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THE SLIPPERY SLOPE OF SECRECY: WHY PATENT LAW PREEMPTS REVERSE-ENGINEERING CLAUSES IN SHRINK-WRAP LICENSES

As the world enters the twenty-first century, the U.S. economy is becoming increasingly driven by the value of ideas.¹ The United States has experienced a sharp increase during the past decade in the number² and value of patents filed,³ primarily as a response to the rapid growth of high technology industry. In fact, the “competitive battles once fought for control of markets and raw materials are now increasingly being waged over the exclusive rights to new ideas and inventions.”⁴

This growth and competition has created new legal challenges for America’s intellectual property (IP) system.⁵ One important challenge to this system is the proliferation of avoidance techniques threatening the underlying policies behind federal copyright and patent laws. One technique increasingly being employed is the use of “shrink-wrap” licenses in an attempt to contract around the policies behind IP law.⁶

The policy behind federal patent law—allowing limited exclusivity in exchange for long-term contribution to the public domain—runs counter to some of the clauses contained in these license agreements. When courts uphold these agreements under state contract law they are expanding the degree of exclusivity

1. KEVIN G. RIVETTE & DAVID KLINE, REMBRANDTS IN THE ATTIC: UNLOCKING THE HIDDEN VALUE OF PATENTS 2 (2000).

2. *See id.* at 15.

3. *See id.* at 6.

4. *Id.* at 2-3.

5. *See id.* at 19-21 (discussing the relatively recent problem of Internet “trash” patents and “kitchen sink” patents—patents asserting overt asset claims).

6. Shrink-wrap licenses are found most often on computer software. Prior to opening the shrink-wrap covering on computer software disks, users must agree to the terms of a specific license agreement. Common clauses in these agreements require the purchaser to refrain from certain actions, such as copying programs. This Note demonstrates that some of these contract clauses run counter to the policies behind federal patent law. *See infra* notes 136-47 and accompanying text. The issue then becomes whether such licenses are valid in light of this conflict.

enjoyed by patent holders. Therefore, a conflict arises between federal patent law and state contract law over exactly how rights are to be held.⁷ It is well settled that when federal and state law directly conflict, the doctrine of preemption holds that the state law is subordinate to the goals of the federal government.⁸ Patent law should thus preempt the portions of these license agreements that run counter to the federal policy. This Note asserts that patent law preempts specific clauses of shrink-wrap licenses, primarily those restricting reverse-engineering, decompilation, and disassembly of a particular item, and should continue to do so, barring a change to current patent law.

The policy behind granting patent holders the right to exclude in exchange for public disclosure of their inventions is the promotion of the continued development of technology.⁹ Some limited

7. See, e.g., *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996) (upholding the validity of license agreements using a state contract law theory over copyright preemption). At least one court has looked at the shrink-wrap licenses of software through the lens of the patent law and has found such licenses to be preempted. See *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255 (5th Cir. 1988).

8. See *infra* notes 73-76 and accompanying text. The Supremacy Clause of the U.S. Constitution specifically states that laws made pursuant to constitutional authority are the "supreme Law of the Land." U.S. CONST. art. VI, cl. 2. Courts have interpreted this clause countless times to stand for the proposition that when state and federal law and policy directly conflict, the state law is considered invalid. E.g., *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1, 210 (1824); *McCulloch v. Maryland*, 17 U.S. (4 Wheat.) 316, 406 (1819); *Martin v. Hunter's Lessee*, 14 U.S. (1 Wheat.) 304, 339 (1816).

9. See ROBERT PATRICK MERGES, *PATENT LAW AND POLICY: CASES AND MATERIALS* 13 (2d ed. 1997). The current patent law grants the right to exclude all others from using the invention for a period of twenty years from the date of the filing of the patent. 35 U.S.C. § 154 (1994 & Supp. V 1999). This right to exclude is not the same as a monopoly right. In fact, it is tantamount to sacrilege to term a patent a monopoly. Justice Roberts discussed the reasoning behind this:

Though often so characterized, a patent is not, accurately speaking, a monopoly, for it is not created by the executive authority at the expense and to the prejudice of all the community except the grantee of the patent. The term monopoly connotes the giving of an exclusive privilege for buying, selling, working or using a thing which the public freely enjoyed prior to the grant. Thus a monopoly takes something from the people. An inventor deprives the public of nothing which it enjoyed before his discovery, but gives something of value to the community by adding to the sum of human knowledge.

United States v. Dubilier Condenser Corp., 289 U.S. 178, 186 (1933) (citation omitted). The inventor is giving value in exchange for his right to exclude. His rights, therefore, cannot be deemed a monopoly. For an excellent historical discussion of monopoly versus the right-to-exclude definition of patents, see 1 ERNEST BAINBRIDGE LIPSCOMB III, *LIPSCOMB'S WALKER ON PATENTS* § 1:6, 34-49 (3d ed. 1984 & Supp. 1999).

contravention of the policy is acceptable. For example, trade secret law runs contrary to this policy but is acceptable because it does not restrict valid reverse engineering¹⁰ of unpatentable subject matter.¹¹ In fact, the Supreme Court has held that valid reverse engineering that reveals trade secrets negates any protection of unpatentable subject matter once the secret becomes public.¹² To allow state contract law, through the mechanism of shrink-wrap licenses, to prevent reverse engineering runs contrary to the policy surrounding the development of patent law, and would create a slippery slope that could result in all new inventions being shrouded in shrink-wrap with a license clause prohibiting reverse engineering. This secrecy would result in a drastic slowdown in the development of novel ideas, and would suppress the competitive spirit inherent in the U.S. economy.

This Note contains three parts. The first section discusses the historical development of the patent law, including its constitutional basis and the policy behind it at the time of the drafting of the Constitution. This portion also delineates the development of patent law from the years following the American Revolution to the present, and discusses recent overseas developments regarding the Trade Related Aspects of Intellectual Property (TRIPS)¹³ agreement as part of the Uruguay Round of General Agreement on Tariffs and Trade (GATT)¹⁴ talks.¹⁵

10. Reverse engineering has been defined by the Supreme Court to mean "starting with the known product and working backward to divine the process which aided in its development or manufacture." *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 160 (1989) (quoting *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974)).

11. See Uniform Trade Secrets Act with 1985 Amendments, Prefatory Note (1985), in Arnold H. Pedowitz & Robert W. Sikker, *Trade-Secrets: A State-by-State Survey*, 1997 A.B.A. SEC. LABOR & EMP. LAW 985.

12. *Bonito Boats*, 489 U.S. at 159-61.

13. Agreement on Trade-Related Aspects of Intellectual Property Rights, April 15, 1994, Marrakesh Agreement Establishing the World Trade Organization [hereinafter WTO Agreement], Annex 1C, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND vol. 31, 33 I.L.M. 81 (1994) [hereinafter Trips Agreement]. For more information on TRIPS and international patent development, see *infra* notes 51-58 and accompanying text.

14. General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, T.I.A.S. 1700, 55 U.N.T.S. 194 [hereinafter GATT]. For more information on GATT, see *infra* notes 54-58 and accompanying text.

15. See *infra* notes 24-65 and accompanying text.

The second section of this Note provides an overview of preemption law, including its historical basis in the Constitution, its early exposition in landmark cases such as *McCulloch v. Maryland*¹⁶ and *Gibbons v. Ogden*,¹⁷ and the current state of preemption law.¹⁸ This section then concentrates on the preemption history associated with patent law in particular, including policy justifications, and reviews the current state of the law in this area.¹⁹

The third section combines the history and policy of the first section with the preemption development of the second section in order to examine a standard shrink-wrap license's reverse-engineering clause.²⁰ The section then analyzes how such a clause violates the policy behind the development of patent law and demonstrates why such clauses should be preempted.²¹ It also discusses the economics behind patent law and explains why financial policy leads to the conclusion that reverse engineering of unpatented subject matter is economically sound.²² Finally, this section reviews the potential for harm associated with allowing the prohibition of reverse engineering by focusing on the likelihood of other industries adopting similar protective licenses.²³ Ultimately, this Note concludes that the current state of patent law demands that courts invalidate reverse-engineering clauses within shrink-wrap licenses.

BACKGROUND AND HISTORICAL DEVELOPMENT OF PATENT LAW

The protection of creative ideas has been an important part of the world's development stemming from ancient times.²⁴ In the Middle Ages, merchant guilds were granted exclusive rights within specific

16. 17 U.S. (4 Wheat.) 316 (1819).

17. 22 U.S. (9 Wheat.) 1 (1824).

18. See *infra* notes 66-103 and accompanying text.

19. See *infra* notes 104-23 and accompanying text.

20. See *infra* notes 124-27 and accompanying text.

21. See *infra* notes 128-35 and accompanying text.

22. See *infra* notes 136-58 and accompanying text.

23. See *infra* notes 159-63 and accompanying text.

24. One of the earliest mentions of patents is that of a Greek historian named Phylarchos from the third century B.C., who wrote about patents for cuisine in the city of Sybaris. 1 LIPSCOMB, *supra* note 9, § 1:1, at 7.

towns or trades, leading to the formation of similar guilds among craftsmen.²⁵ This initial foray into exclusivity spawned the development of common law monopolies in England during the fifteenth century, many of which were abolished by Queen Elizabeth in the early seventeenth century.²⁶ The remaining monopolies became subject to the common law of England and were finally abolished by act of Parliament in 1623 with the passing of the Statute of Monopolies.²⁷ Importantly, this statute expressly reserved an exception for "any letters-patent and grants of privilege for the term of fourteen years or under, hereafter to be made, of the sole working or making of any manner of new manufactures."²⁸ Part of the theory surrounding this exception revolves around the belief that inventions are a special form of property, and that the efforts of inventors should rightfully be rewarded in exchange for the public dissemination of their knowledge.²⁹

The Framers of the U.S. Constitution realized the value of patents to such an extent that they included a specific provision granting Congress the regulatory power over patents.³⁰ The origins

25. *Id.* at 5-7. Eventually, these craft guilds formed into powerful commercial enterprises, the most famous of which is probably the Hanseatic League of Northern Germany during the thirteenth and fourteenth centuries.

26. *Id.* § 1:2, at 13.

27. *Id.* § 1:5, at 29 (citing 21 Jac 1, Ch. 3. This statute abolished all existing monopolies and barred the crown from making future grants).

28. *Id.* at 31 (quoting 21 Jac 1, Ch. 3, § VI).

29. *Id.* § 1:5, at 33-34. This reward theory leads to the justification for granting the exclusive right in the first place, as opposed to the belief that patents are just monopolies. Many courts have weighed in on the value of inventors and their inventions to society as a whole. *E.g.*, *Mazer v. Stein*, 347 U.S. 201 (1954) (identifying patent grants as the encouragement of individual creative effort that is the best way to advance the public welfare); *Merrill v. Yeomans*, 94 U.S. 568 (1877) (recognizing the principle behind patents as well-settled and useful); *Kendall v. Windsor*, 62 U.S. 322 (1859) (noting the bargain of trading the exclusive right in exchange for public disclosure); *Crown Cork & Seal Co. v. Aluminum Stopper Co.*, 108 F. 845, 870 (4th Cir. 1901) ("The protection and hope of profit held out by our patent laws, inspires that stimulating energy which leads to experiment, invention, and all the resulting benefits."); *Brislin v. Carnegie Steel Co.*, 118 F. 579, 589 (W.D. Pa. 1902) ("While the motive and reward of the inventor is a monetary one, his work, measured by beneficent results, may arise to the dignity of the humane."); *Westinghouse Air Brake Co. v. Chicago Brake & Mfg. Co.*, 85 F. 786, 794 (N.D. Ill. 1898) ("The magnificent flower of civilization, everywhere surrounding us, has opened from germs that were fructified from the brains of our inventors.").

30. See U.S. CONST. art. I, § 8, cl. 8 ("The Congress shall have power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors

of the Clause have been alternatively attributed to James Madison and Charles Pinckney.³¹ Both of these Framers submitted provisions for copyright and patent as separate clauses, which were considered by the Committee of Detail on September 5, 1787, combined into the existing Clause, and adopted that same day.³² There are no records concerning any debate within this committee, and the legislative history and purpose are similarly sparse. It appears that this Clause involved very little controversy within the convention.³³ The only available mention of the Clause is a paragraph that was written by James Madison in *The Federalist* No. 43:

The utility of this power will scarcely be questioned. The copy right of authors has been solemnly adjudged, in Great Britain, to be a right at common law. The right to useful inventions seems with equal reason to belong to the inventors. The public

the exclusive Right to their respective Writings and Discoveries.”). It is interesting to note that the structure of this Clause refers to patents as useful arts, while copyrights are referred to as science. At the time, the term “science” was broadly defined to mean knowledge, and the term art was less associated with the fine arts. When referring to the structure of the Clause it becomes apparent that “science,” “authors,” and “writings” must refer to copyrights, while “useful arts,” “inventors,” and “discoveries” must refer to patents. For a detailed and comprehensive discussion of this interpretation of the Clause, see 1 LIPSCOMB, *supra* note 9, § 2:1, at 73-82. This distinction is important when viewed from the standpoint of modern definitions of the terms “science” and “art,” especially when considering the modern association of science with patents.

31. James Madison was a delegate to the Constitutional Convention from Virginia, wrote many of the Federalist papers in support of the new Constitution, and was the fourth president. Charles Pinckney was a delegate to the Constitutional Convention from South Carolina, who had been a member of the Inns of Court in England, had been called to the English Bar, and was familiar with the English law of patents. 1 LIPSCOMB, *supra* note 9, § 2:1, at 71-72.

32. The provisions that Pinckney contributed were: “To grant patents for useful inventions,” and “To secure to authors exclusive rights for a certain time.” *Id.* § 2:1, at 71. Madison’s provisions read: “To encourage by premiums and provisions, the advance of useful knowledge and discoveries,” and “To secure to literary authors their copy rights for a limited time.” *Id.* § 2:1, at 72. Originally Madison and Pinckney wanted to include outright government subsidies for new inventions, but this was rejected in favor of exclusive rights. MERGES, *supra* note 9, at 8.

33. At the time of the Constitutional Convention, John Fitch was conducting a test of his steamboat on the Delaware River. 1 LIPSCOMB, *supra* note 9, § 2:1, at 72. Reportedly, the convention adjourned on August 23, 1787 to witness the successful trial and some of the members actually rode on the boat. *Id.* Commentators have suggested that this powerful demonstration helped to persuade the members of the importance of patent protection at the federal level. *Id.*

good fully coincides in both cases with the claims of individuals. The States cannot separately make effectual provision for either of the cases, and most of them have anticipated the decision of this point, by laws passed at the instance of Congress.³⁴

The lack of treatment suggests that the issue of granting the power over patent regulation to the federal government was not controversial.

Prior to the development of the Constitution, the states granted patents that were valid only within that specific state. As a result, it became necessary to seek patents from each state. For example, John Fitch received steamboat patents from New York, New Jersey, Pennsylvania, and Delaware, while James Rumsey obtained a steamboat patent in Maryland and contested Fitch's patents in New York and Pennsylvania.³⁵

The first Congress passed the first patent statute in the early days of its second session.³⁶ The first patent was subsequently issued to Samuel Hopkins for a process for making potash from wood ashes.³⁷ The original system called for the Secretaries of State and War and the Attorney General to examine the invention's usefulness and importance.³⁸ This system proved to be unworkable because of the press of other important duties on these key officials.³⁹ As a result, Congress passed the Patent Act of 1793,

34. THE FEDERALIST NO. 43, at 288 (James Madison) (J.E. Cooke ed., 1961).

35. 1 LIPSCOMB, *supra* note 9, § 1:7, at 53. In further development of the steamboat issue, the value of a local state patent was demonstrated to be much less if the boats were used in interstate commerce. Specifically, in *Gibbons v. Ogden*, the Supreme Court, under Chief Justice Marshall, held that a New York decree enjoining appellant from navigating the waters of the state of New York was erroneous. *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824). Though the decision was based on the Commerce Clause in the Constitution, it was easy to see that local patents would be valueless when the invention was used in interstate commerce. This result confirmed the need for a federal patent system.

36. Patent Act of 1790, 1 Stat. 109.

37. MERGES, *supra* note 9, at 9. Potash, or potassim carbonate, was valuable for use in making glass and soap. Columbia University, *Potassium Carbonate*, in THE COLUMBIA ELECTRONIC ENCYCLOPEDIA (2000), available at <http://lycos.infoplease.com/ce6/sci/A0839888.html>.

38. Patent Act of 1790, 1 Stat. at 109-10. At the time, Thomas Jefferson was the Secretary of State. Because of his interest in invention and technology, he assumed the burden of examining the petitions.

39. In fact, during the three-year period that this system was used, only fifty-seven patents were issued. 1 LIPSCOMB, *supra* note 9, § 2:2, at 92.

changing the system to essentially a registration system with no true utility examination.⁴⁰ The lack of examination resulted in extensive litigation in the courts.⁴¹ This led to passage of the Patent Act of 1836,⁴² which reinstated the use of an examination scheme and created the Patent Office, which was to be headed by a commissioner appointed by the President and approved by the Senate.⁴³ Various amendments to this Act occurred throughout the nineteenth century as the Patent Office developed its bureaucracy. Those amendments were consolidated in the 1870s and remained the governing patent law until substantial revision in 1952.⁴⁴

The fact that the governing Act was largely unchanged for so long, however, does not mean that the last century has lacked notable—and continual—change in the field of patents. The patent system faced substantial challenges in the 1920s and 1930s as a result of antitrust sentiment existing at the time.⁴⁵ These challenges were overcome by the need for new technologies as part of the World War II effort.⁴⁶ Despite this need, antipatent sentiment as associated with big business persisted into the early 1970s.⁴⁷ In the early 1980s, Congress passed the Federal Courts Improvement Act,⁴⁸ establishing the Court of Appeals for the Federal Circuit (CAFC), to hear all appeals from the federal circuits involving patents.⁴⁹ The creation of the CAFC resulted in enhanced stature for the patent system and has increased the likelihood of patents being held valid.⁵⁰

Since the 1980s, patent law and the value associated with intellectual property have received increased national and international attention.⁵¹ In part, this increased attention was derived from recognition of the economic growth potential

40. Patent Act of 1793, 1 Stat. 318, 321. See 1 LIPSCOMB, *supra* note 9, § 2:2, at 93.

41. 1 LIPSCOMB, *supra* note 9, § 2:2, at 94.

42. Patent Act of 1836, 5 Stat. 117.

43. *Id.* at 117-18.

44. 1 LIPSCOMB, *supra* note 9, § 2:2, at 95.

45. MERGES, *supra* note 9, at 11.

46. *Id.*

47. *Id.* at 12.

48. Pub. L. No. 97-164, 96 Stat. 25 (1982) (codified as amended at 18 U.S.C. § 171 (1994)).

49. MERGES, *supra* note 9, at 12.

50. *Id.*

51. *Id.* at 12-13.

associated with emerging technologies and the potential for the use of intellectual property rights as instruments of economic policy.⁵² As a result, harmonization of world patent law became an important goal. An affiliate of the United Nations known as the World Intellectual Property Organization (WIPO) championed this effort.⁵³ Many perceived WIPO as having a distinctly anti-Western bias.⁵⁴ Because of this perceived bias and the slow progress of the WIPO, an alternative arena for promoting harmonization was found in the Uruguay Round of negotiations on GATT.⁵⁵ In addition to creating the WTO, the Uruguay Round negotiated major international changes to harmonize intellectual property law.⁵⁶ These negotiations and changes are known as TRIPS.⁵⁷ The most important changes to U.S. patent law arising from these negotiations are: a change to the length of the patent term from seventeen years after issuance to twenty years after filing; allowance of foreign pre-U.S. patent filing activities to be considered for the purposes of establishing priority of invention in the United States; and establishment of a new procedure for filing provisional applications in the United States.⁵⁸

Currently, in order to receive a U.S. patent, an application must be filed with the U.S. Patent and Trademark Office (USPTO) that meets the requirements of the latest iteration of the Patent Act.⁵⁹ In a simplified form, this Act requires a demonstration that the matter in the application is patentable subject matter, has utility,

52. *Id.*

53. *Id.* at 39.

54. *Id.*

55. GATT is a multilateral international trade agreement establishing international rules to regulate international trade. It was originally negotiated in 1947 with the goal of "liberaliz[ing] and mak[ing] secure the terms of world trade." International Contract Adviser, *A History of GATT and the Structure of the WTO*, 2 L.J. EXTRA at 1 (1996) (on file with William and Mary Law Review). Since 1947, this agreement has been renegotiated seven different times, the last of which occurred from 1986-1994, and was called the Uruguay Round after the country from which the round was first proposed. This latest agreement is enforced through the World Trade Organization (WTO) and regulates almost everything involved in international trade, from tariffs to labor and employment issues. *Id.* at 1-9.

56. *See id.*

57. *See id.*

58. *See MERGES*, *supra* note 9, at 41.

59. The Act is Title 35 of the United States Code. 35 U.S.C. (1994 & Supp. IV 1999).

is novel, and is nonobvious.⁶⁰ In exchange for the twenty-year post-filing right to exclude, the patent application is published and the information is disseminated to the public at large. The rationale behind this process is that by making the information public, the patentee has contributed to society.⁶¹ This public release allows other inventors to build upon the original inventor's work and promotes "the Progress of ... [the] useful Arts" mandated by the Constitution.⁶² Basically, the inventor gives his invention to the public in exchange for a right to exclude others from producing, using, or selling his invention for a limited time.⁶³ This private incentive helps to drive the innovative spirit of the nation and promotes economic growth and development.⁶⁴ This benefit is important because the disclosure of the information provides ideas and information to other inventors, who, in turn, can build on the initial invention and create additional intellectual and technological growth. It is this fact, in part, that Congress relies upon to establish the balance between the length of the patent term and the avoidance of outright monopolies.⁶⁵

60. These requirements are delineated in 35 U.S.C. §§ 101-103 (1994 & Supp. IV 1999). The case law interpreting these requirements is extensive and beyond the scope of this Note.

61. See 1 LIPSCOMB, *supra* note 9, § 1:5, at 33-34. The idea of a contribution to society has received a significant amount of discussion, especially with respect to the difference between patent law and monopolies. See *id.* § 1:6, at 34-49. Inventors and their contributions to society have been almost uniformly respected. Francis Bacon provided an excellent summary of this sentiment in the preface to his *Treatise on Interpreting Nature*:

Now among all the benefits that could be conferred upon mankind, I discovered none so great as the discovery of new arts for the bettering of human life. For I saw that among the rude people of early times, inventors and discoverers were reckoned as gods. It was seen that the works of founders of States, lawgivers, tyrant-destroyers and heroes cover but narrow spaces, and endure but for a time; while the work of the inventor, though of less pomp, is felt everywhere, and lasts forever.

Francis Bacon, *Preface to Treatise on Interpreting Nature*, quoted in 1 LIPSCOMB, *supra* note 9, at 48.

62. U.S. CONST. art. I, § 8, cl. 8.

63. 1 LIPSCOMB, *supra* note 9, § 1:6, at 35.

64. For a more thorough analysis of the effect of a patent system on economic growth, a good source is the National Bureau of Economic Research website, located at <http://www.nber.org> (last visited Nov. 15, 2001). This website provides a large number of working papers in .pdf format discussing the economics of intellectual property law. Many of these papers conclude that strong property rights actually promote economic growth. This economic growth is addressed in more detail *infra*, notes 132-42 and accompanying text.

65. See generally 1 LIPSCOMB, *supra* note 9, § 1:7 (discussing the difference between a patent and a monopoly and the nature of patents as a contract for a limited time between the

PREEMPTION

The doctrine of federal preemption of state law arose out of the Constitutional Convention, within the text of the Supremacy Clause:

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.⁶⁵

The first landmark case involving preemption doctrine was *Gibbons v. Ogden*.⁶⁷ In this case, Chief Justice Marshall delineated the preemption doctrine:

Since ... the States may sometimes enact laws, the validity of which depends on their interfering with ... an act of Congress passed in pursuance of the constitution, the Court will enter upon the inquiry whether ... [New York state laws] have, in their application to this case, come into collision with an act of Congress ... Should this collision exist ... the acts of New York must yield to the law of Congress.⁶⁸

Thus, in matters involving direct conflict between state and federal authority, federal law is deemed supreme. This decision, however,

inventor and the government).

66. U.S. CONST. art. VI, cl. 2. This clause was mainly the product of proposals crafted by James Madison, introduced early in the proceedings at the Constitutional Convention. KENNETH STARR ET AL., *THE LAW OF PREEMPTION* 5 (1991). Madison's goal was to introduce an even stronger clause that granted the power "to negative all laws which to [national legislators] shall appear improper." *Id.* at 7 (quoting 1 *THE RECORDS OF THE FEDERAL CONVENTION OF 1787*, at 162 (records of June 8, 1787)(M. Farrand rev. ed., 1966)). Proponents of the Small State, or New Jersey Plan, rejected this stronger clause due to their mistrust of such a strong federal government. *Id.* at 7-8. In particular, George Mason stated: "[T]he Danger is that the national [legislature] will swallow up the State Legislatures." *Id.* at 6 (quoting 1 *THE RECORDS OF THE FEDERAL CONVENTION OF 1787*, at 160 (records of June 7, 1787)). Madison and his supporters worried that the Small State Plan would not prevent the states from interfering with one another. *Id.* at 8.

67. 22 U.S. (9 Wheat.) 1 (1824).

68. *Id.* at 209-10.

did not end the inquiry. Subsequent Courts upheld state laws that did not directly conflict with existing federal law.⁶⁹ In fact, after the Marshall Court, the Supreme Court upheld state power where it was not in direct collision with federal statutes.⁷⁰

Methods of Determining Intent

In making decisions concerning preemption, the courts necessarily engage in an inquiry to determine the intent of Congress in passing a specific act worded in a specific way.⁷¹ This intent is the key to determining whether an act is preemptive because many of the powers of Congress are shared concurrently with the states.⁷² This sharing of power, when coupled with the Supremacy Clause of the Constitution, makes it necessary to determine that Congress intended to preempt state law in order for the law to be so preempted.

Generally, courts use two methods to determine the intent of Congress with regard to preemption.⁷³ The first of these is express

69. Specifically such cases involved state law which did not conflict with an express statute, but rather, infringed on congressional authority. For example, in *Cooley v. Board of Wardens*, the Court upheld a pilotage requirement of Philadelphia for ships operating in interstate and foreign commerce, and stated "the mere grant of . . . power to Congress, did not imply a prohibition on the states to exercise the same power; . . . it is not the mere existence of such a power, but its exercise by Congress, which may be incompatible with the exercise of the same power by the States." *Cooley v. Board of Wardens*, 53 U.S. (12 How.) 299, 319 (1851). This is a rejection of Marshall's use of the dormant Commerce Clause in *Gibbons v. Ogden*, 22 U.S. (12 Wheat.) 1, 209-210 (1824), and Justice Story's strong dissent in *Mayor of New York v. Miln*, 36 U.S. (11 Pet.) 102, 158-159 (1837), which criticized the majority's upholding of a required reporting scheme imposed on the masters of vessels entering New York from another country or another state as contrary to Congress's "complete exercise of its power over the whole subject, as well in what is omitted as in what is provided for." *Id.* at 159 (Story, J., dissenting). In modern language, this is an expression of the "occupation of the field" doctrine, in which Congress, by exercising a comprehensive power, excludes the states from entering the arena. See STARR ET AL., *supra* note 66, at 19.

70. *E.g.*, *Cooley*, 53 U.S. 299; *The License Cases*, 46 U.S. (5 How.) 504 (1847); *Miln*, 36 U.S. 102; *Willson v. Black Bird Creek Marsh Co.*, 27 U.S. (2 Pet.) 245 (1829) (state corporation law potentially conflicting with Federal Maritime Law).

71. See STARR ET AL., *supra* note 66, at 14; see also 1 LAURENCE H. TRIBE, *AMERICAN CONSTITUTIONAL LAW* §§ 6-28 to 6-31, at 1172-1212 (3d ed. 2000) (discussing the methods courts use to determine preemption).

72. See also *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974) (discussing how trade secret law and patent law exist concurrently).

73. See STARR ET AL., *supra* note 66, at 14.

preemption—a direct expression of preemptive effect by Congress in the statute in question.⁷⁴ The second method involves the implied preemption doctrine.⁷⁵ This doctrine uses one of two tests to determine legislative intent: the occupation of the field test, or the obstacle test.⁷⁶

Express Preemption

Express preemption applies in cases of direct collision between state and federal law, as identified in *Gibbons v. Ogden*.⁷⁷ This doctrine can involve either a direct expression of congressional intent to preempt state law within the statute itself, or clear evidence of legislative intent to preempt state law.⁷⁸

The Civil Rights Act of 1964 provides an example of express preemption in a statute:

Nothing contained in any title of this Act shall be construed as indicating an intent on the part of Congress to *occupy the field* in which any such title operates to the exclusion of State laws on the same subject matter, nor shall any provision of this Act be construed as invalidating any provision of State law *unless* such provision is inconsistent with any of the purposes of this Act, or any provision thereof.⁷⁹

It is interesting to note that although such a provision asserts federal supremacy with regard to direct conflicts with state law, this clause deliberately clarifies congressional intent to preempt *only* direct conflicts through the use of the “occupying the field” language. This type of clause is common to many statutes in which Congress intends to preempt only direct conflict.⁸⁰ Total federal

74. *Id.* at 15.

75. *Id.* at 18.

76. *Id.* at 19, 27.

77. 22 U.S. (9 wheat.) 1 (1824); see STARR ET AL., *supra* note 66, at 19.

78. See STARR ET AL., *supra* note 66, at 15.

79. Civil Rights Act of 1964, 42 U.S.C. § 2000h-4 (1994) (emphasis added). This “occupy the field” language expresses Congress’s intent to not preempt through the use of implied preemption doctrine. For a discussion of this doctrine, see *supra* notes 83-95 and accompanying text.

80. *E.g.*, Drug Abuse Control Amendments of 1965, Pub. L. No. 89-781, 76 Stat. 793 (codified at 21 U.S.C. § 321 (1994)); Gun Control Act of 1968, 18 U.S.C. § 927 (Supp. IV 1968);

preemption also occurs expressly, and these types of clauses generally appear in any of ten specific forms depending on the mandate and type of regulation.⁸¹ Each of these types of direct preemption involve an initial assertion of federal authority over the issue at hand. Some of these types then grant limited authority to the states or require the states to act in some fashion.⁸²

Implied Preemption

The courts have recognized two types of preemption that are implied rather than direct.⁸³ These two approaches are the "occupying the field" test and the "obstacle" test. Each has been criticized rather extensively.⁸⁴

The occupying the field test involves a determination of congressional intent to exclude all other regulation within a specific area of law. Professor Tribe has described the test aptly:

Even where state regulation is found not to conflict in its actual operation with the substantive policies underlying federal legislation, the state regulation can survive judicial scrutiny

Occupational Safety and Health Act of 1970, 29 U.S.C. § 667 (1994); Federal Railroad Safety Act of 1970, 45 U.S.C. § 434 (1970), *repealed by* Pub. L. No. 103-272, 108 Stat. 1379 (1994).

81. These forms may be summarized as:

- (1) No need for state and/or local assistance,
- (2) No state economic regulation allowed,
- (3) State and local assistance needed,
- (4) State activities exception,
- (5) Limited regulatory turnbacks,
- (6) Federal mandating of state law enactment,
- (7) Federal promotion of interstate compact formation,
- (8) Gubernatorial petition for preemption removal,
- (9) State veto of a federal administrative decision, and
- (10) Contingent total preemption.

See U.S. ADVISORY COMM. ON INTERGOVERNMENTAL RELATIONS No. A-121, *FEDERAL STATUTORY PREEMPTION OF STATE AND LOCAL AUTHORITY: HISTORY, INVENTORY, AND ISSUES* 18 (1992) [hereinafter *PREEMPTION*].

82. *Id.*

83. These two types of preemption involve courtroom determinations of congressional intent of the statute in question from the available record.

84. See, e.g., STARR ET AL., *supra* note 66, at 34-39; see also *PREEMPTION*, *supra* note 81, at 40-41 (discussing seven concerns with preemption doctrine and its increased use); JOSEPH F. ZIMMERMAN, *FEDERAL PREEMPTION: THE SILENT REVOLUTION* 107-125 (1991) (concluding that the lack of precise implied preemption criteria has led to increased litigation).

under the Supremacy Clause and whatever constitutional provision supports the federal statute in question only if Congress did not exercise its jurisdictional veto. For if Congress has validly decided to "occupy the field" for the federal government, state and local regulations within that field must be invalidated no matter how well they comport with substantive federal policies.⁸⁵

Under this type of preemption, courts use two factors to determine if a jurisdictional veto has occurred in a given case: 1) whether Congress has so pervasively regulated in the field as to leave no room for local regulation, and 2) whether "the nature of the regulated subject matter permits no other conclusion."⁸⁶

The Supreme Court has been hesitant to find preemption absent persuasive reasons, but the more comprehensive the legislative regulation in a particular field, the more likely it is that the Court will find such preemption.⁸⁷ A frequently cited case for pervasive regulation of a field resulting in preemption is *Rice v. Santa Fe Elevator Corp.*⁸⁸ In *Rice*, the Court held that states could not regulate grain warehouses that were federally licensed.⁸⁹ The Court stated: "Congress did more than make the Federal Act paramount over state law in the event of conflict. It remedied the difficulties which had been encountered in the Act's administration by terminating the dual system of regulation."⁹⁰ The Court thus looked to the legislative history of the Act to determine Congress's preemptive intent.

In legal areas that can only be deemed national in interest, courts have been more willing to prevent state infringement on subject matter that has traditionally been left to Congress to regulate.⁹¹ The leading case involving exclusive federal interest preemption is *Hines v. Davidowitz*,⁹² in which the Court invalidated a Pennsylvania statute requiring aliens to register with state

85. 1 *TRIBE*, *supra* note 71, at 1204-05.

86. *Florida Avocado Growers v. Paul*, 373 U.S. 132, 142 (1963).

87. See 1 *TRIBE*, *supra* note 71, at 1205.

88. 331 U.S. 218 (1947).

89. *Id.* at 236.

90. *Id.* at 234.

91. See 1 *TRIBE*, *supra* note 71, at 1210.

92. 312 U.S. 52 (1941).

authorities.⁹³ Specifically, the Court concluded that the regulation of aliens is part of the responsibility of the national government and "where [the national government] acts, and the state also acts on the same subject, 'the act of Congress, or the treaty, is supreme; and the law of the State, though enacted in the exercise of powers not controverted, must yield to it.'"⁹⁴ This type of preemption has not been consistently applied and reflects differences in opinion as to the scope of exclusive federal power.⁹⁵

The obstacle test also arose from *Hines*, when the Court indicated that state law is preempted if it were found to stand "as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."⁹⁶ In other words, this type of preemption arises when the state law conflicts with a specific congressional goal. The Court later used the *Hines* analysis with respect to the Clean Water Act when it found that a state nuisance action filed by Vermont citizens was preempted by the Act's provisions limiting state regulatory power over water pollution within its borders.⁹⁷ The Court stated that to allow the suit to go forward would let the states "do indirectly what they could not do directly—regulate the conduct of out-of-state sources."⁹⁸ In short, because Congress had limited a state's role in the promulgation of standards against pollution, states were not permitted to attempt to circumvent this limitation through the use of alternative state law remedies.⁹⁹

Similarly, in *Felder v. Casey*,¹⁰⁰ the Court determined that a Wisconsin notice-of-claim statute creating notice requirements in

93. *Id.* at 66.

94. *Id.* (quoting *Gibbons v. Ogden*, 22 U.S. (9 wheat.) 1, 211 (1824)). Other relevant national interests that have been protected include: migratory bird protection in *North Dakota v. United States*, 460 U.S. 300 (1983); regulation of aliens within U.S. borders in *Toll v. Moreno*, 458 U.S. 1 (1982); regulation of Native-American tribal affairs in *Ramah Navajo School Board, Inc. v. Bureau of Revenue*, 458 U.S. 832 (1982); and regulation of labor management relations in both *Sears, Roebuck & Co. v. Carpenters*, 436 U.S. 180 (1978), and *San Diego Building Trades Council v. Garmon*, 359 U.S. 236 (1959).

95. See STARR ET AL., *supra* note 66, at 26-27.

96. *Hines*, 312 U.S. at 67.

97. *International Paper Co. v. Ouellette*, 479 U.S. 481, 494-97 (1987).

98. *Id.* at 495.

99. In *International Paper*, the state was attempting to regulate pollution that occurred in a different state, but had an in-state effect. The Clean Water Act limited state power in such instances to an advisory role, and the Vermont citizens attempted to bypass this limitation using state nuisance law. *Id.* at 481.

100. 487 U.S. 131 (1988).

section 1983¹⁰¹ actions against state officials was preempted by federal civil rights laws. The preemption test used was stated to be: "[I]s the application of the State's notice-of-claim provision to § 1983 actions brought in state courts consistent with the goals of federal civil rights laws, or does [it] 'stand as an obstacle to the accomplishment and execution of the full purposes ... of Congress?'"¹⁰² This determination of preemption provoked a strong dissent from Justice O'Connor, who noted the existence of such laws in almost forty states at the time and found the vague allusion to the aims of the federal civil rights laws as an inadequate substitute for a clear congressional indication of intent to preempt.¹⁰³

Preemption in the Intellectual Property Field

Within the field of patent law, preemption has not received tremendous attention or application. Current patent preemption law began with two Supreme Court decisions from 1964 involving conflict with state unfair competition laws.¹⁰⁴ These decisions were *Sears, Roebuck & Co. v. Stiffel Co.*¹⁰⁵ and *Compco Corp. v. Day-Brite Lighting, Inc.*¹⁰⁶ Both of these cases involved mechanical lighting devices patented by the plaintiff and copied by the defendant.¹⁰⁷ The lower court had found the patents invalid, but allowed plaintiffs to obtain relief under a state unfair competition law.¹⁰⁸ The Supreme Court, using broad language, held that federal patent law preempted the state law.¹⁰⁹

101. 42 U.S.C. § 1983 (1994 & Supp. V 1999) (providing for individual liability of government actors in tort actions).

102. *Casey*, 487 U.S. at 138 (quoting *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941)).

103. *See id.* 487 U.S. at 157-58 (O'Connor, J., dissenting); STARR ET AL., *supra* note 66, at 30.

104. Prior to 1964, there was little discussion of patent law and preemption. The Supreme Court decided the two landmark cases together on the same day in 1964 and the current law has developed from that baseline.

105. 376 U.S. 225 (1964).

106. 376 U.S. 234 (1964).

107. *Compco*, 376 U.S. at 234; *Sears*, 376 U.S. at 225-26.

108. *Compco*, 376 U.S. at 235-36; *Sears*, 376 U.S. at 226.

109. In both of these cases, the Court broadly discouraged the attempted use of state law to protect something that had been found to be not protectable under federal law. In *Sears*, for example, the Court stated: "An unpatentable article, like an article on which the patent has expired, is in the public domain and may be made and sold by whoever chooses to do so." *Sears*, 376 U.S. at 231. The Court continued its discussion, concluding: "To allow a State by

In 1973 the Court took a step back from the broad language of *Sears and Compco* with its decision in *Goldstein v. California*.¹¹⁰ In that case, the state of California had established a penal statute outlawing tape piracy.¹¹¹ This law was not preempted because Congress had left the area of musical recordings "unattended" with regard to the copyright laws, and so states were free to regulate in this area.¹¹² *Goldstein* thus established that not all regulation in the area of copyright (and by analogy patent) law by states is barred. In fact, *Goldstein* has been understood to stand for the premise that state regulation is permissible absent a congressional intent to occupy the field.¹¹³

Subsequent development of Supreme Court patent law preemption doctrine occurred in *Kewanee Oil Co. v. Bicron Corp.*¹¹⁴ In *Kewanee*, the Court upheld Ohio trade secret law protection. The Court concluded that the state law did not conflict with the purposes of the federal patent law and therefore was not preempted. The reasoning behind this rationale was similar to that in *Goldstein*. The Court found that states could protect matter that was unpatentable and not in the public domain.¹¹⁵

use of its law of unfair competition to prevent the copying of an [unpatentable] article ... would be to permit the State to block off from the public something which federal law has said belongs to the public." *Id.* at 231-32.

110. 412 U.S. 546 (1973). Though this case is a copyright case rather than a patent case, courts have consistently used similar doctrine in interpreting these two areas of the law because of the substantial similarity of the subject matter. That is not to say that they are the same. For the purposes of preemption, however, this case is still important to patent law because it indicates a small retreat by the Court from the broad preemption language of *Sears and Compco*, and thus a higher standard for finding preemption of state law in any given case.

111. *Id.* at 548.

112. *Id.* at 563-71. Prior to 1971, Congress had not included music recordings on the list of protectable subject matter in federal copyright law. Its failure to do so was not seen as a deliberate exclusion by the Court, and was found to be an omission without prejudice. *Id.* at 571.

113. See *Synercom Tech., Inc. v. University Computing Co.*, 474 F. Supp. 37, 41 (N.D. Tex. 1979). But see *Crow v. Wainright*, 720 F.2d 1224, 1225 (11th Cir. 1983) (explaining that Congress officially occupied the field in 1976 by passing 17 U.S.C. § 301(a) in response to *Goldstein*).

114. 416 U.S. 470 (1974).

115. The Court noted that some discoveries that are not patentable may be protected as long as they are kept secret. *Id.* at 484-91. Trade secret law was seen to promote this approach, and to prevent hoarding of knowledge. The Court also evaluated the economics behind allowing trade secret law and found the economics supported such laws. *Id.* The

Finally, in 1979 the Court took an additional step in narrowing the scope of preemption by rejecting a federal preemption challenge to a contract in *Aronson v. Quick Point Pencil Co.*¹¹⁶ Specifically, the Court stated: "Commercial agreements traditionally are the domain of state law. State law is not displaced merely because the contract relates to intellectual property which may or may not be patentable; the states are free to regulate the use of such intellectual property in any manner *not inconsistent with federal law.*"¹¹⁷ This result provided solid support for the proposition that states could operate within the realm of intellectual property as long as their laws were not contrary to federal patent or copyright law.

In 1989, the Supreme Court reversed the trend of weakening preemption doctrine with regard to patent law in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*¹¹⁸ In *Bonito Boats*, the Court invalidated a Florida statute prohibiting the use of a molding process to duplicate unpatentable boat hull designs because the statute conflicted with federal patent law.¹¹⁹ The Court concluded that the Florida statute was an effort to give patent-like protection to subject matter that was not protectable under federal law.¹²⁰ Because boat hull information was available to the public at large, Florida could not remove it from the public domain by way of state law.¹²¹ The Court also recognized the right to reverse engineer products in the public domain when it said:

[T]he Florida law prohibits the entire public from engaging in a form of reverse engineering of a product in the public domain. This is clearly one of the rights vested in the federal patent holder, but has never been a part of state protection under the law of unfair competition or trade secrets.¹²²

Court, however, was careful to note that trade secret law could not prevent the discovery of the trade secret by fair and honest means such as independent creation or reverse engineering. *Id.* at 490. Despite this finding, *Kewanee* seemed to be an additional retreat by the Court from the reach of federal law as interpreted in *Sears and Compco*.

116. 440 U.S. 257 (1979).

117. *Id.* at 262 (emphasis added).

118. 489 U.S. 141 (1989).

119. *Id.* at 144.

120. *Id.* at 168.

121. *Id.* at 158-60.

122. *Id.* at 160.

To date, there have been no court cases dealing directly with preemption of shrink-wrap licenses by patent law. There are, however, two cases of note that involve preemption of shrink-wrap licenses by copyright law. These cases, from the Courts of Appeals for the Fifth and Seventh Circuits,¹²³ will be discussed in detail in the next section.

THREE REASONS PATENT LAW SHOULD PREEMPT SHRINK-WRAP LICENSES

There are three reasons patent law should preempt reverse-engineering prohibition clauses in shrink-wrap licenses. First, such clauses conflict with the policies underlying patent law. The rapid advance of software technology outpaced initial efforts by the courts and the USPTO to define patent availability for such developments.¹²⁴ Considering the relative ease of decompiling program codes, it is understandable that the computer industry developed the shrink-wrap license to avoid piracy of trade secrets through disassembly and reverse engineering of software. Despite this reality, the clauses are in direct conflict with congressional intent behind the Patent Act and judicial delineation of that intent. Second, the clauses conflict with national economic policy which reflects the value of increased competition fostered by the ability of firms to reverse engineer and improve upon the products of competitors. Finally, although shrink-wrap licenses have been used primarily in the software industry in the past, if courts allow reverse-engineering prohibition clauses to stand, other companies in other industries will begin using these licenses to extend their trade secret protection. This extension of trade secret protection

123. These two cases are *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996), and *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255 (5th Cir. 1988).

124. In the early days of software development, the courts and the USPTO struggled with defining availability of patents for software. For example, in 1972 the Supreme Court held that mathematical algorithms are not patentable. *Gottschalk v. Benson*, 409 U.S. 63 (1972). Subsequent case history trying to define what should and should not be patentable became muddled and uncertain. Currently, however, the availability of patents for software is undisputed, though patents that claim mere algorithms probably remain invalid. For an excellent discussion of the chaotic development of patent law for software, see MERGES, *supra* note 9, at 66-139 (reviewing the movement from uniform denial of patentability to qualified approval of software patents).

will expand their limited intellectual property monopolies beyond what was originally intended by the architects of the current patent system.

Examples of Reverse-Engineering Prohibition Clauses

Before demonstrating that patent law preempts reverse-engineering prohibition clauses contained in shrink-wrap licenses, it may be useful to provide a few examples of such clauses. An expansive example is found in clause two of a legal-software agreement:

Restrictions: You may not, and you may not permit others to, (a) disassemble, decompile or otherwise derive source code from the Software, (b) reverse engineer the Software, (c) modify or prepare derivative works of the Software, (d) copy the Software, except as expressly permitted in this Agreement, (e) rent or lease the Software, or (f) use the Software in any manner that infringes the intellectual property or other rights of Emanuel or another party.¹²⁵

A less expansive example is the second clause of another software agreement: *"Limitations on Reverse Engineering, Decompilation, and Disassembly.* You may not reverse engineer, decompile, or disassemble the SOFTWARE PRODUCT, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation."¹²⁶ These clauses are a reasonable representation of software shrink-wrap clauses that limit reverse engineering.¹²⁷ They are explicit in denying end users the right to

125. EMANUEL PUBLISHING CORP., LAW IN A FLASH INTERACTIVE SOFTWARE END-USER LICENSE AGREEMENT (1999).

126. MICROSOFT CORP., MICROSOFT OFFICE 2000 STANDARD AE LICENSES:1, END-USER LICENSE AGREEMENT FOR MICROSOFT SOFTWARE (1999).

127. In comparing the two similar clauses, a difference that stands out is the attempt in the Microsoft clause to limit the effect of future legal challenges. For example, if courts were to find that actions prohibited by the Microsoft clause were in fact permitted, then the clause would still be valid subject to such a limitation. This might not be true of the Emanuel clause, which provides such flexibility only in the context of copying. The Microsoft shrink-wrap license, or End User License Agreement (EULA), limits copying in a different clause that does not contain the flexibility of the reverse-engineering clause, but rather, limits use essentially to the extent the courts have uniformly decided is permissible with respect to

reverse engineer the product.

Congressional policy behind patent law indicates that such clauses should be unenforceable because federal patent law preempts them. The traditional enforcement mechanism for license agreements has been state contract law.¹²⁸ In *ProCD, Inc. v. Zeidenberg*,¹²⁹ the Seventh Circuit upheld the validity of a shrink-wrap contract despite a challenge that federal copyright law preempted the contract. In broad language, Judge Easterbrook stated that rights created by contract are not "equivalent to any of the exclusive rights within the general scope of copyright."¹³⁰ Later, the opinion recognized that although Congress has the power to preempt the enforcement of contracts involving intellectual property, courts usually leave private contracts unaffected by preemption clauses.¹³¹ Judge Easterbrook then stated that the

copying. This flexibility reflects the industry's uncertainty regarding the enforceability of reverse-engineering clauses.

128. It is important to remember that copyright law, like patent law, does not prevent states from legislating in the field unless the state law directly conflicts with, or is impliedly preempted by, the federal law. This field is shared because the Court found in *Kewanee* that federal intellectual property law did not necessarily preempt state trade secret law. *Kewanee Oil Co. v. Bicron Corp.*, 466 U.S. 470, 479 (1974). There is, therefore, room within the field for some state regulation.

129. 86 F.3d 1447 (7th Cir. 1996).

130. *Id.* at 1454 (quoting § 301(a) of the Copyright Act). In that case, the defendant violated the ProCD license agreement by copying data stored on the ProCD software and reselling it. *Id.* at 1450. The defendant argued in part that because the shrink-wrap contract was inside the box and not visible, it was not enforceable because it was not part of the purchase agreement. *Id.* at 1450-53. Judge Easterbrook rejected this argument. *Id.* at 1452-53.

131. *Id.* at 1454. Others have also argued in support of the notion that copyright or patent law should not preempt private ordering contracts. *E.g.*, Mark I. Koffsky, Note, *Patent Preemption of Computer Software Contracts Restricting Reverse Engineering: The Last Stand?*, 95 COLUM. L. REV. 1160, 1174 (1995). The problem with a blanket presumption of private contract validity is that these contracts will proliferate if courts deem reverse-engineering prohibition clauses in shrink-wrap contracts invalid. That is, since a shrink-wrap contract will not prevent reverse engineering, a signed agreement will be required for each and every software sale. Though this sounds implausible, the potential is there through use of the Internet, on-line ordering and single operator questions to indicate a form of negotiation that would be sufficient to move each contract into the realm of private ordering. In other words, every time software is bought, such a purchase would turn into a "negotiated" private agreement. A more reasonable case for eliminating preemption in contracts would involve truly independently negotiated contracts that include a reverse-engineering prohibition clause. These contracts would not be a real issue because they are essentially the same as licensing of a trade secret. Though Professor Rice emphasizes the importance of protecting individually negotiated contracts, these contracts are not really an issue because

shrink-wrap license is a private ordering contract that should be respected and upheld as "essential to the efficient functioning of markets."¹³² This case has been the object of much controversy,¹³³ with notable criticism coming from Professor Nimmer:

Having run through the trio of cases that underlay both the district and circuit courts' analysis in *ProCD*, it thus appears that the rule safeguarding contract causes of action against copyright pre-emption is less than categorical. Although the vast majority of contract claims will presumably survive scrutiny—as did each of the contract claims confronted in that trio—nonetheless pre-emption should continue to strike down claims that, though denominated "contract," nonetheless complain directly about the reproduction of expressive materials.¹³⁴

As such, contract claims are seemingly open to preemption if they conflict with federal law.¹³⁵

they normally contain confidentiality clauses as well as other trade secret protection clauses that do not run contrary to patent law. David A. Rice, *Public Goods, Private Contract and Public Policy: Federal Preemption of Software License Prohibitions Against Reverse Engineering*, 53 U. PITT. L. REV. 543, 622-26 (1992). Finally, such contracts are likely not a large part of the software sales industry.

132. *ProCD*, 86 F.3d at 1455. This assertion actually reflects a "trees" rather than a "forest" approach to the efficiency of the national economy. Because strong property rights promote economic growth, it is arguable that intellectual property rights protection is more valuable than the economic protection that Judge Easterbrook espoused here. This difference in value is the case because Judge Easterbrook asserted that such clauses serve the same "procompetitive functions as does the law of trade secrets," yet patent law is possibly a better promoter of such functions because of the required disclosure to the public of the invention. *Id.* at 1455.

133. For cases holding breach of contract actions are not preempted by the Copyright Act, see *National Car Rental Systems, Inc. v. Computer Associations Int'l, Inc.*, 991 F.2d 426 (8th Cir. 1993); *Taquino v. Teledyne Monarch Rubber*, 893 F.2d 1488 (5th Cir. 1990); *Acorn Structures, Inc. v. Swantz*, 846 F.2d 923 (4th Cir. 1988); *Architectronics, Inc. v. Control Systems, Inc.*, 935 F. Supp. 425 (S.D.N.Y. 1996). *But see* *American Movie Classics Co. v. Turner Entm't Co.*, 922 F. Supp. 926 (S.D.N.Y. 1996); *Wolff v. Institute of Elec. & Elecs. Eng'rs, Inc.*, 768 F. Supp. 66 (S.D.N.Y. 1991).

134. 1 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT* § 1.01[B][1][b] at 1-22 (2000) (citations omitted).

135. Even Judge Easterbrook admits that there cannot be a per se rule against federal preemption of contract law. *ProCD*, 86 F.3d at 1455.

*Shrink-Wrap License Prohibitions on Reverse Engineering
Conflict with Patent Law Policy*

The goals of strong intellectual property protection are fostering creativity and innovation in society and rewarding inventors for their achievements in exchange for public dissemination of the novel invention.¹³⁶ It is easy to see how making technology public fosters further growth and innovation. The hope of patent law is that once the novel creation is made public, other inventors will be inspired to build upon the initial creative leap.¹³⁷ The twenty-year right to exclude¹³⁸ is thus balanced by the value gained from public disclosure of the invention. This function is served by the novelty and nonobviousness requirements in the patent law.¹³⁹ These standards require that the invention be a sufficient development in technology before the right to exclude is given.¹⁴⁰ Additionally, patent law ensures adequate public disclosure such that one "skilled in the art" could create the invention without substantial experimentation.¹⁴¹ Developments that do not meet these high standards, or are not protectable because they do not fall within the subject matter of patent law, are denied protection.

Reverse-engineering prohibition clauses are an attempt to prevent discovery of trade secrets through the use of state contract law. As a result, such clauses conflict with federal patent law and are preempted.¹⁴² These clauses directly conflict with the goals of

136. MERGES, *supra* note 9, at 7; see also *supra* notes 24-65 and accompanying text.

137. See MERGES, *supra* note 9, at 7.

138. This right to exclude means that for the duration of the patent, the patentee can prevent anyone from making or using his invention. BLACK'S LAW DICTIONARY 1147 (7th ed. 1999). This right is the strongest intellectual property right available in U.S. law. For example, copyright protects original expression within the appropriate subject matter, but there are exceptions, such as fair use or independent creation, that permit others to use that expression. 17 U.S.C. §§ 107-120 (1994 & Supp. V 1999). Similarly, trade secret law protects against misappropriation of secret inventions (that may or may not be patentable) and allows exploitation of those secrets by the inventor. Trade secret law, however, provides no protection against valid discovery of the secret through techniques such as reverse engineering. Uniform Trade Secrets Act, § 1, in Pedowitz & Sikker, *supra* note 11.

139. See 35 U.S.C. §§ 102-103 (1994 & Supp. V 1999).

140. See *id.*

141. 35 U.S.C. § 112 (1994).

142. Despite the conclusions of *ProCD*, courts have held contracts to be preempted by patent law when they fail the preemption analysis delineated *supra* notes 66-123 and accompanying text. See, e.g., *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 265 (1979).

patent law by attempting to provide patent like rights to inventions that, for whatever reason, are not patented.¹⁴³ These patent-like rights include the right to reverse engineer.¹⁴⁴ By offering such patent-like rights, these contracts also conflict with "strong federal policy favoring free competition in ideas which do not merit patent protection."¹⁴⁵

Shrink-wrap licenses also stand as an obstacle to a realization of the full purposes of the patent law. Prohibition of reverse engineering by these licenses obstructs patent law's ultimate goal of disclosure. These clauses reduce the competition inherent in technology development. In fact, in *Bonito Boats*, the Court discussed the value of allowing reverse engineering: "[T]he competitive reality of reverse engineering may act as a spur to the inventor, creating an incentive to develop inventions that meet the rigorous requirements of patentability."¹⁴⁶ To prevent reverse engineering "reduces this competitive incentive, thus eroding the general rule of free competition upon which the attractiveness of the federal patent bargain depends."¹⁴⁷ Reverse engineering provides a valuable mechanism of creative development, and to deny that right damages the public contract provided by patent law.

(upholding a contract *after* performing preemption analysis and finding "[e]nforcement of this royalty agreement is even less offensive to patent policies than state law protecting trade secrets."). See generally *Selby v. New Line Cinema Corp.*, 96 F. Supp. 2d 1053 (2000) (holding, after conducting the preemption analysis, that a cause of action for breach of an implied-in-fact contract is preempted by the Copyright Act); *Ballas v. Tedesco*, 41 F. Supp. 2d 531 (1999) (holding that plaintiff's attempt to describe copyright case as merely a breach of contract case was disingenuous at best, after completing an exhaustive review of both sides of the *ProCD* argument); *Endemol Entm't, B.V. v. Twentieth Television, Inc.*, No. CV 98-0608, ABC, 1998 U.S. Dist. LEXIS 19049 (C.D. Cal. Sept. 29, 1998) (holding that plaintiff's breach of implied contract claim was preempted because it did not assert any additional rights beyond copyright).

143. It is important to note that inventions protected by trade secret fall into three categories: (1) those that are clearly not patentable, (2) those for which patentability is unclear, and (3) those that are clearly patentable. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 482-91 (1973).

144. For a discussion of this right, see *Bonito Boats, Inc. v. Thunder Craft Boats*, 489 U.S. 141, 160 (1989); *Kewanee*, 416 U.S. at 490.

145. *Lear, Inc. v. Adkins*, 395 U.S. 653, 656 (1969).

146. *Bonito Boats*, 489 U.S. at 160.

147. *Id.* at 161.

The Economics of Patent Law Support Public Dissemination

In general, patent law exchanges public disclosure of inventions for a grant of a limited right to exclude.¹⁴⁸ Absent this public disclosure, the value of technological advances to the public is diminished. For this reason, patent protection is much stronger than trade secret protection, and reverse engineering of trade secrets is not only protected, but encouraged. As a result, attempts to prevent trade secret discovery through proper means such as reverse engineering run counter to the economic policy behind the patent law.

Four general economic theories have been proposed concerning the economic value of patent rights.¹⁴⁹ These theories have received differing levels of treatment within the community, and may be summarized as:

1. The anticipation of patents provides motivation for useful invention.
2. Patents induce inventors to "disclose" their inventions when otherwise they would rely on secrecy, and in this and other ways facilitate wide knowledge about and use of inventions.
3. Patents on inventions induce the needed investments to develop and commercialize them.
4. Patents enable the orderly exploration of broad prospects.¹⁵⁰

148. The benefit to society is dissemination to the public at large of the elements of the invention in the hope that such dissemination will encourage additional development of the technology in all fields to which it may apply. These additional developments could then conceivably obtain patent protection and continue the cycle. In technology development, the initial creative leap often provides the basis for development of completely new facets of technology for decades to come. For example, the discovery of penicillin has created a tremendous market for novel and stronger antibiotics. Oddly enough, the use of those antibiotics seems to be perpetuating the need for additional development. *See generally New H.I.V. Strains Resist AIDS Drug*, N.Y. TIMES, Jan. 1, 1993, at A18 (discussing that resistance develops as drugs eliminate the susceptible strains of a bacteria and new infections arise that do not respond to the drugs).

149. Roberto Mazzoleni & Richard R. Nelson, *Economic Theories about the Benefits and Costs of Patents*, 32 J. ECON. ISSUES 1031 (1998).

150. *See id.* at 1033. The authors debate each of the theories and point to holes in each in the context of specific assumptions made by the authors. Due to problems within these assumptions, lending credence to their discussion is difficult. For example, they assume that a race to invent is mainly duplication and waste, but they fail to address the fact that competition can foster decreased public cost. *Id.* at 1036-37. The flaw of the assumption is

The second theory referred to above directly conflicts with attempts to prohibit reverse engineering of trade secrets. By attempting to prevent disclosure of the trade secrets in an invention, shrink-wrap licenses serve to stifle additional creative development of these ideas. This prevention ultimately dampens the potential for economic growth based upon the development by others of novel ideas that build upon the trade secret.¹⁵¹

An argument that supporters offer to justify prevention of reverse engineering is that the balance struck by Congress is not viable for software and thus software should be treated differently.¹⁵² This argument, however, can be reversed. If patent protection is useless for software because the value of software is so front loaded that the twenty-year term is meaningless, then the time it takes to reverse engineer and redevelop would also prove less valuable than the head start offered by the initial product. Thus, to reverse engineer such a product would be economically inefficient, and such reverse engineering would not occur unless the reverse engineer had

that two companies racing to patent competing ideas would not both receive protection. Though this may be the case occasionally, the author of this Note has observed that even when pursuing competing ideas, the eventual inventions may both be patentable and thus protectable. This idea can be expressed through the common wisdom that there is "more than one way to skin a cat." Once both inventions reach the market, competition will further benefit society by keeping the prices down. Though each company may not reap the profits it would have without competition, this is the balance struck by the length of the patent term as determined by Congress.

151. The disclosure theory becomes increasingly valuable to society when one assumes that the inventor cannot exploit all of the possible uses of the invention. *Id.* at 1039. Again, the author's experience in the pharmaceutical industry reveals that this lack of ability to exploit is often the case. The creative process often results in multiple uses for a technology not considered or developed by the original inventor. This idea can lead to "buccaneering" of inventions to find routes around competitors' intellectual property. It is legal to find routes around the inventions of others as long as infringement is avoided. Again, assuming the balance struck by Congress with regard to the patent term is met, this is economically efficient. ("Buccaneering" is used to distinguish from bad faith connotations associated with piracy. Buccaneers were legally sanctioned pirates. See MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 148 (10th ed. 1993)).

152. Peter S. Menell, *Tayloring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329, 1347-51 (1987); Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs* 94 COLUM. L. REV. 2308, 2344-47 (1994). See generally Anthony J. Mahajan, Note, *Intellectual Property, Contracts, and Reverse Engineering After ProCD: A Proposed Compromise for Computer Software*, 67 FORDHAM L. REV. 3297, 3331-35 (1999) (offering a compromise between absolute preemption and no preemption that would establish a limited right to protection for a shorter period of time than a patent, based on the purported economics of software development).

enough value to add to the existing technology to make the work cost effective.

Finally, the economic value of strong intellectual property rights may most easily be viewed by looking at the impact of the TRIPs agreement in developing countries. Though it is still early to make any definitive conclusions, research into a cure for malaria has increased since those countries affected by the disease introduced strong intellectual property rights.¹⁵³ Given that there is no indication that the science has become any "easier," the conclusion that intellectual property rights played a role is difficult to avoid.¹⁵⁴ Additionally, economists have asserted that "international trade in ideas is a major factor in world growth."¹⁵⁵ These economists believe that disclosure and protection help drive the global economy because "the world is not far from one in which all [] countries tap a common pool of knowledge, with a country's relative productivity depending on its ability to absorb that knowledge into its domestic technology."¹⁵⁶ Establishing exclusive property rights serves the dual purpose of protecting patentees and promoting the diffusion of information and technology.¹⁵⁷ Lack of patent rights, therefore, would have a negative effect on encouraging competition and technological innovation.¹⁵⁸ The value of a strong patent system thus derives, in part, from the disclosure of information and the development that such revelation fosters. As a result, attempts to circumvent such a system by preventing valid discovery of information should be discouraged.

153. Jean O. Lanjouw & Iain Cockburn, *Do Patents Matter? Empirical Evidence After GATT 29* (January 2000) (Working Paper 7495, on file with the National Bureau of Economic Research), available at <http://www.nber.org/papers/w7495.pdf>.

154. *Id.*

155. Jonathan Eaton & Samuel Kortum, *Trade in Ideas: Patenting and Productivity in the OECD 1* (May 1997) (Working paper 5049, on file with the National Bureau of Economic Research), available at <http://www.nber.org/papers/w5049>.

156. *Id.* at 23.

157. *See id.* at 2-3.

158. Naomi R. Lamoreaux & Kenneth L. Sokoloff, *Inventors, Firms, and the Market for Technology: U.S. Manufacturing in the late Nineteenth and Early Twentieth Centuries* (April 1997) (Historical Paper 98, on file with the National Bureau of Economic Research), available at <http://www.nber.org/papers/H0098>.

Dangers of the Slippery Slope

A final consideration regarding the prohibitions against reverse engineering in shrink-wrap licenses is the potential harm to the intellectual development of the country that would result from additional industry entry into the shrink-wrap license world. Assuming *arguendo* that courts uphold shrink-wrap licenses and that prohibitions against reverse engineering are enforceable, there is reason to suspect that other industries will opt to use such licenses to protect their inventions or innovations. The effect of such clauses would be to extend intellectual property protection indefinitely for inventions and to establish the potential for real monopolies.

It is true that some inventions would eventually be duplicated by other inventors, but shrink-wrap contracts could theoretically then be modified to prevent this activity as well. For example, in addition to prohibiting reverse engineering, a shrink-wrap contract could include a clause stating, "by accepting this shrink-wrap license the purchaser agrees not to pursue research or development in X field or similar fields." Under *ProCD*, as long as the contract could be deemed a private ordering contract, such a clause would be enforceable.

Such a slippery slope would rapidly expand to include many industries. Pharmaceutical companies would prevent disclosure of their drug developments, beyond the fact that "X" tradename drug works to prevent or cure "Y" health problem. Such companies have already complained and fought the generic drug companies tooth and nail because of the tremendous profits that they wish to continue earning from their patents.¹⁵⁹ Extending such monopoly-like rights beyond the current patent length would result in companies suppressing improvements to their existing products

159. See, e.g., *Schering-Plough Political Money Pushes Claritin Patent Extension and Distorts GAO Report: FDA was Justified in Delaying Approval for Claritin*, PUB. CITIZEN, Aug. 31, 2000, available at <http://www.citizen.org/press/pr-drugs26.htm>; *Columbia University Patent Extension Would Cost Consumers, Open Floodgates for More Special Deals: Groups Urge Senators to Remove Rider Added Secretly to Appropriations Bill*, PUB. CITIZEN, May 26, 2000, available at <http://www.citizen.org/press/pr-drugs20.htm>; *Lilly to Receive Six Additional Months of Prozac Market Exclusivity*, LILLY NEWSROOM, Nov. 15, 2000, at <http://newsroom.lilly.com/news/story.cfm>.

until they have maximized their return from the old products or another company independently invents the first products.¹⁶⁰

Additionally, collaborative efforts between companies would drastically decline. Companies would hoard their inventive ideas in order to maximize the derivative products that they can make by keeping the underlying technology secret. The possibilities are endless. For example, imagine agreeing to a shrink-wrap clause before buying a car, and then being gouged every time the oil needs changing because it can be serviced *only* at the dealer to avoid reverse-engineering problems.

It is true that the slippery slope analysis could be carried to the absurd, and that market factors would probably play a role in encouraging some competition, but those same market factors would also encourage company agreements not to compete in different fields. Additionally, the small business would become nonexistent as it tried to exploit its intellectual property because even if it sought patent protection, other companies would better maximize their profits by extending their intellectual property protection beyond the length of the patent period. This extension requires political and financial resources unavailable to smaller companies.¹⁶¹

In order to avoid these problems, it is important to establish that reverse engineering of publicly sold products is legal, despite any shrink-wrap provisions. The policies of patent law and preemption doctrines combine to invalidate shrink-wrap clauses restricting reverse engineering.¹⁶² Economic policy demands strong intellectual property protection, yet fundamental to this protection is disclosure of the information to the public in exchange for a limited monopoly-like right.¹⁶³ Shrink-wrap provisions that attempt to conceal valid discovery of trade secrets thus should be nullified uniformly. Otherwise, the slope will start to develop, inertia may take over, and the results could be catastrophic.

160. Obviously, this assumes that there is no moral or ethical obligation associated with the release of such compounds.

161. See *Schering-Plough*, *supra* note 159.

162. See *supra* notes 136-47 and accompanying text.

163. See *supra* notes 148-58 and accompanying text.

CONCLUSION

The ban on reverse engineering contained in shrink-wrap licenses is an attempt to extend trade secret protection of ideas beyond the boundaries of patent law set by Congress and the courts. Such clauses directly conflict with the policy and intent of Congress to provide intellectual property protection in the form of patents and are therefore preempted by federal patent laws. Furthermore, national and international economic policy supports strong intellectual property rights when coupled with disclosure of the inventions. Given that reverse-engineering prohibitions attempt to prevent such disclosure, they run counter to valid economic policy and theory, creating another reason why such bans should not be upheld. Finally, because of the potential impact of reverse-engineering prohibitions in other industries above and beyond the software-industry, such clauses should be affirmatively rejected by the legal system of the United States whenever enforcement is sought.

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