applies “only where components of a patent[ed] invention are physically present in the United States and then either sold or exported.”⁹¹ The court further held

81. 35 U.S.C. § 271(f)(1) (2000).

82. *Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1374 (Fed. Cir. 1991).

83. 418 F.3d 1282 (Fed. Cir. 2005).

84. *Id.* at 1322. The patented process in *NTP* (the BlackBerry case) involved a method of “integrating existing electronic mail systems . . . with radio frequency . . . wireless communication networks, to enable a mobile user to receive email over a wireless network.” *Id.* at 1287. The complicating factor in the case was that the central processing relay was located in Canada. *Id.* at 1289. The court held that the system claims were infringed because the system was in fact used in the United States. *Id.* at 1317. The court held that the method claims, however, were not infringed because the process was not fully completed within the United States. *Id.* at 1318. With regard to § 271(f), the court decided that providing radio frequency receivers to U.S. customers did not amount to supplying the steps of a patented method. *Id.* at 1322-23.

85. 35 U.S.C. § 271(f)(1) (2000).

86. 375 F.3d 1113 (Fed. Cir. 2004).

87. *Id.* at 1114.

88. *Id.* at 1115.

89. *Id.*

90. *Id.*

91. *Id.* at 1117.

that “‘suppl[y]ing] or caus[ing] to be supplied’ in § 271(f)(1) clearly refers to physical supply of components, not simply to the supply of instructions or corporate oversight.”⁹²

Interpreting § 271(f) to apply only to physical components and not mere instructions would seem to discount the idea that § 271(f) could apply to software. More recently, however, the Federal Circuit has clarified that, indeed, § 271(f) also applies to process patents, including software patents. The Federal Circuit made this clear in *Eolas Technologies, Inc. v. Microsoft Corp.*,⁹³ in which the court held that “every form of invention eligible for patenting falls within the protection of Section 271(f).”⁹⁴ The issue in *Eolas* was whether software code constituted a “component[] of a patented invention” as that term is used in § 271(f).⁹⁵ The court reasoned that “software code is much more than a . . . detailed set of instructions. This operating element in effect drives the ‘functional nucleus of the finished computer product.’”⁹⁶ Software is, therefore, “not only a component, it is probably the key part of this patented invention.”⁹⁷

C. The Federal Circuit’s AT&T v. Microsoft Decision

The Federal Circuit’s job of clarifying the ambiguity of § 271(f) as it relates to software continued with *AT&T Corp. v. Microsoft Corp.*⁹⁸ The invention claimed by AT&T was a speech codec which converts audible speech into compact digital computer code.⁹⁹ Many of the claims in the AT&T patent were method claims, which are claims to the algorithm itself, while others were apparatus claims, which are claims to a computer capable of carrying out the speech codec algorithm.¹⁰⁰ AT&T brought suit against Microsoft, alleging that it had incorporated infringing speech codecs in its Windows software.¹⁰¹ In addition to alleging direct infringement under § 271(a), AT&T alleged contributory infringement under § 271(b) based on Microsoft’s sale of an invention component (the software itself), which, when combined with a computer, infringed AT&T’s apparatus claim.¹⁰² AT&T also alleged contributory infringement under § 271(f) for foreign replicated copies of the Windows software which were

92. *Id.* at 1118.

93. 399 F.3d 1325 (Fed. Cir. 2005).

94. *Id.* at 1339. *See also* Union Carbide Chem. & Plastics Tech. Corp. v. Shell Oil Co., 425 F.3d 1366 (Fed. Cir. 2005) (holding that a defendant who exported from the United States a chemical catalyst used in the process of making a particular chemical infringed the plaintiff’s process patent, and was therefore liable under § 271(f)).

95. *Eolas*, 399 F.3d at 1338.

96. *Id.* at 1339 (quoting *Imagexpo, L.L.C. v. Microsoft Corp.*, 299 F. Supp. 2d 550, 553 (E.D. Va. 2003)).

97. *Id.*

98. 414 F.3d 1366 (Fed. Cir. 2005), *cert. granted*, 127 S. Ct. 467 (Oct. 27, 2006) (No. 05-1056).

99. *See id.* at 1368 n.1.

100. U.S. Patent No. RE32,580 (filed Sept. 18, 1986). Recall that when new software is combined with existing hardware it creates, in the eyes of the courts, a new computer.

101. *AT&T Corp v. Microsoft Corp.*, No. 01 Civ. 4872 (WHP), 2003 WL 21459573, at *1 (S.D.N.Y. June 24, 2003).

102. *See id.*

copied from so-called “golden master disks” that were sent abroad for replication on foreign-manufactured hard drives.¹⁰³

After hearings regarding claim interpretation,¹⁰⁴ Microsoft filed for partial summary judgment with respect to AT&T’s claim of contributory infringement under § 271(f).¹⁰⁵ After the United States District Court for the Southern District of New York denied Microsoft’s motion, both parties agreed to a stipulated final judgment that held Microsoft liable for infringement under § 271(f) subject to Microsoft’s appeal of that issue to the Federal Circuit.¹⁰⁶ At that stage of the litigation, Microsoft conceded that its Windows software infringed the AT&T patent, but denied that it could be held liable under § 271(f) for foreign replicated copies of the infringing software.¹⁰⁷

In Microsoft’s Federal Circuit brief, Microsoft accused AT&T of mischaracterizing the nature of software.¹⁰⁸ Microsoft argued that software code *per se* consists of nothing more than intangible information, and is therefore not patentable by itself nor capable of being a “component” of a patented invention.¹⁰⁹ Microsoft argued that software can be considered a component of a patented device only when the software exists in a tangible medium such as a computer disk or hard drive.¹¹⁰ Microsoft accused AT&T of “semantic mischief” by refusing to distinguish between “abstract software information” and “tangible software information,” thereby conflating the two concepts.¹¹¹ Microsoft further accused AT&T of misstating the issue as whether “*software developed* in and supplied from the United States can be a component of a patented invention”; when the real issue, according to Microsoft, was whether “*intangible* software information supplied by Microsoft from the United States could be a ‘component’ of patented computers.”¹¹²

According to Microsoft’s conception of software, it considered *Pellegrini v. Analog Devices, Inc.*¹¹³ to be dispositive. Microsoft argued that there was no meaningful difference between the practice employed by Microsoft in its foreign distribution and the practice employed in *Pellegrini*,¹¹⁴ which the Federal Circuit held did not give rise to § 271(f) liability.¹¹⁵ Just as in *Pellegrini*, Microsoft was merely providing software *information*, which the foreign distributors used to create retail copies of the Windows software within computer hard-drives. According to Microsoft, therefore, it could not be liable under § 271(f) because the infringing components, the hard-drives containing the Windows software, were manufactured outside the United

103. See *AT&T Corp. v. Microsoft Corp.*, No. 01 Civ. 4872 (WHP), 2004 WL 406640, at *1 (S.D.N.Y. Mar. 5, 2004).

104. *AT&T*, 2003 WL 21459573, at *2-5 (construing the claims of AT&T’s speech codec patent).

105. *AT&T*, 2004 WL 406640, at *1.

106. *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1368 (Fed. Cir. 2005).

107. *Id.* at 1368-69.

108. Replacement Reply Brief for Defendant-Appellant at 2-3, *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366 (Fed. Cir. 2005) (No. 04-1285).

109. *Id.* at 9-10.

110. *Id.* at 6-7.

111. *Id.* at 2-3.

112. *Id.* at 7-8.

113. 375 F.3d 1113 (Fed. Cir. 2004).

114. Brief of Defendant-Appellant, *supra* note 108, at 5.

115. *Pellegrini*, 375 F.3d at 1117.

States, while the master disks, the disks that carried the software *information*, never became a component of any infringing computer.¹¹⁶

AT&T, without addressing the technical comparison urged by Microsoft, argued that *Pellegrini* did not support Microsoft's position because *Pellegrini* "had nothing to do with software as a component of a patented invention."¹¹⁷ Microsoft's argument is particularly forceful, however, when one considers that the information provided in *Pellegrini* was also essentially a form of software. The information at issue in *Pellegrini* was the circuit diagram of a computer chip, which illustrates how the chip processes and outputs information. By controlling how the chip functions, the circuit design essentially embeds the "software" into the hardwired circuit connections of the chip itself.¹¹⁸ The same could be done with a desktop computer by embedding the entire Windows operating system on a chip rather than the computer's hard-drive.

AT&T argued, however, that Microsoft's software-as-information argument was a "red herring,"¹¹⁹ and largely ignored the distinction that Microsoft made between the informational nature versus the tangible nature of software. AT&T characterized Microsoft's argument as simply that software is intangible, unpatentable information and could not, therefore, be a component of a patented invention.¹²⁰ AT&T then argued that federal courts had for thirty years consistently held that software *is* tangible, and when combined with hardware becomes a part of the machine.¹²¹ AT&T also referred to Microsoft's own software patents¹²² and other admissions¹²³ as evidence that software could be a component of a patented invention. Such admissions were plentiful throughout Microsoft's own brief because Microsoft never really disputed that notion.¹²⁴ In fact, at this stage of the litigation, Microsoft had already conceded that its software was a component of a patented invention when it accepted domestic liability under § 271(a) and § 271(b). To AT&T this concession was critical, because, as far as AT&T was concerned, there was no difference whatsoever between the software sold in the United States and the master disks sent to foreign replicators.¹²⁵

The closest AT&T came to addressing Microsoft's intangibility argument was when AT&T admitted that the patent office had concluded that "computer listings *per se*, i.e., the description or expression of the programs [i.e., source code], are not physical 'things'. . . nor statutory processes."¹²⁶ AT&T attempted, however, to

116. Brief of Defendant-Appellant, *supra* note 108, at 3-6.

117. Replacement Brief for Plaintiff-Appellee at 37, *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366 (Fed. Cir. 2005) (No. 04-1285).

118. Brief of Defendant-Appellant, *supra* note 108, at 5 (detailing the similarities between encoding "software" on a computer chip as compared to a hard drive, and stating that "the difference between circuit layout information and software information is not meaningful").

119. Brief of Plaintiff-Appellee, *supra* note 117, at 9.

120. *Id.* at 14.

121. *Id.* at 14-19.

122. *Id.* at 20-21.

123. *Id.* at 23-28.

124. Brief of Defendant-Appellant, *supra* note 108, at 7-8.

125. Brief of Plaintiff-Appellee, *supra* note 117, at 26-27.

126. *Id.* at 34-35 (quoting the MANUAL OF PATENT EXAMINING PROCEDURE §2106 (8th ed. 2001)). A computer listing is the source code of a computer program, or in other words, the textual instructions that a programmer enters when designing a computer program. This source code is then processed by another program known as a "compiler" which converts the source code into binary computer language.

minimize the importance of the patent office's conclusion by disputing Microsoft's reasoning for why a program listing is unpatentable. According to Microsoft, a computer program listing is unpatentable because it is intangible information. According to AT&T, however, a computer program listing is unpatentable because "it lacks practical application until it is put in a form that a computer can actually use."¹²⁷ But this is really just semantics. The reason that a computer listing is intangible is that it lacks practical application because it is not "in a form that a computer can use." AT&T further asserted that "there is simply no question that the program software on Microsoft's golden masters is in a form that a computer can use, and is . . . tangible, structural, and functional."¹²⁸ Clearing away the conceptual clutter, AT&T's argument equates to an assertion that although source code may not be patentable, the machine-readable code contained in the golden master certainly is.

AT&T's strongest argument involved an admission that Microsoft had made at oral argument in the district court. Microsoft's in-house counsel admitted that if Microsoft had exported the software in individual copies, those copies would implicate § 271(f).¹²⁹ AT&T contended that whether the hard drives were manufactured from one disk or several separate disks should not be determinative as to whether the software was a component of an infringing device because in either case "the assembly process necessarily includes copying the software from the CD to the computer's hard drive."¹³⁰ This simple observation reveals the fact that, although AT&T did little to clear the confusion, it was actually Microsoft that misstated the issue of the case. While Microsoft may have been correct that intangible software is unpatentable, the software at issue was not intangible at all, because the golden master disks were in a machine readable form, and Microsoft had admitted that software information "stored on tangible software media such as magnetic disks or CDs" is patentable. In other words, Microsoft was trying to have it both ways, arguing on one hand that a software CD is a component of a patented device when that software is loaded onto a computer hard drive; and on the other hand, that the identical software CD is really only a carrier of information when exported to a foreign country for replication on multiple hard drives.

The issue, therefore, was not whether intangible information can be a component of a patentable device—the software at issue *is* tangible, or so the courts have said. The real issue is whether foreign-made replicas of a patented device have their origin within the United States such that they can be considered to be exported from the United States.

The Federal Circuit upheld the judgment of the district court holding Microsoft liable for the infringing copies replicated abroad.¹³¹ Mirroring the issues presented by AT&T's brief, the Federal Circuit first decided whether software could be a component of a patented device even though Microsoft never considered that to be a contested issue in the first place. Accordingly, the Federal Circuit reaffirmed its holding in *Eolas Technologies, Inc. v. Microsoft Corp.*, stating that "[w]ithout question, software code

127. *Id.* at 34-35.

128. *Id.* at 35.

129. *Id.* at 24.

130. *Id.* at 25.

131. *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366 (Fed. Cir. 2005).

alone qualifies as an invention eligible for patenting,' and . . . could very well be a 'component' of a patented invention for the purposes of § 271(f)."¹³²

The Federal Circuit then addressed the real issue in the case: "whether software replicated abroad from a master version exported from the United States . . . may be deemed 'supplied' from the United States for the purposes of § 271(f)."¹³³ The court held that "for software 'components,' the act of copying is subsumed in the act of 'supplying,' such that sending a single copy abroad with the intent that it be replicated invokes § 271(f) liability for those foreign made copies."¹³⁴ The court reasoned that the term "supply" should be considered to refer to the entire process of supplying that exists in the software industry; therefore, because the act of copying software is a necessary step in the act of supplying software, the foreign copying constituted one step in the act of supplying software from the United States. The court distinguished *Pellegrini* by stating that "what is being supplied is an actual component . . . not instructions to foreign software engineers."¹³⁵

The court also based its holding on the policy behind the enactment of § 271(f). The court reasoned that if it accepted the construction urged by Microsoft, the court would open a new loophole that would allow technological advances to subvert Congress's intent in passing § 271(f).¹³⁶ The court reasoned that § 271(f) was enacted to "encourage advances in technology by closing a loophole," and as such "should be construed broadly to effectuate its purposes."¹³⁷

The dissenting opinion agreed with the majority that software could be a component of a patented invention within the meaning of § 271(f), but disagreed with the majority that the foreign manufactured copies could give rise to liability under § 271(f).¹³⁸ The dissent argued that although the majority purported to give the term "supply" its ordinary, common meaning, the term "supply" did not, in fact, cover copying; to the dissent, "copying" connotes "manufacturing." The dissent reasoned that "[a]s a matter of logic, one cannot supply one hundred components of a patented invention without first making one hundred copies of the component, regardless of whether the components supplied are physical parts or intangible software."¹³⁹ Therefore, the dissent considered the court to be expanding U.S. law to foreign countries by "punishing under U.S. law 'copying' that occurs abroad."¹⁴⁰

Given the dissent's construction of § 271(f), the dissent also disagreed with the policy arguments of the majority stating that "[n]othing in § 271(f) or its enacting documents expresses an intent to attach liability to manufacturing activities occurring wholly abroad."¹⁴¹ To the dissent, the language of § 271(f) limits its application to "ensure it would *not* embrace manufacturing *or copying* activities occurring abroad."¹⁴²

132. *Id.* at 1369 (quoting *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1339 (Fed. Cir. 2005)).

133. *Id.*

134. *Id.* at 1370.

135. *Id.*

136. *Id.* at 1371.

137. *Id.* (citation omitted).

138. *Id.* at 1372 (Rader, J., dissenting).

139. *Id.* at 1373.

140. *Id.*

141. *Id.* at 1375.

142. *Id.* (emphasis added).

V. WHAT SHOULD THE SUPREME COURT DO?

The difference between the majority opinion and the dissenting opinion in the Federal Circuit's *AT&T* decision is essentially this: the majority was willing to interpret § 271(f) broadly to effectuate the goal of the patent laws. There can be little doubt that if Congress were to address the issue directly it would provide the protection afforded by the Federal Circuit. After all, it is hard to conceive of a policy argument that would outweigh the obvious unfairness of a loophole that essentially allows U.S. software manufacturers to sell their competitor's patented software abroad, especially when such a similar practice was outlawed by § 271(f).

On the other hand, the dissent has a strong argument when it asserts that the Federal Circuit in *AT&T* has expanded the reach of U.S. patent laws beyond the reach of the United States; after all, the software duplication in *AT&T* did occur wholly abroad. In fact, this strict territorial approach is precisely what the Supreme Court applied in *Deepsouth*.

The *Deepsouth* decision is important, therefore, not only because it created the need for § 271(f), but also because the same rationale that led to the *Deepsouth* decision could also be applied in the *AT&T v. Microsoft* context. Applying the *Deepsouth* rationale, the Supreme Court could decide that § 271(f) should be construed narrowly to apply only to copies of software that were at one time within the United States, regardless of whether such an approach would effectively allow software distributors to export components of patented inventions. But rather than insist on a narrow interpretation of congressional intent, and open a new loophole, the Supreme Court should apply a more pragmatic approach to assessing the extraterritorial reach of the patent laws and uphold the Federal Circuit.

A broadening of the extraterritorial reach of patent laws would also be consistent with other Supreme Court decisions on other aspects of patent law. In interpreting the language of the Patent Act, the Court has stated that "words will be interpreted as taking their ordinary, contemporary, common meaning,"¹⁴³ and that courts "should not read into the patent laws limitations and conditions which the legislature has not expressed."¹⁴⁴ By that reasoning, the Supreme Court has, in the past three decades, given increasingly broad interpretation to the statutory language of the patent laws; expanding the protection to such subject matter as software and microorganisms. For example, in *Diamond v. Chakrabarty*, the Court extended patent protection to genetically engineered microorganisms by reasoning that "[t]his Court frequently has observed that a statute is not to be confined to the 'particular application[s] . . . contemplated by the legislators'" and that "Congress employed broad general language in drafting § 101 precisely because such inventions are often unforeseeable."¹⁴⁵ It would be incongruous for the Supreme Court to expand protection of the patent laws to software through a broad reading of § 101, and then restrict the protection afforded

143. *Diamond v. Chakrabarty*, 447 U.S. 303 (1980) (quoting *Perrin v. United States*, 444 U.S. 37, 42 (1979)).

144. *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933). See also, *Diamond v. Diehr*, 450 U.S. 175, 182 (1981) (reiterating the same language used in *Chakrabarty*).

145. *Diamond v. Chakrabarty*, 447 U.S. at 315-16.

software patent owners by applying a narrow definition to the word “supply,” as it is used in § 271(f).

Furthermore, although Congress has expressly legislated that the patent laws of the United States do not have extraterritorial effect, it is not clear that the practice employed by Microsoft is as clear a case of purely extraterritorial activity as Microsoft and the *AT&T* dissent suggest. Just as in *Deepsouth*, in which entire machines were sent from the United States for assembly abroad, the practice of copying software abroad is enabled by activity originating in the United States. One could conclude that such activities, in which some critical part of the overall infringement occurs on both sides of the border, occupy a gray area in which Congress has not legislated, because the infringing activity, taken as a whole, does not occur wholly within or without the United States. This seems to be the framework adopted by the Federal Circuit in *AT&T*, when it held that the act of copying was subsumed in the act of supplying. By applying this construction to the word “supply,” the Federal Circuit was able to link activity occurring outside of the United States with activity occurring within the United States, such that the entire act occurs at least partly within U.S. borders, and therefore, within the reach of U.S. patent laws. Given this framework, a strict adherence to the territoriality principle would not be necessary.

Although the Federal Circuit adopted a similar framework in *Deepsouth*, the rationale used by the Federal Circuit to overcome territoriality in *Deepsouth* was flawed (according to the Supreme Court) in ways that do not apply to *AT&T*. In *Deepsouth*, the Federal Circuit overcame territoriality by construing the word “made” to mean “substantially completed,” so that the exported machine was interpreted to be the completed invention, not just a collection of parts. The making of the invention, therefore, occurred wholly within the United States, not in Brazil where the machine was assembled. The Supreme Court rejected this reasoning because it “collide[d] head on with a line of decisions so firmly embedded in our patent law as to be unassailable,” namely that a patent protects only the “operable assembly of the whole.”¹⁴⁶ In contrast, the practice in *AT&T* is not firmly embedded in the court’s patent law jurisprudence, as issues of software exportation are only just beginning to make their way into federal courts. In fact, the *AT&T* case was the first occasion that the Federal Circuit had to interpret the meaning of the word “supply” as it pertains to § 271(f).

The Federal Circuit’s rationale in *Deepsouth* suffered from another defect as well. By the time of the *Deepsouth* decision, and before the Patent Act of 1952, the leading case on contributory infringement, *Radio Corporation of America v. Andrea*,¹⁴⁷ established that contributory infringement could only occur when the direct infringement (the assembly of the patented device) occurred in the United States.¹⁴⁸ The Supreme Court therefore considered the Patent Act of 1952 to demonstrate Congress’s acquiescence to the doctrine of contributory infringement that had been developed by the federal courts. Likewise, because “the sign of how far Congress has chosen to go can come only from Congress,” the Supreme Court was unwilling to expand the patent laws to cover a practice that Congress had implicitly recognized as

146. *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 528 (1972).

147. *Radio Corp. of America v. Andrea*, 79 F.2d 626, 628 (2d Cir. 1935).

148. *Deepsouth*, 406 U.S. at 529 (quoting *Radio Corp.*, 79 F.2d at 628).

legal.¹⁴⁹ In *AT&T*, however, no such doctrine regarding software has been developed, and no act of Congress could be considered to demonstrate a preference one way or the other for whether § 271(f) should apply to foreign replicated copies of software.

Because the strict approach of *Deepsouth* stands in stark contrast to the Supreme Court's recent willingness to interpret the patent laws broadly in order to serve the constitutional goal of promoting science and the useful arts, the Supreme Court should uphold the Federal Circuit in *AT&T* and prevent the opening of a new patent loophole that will later have to be stitched up by Congress.

VI. LEGISLATIVE RECOMMENDATIONS

If the Supreme Court opens a new "*Microsoft*" loophole, Congress would be wise to act quickly to close the loophole by clarifying its intent with regard to software. While this approach would be satisfactory in the short term, the evolving landscape of technology will likely allow imaginative entrepreneurs to find new ways to skirt the patent laws, particularly when it comes to software. Rather than patch loopholes as they are discovered, Congress could take a more proactive approach. This new approach would require recognition of the deeper problem illuminated by *AT&T v. Microsoft*, namely, that all software is in many ways intangible information, and that current patent laws are not equipped to protect software.

The confusion caused by applying current patent laws to software stems from the fact that software has blurred the distinction between information and machine. The patent laws were written in a simpler world, where machines were machines, and information was intangible. But the modern world of computers combines the concepts of information and machine in ways that were not anticipated by the drafters of the patent system.

The magic of computers is that they can take an enormous set of mathematical instructions and execute those instructions at speeds far exceeding the capacity of any human. The physical encapsulation of these instructions within a computer disk, and the driving force they impart to the tiny electronic switches within a computer cause the information itself to take on the characteristics of a physical machine, rather than simple written text.

On the other hand, calling a software disk a physical component of a computer could be viewed the same way as calling a cookbook a component of a baker when he reads the book and bakes a cake. One might argue that the computer is doing the same thing as the baker, processing *intangible information* to arrive at a concrete result. The problem with this argument is that a computer is not a person, and despite the illusion of thought, a computer, rather than acting on an idea expressed to it, simply reacts to electrical stimuli. The software acting as the stimulus that causes the cascade of electrical impulses within a computer's circuitry is, therefore, as much a part of the machine as the cascade itself.

The fine line between tangible software and mere information can be seen by comparing *Pellegrini* and *AT&T v. Microsoft*. The key difference between the software at issue in *AT&T* and the software (i.e., a circuit diagram) in *Pellegrini* is that the circuit diagram was not capable, by itself, of driving a computer process, and was,

149. *Id.* at 530.

therefore, not tangible. Only when the circuit diagram was transformed into the actual connections themselves, was the intangible information transformed into tangible computer code. Conversely, a computer disk is capable, by itself, of driving computer processes and is therefore already tangible. But this current understanding of the difference between tangible software and intangible software information leads to practical problems.

For example, if Microsoft had exported the source code in textual form, Microsoft's argument that it exported intangible information would seem to be accurate even though the practical difference between exporting text and exporting a master disk would be miniscule. The foreign replicator would then have had only to perform the minor task of compiling the software before loading it into hard drives. Alternatively, if Microsoft sent the source code in printed format, the foreign replicator would then have had the simple, though arduous, task of typing the information back into a compiler, a task that would no doubt be worthwhile if it saved millions of dollars in potential infringement actions.

So where should we draw the line between information and machine? Is source code mere intangible information? AT&T and Microsoft conceded as much; however, even source code can become the physical stimulus of computer hardware. All that is needed is for the source code to be converted into machine code—all of which can be accomplished electronically by a compiler. Even a printed hard copy of the source code could be considered a part of the machine if, by some computer automated process, the hardcopy was scanned into computer memory, converted from image form to textual form by a text recognition program, and then compiled into machine code. The point is that the concept of information has been blurred when it comes to computers. Perhaps the only clear line that can be drawn is at the idea of a computer program. In other words, it is still impossible to communicate the broad conceptual outline or goal of a program and have the computer figure out the rest from there. However, those who view the human mind as nothing more than the product of a very complicated computer would argue that even this kind of intelligence is not outside the realm of possibility for computers of the future.

Another problem stemming from the intangible aspects of software is that software lends itself to a form of reproduction which is unknown to the physical products that the patent laws envisioned. Due to its non-physical qualities, software is capable of replicating itself within seconds, and at distances far away from the original copy. The replication of software is, therefore, more akin to the transmission of information than the manufacturing of a physical product.

All of this suggests that, indeed, what we are patenting today when we patent software is, at least in some respects, intangible information, something that the patent laws did not anticipate. This results in considerable uncertainty and confusion when we attempt to protect software under the current patent system, as witnessed by the *AT&T* case.

The only way to effectively eliminate the confusion caused by protecting software through the patent system is to remove software protection altogether from the existing framework of the patent laws.¹⁵⁰ Congress should, therefore, either enact a wholly

150. See generally Lee A. Hollaar, *Justice Douglas Was Right: The Need for Congressional Action on Software Patents*, 24 AIPLA Q.J. 283 (1996); Peter S. Menell, *Tailoring Legal Protection for Computer*

separate system for dealing with software protection, or enact an additional chapter to the existing Patent Act that specifically addresses software.¹⁵¹ In this way, Congress could bypass the current confusion regarding the machine versus information dichotomy and simply provide a legal definition of software, the nature of the protection afforded, and the territorial limits imposed on software by the new statute.

VII. CONCLUSION

The Federal Circuit decided *AT&T v. Microsoft* correctly. By interpreting the language of the patent laws broadly, the Federal Circuit served the purpose of the patent laws: “[t]o promote the Progress of Science and useful Arts.”¹⁵² Recent willingness by the Supreme Court to interpret the patent laws broadly with respect to software patents, business method patents, and patents on living microorganisms, suggests that the Court should not overturn the Federal Circuit on the issue presented in *AT&T*. Whether or not the Supreme Court opens a *Deepsouth*-style loophole with its decision in *AT&T*, however, Congress should act proactively to clear up the confusion surrounding software patenting by enacting *sui generis* protection for software.

Software, 39 STAN. L. REV. 1329 (1987) (addressing the shortcomings of copyright protection of software and suggesting development of a new form of legal protection for software); Robert Plotkin, *Computer Programming and the Automation of Invention: A Case for Software Patent Reform*, 2003 UCLA J. L. & TECH. 7 (2003).

151. See generally Hollaar, *supra* note 150; Plotkin, *supra* note 150; Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994).

152. U.S. CONST. art. 1, § 8, cl. 8.

