

THE SECRET IS OUT: PATENT LAW PREEMPTS MASS MARKET LICENSE
TERMS BARRING REVERSE ENGINEERING FOR INTEROPERABILITY
PURPOSES

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I. INTRODUCTION

Have you ever wondered why there are a limited number of products that can work with Apple iTunes? For example, might you like to have more options on what cell phones are compatible with iTunes or possibly buy something other than an iPod for downloading music from iTunes?

One potential obstacle to such a world arguably is Apple's attempt to use contract law to prevent competitors from reverse engineering (RE) Apple's software to discover and use the information that is needed for developing a product which can interoperate with the iTunes platform ("interoperability information" or IO). Section two of the iTunes license provides: "Except as and only to the extent expressly permitted in this License or by applicable law, you may not copy, decompile, reverse engineer, disassem-

ble, modify, or create derivative works of the Apple Software or any part thereof.”¹

The question arises whenever a technology provider such as Apple relies on contract law to maintain a closed system, whether it be for game,² music,³ instant messaging,⁴ personal computer, or general telecommunications software.⁵ Should the original technology provider be able to maintain a closed business model through the use of a contract term⁶ that prohibits other participants from RE products to learn the interfaces and protocols necessary to interoperate with the platform or utilize a file format? Consumers may benefit from (1) alternative products which can work with a preexisting platform, such as additional games or applications which can run on a closed platform (e.g., having a choice of whether to buy an iPod or some other device that can interoperate with the iTunes platform), (2) the ability to use existing games, other applications software, or formatted data on an additional platform, or (3) extended functionality of an existing data

¹Apple Computer, Inc. iTunes Software License Agreement (2006), <http://images.apple.com/legal/sla/itunes.pdf>.

²See generally Davidson & Assocs. v. Jung, 422 F.3d 630 (8th Cir. 2005), *infra* Part III.D.

³See, e.g., Real Network’s attempt to introduce software compatible with Apple iTunes, Jefferson Graham, *Apple Lashes Real Network’s Music Move*, USA Today.com, July 29, 2004, http://usatoday.com/tech/news/2004-07-29-apple_x.htm (last visited Oct. 13, 2006); see also *infra* Part V.C.

⁴Consider, for example, the closed world of AOL instant messaging. Wouldn’t it be great if you could share buddy lists and communicate amongst AOL, Yahoo, and MSN instant messaging programs? Alas, arguably one obstacle to such a world is AOL’s reliance on a contract term prohibiting RE to prevent others from discovery and use of the IO needed to make this a reality. See Alexandra Krasne, *A Truce in the Instant-Messaging Wars?* (Aug. 24, 1999), available at <http://www.cnn.com/TECH/computing/9908/24/truce.idg/> (stating that “AOL accused Microsoft of illegally hacking into its AOL Instant Messenger system to ensure interoperability”).

⁵See generally Alcatel USA, Inc. v. DGI Techs., Inc., 166 F.3d 772 (5th Cir. 1999), *infra* Part IV.A.

⁶The Computer Fraud and Abuse Act of 1986, 18 U.S.C. § 1030 (2000 & Supp. 2004), may provide yet another means in the network environment for a closed technologist to attempt to enforce a closed technology model. Discussion of this statute is beyond the scope of this paper but will be discussed in a forthcoming article. However, arguably courts should construe that statute to be consistent with patent and trade secret laws and policies discussed in this Article to avoid arguable § 1030 claims. It is interesting to note that Congress did consider this in enacting § 1201 of the Digital Millennium Copyright Act of 1998, 17 U.S.C. § 1201 (2000), and did not require compliance with that act to be able to reverse engineer for IO purposes under § 1201(f)(1)–(2). See generally *infra* Part IV.B.

format or communication protocols.⁷ Competitors may benefit from being able to develop and market products that interoperate with the original technology. The question is whether these interests should outweigh the interests of the original technology provider.⁸

Courts increasingly are enforcing RE terms such as Apple's as a matter of contract law, notwithstanding arguments of copyright preemption.⁹ Recently, the Eighth and Federal Circuits, applying California and Massachusetts law, have enforced mass market license terms which preclude RE, and the Seventh Circuit decision in *ProCD, Inc. v. Zeidenberg*¹⁰ may be interpreted to preclude discovery and use of IO to develop an independent interoperable program.¹¹ The net result is that a closed technologist may forego a limited patent term in favor of state contract law as an effective instrument to foreclose discovery and use of IO.

This Article posits that a non-negotiated mass market license term should be unenforceable to the extent it is interpreted to bar RE of IO and thereby creates patent-like rights to IO under the guise of state contract law.¹² Two distinct but related rules require invalidation of such a license term: (1) patent preemption and (2) the public policy exception to contract enforcement.¹³ The same reason lies at the heart of application of both rules: the fundamental right to reverse engineer a publicly available product is subverted by such non-negotiated clauses, and Congress and the courts have consistently affirmed the importance of interoperability in the com-

⁷ See generally *Davidson*, 422 F.3d 630, *infra* Part III.D; *DVD Copy Control Ass'n v. Bunner*, 75 P.3d 1 (Cal. 2003), *infra* Part III.C.

⁸ Academics have studied this question and deemed IO to be of paramount interest. See generally Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575 (2002) (providing overview of the topic). In addition, antitrust law has required compulsory licensing of IO. See, e.g., *United States v. Microsoft Corp.*, Civil Action 98-1232 (CKK), 2002 U.S. Dist. LEXIS 22864, at *10 (D.D.C. Nov. 12, 2002).

⁹ See *infra* Part III.D. Interestingly, it is typically when fundamental interests are foreclosed by a mass market license, such as access to judicial redress, that courts have found ways to avoid enforcement. See, e.g., *Specht v. Netscape Commc'ns Corp.*, 306 F.3d 17, 31-32 (2d Cir. 2002). As discussed in this article, fundamental patent, copyright, and trade secret policies are implicated by a mass market license term which bars RE to discover IO. See *infra* Parts III, IV, V.

¹⁰ See generally 86 F.3d 1447 (7th Cir. 1996); see, e.g., *Davidson & Assocs. v. Internet Gateway*, 334 F. Supp. 2d 1164, 1177 (E.D. Mo. 2004), *aff'd*, 422 F.3d 630 (8th Cir. 2005); *Bowers v. Baystate Techs., Inc.*, 320 F.3d 1317, 1325-27 (Fed. Cir. 2003).

¹¹ See *infra* Part III.D.

¹² See *infra* Parts II.C, V.A.

¹³ *Id.*

puter and telecommunications industries and the centrality of patent law in the area of protection of functional IO.¹⁴

This Article also suggests why courts and commentators mistakenly have focused on copyright and contract law, rather than patent and trade secret law (and the interplay among all four sources of law), in considering this issue. In sum, the enforceability debate arose at a time when contract, trade secrets, and copyright were the primary theories for protection of software and serious doubt existed about the viability of patent law.¹⁵ Now that patent is becoming an increasingly central form of legal protection of software,¹⁶ it is critical to consider enforceability from the lens of the balance the Supreme Court has adopted on the appropriate role for state regulation of functional information such as IO (patentable subject matter) without impermissibly clashing with patent law.

Viewed from this perspective, an analysis of Supreme Court decisions on patent preemption of state trade secret and other IP laws strongly supports preemption of mass market terms that prohibit RE solely for purposes of discovery and use of IO to develop an independent interoperable product.¹⁷ This conclusion is based on two assertions. First, the effect of enforcement of such terms is the creation of a form of state IP protection which may be stronger, not weaker, than patent law.¹⁸ Second, enforcement of such contract terms alters the delicate balance between federal and state regulation of discovery and use of compatibility information.¹⁹ It is precisely such regulatory competition concerning IP that the Supreme Court has consistently rejected by applying patent preemption.²⁰

¹⁴ *Id.*

¹⁵ Arguably for that reason, there has been scant analysis of the issue by careful study of patent and trade secret law. Ironically, there was early discussion generally of patent preemption. See, e.g., Steven W. Lundberg & John P. Sumner, *Patent Preemption of Shrink-Wrap Prohibitions on Reverse Engineering*, COMPUTER LAW., Apr. 1987, at 9; Charles R. McManis, *Intellectual Property Protection and Reverse Engineering of Computer Programs in the United States and the European Community*, 8 HIGH TECH. L.J. 25, 91-99, 94 n.339 (1993) (none of these authors focused on the five-factor test suggested in this Article); see also *infra* note 125 and Part III.C.

¹⁶ Bradford L. Smith & Susan O. Mann, *Innovation and Intellectual Property Protection in the Software Industry: An Emerging Role for Patents?*, 71 U. CHI. L. REV. 241, 242 (2004).

¹⁷ See *infra* Part III.C.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

Courts have also not been presented with detailed analysis of the inherent tension between enforcing a non-negotiated mass market license prohibition on RE and the fundamental policy of trade secret law (founded on the importance of encouraging rather than stifling competition in the marketplace) that it is lawful for a party to RE a publicly available product. Properly presented, there is a compelling case that the basic contract principle that terms contrary to public policy are unenforceable should invalidate such a term solely to the extent that it prevents discovery and use of the information necessary for a developer to make an independent interoperable.²¹ This Article posits a way for courts to overcome the patent preemption risk by careful consideration of patent, copyright, and trade secret law to appropriately interpret or, when necessary, invalidate, as a matter of state contract public policy analysis, contract terms restricting RE for purposes of interoperability. Thus, by use of the tools of contract interpretation, public policy, or patent preemption (solely as a last resort), courts should hold that a mass market license restriction cannot prevent RE software solely for purposes of discovery and use of IO.

Ironically, if courts do not undertake such an analysis, the result is to invite IO developers to outsource such activities to one of the increasing number of key jurisdictions where interoperability policy outweighs contract enforcement. That would frustrate, rather than further, the underlying purpose of the Intellectual Property Clause of the Constitution to foster within the United States “the introduction of new products and processes of manufacture into the economy, and the emanations by way of increased employment and better lives for our citizens.”²²

II. BACKGROUND

A. *Evolution of Legal Protection and Distribution of Software to License As Part of the Software*

A brief review of the evolution of the legal protection of software and related changes in the method for distributing software is critical to analyzing a non-negotiated mass market license restriction on RE for purposes of developing an interoperable product.

Ever since software gained prominence in the marketplace, debates have raged over the proper legal bases for protection. Early on, doubt existed

²¹ See *infra* Part V.A.

²² *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 480 (1974).

about both copyright and patent protection.²³ As such, software creators have relied on contract law and trade secret law heavily to protect their efforts.²⁴

In the mid-twentieth century, software was but a part of a large, multifaceted transaction subject to an individually negotiated written contract which was physically separate from the mainframe computer in which the software inhered.²⁵ Initially doubts existed about copyright and patent protection, so contract and trade secret were the only firm anchors for protection.²⁶ In 2006, software is now often distributed electronically and regardless of whether it is distributed in a tangible medium or not, the license is a part of the software code and that code may be protected by contract, trade secret, copyright, and patent law.²⁷

The first phase of software distribution was the mainframe computer world of IBM and a few others.²⁸ Starting in the middle of the twentieth century, IBM led the way in selling integrated computing packages to large customers.²⁹ The package included a mainframe computer, software and a service agreement by IBM to maintain and repair the hardware and incidental software.³⁰ The contract for this often multi-million dollar transaction was physically separate but all important.³¹ The contract was often pamphlet-like in size and was individually negotiated between IBM and a single customer.³² This multi-sheet contract included a license to the software.³³

²³ See generally Smith & Mann, *supra* note 16 (outlining phases in the legal protection of software).

²⁴ See *id.* at 243; see also Mark A. Lemley, *Intellectual Property and Shrinkwrap Licenses*, 68 S. CAL. L. REV. 1239, 1242–44 (1995).

²⁵ See Smith & Mann, *supra* note 16, at 242.

²⁶ See *id.* at 243–44.

²⁷ In addition, the Computer Fraud and Abuse Act of 1986, 18 U.S.C. § 1030 (2000 & Supp. IV 2004), has potential as a very broad form of protection for any information (whether protectable by IP or not) for any software or data solely available on a computer—clearly an increasingly central method by which software is made available. This Act will be discussed as part of a forthcoming article generally on limits to access and use of information in the digital network environment (working title, “The Sleeping Giant of Data Protection Awakens: The Computer Fraud and Abuse Act”).

²⁸ See generally Smith & Mann, *supra* note 16, at 243–47.

²⁹ *Id.* at 243–44.

³⁰ *Id.*

³¹ See *infra* Part V.A.

³² *Id.*

These sheets of paper were physically separate from the hardware in which the software resided.³⁴ In this phase the model was often sale of the computer hardware (in which the software inhered) and license of the IP rights in the software.³⁵ The software was included in the hardware and was distributed in machine readable (binary code) form.³⁶ One term in the contract prohibited RE of the software. Since only individually negotiated contracts were involved, there was no question about the enforceability of such a term because it solely affected the party who negotiated the term, and did not affect the right of the public at large. Initially, only contract and trade secret law unquestionably protected the software.³⁷

Commencing in the 1970s, the second phase³⁸ of distribution occurred with the advent of the personal computer and disaggregation of the distribution of software from hardware.³⁹ It was at this juncture that paper contracts solely governing license of the software gained significance.

During this period, the key legal debate was whether copyright or some *sui generis* form of protection or patent law should be available to protect

³³ See Steven A. Heath, *Contracts, Copyright, and Confusion Revisiting the Enforceability of 'Shrinkwrap' Licenses*, 5 CHI-KENT J. INTELLECTUAL PROP. 12, 13–17 (2005).

³⁴ *Id.*

³⁵ *Id.*

³⁶ See Smith & Mann, *supra* note 16, at 248.

³⁷ *Id.* at 243–44.

³⁸ See *id.* at 244–45.

³⁹ This disaggregation forced the debate about respect for and remuneration for the software itself. See William Henry Gates III, General Partner, Micro-Soft, An Open Letter to Hobbyists (Feb. 3, 1976), <http://www.blinkenlights.com/classiccmp/gateswhine.html> (Bill Gates pled with people using (i.e., copying) Micro-Soft's software to pay for such copies, rather than "stealing" it, or else risk the development of software for the emerging "hobbyist" market for the emerging PC. Thus, he asked, "Will quality software be written for the hobby market?"). Had users not ultimately responded to this model change, the software industry as we know it would not exist. Ironically, we are returning to this issue once again with the rise of the Open Source Movement. See *infra* note 45. Interestingly, there are some analogies between the free riders of software in the 1970s and the free riders of music using file sharing technology at the turn of the Twenty-First Century. Arguably, in the case of music use by file sharing, the combined effects of new business models such as Apple iTunes and the Supreme Court decision in *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.* are arguably leading to a whole new industry. See generally 545 U.S. 913 (2005). Ironically, how competitive this new field will be may be affected by whether courts consider the approach suggested in this Article. See *infra* Part V.C.

software.⁴⁰ Some of the concerns raised were that software is functional and accordingly did not fit well under copyright law.⁴¹ Nonetheless, ever since the 1960s, software has been copyrightable.⁴² In the decades since that time, the courts have addressed questions about the scope of protection that copyright affords to software, particularly with an eye to ensuring that functionality was not monopolized under the guise of copyright.⁴³

The third phase unfolded in the 1980s with mass market adoption of the PC and the resulting flood of separate software available for use. At this time, doubt remained about whether software was patentable.⁴⁴ The PC revolution unleashed a new distribution model for software—the shrink wrap license (or “mass market” license or contract).⁴⁵ The distribution model involved the vendor making a copy of the software code onto a diskette, and then placing the diskette in a box along with a sheet of paper listing the license terms.⁴⁶ The box was closed and shrink-wrapped in cellophane.⁴⁷ Early on, there was often no indication on the box informing consumers what type of transaction was involved, but over time software vendors began including standard language on the box to notify the “purchaser” (a misnomer unless viewed as purchaser of a license) that a license was enclosed.⁴⁸ That contract provided that the storage medium was not in fact sold, but rather licensed to the user, along with a license of the IP rights

⁴⁰This debate culminated in the NAT'L COMM'N ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT (Library of Congress 1979), [hereinafter CONTU REPORT]. See generally Lemley, *supra* note 24.

⁴¹See CONTU REPORT, *supra* note 40, at 66–69 (concurring opinion of Commissioner Melville Nimmer suggests that “copyright law might be stretched to the breaking point if applied to software” (quoting Robert W. Gomulkiewicz, *Legal Protection for Software: Still a Work in Progress*, 8 TEX. WESLEYAN L. REV. 445, 447 n.6 (2002)); see generally Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form*, 1984 DUKE L.J. 663 (1984) (outlining concerns raised by dissenting CONTU Commissioner John Hershey who argued that copyright should not “extend to a computer program in the form in which it is capable of being used to control computer programs”)).

⁴²See Smith & Mann, *supra* note 16, at 243.

⁴³See generally *Computer Assocs. Int'l Inc. v. Altai Inc.*, 23 U.S.P.Q.2d 1241 (2d Cir. 1992), *superceded on rehearing* by 982 F.2d 693 (2d Cir. 1992); see *infra* Part IV.A.

⁴⁴See Smith & Mann, *supra* note 16, at 244 n.7, 253.

⁴⁵See Heath, *supra* note 33, at 13–17.

⁴⁶*Id.*

⁴⁷*Id.*

⁴⁸*Id.*

(typically copyright, now potentially patent) to use the program.⁴⁹ In addition, the program was distributed in machine readable object code to preserve trade secrecy of the source code.⁵⁰

This new distribution model had three key attributes which were founded in contract law: (1) to license (not sell) a tangible storage medium,⁵¹ (2) to distribute code in machine readable binary code (and thus preserve trade secrecy in the source code), and (3) to license the intangible IP (typically copyright, now potentially patents too) which inhered in the storage medium (the *copy license/binary distribution/IP license* model).⁵² By virtue of this *copy license/binary distribution/IP license* model, software makers sought to rely on contract to avoid the limitations imposed by the law from the sale of a particular article in which IP rights inhere.⁵³ The net effect of this *copy license/binary distribution/IP license* model has been to enable the software “vendor” (an interesting misnomer) to rely on contract (coupled with any other IP rights in software) to maintain greater control over the software than permissible solely by copyright law, patent law, or trade secret law where an article is actually sold, rather than merely leased or licensed.⁵⁴

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ It is this issue which has led to the enormous debate over whether the copy of the software whose possession is transferred under a mass market software license involves a sale of goods or a license of a copy. See Lemley, *supra* note 24, at 1244 n.23 (describing the debate over the “fictional” status of a shrinkwrap license and including authorities finding that the transaction involved a sale of goods); see also Heath, *supra* note 33, at 20–22 (discussing recent cases on the “elusive nature of the software license”).

⁵² See Heath, *supra* note 33, at 13–17.

⁵³ See Lemley, *supra* note 24 at 1244–45. The author states:

Software vendors needed proof that they were not in fact disclosing their trade secrets by selling copies to whomever wanted them. To provide such proof, they created the legal fiction that they were really licensing rather than selling their software. Because the “license” contained provisions that required customers to keep the software confidential, the trade secrets contained therein could be protected.

Id.

⁵⁴ Interestingly, the use of a distribution model in which the technologists seek to avoid a sale is not unique to software. Professor Sean O’Connor has noted that AT&T used this model in leasing, rather than selling, telephones to customers of the AT&T service. It was not until the antitrust settlement with the U.S. government that the consumer was provided the option of actually purchasing the phone. See generally *U.S. v. Am. Tel. & Tel. Co.*, 552 F. Supp. 131 (D.D.C. 1982). In addition, with the 1990 amendment of the Copyright Act to include a rental right which at-

As the software industry evolved in the 1980s, contract law thus was critical to enable software makers to reap a return for their research, development, and marketing efforts, particularly in an era of uncertainty about the scope of copyright protection and serious doubt about the existence of any patent protection.⁵⁵ One key term in the typical mass market license, both then and now, is a prohibition on RE, such as disassembling or decompiling the machine readable code to discover the trade secret source code for the program, which can include information necessary to develop a program that can be compatible or interoperate with the software.⁵⁶ In essence, software makers have used contract law as a means to protect the valuable trade secrets which inhere in a program.

With the widespread adoption by the software industry of mass market licenses in the 1980s, a debate ensued about the enforceability of this new form of licensing and distribution model.⁵⁷ At the time courts first began to address this issue, uncertainty remained about patent protection for software but that doubt had already been resolved for copyright.⁵⁸ Consequently, it is not surprising that a key argument presented to courts beyond basic contract principles (such as assent, adhesion, and unconscionability) was whether certain aspects of mass market licenses are preempted by copyright law.⁵⁹

The fourth phase occurred in the 1990s when the license became part of the software code.⁶⁰ Software vendors began to include the license as part

taches to software, the mere fact that software is sold does not extinguish all rights to control distribution of a copy. *See infra* Part II.A. This helps to focus the key issue on protection of the secret information (not copyrightable expression) which inheres in the code.

⁵⁵ *See, e.g.,* Smith & Mann, *supra* note 16, at 241 (noting the “important impact [of IP laws] on the software industry’s success”).

⁵⁶ *See* Heath, *supra* note 33, at 13–17.

⁵⁷ *See* Lemley, *supra* note 24, at 1263 n.107 (listing commentators arguing that shrink-wrap licenses were unenforceable); *see also* Robert W. Gomulkiewicz, *Getting Serious About User-Friendly Mass Market Licensing for Software*, 12 GEO. MASON L. REV. 687, 687–88 nn.3–5 (2004) (summarizing the debate and some of the participants).

⁵⁸ *See* Heath, *supra* note 33, at 14.

⁵⁹ *Id.* at 17.

⁶⁰ Another significant development which emerged in the 1990s (and which is now reverberating through the industry) was the open source movement. *See, e.g.,* Smith & Mann, *supra* note 16, 255 n.63. Under this approach, source code is published and distributed—as such the software developer foregoes any trade secret rights in the software. *Id.* at 247. Interestingly, the “copyleft” part of this movement in fact is critically dependent upon license terms in an effort to circumscribe the right of licensees from asserting copyright and patent rights. As such the copyleft Gen-

of the software code in addition to placing a printed copy of the license in the box. Vendors coded programs so that a user first had to read and agree to the terms of the license before any access to the program was permissible. This phase is significant because it resulted in a practical impossibility for a person to acquire a copy of the software separate from the license lawfully.

The debate over enforceability continued in the 1990s but courts increasingly ruled that mass market licenses were generally enforceable.⁶¹ In addition, it became clear that patent law protected software inventions.⁶² Congress also amended the Copyright Act in 1990 to extend the distribution right for copyright owners of general purpose software to include rental and leasing of copies, notwithstanding any sale of those particular copies.⁶³

The fifth phase is currently occurring: the transition from tangible distribution to software solely available electronically via the internet. Electronic availability⁶⁴ simply reinforces what occurred at the fourth phase—the license is solely the code. It is made abundantly clear by the fact that there is no sheet of paper anymore, unless the end user decides (perhaps at

eral Public License presents issues of potential misuse of copyright and patent which are beyond the scope of this article, but it is yet another example where it is critical to scrutinize whether a license is being used in a fashion consistent with all areas of IP law.

⁶¹ See Gomulkiewicz, *supra* note 57, at 688 n.7.

⁶² See Smith & Mann, *supra* note 16, at 242 (noting that “patent protection may emerge as a critical form of IP protection for software”).

⁶³ Computer Software Rental Amendments Act of 1990, title VIII of the Judicial Improvements Act of 1990, Pub. L. No. 101-650, 104 Stat 5089, 5134 (1990). One final largely unnoticed development was the 1996 amendment of the Computer Fraud and Abuse Act to cover “any protected computer” used in interstate or foreign commerce. 18 U.S.C. § 1030(a)(2)(c) (2000). The massive ramifications of this statute on the protection of information (regardless of its copyrightability or patentability) have just begun to unfold in a world where data is increasingly available primarily by a computer server accessible via the internet. See generally Register.com, Inc. v. Verio, Inc., 126 F. Supp. 2d 238 (S.D.N.Y. 2000), *aff’d*, 356 F.3d 393 (2d Cir. 2004). See also *supra* note 27.

⁶⁴ “Availability” is used because different models have emerged for software: electronic distribution and “software as service.” The latter may comport better with notions of enjoying a performance or display of some intellectual creation, rather than distribution of copies. The 1996 WIPO Copyright Treaty recognized that availability would be increasingly important when it established a right to make available a work under Article 8 (the “Right of Communication to the Public”) of the Treaty. World Intellectual Property Organization Copyright Treaty, art. 8, April 12, 1997, S. Treaty Doc. No. 105-17, 36 I.L.M. 65, available at http://www.wipo.int/treaties/en/ip/wct/pdf/trtdocs_wo033.pdf (last visited Oct. 6, 2006) [hereinafter WIPO Copyright Treaty].

the vendor's suggestion) to print a copy. This phase also has involved some transformation from distribution of software to providing a service of accessing software resident on a provider's server.

The last development in cementing the transformation of the license to code is Congress's enactment of §§ 1201 and 1202 of the Digital Millennium Copyright Act of 1998.⁶⁵ The purpose of these sections is to address electronic distribution of copyrighted works.⁶⁶ Section 1201 effectively prevents reverse engineering of a technological measure employed to protect a work.⁶⁷ Section 1202 makes it unlawful to separate the license from the copyrighted work. As such, the copyrighted work and license merge.⁶⁸

The distribution of software has evolved to the point that the license is now typically part of the copyrighted code and any attempt to separate the license from the rest of the code constitutes a violation of federal (and international) law.⁶⁹ The significance of this evolution is that in 2006 there may no longer be any practical way lawfully to obtain the code without the license terms. There are no strangers who may acquire software legally as a product in the marketplace free of a contractual term prohibiting RE.⁷⁰

This evolution to license as part of the software code is significant in light of the Supreme Court's test for determining whether state protection of IP is preempted by patent law. Although it is now clear that patent law can protect methods by which a computer program interoperates with other programs and hardware,⁷¹ there has been surprisingly little attention focused

⁶⁵ 17 U.S.C. §§ 1201–02 (2000).

⁶⁶ *Id.*

⁶⁷ *Id.* § 1201.

⁶⁸ *Id.* § 1202.

⁶⁹ WIPO Copyright Treaty, *supra* note 64, at art. 6; 17 U.S.C. § 1202.

⁷⁰ Of course, regardless of how one acquires an article in which copyright and patent rights inhere, the mere fact that no contract terms control or restrict use does not absolve the possessor of the article of any rights which might be asserted by a copyright or patent owner. *See, e.g., ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1454 (7th Cir. 1996) (holding “federal copyright laws of their own force would limit the finder’s ability to copy or transmit the application program”). The point of the text above is that due to the fact that the license is part of the code and one cannot access the code without first accessing the license, it is hard to see how one could attain a status equivalent of say a holder in due course who takes free of any prior claims to a negotiable instrument. My thanks to Professor Sean O’Connor for raising the analogy of the law of negotiable instruments. *See also infra* Part III.D.

⁷¹ *See, e.g.,* U.S. Patent No. 6,968,438 (filed Sept. 20, 2000) (issued Nov. 22, 2005); U.S. Patent No. 6,965,925 (filed Dec. 31, 1998) (issued Nov. 15, 2005) (stating in Background to Invention Section, “As telephony applications have become more numerous and complex, interop-

specifically on the barrier a mass market license restriction on RE places on the discovery and use of trade secret IO necessary to develop an interoperable program and the implications of enforcement of such terms on patent and trade secret law.⁷²

Due to the timing of legal developments and changes in the distribution model for software, two issues have not received adequate focus. First, since prohibiting RE has always been a contract term, minimal attention has been given to the implication of a mass market license term on the fundamental trade secret law principle of the freedom to RE a publicly available product. Second, since it is only recently that patent law has gained prominence in protecting software, scant attention has been given to the interplay between patent and contract law.

B. Reverse Engineering of Software⁷³

RE is nothing new. For centuries individuals have acquired competitors' products in the marketplace, disassembled them to understand how they worked, and copied them to build competitive products. Where no IP rights inhere in a particular product, the well-accepted principle is that any person can buy the product and thereafter RE it (i.e., disassemble and study the product) to copy features and build a competitive product.⁷⁴

In the computer industry context, RE may be undertaken for cloning purposes. A competitor may seek to RE a product in order to clone it. Here, the competitor simply wants to copy the product (including all its functionality and methods of operation) in its entirety. If an original developer elects to preserve the secrecy of source code information for software, then the ability to RE the software is extremely helpful to a competitor in understanding the method of operation and other details contained in the source code for the targeted program.⁷⁵ In this case, it is possible for the

erability problems have arisen.”); U.S. Patent No. 6,968,555 (filed Apr. 4, 2001) (issued Nov. 22, 2005) (describing multi-layer software architecture for hardware control as “[a] software system having a multi-layer architecture for controlling a hardware system”); *see also* Computer Assocs. Int'l Inc. v. Altai Inc., 23 U.S.P.Q.2d 1241, 1255 (2d Cir. 1992), *superceded on rehearing by* 982 F.2d 693 (1992).

⁷² *See infra* Parts II.F, III.C–D, IV.

⁷³ *See generally* Andrew Johnson-Laird, *Software Reverse Engineering in the Real World*, 19 U. DAYTON L. REV. 843 (1994) (often-cited article describing what is technically involved in RE software).

⁷⁴ *See infra* Part II.E.

⁷⁵ Although there is a growing movement under which all source-code information is pub-

competitor to compete with the original program without RE. However, RE reduces the research and development costs of the competitor because it can simply free ride on the prior research and development of the original party. Thus, the competitor has a choice—the easier road or the harder road.⁷⁶ The easier road is to RE the original software to copy/clone the product. The harder way is to learn the capabilities of the product from intelligent observation of the product in public use in the marketplace and study of published materials about the original product and thereafter undertake the necessary research and development costs and time to develop the competing program.

However, software, by its nature, presents a second RE scenario that cannot be adequately addressed through a cloning analysis. Software programs often benefit from working or interoperating with other programs.⁷⁷ Interoperation typically requires the ability to manage, store, or package data in a particular format defined by the original developer. This presents a challenge when the original developer of the interface or format has chosen a closed model in which information about the interface or format is not published (the “closed technologist”). For example, Apple has elected to keep the iTunes platform closed (as has AOL for its instant messaging) and does not publish the interface specifications needed for a competitor to develop a product to interoperate with iTunes. It is for this reason that a consumer who wishes to use iTunes must acquire an iPod, rather than some device of a third party.⁷⁸

In such cases, a developer that wishes to interoperate with the original program’s format or interface must undertake some degree of RE to understand information concerning the methods of operation and data formats that enable interoperability with the targeted program.⁷⁹ For purposes of

lished freely with the software, a very large segment of the computer software and hardware industry continues to elect a model of object code distribution which enables preservation of trade secrets which inhere in the code. *See, e.g.*, Why “Free Software” is better than “Open Source,” <http://www.gnu.org/philosophy/free-software-for-freedom.html> (last visited on Oct. 13, 2006).

⁷⁶ *See generally* Johnson-Laird, *supra* note 73.

⁷⁷ *See id.* at 852–56.

⁷⁸ To the extent that a party might have patents which read on the IO, the existence of the patent would require the disclosure of the IO. The question for the competitor would then squarely be whether the patentee agreed to license any such IO patents.

⁷⁹ *See* Johnson-Laird, *supra* note 73, at 852–56. The original technologist may elect to preserve trade secrets concerning the internal operation of its software, yet publish the information concerning the methods of operation by which a program interoperates and formats data. In such

this Article, such information that is necessary to develop an independent interoperable program is defined as “interoperability information” (IO). This definition is consistent with the approach to interoperability in federal, state, and European law.⁸⁰ It is this second RE scenario that is the subject of this Article.

C. *The Detection Paradox*

Courts may be asked to enforce restrictions on RE of software in a spectrum of circumstances. One significant ironic implication of broad interpretation of clauses restricting RE to include IO is the presence of a “detection paradox” under certain scenarios. The detection paradox can be seen by comparing the actions and purposes of two distinct types of actors in the marketplace: the “cloner” and the “IO developer”. Each reverse engineers software to discover secret information in a program. However, the scope of information sought to be discovered and the purpose of discovering that information is very different for the cloner than for the interoperability developer.

The cloner reverse engineers a competitor’s software program to study secrets throughout the original technologist’s program. As a result of this RE, the cloner then copies and uses various secrets in developing its product and free rides on the research and development time, cost, and effort of the original developer embodied in those secrets. The cloner’s product competes with the targeted software but does not interoperate.

The interoperability developer seeks to develop a program that will interoperate with the targeted program. RE is limited to discovery, study, and analysis of the targeted program’s IO. The information is used to develop an independent⁸¹ program which incorporates only such information as is necessary to interoperate with another program.⁸²

a case an interoperability developer can use that published IO to develop an interoperable product, and it would not be necessary for the developer to reverse engineer the original software.

⁸⁰ 17 U.S.C. § 1201(f) (2000) (*infra* Part IV.B); UNIF. COMPUTER INFO. TRANSACTIONS ACT § 118 (amended 2002), 7 U.C.A. 66 (Supp. 2006) [hereinafter UCITA] (*infra* note 362); Council Directive 91/250, art. 6, 1991 O.J. (L 122) 42 (EU) (*infra* note 400).

⁸¹ “Independent” as used herein means that the program does not infringe any copyrightable expression of the targeted program. However, “independent” does not mean that the program may not risk infringement of any patents which read on the “independent” program, including any relating to IO.

⁸² Note here that the “other” program may be either the targeted program or another program which interoperates with the reverse engineered program. *See generally* Sony Computer Entm’t,

Both products are introduced into the market. Which one is more likely to be detected by the targeted technologist as involving RE of secrets? The interoperable product. Its “interoperability” capability will be an immediate red flag to the original technologist in contrast to the cloner’s product which, though bearing similarities, has no red flag which raises the question of potential misappropriation of trade secrets.

One can only hypothesize about the marketplace prevalence of RE for cloning purposes.⁸³ The point is that it seems paradoxical to have a rule which is more likely to penalize the actor who is engaging in activity which is relatively more favored in the law (interoperability)⁸⁴ than the party solely free riding on the trade secrets of a competitor. Thus, it is unlikely that there will be an undetected leakage of IO trade secrets, whereas such trade secret leakage may occur without detection in the case of the cloner. This detection paradox is a factor relevant to patent preemption discussed in Part III.C.

D. Law and Economics Perspectives

Although there has been much debate, there is no firm conclusion from a law and economics perspective on whether RE of software for purposes of

Inc. v. Connectix Corp., 203 F. 3d 596 (9th Cir. 2000); Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1992).

⁸³It is worth noting that with the rise in the Open Source Movement, there arguably has developed a culture within that community of an entitlement of free access to source code even where protected by a contract prohibiting RE. James Gosling, the father of Java, has been quoted as saying:

In the past, what we’d have to do is reverse-engineering, and we had been getting into a pickle, because for open-source projects like Samba and OpenOffice, the only way to get the information was by reverse-engineering. Pretty much for all the countries in the world, reverse-engineering was a perfectly fine thing to do.

Brendon Chase, *Gosling Questions Sun-Microsoft Pact*, Feb. 4, 2005, http://news.com.com/Gosling+questions+Sun-Microsoft+pact/2100-1012_3-5562109.html (quoting James Gosling of Sun Microsystems). If that is the case and such RE occurs solely to learn secrets about proprietary programs unrelated to interoperability which is then used by the OSS community, there is a very real possibility of leakage of trade secrets that are unrelated to IO. This is very significant in light of the *Kewanee* assumption of “weakness” of state trade secret law vis-à-vis federal patent protection. See *infra* Part III.C. In passing it is interesting to note the parallel of free riding in the OSS movement and the free riders of copyrighted music and sound recordings by use of file sharing technology. See *supra* note 39.

⁸⁴See *infra* Part IV.B.

interoperability is beneficial. In one of the leading articles on the law and economics of RE of software, Professors Samuelson and Scotchmer concluded:

The economic case for allowing reverse engineering to achieve interoperability is not as open and shut as some legal commentators have suggested. We believe, however, that interoperability has, on balance, more beneficial than harmful economic consequences. Hence, a legal rule permitting reverse engineering of programs to achieve interoperability is economically sound.⁸⁵

Although they concluded that a legal rule in support of RE for interoperability purposes is “sound,” Samuelson and Scotchmer noted that there is debate about the benefits of a closed versus open model.⁸⁶

Given that the debate continues, it is worth noting the cumulative implications of five considerations concerning regulation of IO not reviewed collectively to date: (1) the detection difficulties in the less justifiable case of RE to clone software features as contrasted with the relative ease of identifying potential RE where interoperability is involved; (2) the transformation of trade secret rights in IO from weak in personam rights to property-like rights by wholesale enforceability of shrink-wrap and web-wrap licenses without considering patent and trade secret law; (3) the detailed teachings of the Supreme Court on patent preemption in *Kewanee Oil Co. v. Bicron Corp.*⁸⁷ and *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*⁸⁸; (4) the competition in regulation of IO between federal patent law and state protection by enforcement of non-negotiated mass market license terms restricting RE; and (5) a comparative law analysis showing that an increasing number of key jurisdictions have adopted a legal rule permitting such RE notwithstanding any contrary contract prohibition.

In addition to the law and economics rationale identified by Samuelson and Scotchmer, these five considerations provide compelling support for a legal rule permitting RE for interoperability purposes notwithstanding a mass market contract restriction to the contrary to avoid conflicts with fundamental limits on state trade secret law and the patent laws enacted under the Intellectual Property Clause of the Constitution.⁸⁹

⁸⁵ Samuelson & Scotchmer, *supra* note 8, at 1608 (footnote omitted).

⁸⁶ *See id.*

⁸⁷ *See generally* 416 U.S. 470 (1974).

⁸⁸ *See generally* 489 U.S. 141 (1989).

⁸⁹ In fact, the failure to adopt such an approach is unlikely to lead to the desired outcome of

*E. State Trade Secret Law*⁹⁰

Trade secrets have been protected by an amalgam of theories including tort, equity, contract, and “property.”⁹¹ Although the scope of information potentially protected is quite broad and arguably solely limited by a test of some commercial value, there are several key limits on the scope of protection. These limits are where information is (1) readily ascertainable from public sources, (2) available by independent discovery, or (3) subject to discovery by proper means.

The most critical “proper means” is a competitor’s freedom to RE a product that it lawfully acquires in the marketplace.⁹² This freedom to RE reflects the underlying policy of encouraging competition. The Supreme Court has highlighted this freedom as a key limit to the scope of trade secret protection under state law.⁹³

preventing such RE. Rather, it will simply incent developers to undertake such activities in jurisdictions which have adopted such a rule—whether that is in particular states in the United States or—as is more likely—in foreign jurisdictions which permit such activity. See, e.g., Pamela Samuelson, *Intellectual Property Arbitrage: How Foreign Rules Can Affect Domestic Protections*, 71 U. CHI. L. REV. 223, 227–28 (2004). Further, it arguably disadvantages small enterprises that may not have the ability to move such activities to a favorable jurisdiction.

⁹⁰UNIF. TRADE SECRETS ACT (amended 1985), 14 U.L.A. 529 (Supp. 2006); see generally RESTATEMENT (SECOND) OF TORTS (1965).

⁹¹In *Cadence Design Systems, Inc. v. Avant! Corp.*, the California Supreme Court, quoting Justice Holmes, rejected the “property” theory of trade secrets and held that the California Trade Secrets Act is based upon the relationship theory:

Underlying this theory is the concept that a trade secret is in the nature of property, which is damaged or destroyed by the adverse use California does not treat trade secrets as if they were property. It is the *relationship* between the parties at the time the secret is disclosed that is protected. The protected relationship, contractual or confidential, is one to which, as Mr. Justice Holmes observed, “some rudimentary requirements of good faith” are attached. “Whether the plaintiffs have any valuable secret or not the defendant knows the facts, whatever they are, through a special confidence that he accepted. The property may be denied, but the confidence cannot be. Therefore the starting point for the present matter is not property . . . , but that the defendant stood in confidential relations with the plaintiffs”

57 P.3d 647, 650 (Cal. 2002) (citation omitted) (citing *E.I. Du Pont de Nemours Powder Co. v. Masland*, 244 U.S. 100, 102 (1917)).

⁹²*Kewanee*, 416 U.S. at 476; *Bonito Boats*, 489 U.S. at 156–57.

⁹³See *Bonito Boats*, 489 U.S. at 155; *infra* Part III; UCITA § 118 cmt. 3 (amended 2002); see also *infra* Part V.A.

Shortly after the Supreme Court's 1974 decision in *Kewanee*, the Uniform Trade Secrets Act (UTSA) was adopted as a model for adoption by the states and has since been adopted by forty-five states and the District of Columbia.⁹⁴ The Prefatory Note to the UTSA makes clear that the ability to RE a product available in the marketplace is a fundamental touchstone which limits and distinguishes trade secret from patent protection:

The Uniform Act codifies the basic principles of common law trade secret protection, preserving its essential distinctions from patent law. Under both the Act and common law principles, for example, more than one person can be entitled to trade secret protection with respect to the same information, and analysis involving the "reverse engineering" of a lawfully obtained product in order to discover a trade secret is permissible.⁹⁵

Likewise, the Comment to Section 1 of the UTSA, which illustrates actionable trade secret misappropriation, makes clear that RE of a product that is lawfully acquired in the marketplace is a proper means of discovering a secret:

Proper means include:

Discovery by "reverse engineering", that is, by starting with the known product and working backward to find the method by which it was developed. The acquisition of the known product must, of course, also be by a fair and honest means, such as purchase of the item on the open market for reverse engineering to be lawful⁹⁶

Trade secret law also requires the secret to be "the subject of efforts that are reasonable under the circumstances to maintain its secrecy."⁹⁷ One reasonable step to protect a trade secret is contract. In this context, contract law is merely the instrument through which the underlying policy of protecting a trade secret is affected.⁹⁸ As a general rule, courts will enforce

⁹⁴ See UNIF. TRADE SECRET ACT (amended 1985), 14 U.L.A. 529-30 (1985).

⁹⁵ *Id.* at 531.

⁹⁶ *Id.* § 1 cmt. 2.

⁹⁷ *Id.* § 1(4)(ii).

⁹⁸ See 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, 547 n.13 (1992); see also *DVD Copy Control Ass'n v. Bunner*, 75 P.3d 1, 28 n.5 (Cal. 2003) (Moreno, J.,

contract terms. However, contracts are unenforceable where they are unconscionable, preempted by federal law, or contrary to public policy.⁹⁹ Against this backdrop, we now consider mass market license restrictions on RE.

F. *The Proper Role of Contract in Support of Trade Secrets*

Although there has been debate on whether mass market license restrictions on RE clauses should be preempted by virtue of federal copyright policy,¹⁰⁰ and some general discussion about patent policy,¹⁰¹ minimal attention has focused on the dramatic implications for state trade secret law.

The traditional notion of the appropriate instrumental role of contract restrictions to preserve secrets made sense when individually negotiated contracts were involved or courts could reasonably imply contractual obligations based upon trust, confidence, or other special relationship. As such, trade secrets are not “property” but rather enforceable as in personam rights. As discussed above, a key doctrinal limit is the general distribution and

concurring) (“To be sure, contract plays an important role in trade secret law by protecting the trade secret holder against ‘unauthorized use or disclosure through a contract *with the recipient of a disclosure*’ or others who have had special access to trade secret information, via confidentiality agreements and the like.”) (quoting RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 41 cmt. d (1995)).

⁹⁹ See *infra* Part V.A.

¹⁰⁰ See, e.g., Maureen A. O’Rourke, *Drawing the Boundary Between Copyright and Contract: Copyright Preemption of Software License Terms*, 45 DUKE L.J. 479, 517–23 (1995); Lemley, *supra* note 24, at 1255–59; Raymond T. Nimmer, *Breaking Barriers: The Relation Between Contract and Intellectual Property Law*, 13 BERKELEY TECH. L.J. 827, 861–67 (1998) (focusing on copyright preemption and in fact expressly rejecting applicability of patent preemption to software licenses: “Of course, however, *Bonito* by its very terms does not state a principle that pertains to state laws that enable parties to enforce relationships they have created. Trade secret law, contract law, and similar relational contexts fall well outside the parameters of the decision in *Bonito*.”). For the reasons outlined in this article, see *infra* Part III, I beg to differ with Professor Nimmer’s appraisal of the lack of relevance of *Bonito* to the question of the enforceability of a mass market license term. See also *infra* Part III.D; see generally Samuelson & Scotchmer, *supra* note 8 (no mention of patent preemption).

¹⁰¹ See McManis, *supra* note 15, at 94; Rice, *supra* note 98, at 577–95; Mark I. Koffsky, Note, *Patent Preemption of Computer Software Contracts Restricting Reverse Engineering: The Last Stand?*, 95 COLUM. L. REV. 1160, 1169–87 (1995) (see discussion of commentators at n.17). Almost all discussion has focused on federal preemption of shrink-wrap licenses based solely upon copyright policy. See, e.g., O’Rourke, *supra* note 100, at 479–82. The discussion here is on fundamental state law policy of protecting trade secrets. The drafters of UCITA recognized this tension. See *Painton & Co. v. Bourns, Inc.*, 422 F.2d 216, 223 (2d Cir. 1971).

availability in the marketplace of a product which then exposes the trade secret to potential discovery, analysis, and use by RE (i.e., “lawful appropriation” or “fair means”).

But as some courts have come to accept mass market licenses in their entirety as enforceable,¹⁰² there has not been any in-depth consideration by the courts of the implications on the scope of trade secrets and the inherent limitation on trade secret protection by virtue of the fundamental freedom to RE any product publicly available in the marketplace.¹⁰³ At its core, contract law enforcement of a non-negotiated mass market license barring RE subverts the fundamental principle of trade secret law that a competitor is free to RE a product which is publicly available in the marketplace. The net result is the transformation of an in personam right to protect trade secret information into a property right in that information.

Thus, what had until recently been a state law right in trade secrets circumscribed by the doctrine of permissible RE of mass distributed products has now potentially expanded effectively by contract law (including choice of law terms) into a nation-wide property right without any of the limitations built into other IP regimes, such as novelty, nonobviousness, experimental use, first sale, fair use, or misuse.

Several commentators have noted this dramatic transformation of in personam contract-supported trade secret law to “rights against the world,”¹⁰⁴ which is further cemented in the context of web-based delivery of software:

If [licensors] then combine this power [of web wrap license assent] with the power inherent in [shrink-wrap license enforceability] to impose non-negotiable, standard terms and conditions on those who seek access. . . the net effect is privately to impose “rights ‘against the world-at-large.’” In short, when the power of the two-party deal in

¹⁰²See *Bowers v. Baystate Techs., Inc.*, 302 F.3d 1334, 1343 (Fed. Cir. 2002), *vacated*, 320 F.3d 1316 (Fed. Cir. 2003); *Davidson & Assocs. v. Jung*, 422 F.3d 630, 638–39 (8th Cir. 2005); *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1453–55 (7th Cir. 1996).

¹⁰³*But see DVD Copy Control Ass’n v. Bunner*, 75 P.3d at 1, 26–29 (Cal. 2003) (Moreno, J., concurring); Lemley, *supra* note 24, at 1268 (“Reverse engineering of a trade secret is explicitly allowed by the Uniform Trade Secrets Act. Thus, the Act conflicts with contract law where the contract provides that a licensee may not reverse engineer the licensed product.”); *infra* Parts IV.C, V.B.

¹⁰⁴See *Bourns, Inc.*, 422 F.2d at 223.

the digital universe is combined with the power to impose non-negotiable terms, it produces contracts (not “agreements”) that are roughly equivalent to private legislation that is valid against the world.¹⁰⁵

The drafters of UCITA also appreciated the undeniable and fundamental tension between freedom of contract and competing federal policies and trade secret policies in the case of mass market licensing of software.¹⁰⁶

With this background on trade secret law and the potential tension created by mass market license enforceability on the scope of trade secret protection, review of federal IP law and policies on IO is in order.

III. PATENT PREEMPTION

A. *The Basis for Patent Preemption: Prevention of IP Regulatory Competition in Patent-Like Monopolies Between the U.S. and the States*

The Supreme Court has held that the Intellectual Property Clause of the U.S. Constitution¹⁰⁷ does not occupy the field and thereby forbid the States¹⁰⁸ to act at all to regulate IP.¹⁰⁹ In contrast, Professor Arthur Miller

¹⁰⁵J.H. Reichman & Jonathan A. Franklin, *Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract with Public Good Uses of Information*, 147 U. PA. L. REV. 875, 911 (1999) (quoting U.C.C. § 2B-105, reporter’s notes, no. 1 (Proposed Official Draft Aug. 1998)).

¹⁰⁶UCITA § 105 (amended 2002); *infra* Part IV.

¹⁰⁷U.S. CONST. art. I, § 8, cl. 8.

¹⁰⁸There are limits in the IP Clause on Congress’s grant of power to create monopolies under patent law. *See Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989). In *Bonito Boats*, Justice O’Connor wrote for a unanimous court:

The Patent Clause itself reflects a balance between the need to encourage innovation and the avoidance of monopolies which stifle competition without any concomitant advance in the “Progress of Science and useful Arts.” [The clause] contains both a grant of power and certain limitations upon the exercise of that power. Congress may not create patent monopolies of unlimited duration, nor may it “authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available.”

Id. (quoting *Graham v. John Deere Co.*, 383 U.S. 1, 6 (1966)).

¹⁰⁹*See Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 474 (1974) (illustrating no patent preemption of state regulation of trade secrets including use of negotiated contract to enforce a secret, whether patentable or not); *Goldstein v. California*, 412 U.S. 546, 556–58 (1973) *superseded by*

has recently commented that the issue of what limits the IP Clause places on state regulation of IP has varied over time and noted that a dormant IP Clause view was espoused by Justice Learned Hand:

Judge Hand believed that the Constitution embodied a federal policy of competition and public access to literary and artistic creativity. The presumption was that everything that could be considered a “writing” or “discovery” lies in the public domain unless Congress chooses to protect it (which Congress can do only for limited times and only for “advancing science and the useful arts”). Congress must be the sole arbiter of what works are entitled to protection, according to the Hand analysis, and thus, even when Congress has failed to act, states must refrain from doing so. This “dormant” copyright and patent power prohibits states from regulating any subject matter or creating any rights that fall within the scope of the constitutional clause.¹¹⁰

Although the Supreme Court in *Kewanee*¹¹¹ and *Bonito Boats*¹¹² rejected the idea of a dormant Patent Clause which would preempt state regulation absent Congressional action or intent, Professor Miller has suggested that the discussion in *Bonito Boats* is dicta:

statute, COPYRIGHT ACT OF 1978, Pub. L. No. 94-553, 90 Stat. 2541, as recognized in *Roth v. Pritikin*, 710 F.2d 934 (2d Cir. 1983) (stating that regulation of unauthorized recordings of performances were Constitutional “writings” not preempted by copyright law).

¹¹⁰ Arthur R. Miller, *Common Law Protection for Products of the Mind: An “Idea” Whose Time Has Come*, 119 HARV. L. REV. 703, 747 (2006) (citing *Capitol Records, Inc. v. Mercury Records Corp.*, 221 F.2d 657, 664–68 (2d Cir. 1955) (Hand, J., dissenting)).

¹¹¹ *Kewanee*, 416 U.S. at 479. Justice Burger stated:

Just as the States may exercise regulatory power over writings so may the States regulate with respect to discoveries. States may hold diverse viewpoints in protecting intellectual property relating to invention as they do in protecting the intellectual property relating to the subject matter of copyright. *The only limitation on the States is that in regulating the area of patents and copyrights they do not conflict with the operation of the laws in this area passed by Congress . . .*”

Id. (emphasis added).

¹¹² 489 U.S. at 165 (“Our decisions since *Sears* and *Compco* have made it clear that the Patent and Copyright Clauses do not, by their own force or by negative implication, deprive the States of the power to adopt rules for the promotion of intellectual creation within their own jurisdictions.”).

A future Court, more sympathetic to the claims of federal hegemony and wary of the vagaries and parochialisms of different state laws in a world of national media, distribution, and marketing, could effect yet another major jurisprudential shift, especially if a state-created right presented a serious obstacle to achieving a congressional objective.¹¹³

Interestingly, the concerns raised by Professor Miller if state regulation is “a serious obstacle to achieving a congressional objective”¹¹⁴ are precisely met by reference to statutory conflicts preemption as articulated by Chief Justice Burger in *Kewanee*¹¹⁵ and do not require reliance on a dormant IP clause jurisprudence.¹¹⁶ In fact, Professor Miller’s language tracks

¹¹³ Miller, *supra* note 110, at 749.

¹¹⁴ *Id.*

¹¹⁵ 416 U.S. at 479.

¹¹⁶ There might be some scenario that might lead to reference to a dormant IP clause argument, but arguably the statutory conflicts analysis which is discussed in this Article will suffice in most instances, since in the case of patent preemption, the Supreme Court has held that the patent laws themselves reflect Congressional policies on the balance between free competition and the need to create statutory rights to incent “discoveries” in the useful arts. See *Painton & Co. v. Bourns, Inc.*, 422 F.2d 216, 223 (2d Cir. 1971); see also *Goldstein v. California*, 412 U.S. 546, 569 (1973), *superseded by statute*, Copyright Act of 1978, Pub. L. No. 94-553, 90 Stat. 2541, as recognized in *Roth v. Pritikin*, 710 F.2d 934 (2d Cir. 1983) (noting that “[t]he standards established for granting federal patent protection to machines thus indicated not only which articles in this particular category Congress wished to protect, but which configurations it wished to remain free”). From a dormant IP Clause perspective, Chief Justice Burger, in *Goldstein*, did suggest that where state regulation “will prejudice the interests of other States [in the course of effecting protection] within its boundaries” there might be a case of IP Clause preemption. *Id.* at 558. See also Justice Kozinski’s reference to this proposition in his dissent in *White v. Samsung Electronics America, Inc.*, 989 F.2d 1512, 1518 (9th Cir. 1993) (citations omitted): Under the dormant Copyright Clause, state intellectual property laws can stand only so long as they don’t “prejudice the interests of other States.” A state law criminalizing record piracy, for instance, is permissible because citizens of other states would “remain free to copy within their borders those works which may be protected elsewhere.” But the right of publicity isn’t geographically limited. Interestingly, the case of a mass market license, which typically includes an enforceable choice of law clause (and thus has nation-wide effect), would be subject to a dormant IP clause preemption, but that issue need not be addressed because it so squarely falls under the patent conflicts preemption analysis outlined *infra* Part III.C. Another possible application of dormant IP Clause preemption would be mass market terms limiting fair use/free speech on a nation-wide basis. See, e.g., *Video Pipeline, Inc. v. Buena Vista Home Entm’t, Inc.*, 342 F.3d 191, 204–06 (3d Cir. 2003) (stating that copyright misuse might apply to free speech restriction, but not in particular case); *Ty, Inc. v. Publ’ns Int’l Ltd.*, 292 F.3d 512, 520 (7th Cir. 2002) (illustrating Judge Posner’s concerns with copyright license term which restricted criticism by licensee of licensor).

that used by the Supreme Court in its decisions dealing with patent law conflicts preemption. Thus, the Court has held that state law (whether statute or contract)¹¹⁷ is preempted where the effect of enforcement of the state regulation conflicts¹¹⁸ or clashes¹¹⁹ with the operation of the federal patent and copyright laws.¹²⁰ The underlying premise in Supreme Court patent preemption decisions is an express rejection of regulatory competition between federal patent law and some equivalent form of state regulation of IP for functional matter, whether patentable or not:

States may not offer patent-like protection to intellectual creations which would otherwise remain unprotected as a matter of federal law. Both the novelty and the nonobviousness requirements of federal patent law are grounded in the notion that concepts within the public grasp, or those so obvious that they readily could be, are the tools of creation available to all. They provide the baseline of free competition upon which the patent system's incentive to creative effort depends Moreover, through the creation of patent-like rights, the States could essentially redirect inventive efforts away from the careful criteria of patentability developed by Congress over the last 200 years.¹²¹

The question is whether a state law “stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress”¹²² in striking a balance to create incentives to invention and disclosure by granting a limited monopoly right for methods of operation, processes and other “useful Arts.”¹²³ The Court has concluded that the “novelty and nonobviousness requirements [of patent law] express a congressional determination that the purposes behind the Patent Clause are best served by free competition and exploitation of either that which is already available to

¹¹⁷ See *Bonito Boats*, 489 U.S. at 168 (Florida statute preempted); *Lear, Inc. v. Adkins*, 395 U.S. 653, 674–75 (1969) (enforcement of license preempted).

¹¹⁸ See *Kewanee*, 416 U.S. at 479.

¹¹⁹ See *Bonito Boats*, 489 U.S. at 152.

¹²⁰ See, e.g., *Crosby v. Nat'l Foreign Trade Council*, 530 U.S. 363, 372–73 (2000) (providing general review of the different theories of preemption of state law).

¹²¹ *Bonito Boats*, 489 U.S. at 156–57.

¹²² *Kewanee*, 416 U.S. at 479 (quoting *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941)).

¹²³ See *id.* at 480; *Bonito Boats*, 489 U.S. at 152.

the public or that which may be readily discerned from publicly available material.”¹²⁴

In a nutshell, although there is no preemption of the field of regulating IP, the Supremacy Clause of the Constitution¹²⁵ requires preemption of any state law which either (1) provides a party (whether investor or inventor) a realistic and potentially preferable option to the limited term monopoly grant offered by patent law or (2) provides patent-like protection for functional matter which does not meet the novelty and nonobviousness requirements of patent law and thereby stifles competition in such matter without any concomitant advance in the “Progress of Science and useful Arts.”¹²⁶ This is because:

[S]tate regulation of intellectual property must yield to the extent that it clashes with the balance struck by Congress in our patent laws [Congress balances the] tension between the desire to freely exploit the full potential of our inventive resources and the need to create an incentive to deploy those resources.¹²⁷

Indeed, trade secret law itself has been considered as potentially preempted by patent law. In *Kewanee*, the Supreme Court held that Ohio trade secret law as sought to be enforced by the plaintiff was not preempted by federal patent law.¹²⁸ It was “central” to the Court’s determination of no preemption that Ohio state trade secret law provided “weaker” protection than patent law.¹²⁹ Accordingly, state regulation of trade secrets did not jeopardize the underlying purposes of patent law and lead to regulatory competition between state regulation and patent law. The *Kewanee* decision was not unanimous. Justices Douglas and Brennan dissented because the product in *Kewanee* was patentable, and they determined that “Congress in the patent laws decided that where no patent existed, free competition should prevail.”¹³⁰

¹²⁴ *Bonito Boats*, 489 U.S. at 150.

¹²⁵ U.S. CONST. art. VI, cl. 2.

¹²⁶ *Id.* at art. I, § 8, cl. 8.

¹²⁷ *Bonito Boats*, 489 U.S. at 152.

¹²⁸ *Kewanee*, 416 U.S. at 493.

¹²⁹ *Bonito Boats*, 489 U.S. at 155. The Court in *Bonito Boats* specifically made this assessment of its prior decision in *Kewanee*.

¹³⁰ *Kewanee*, 416 U.S. at 495. Interestingly, Justice Douglas concluded that it was only the permanent injunction issued by the district court that was preempted by patent law:

In contrast, where state protection would give rise to regulatory competition in IP laws or protect utilitarian matter which does not qualify for patent protection, it has been preempted.¹³¹ For that reason, the Florida boat hull protection statute was preempted in *Bonito Boats* by a unanimous Court:

One of the fundamental purposes behind the Patent and Copyright Clauses of the Constitution was to promote national uniformity in the realm of intellectual property. Since the Patent Act of 1800, Congress has lodged exclusive jurisdiction of actions “arising under” the patent laws in the federal courts, thus allowing for the development of a uniform body of law in resolving the constant tension between private right and public access. Recently, Congress conferred exclusive jurisdiction of all patent appeals on the Court of Appeals for the Federal Circuit, in order to “provide nationwide uniformity in patent law.” This purpose is frustrated by the Florida scheme, which renders the status of the design and utilitarian “ideas” embodied in the boat hulls it protects uncertain. Given the inherently ephemeral nature of property in ideas, and the great power such property has to cause harm to the competitive policies which underlay the federal patent laws, the demarcation of broad zones of public and private right is “the type of regulation

A suit to redress theft of a trade secret is grounded in tort damages for breach of a contract – a historic remedy. Damages for breach of a confidential relation are not preempted by this patent law, but an injunction against use is pre-empted because the patent law states the only monopoly over trade secrets that is enforceable by specific performance; and that monopoly exacts as a price full disclosure. A trade secret can be protected only by being kept secret. Damages for breach of a contract are one thing; an injunction barring disclosure does service for the protection accorded valid patents and is therefore pre-empted.

Id. at 498–99 (citation omitted). Adoption of this approach would effect a compulsory license of the trade secret and lead to the same outcome some are now positing for patent law reform where injunctive relief might not be available for patent trolls. See Patent Reform Act of 2005, H.R. 2795, 109th Cong. § 3 (2005). See also *eBay Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1838–39 (2006) (stating that a patentee is entitled to injunction relief based upon equitable principles).

¹³¹See, e.g., *Bonito Boats*, 489 U.S. at 152–55; *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 231–33 (1964); *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234, 237 (1964).

that demands a uniform national rule.” Absent such a federal rule, each State could afford patent-like protection to particularly favored home industries, effectively insulating them from competition from outside the State.¹³²

In preempting the Florida statute, the Court explicitly viewed the statute as leading to IP regulatory competition:

Given the substantial protection offered by the Florida scheme, we cannot dismiss as hypothetical the possibility that it will become a significant competitor to the federal patent laws, offering investors similar protection without the *quid pro quo* of substantial creative effort required by the federal statute. The prospect of all 50 States establishing similar protections for preferred industries without the rigorous requirements of patentability prescribed by Congress could pose a substantial threat to the patent system’s ability to accomplish its mission of promoting progress in the useful arts.¹³³

In the case of IO, the risk of regulation competition is likewise not some hypothetical possibility. There is very real competition among the state and the federal regulatory schemes.¹³⁴ For example, the Federal and Eighth Circuits have enforced mass market license terms preventing RE through interpretation of California and Massachusetts state contract law.¹³⁵ In addition, the Seventh Circuit ruling in *ProCD, Inc. v. Zeidenberg* may be interpreted as opening the door to general enforceability of mass market software license terms.¹³⁶ In contrast, a reasoned application of either the “public policy” exception to contract enforcement or the UCITA “fundamental public policy” exception¹³⁷ to contract enforcement adopted by

¹³² 489 U.S. at 162–63 (citations omitted).

¹³³ *Id.* at 161.

¹³⁴ It has the potential for a predictable and deleterious effect on the United States economy both directly in preventing interoperable products entrance into the marketplace and long term because it will incent IO developers to undertake RE in favorable foreign jurisdictions. *See infra* Part VI.

¹³⁵ *See infra* Part III.D.

¹³⁶ 86 F.3d 1447, 1455 (7th Cir. 1996).

¹³⁷ *See* UCITA § 105(b) (2001). Maryland and Virginia have both adopted UCITA with section 105 but without section 118. MD. CODE ANN., COM. LAW § 22-105 (LexisNexis 2005); VA. CODE ANN. §§ 59.1–501.5 (Supp. 2005).

Maryland and Virginia should lead a court applying state law to invalidate a mass market restriction to the extent it prevented discovery and use of IO.¹³⁸ However, four state legislatures have adopted “bombshell” legislation whereby the courts of that state will not apply UCITA rules in enforcing an agreement against a resident of the state, even where a contract specifies that a UCITA jurisdiction’s law applies to a contract.¹³⁹

The net effect of this regulatory competition is that closed model technologists may forego patent protection of IO or have information not meeting the requirements for patentability and rely on state laws such as California and Massachusetts which have been interpreted to favor enforcement of mass market contract terms prohibiting RE, including choice and conflict of law rules.¹⁴⁰

If ever there was an area where courts need to consider the risk of impermissible regulatory competition of IP, the case of state protection of IO by enforcement of mass market licenses may be it. With this background, a careful examination of the Supreme Court patent preemption decisions is appropriate.

B. Patent Preemption Test of *Kewanee and Bonito Boats*

Despite early doubt,¹⁴¹ it is now clear that software related inventions are patentable. A search of the PTO database revealed a surprising number of recently issued patents relating to compatibility features of computer

¹³⁸Since section 105(b) has been adopted in Maryland and Virginia, the correct application of that section is arguably that public policy invalidates a clause prohibiting RE of IO information solely for purposes of developing an interoperable product under Maryland and Virginia. *See infra* Part V.A.

¹³⁹*See* IOWA CODE ANN. § 554D.125 (2005); N.C. GEN. STAT. ANN. § 66-329 (West 2005); VT. STAT. ANN. tit. 9, § 2463a (Supp. 2005); W. VA. CODE § 55-8-15 (2006); *see* ROBERT W. GOMULKIEWICZ ET AL., LICENSING TREATISE (forthcoming 2006) (manuscript at Ch. 1 n.80, on file with author). My thanks to Professor Bob Gomulkiewicz for raising this point.

¹⁴⁰*See supra* note 10. Although this strategy may work in interstate commerce, there are serious doubts about it in an international context. A rational IO technologist will realize that it has a better prospect of invalidating a contract term when the conflict of law analysis implicates international, as contrasted with merely interstate, comity issues. Accordingly the IO technologist will outsource the activity to a foreign jurisdiction whose laws, ironically, are consistent with federal policies as outlined in this article. The net result is that technologists seeking to develop interoperable software will be incited to conduct such activities in foreign jurisdictions which increasingly have contract override rules in the case of RE for IO.

¹⁴¹*See* Smith & Mann, *supra* note 16.

hardware and software.¹⁴² Thus interfaces, protocols, and other formats may potentially be patented. For this reason, the potential patent preemption of a mass market contract term barring RE necessary to learn secret IO must be addressed.

Although there has been some general discussion,¹⁴³ no one has scrutinized the reasoning which underpins the Supreme Court decisions on the topic to identify the prospect for an “enlightened”¹⁴⁴ patent preemption to mass market license restrictions on RE undertaken solely for purposes of developing an interoperable program. In sum, the Supreme Court has upheld trade secret protection because it “provides far weaker protection” than patents,¹⁴⁵ yet preempted state law which effectively grants a producer of a non-patented article “rights against the world.”¹⁴⁶ In considering the issue, the freedom to RE a publicly available product in the marketplace has been central to the Court’s attention.¹⁴⁷

Kewanee remains the seminal case on the interplay between federal patent and state trade secret laws.¹⁴⁸ In *Kewanee*, plaintiff sued its former employees for misappropriation of its trade secrets, which had been protected

¹⁴² See *supra* note 71.

¹⁴³ See *supra* note 15 (listing early commentators who argued that patent preempted all reverse engineering terms, but did not suggest application of the five factor test outlined in this Article) and *infra* Part III.C (same); see, e.g., John E. Mauk, Note, *The Slippery Slope of Secrecy: Why Patent Law Preempts Reverse-Engineering Clauses in Shrink-Wrap Licenses*, 43 WM. & MARY L. REV. 819, 829–40 (2001) (suggesting preemption of all RE clauses without any detailed analysis of the different scope and purposes of RE and the key reasoning of the Supreme Court in *Kewanee* and *Bonito Boats* discussed in this Article); JONATHAN BAND & MASANOBU KATOH, INTERFACES ON TRIAL: INTELLECTUAL PROPERTY AND INTEROPERABILITY IN THE GLOBAL SOFTWARE INDUSTRY 223–24 (1995) (using an even more limited analysis than Mauk); see also Daniel R. Cahoy, *Oasis or Mirage?: Efficient Breach as a Relief to the Burden of Contractual Recapture of Patent and Copyright Limitations*, 17 HARV. J.L. & TECH. 135, 158–59 (2003) (raising general issue of patent preemption of shrink-wrap licenses, but quickly concluding in light of recent cases that it “has not, to date, emerged as a substantial hurdle”); cf. O’Rourke, *supra* note 100, at 539 (focusing incorrectly from this author’s perspective on copyright preemption and only mentioning patent preemption, “as a guide in discussing constitutional copyright preemption”); cf. Nimmer, *supra* note 100 (expressly dismissing any applicability of the principle in *Bonito Boats* to the question of enforceability of a software license term).

¹⁴⁴ Reichman and Franklin conjectured that it was possible, but rejected it as a practical matter. See *infra* text accompanying note 213.

¹⁴⁵ *Kewanee Oil Co. v. Bicon Corp.*, 416 U.S. 470, 489–90 (1974).

¹⁴⁶ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 158 (1989).

¹⁴⁷ *Id.*

¹⁴⁸ See 416 U.S. at 470.

by employment contract terms imposing confidentiality on the employees.¹⁴⁹ In reversing the Sixth Circuit's ruling that patent law preempted the trade secret claim, the Supreme Court undertook a detailed analysis of the scope of Ohio trade secret law in comparison to federal patent law.¹⁵⁰

The Court's analysis began with a summary of the constitutional purpose behind the patent and copyright clause and patent law:

The stated objective of the Constitution in granting the power to Congress to legislate in the area of intellectual property is to "promote the Progress of Science and useful Arts." The patent laws promote this progress by offering a right of exclusion for a limited period as an incentive to inventors to risk the often enormous costs in terms of time, research, and development. The productive effort thereby fostered will have a positive effect on society through the introduction of new products and processes of manufacture into the economy, and the emanations by way of increased employment and better lives for our citizens. In return for the right of exclusion—this "reward for inventions,"—the patent laws impose upon the inventor a requirement of disclosure.¹⁵¹

The Court then proceeded to articulate the underlying policy of state trade secret protection: the maintenance of standards of commercial ethics and the encouragement of invention are the broadly stated policies behind trade secret law.¹⁵² "The necessity of good faith and honest, fair dealing, is the very life and spirit of the commercial world."¹⁵³

In deciding that Ohio trade secret law was not preempted, the Court applied the test of whether the "scheme of protection developed by Ohio respecting trade secrets 'clashes with the objectives of the federal patent laws.'"¹⁵⁴ The Court reviewed Ohio trade secret law, which adopted the "widely relied-upon" trade secret definition from the Restatement of

¹⁴⁹ *Id.* at 473.

¹⁵⁰ *Id.* at 474–92.

¹⁵¹ *Id.* at 480 (citation omitted) (quoting *Universal Oil Co. v. Globe Co.*, 322 U.S. 471, 484 (1944)).

¹⁵² *Id.* at 481–82.

¹⁵³ *Id.* at 481–82 (quoting *Nat'l Tube Co. v. E. Tube Co.*, 3 Ohio C.C. (n.s.) 459, 462 (1902), *aff'd*, 70 N.E. 1127 (1903)).

¹⁵⁴ *Id.* at 480 (quoting *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 231 (1964)).

Torts.¹⁵⁵ That definition recognized that RE of a publicly available product is a lawful way to discover secret information. “A trade secret law. . . does not offer protection against discovery by fair and honest means, such as by independent invention, accidental disclosure, or by so-called reverse engineering, that is by starting with the known product and working backward to divine the process which aided in its development or manufacture.”¹⁵⁶

The *Kewanee* Court reasoned that Ohio trade secret law was not preempted as a general matter because it provided “far weaker protection in many respects than the patent law”:¹⁵⁷

Trade secret law provides far weaker protection in many respects than the patent law. While trade secret law does not forbid the discovery of the trade secret by fair and honest means, e.g., independent creation or reverse engineering, patent law operates “against the world”, forbidding any use of the invention for whatever purpose for a significant length of time. The holder of a trade secret also takes a substantial risk that the secret will be passed on to his competitors, by theft or by breach of a confidential relationship, in a manner not easily susceptible of discovery or proof. Where patent law acts as a barrier, trade secret law functions relatively as a sieve.¹⁵⁸

The Supreme Court in *Bonito Boats* stressed that the *Kewanee* Court determination that Ohio state trade secret law was weaker than patent law “was central to the Court’s conclusion that trade secret protection did not conflict with either the encouragement or disclosure policies of the federal patent law.”¹⁵⁹

In addition, the *Bonito Boats* Court discussed at length the fundamental importance of RE of publicly available products in considering whether patent law preempts state law.¹⁶⁰ In reaffirming *Kewanee*, the Court noted, “The public at large remained free to discover and exploit the trade secret through reverse engineering of products in the public domain . . .”¹⁶¹

¹⁵⁵ *Id.* at 474; RESTATEMENT (FIRST) OF TORTS § 757 (1939).

¹⁵⁶ *Kewanee*, 416 U.S. at 476.

¹⁵⁷ *Id.* at 489–90.

¹⁵⁸ *Id.* (footnote omitted) (citation omitted); *see also* *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 155–56 (1989) (quoting *Kewanee* with approval).

¹⁵⁹ *Bonito Boats*, 489 U.S. at 155.

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

In contrast, the unavailability of RE under the Florida boat hull protection statute was its fatal flaw (which was not saved by the alternative possibility of independent creation):

That the Florida statute does not remove all means of reproduction and sale does not eliminate conflict with the federal scheme. In essence, the 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. *See Kewanee* (“A trade secret law, however, does not offer protection against discovery by . . . so-called reverse engineering, that is by starting with the known product and working backward to divine the process which aided in its development or manufacture”); *see also* *Chicago Lock Co. v. Fanberg*, 676 F.2d 400, 405 (9th Cir. 1982) (“A lock purchaser’s own reverse-engineering of his own lock, and subsequent publication of the serial number-key code correlation, is an example of the independent invention and reverse engineering expressly allowed by trade secret doctrine”). The duplication of boat hulls and their component parts may be an essential part of innovation in the field of hydrodynamic design. Variations as to size and combination of various elements may lead to significant advances in the field. Reverse engineering of chemical and mechanical articles in the public domain often leads to significant advances in technology. If Florida may prohibit this particular method of study and recombination of an unpatented article, we fail to see the principle that would prohibit a State from banning the use of chromatography in the reconstitution of unpatented chemical compounds, or the use of robotics in the duplication of machinery in the public domain.

Moreover, as we noted in *Kewanee*, the competitive reality of reverse engineering may act as a spur to the inven-

tor, creating an incentive to develop inventions that meet the rigorous requirements of patentability.¹⁶²

The *Bonito Boat* reference to *Chicago Lock Co. v. Fanberg* is particularly significant because the Ninth Circuit reasoned that use of state law to imply an obligation against the public not to RE a publicly available product would be subject to patent preemption.¹⁶³

In *Chicago Lock*, the plaintiff Chicago Lock did not publish information about the key codes for its Ace locks—the information necessary to make keys that would interface with the locks.¹⁶⁴ By virtue of maintaining the secrecy of the key codes, plaintiff sought to preclude parties from making the keys necessary to operate the locks and thereby maintain control of the market for replacement keys.¹⁶⁵ The defendant locksmiths solicited key codes for plaintiff's locks from other locksmiths who had disassembled the plaintiff's locks¹⁶⁶ and compiled those key codes in a two-volume publication.¹⁶⁷

The plaintiff sued defendants claiming that their misappropriation of trade secrets constituted an unfair business practice.¹⁶⁸ The district court ruled in plaintiff's favor.¹⁶⁹ On appeal, the Ninth Circuit held that California trade secret law permitted RE of the purchased locks to discover the key codes.¹⁷⁰ In addition, the court held that if California law were interpreted to impose on the purchasers of the locks an implied obligation not to RE, it would be contrary to California trade secrets law and preempted by patent law:

Imposing an obligation of nondisclosure on lock owners here would frustrate the intent of California courts to disallow protection to trade secrets discovered through "fair and honest means." Further, such an implied obligation upon the lock owners in this case would, in effect, convert the

¹⁶² *Id.* at 160 (citations omitted) (omission in original).

¹⁶³ *Chicago Lock Co. v. Fanberg*, 676 F.2d 400, 405 (9th Cir. 1982).

¹⁶⁴ *Id.* at 402.

¹⁶⁵ *Id.*

¹⁶⁶ The defendant locksmiths also disassembled some of the plaintiff's locks themselves, but it was the activity of the third party locksmiths which was the primary focus of the court's analysis.

¹⁶⁷ *Id.* at 402.

¹⁶⁸ *Id.* at 401–02.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.* at 405–06.

Company's trade secret into a state-conferred monopoly akin to the absolute protection that a federal patent affords. Such an extension of California trade secrets law would certainly be preempted by the federal scheme of patent regulation.¹⁷¹

Chicago Lock makes clear that patent preemption must be considered where state law is construed to override the general freedom to RE a product available in the marketplace.¹⁷² *Chicago Lock* is also interesting because arguably there were public policy reasons based on physical security to enforce a RE prohibition, yet the court did not consider this.¹⁷³

Although one might try to distinguish *Chicago Lock* because it did not involve use of contract law to protect a trade secret, the mere fact that a contract is involved does not save it from the risk of patent preemption.¹⁷⁴ In *Lear, Inc. v. Adkins*, the Supreme Court refused to apply licensee estoppel and thereby enforce a negotiated license term preventing the licensee from challenging the validity of a patent on an idea which was the subject of the license.¹⁷⁵ The Court recognized that, "[a]t the core of this case, then, is the difficult question whether federal patent policy bars a State from enforcing a contract regulating access to an unpatented secret idea."¹⁷⁶ Yet the Court held that enforcement of a negotiated license may, under certain instances, be preempted by patent law.¹⁷⁷ The fundamental teaching of *Lear* is that contract law cannot be enforced where it may lead to monopoly protection of functional information, which does not meet the patent law

¹⁷¹ *Id.* at 405 (citation omitted).

¹⁷² *Id.*

¹⁷³ See generally 676 F.2d 400 (9th Cir. 1982). That is, at another level, maintaining secrecy of the key codes furthered a public interest—preserving the security of the premises of Ace lock owners, yet the court does not even address this policy interest. The parallel between physical security and copyright, data, and other digital world security issues in the case of computer IO raises a question of whether the latter are so important that RE should be circumscribed. In effect, Congress considered this issue when enacting section 1201 and the very narrow RE exception of section 1201(f) in two ways: (1) nothing in section 1201(f) entitles the lawful reverse engineer the right to *publish (as contrasted with use)* IO (thus limiting *Chicago Lock* to *use not disclosure*); and (2) the risk of misuse of security IO by third parties may be controlled by enforcing a restrictive contract against outsourcing RE to discover IO. See *supra* Part IV.B.

¹⁷⁴ See generally 676 F.2d 400 (9th Cir. 1982).

¹⁷⁵ 395 U.S. 653, 669–70 (1969).

¹⁷⁶ *Id.* at 672.

¹⁷⁷ *Id.* at 673–74.

requirements of novelty and nonobviousness which are necessary to merit a patent.¹⁷⁸

What is significant in the combined teachings of these cases is the Supreme Court's reliance on three factors in concluding that state trade secret law protection was not preempted by patent law because it was "weaker protection": (1) RE is a "fair and honest means" of discovery of a trade secret; (2) trade secrets are enforceable by breach of a relationship, and do not operate "against the world";¹⁷⁹ and (3) trade secret misappropriation is "not easily susceptible of discovery or proof."¹⁸⁰

In addition, *Kewanee* and *Bonito Boats* teach that two additional factors may come into play in deciding whether patent law preempts state law concerning IP. First, courts should consider whether Congress has given any "affirmative indication[]" whether state law is consistent with federal policy.¹⁸¹ Second, courts should consider whether there is a real or hypothetical risk that the policies which underlie federal law will be jeopardized by state regulatory competition providing equivalent IP in the federal system.¹⁸²

¹⁷⁸ See generally 395 U.S. 653.

¹⁷⁹ Cf. *Goldstein v. California*, 412 U.S. 546, 560–61 (1973), *superseded by statute*, Act of Oct. 27, 1998, Pub. L. No. 94-553 (codified as amended at 17 U.S.C. § 301 (2000)) (As part of reasoning that California regulation of unauthorized recordings was not preempted by Copyright law, the Court noted that state regulation is much more limited than the pervasive exclusive nationwide monopoly rights granted by Congress because the state law was "confined to [California's] borders." This is not the case with a mass market RE prohibition, where, as in *Bowers, Davidson*, and *ProCD*, *infra* Part III.D, the licenses include choice of law rules such that the contract has nation-wide effect (as opposed to the state border limits of the California regulation in *Goldstein*)).

¹⁸⁰ *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 489–90 (1974); see also *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 158 (1989).

¹⁸¹ *Bonito Boats*, 489 U.S. at 165–66; see also *Goldstein*, 412 U.S. at 571; *Kewanee*, 416 U.S. at 494 (Marshall, J., concurring) (trade secret law not preempted by patent law because it has "co-existed for many, many years [and d]uring this time, Congress has repeatedly demonstrated its full awareness of the existence of the trade secret system, without any indication of disapproval. . . [thus no] 'evidence of a congressional design to pre-empt the field'" (quoting *Fla. Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 141 (1963))).

¹⁸² See *supra* Part III.A.

C. Patent Preemption of Mass Market License Restrictions on Discovery and Use of Interoperability Information

Careful application of all five of the *Kewanee* and *Bonito Boat* patent preemption factors to the case of mass market contract restrictions on RE for purposes of developing an interoperable product strongly suggests that patent preemption is required.

First, if a mass market license restricts RE, then the traditional and fundamental trade secret rule that a product may be reverse engineered to ascertain secrets is not met because the only way to obtain the software is with the license.¹⁸³ However, the ability to acquire the product in which inheres the secrets without a contract restriction underlies the Court's reasoning in *Kewanee* and *Bonito Boats*.

For example, in *Painton & Co. v. Bourns, Inc.*, cited with approval in *Kewanee*, the licensee of the trade secret had the alternative of acquiring the product in the marketplace without any RE restriction.¹⁸⁴ Judge Friendly, writing for the Second Circuit, enforced a negotiated trade secret license.¹⁸⁵ In doing so, he noted how a license agreement is different from the rights covered by patent law because a license does not operate against the world, but rather just the licensee: "An agreement licensing a trade secret is an altogether different matter. It binds no one except the licensee; all others are free, as the licensee previously was, to attempt by fair means to figure out what the secret is and, if they succeed, to practice it."¹⁸⁶

In footnote five, Judge Friendly highlighted that the licensee, without being subject to a license, was free to acquire the product on the market and RE it: "As Bourns [the trade secret claimant] suggests, there was nothing to prevent Painton, before it entered into the agreement, or anyone else, from prying open the unpatented Bourns potentiometers, ascertaining the arrangement of the parts, and copying this."¹⁸⁷

Most directly on point is the Ninth Circuit's decision in *Chicago Lock*, quoted with approval in *Bonito Boats*.¹⁸⁸ As discussed above, the Ninth Circuit reasoned that patent preemption would apply if California trade secret law imposed an obligation against the public which precluded RE of

¹⁸³ See *supra* Part II.B.

¹⁸⁴ See generally *Painton & Co. v. Bourns, Inc.*, 422 F.2d 216 (2d Cir. 1971).

¹⁸⁵ *Id.* at 225.

¹⁸⁶ *Id.* at 223.

¹⁸⁷ *Id.* at 223 n.5.

¹⁸⁸ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 160 (1989).

the key codes needed to operate plaintiff's locks.¹⁸⁹ Enforcement under state contract law of a mass market term restricting RE for interoperability purposes is just a different means of using state law to bar RE for interoperability. It is hard to see why a court-implied obligation should be at greater risk of patent preemption than a mass market, non-negotiated contract term with the same effect.

Second, if a mass market license restriction is enforced, the only way to obtain the software in which inheres the interface information is by virtue of a non-negotiated mass market license which now also inheres as part of the software code.¹⁹⁰ The very nature of enforcement in the mass market context effectively transforms what had been an in personam right into a right "against the world."¹⁹¹ Professor Lemley aptly captured this problem in considering proposed UCC 2B:

Because of this shift [to general enforcement of mass market licenses], contracts under Article 2B are really more akin to property rights: the contracts can be viewed as equitable servitudes that "run with" the goods in much the same way that some property owners once tried to impose restrictions on chattel. This shift is extremely important. The existing relationship between intellectual property and contract law is based on a conception of what constitutes an enforceable contract. Article 2B changes that conception; as a result, it cannot help but change the relationship as well.¹⁹²

The drafters of UCITA recognized the potential effect of a non-negotiated mass market license on the fundamental freedom to RE embodied in state trade secret law by identifying it as a potential candidate for application of the fundamental public policy grounds for invalidating such a restriction where it precludes use of IO.¹⁹³

¹⁸⁹ *Chicago Lock Co. v. Fanberg*, 676 F.2d 400, 405 (9th Cir. 1982).

¹⁹⁰ See *infra* Part II.A.

¹⁹¹ *Bonito Boats*, 489 U.S. at 158; see discussion of *ProCD*, *infra* text accompanying notes 262–85.

¹⁹² Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111, 121–22 (1999) (footnote omitted). See also Reichman & Franklin, *supra* note 105.

¹⁹³ See *infra* Part V.A.

As discussed *infra* at Part IV.A., the federal circuit courts have consistently rejected copyright claims to prohibit RE by decompilation and disassembly of software to bar discovery and use of IO because copyright enforcement would be tantamount to creation of a “de facto monopoly” resulting in “patent-like protection.” Likewise, *Chicago Lock* reasons that an implied trade secrecy obligation preventing disassembly to obtain interoperation information impermissibly “convert[s a] trade secret into a state-conferred monopoly akin to the absolute protection that a federal patent affords.”¹⁹⁴

An enforceable shrink-wrap or web wrap term running with distribution of publicly available software (because the license is now part of the software) has the same practical effect.¹⁹⁵ If use of copyright law or trade secret law (*Chicago Lock*) to prevent use of IO conflicts with patent law, use of state contract law to acquire “patent-like protection” would equally conflict with and frustrate the purposes and objects of patent law.¹⁹⁶ In addition, since mass market contracts typically include choice of law provisions, the geographical scope of the patent-like protection is nation-wide, and thus is more troubling than the Florida-only reach of the statute in *Bonito Boats*.¹⁹⁷

For these reasons, a mass market shrink or web wrap license bears absolutely no resemblance to the two-party negotiated contracts that the *Kewanee* and *Painton* courts contemplated when they held that trade secret law was “much weaker” than patent law.

Third, enforcement of RE clauses against a party seeking to discover IO results in the detection paradox discussed in Part II.C. above. The detection paradox is that a party who reverse engineers to learn interface secrets to develop an interoperable program is more likely to be detected than a party

¹⁹⁴ *Chicago Lock Co.*, 676 F.2d at 405.

¹⁹⁵ See *supra* Part II.A, text accompanying note 60 and *infra* Part III.D.

¹⁹⁶ Amici raised this precise reasoning to support copyright conflicts preemption in *Bowers v. Baystate Technologies, Inc.* See Brief of Amici Curiae in Support of Petitioner at 14, 302 F.3d 1334 (Fed. Cir. 2002) (No. 02-1585). Although the reasoning is persuasive, it is arguably misplaced as applied to copyright as contrasted with patent law preemption.

¹⁹⁷ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 142 (1989). This also raises the Dormant IP clause concern of Chief Justice Burger in *Goldstein v. California*, 412 U.S. 546, 558 (1973), *superseded by statute*, Act of Oct. 27, 1998, Pub. L. No. 94-553 (codified as amended at 17 U.S.C. § 301 (2000)) (considering whether state regulation “will prejudice the interests of other States [rather than effect protection] within its boundaries” in discussion of IP Clause preemption). See *supra* note 116.

who reverse engineers solely to clone a product. Once the interoperable product is introduced into the market, the fact that it can interoperate with the original product is a red flag for detection. Yet *Kewanee* makes clear that one reason trade secret law is weaker is because trade secret misappropriation is “not easily susceptible of discovery or proof.”¹⁹⁸ But that is not the case with IO, where the interoperability feature of the interoperable program enables easy detection. Thus, sieve-like potential for leakage of secret IO is sealed to a large extent due to ready detection in the marketplace.¹⁹⁹

Fourth, Congress has indicated in § 1201(f) of the DMCA a federal policy supporting RE to discover and use IO.²⁰⁰ This is the type of affirmative action by Congress that the Supreme Court has indicated is relevant in finding the appropriate balance between federal patent and copyright law and permissible state protection of trade secrets.²⁰¹

Fifth, there is competition in regulation of IO by virtue of the recent rulings of the Eighth and Federal Circuits, applying California and Massachusetts law and risk of similar rulings by misapplication of the Seventh Circuit’s ruling in *ProCD*.²⁰²

In sum, applying the *Kewanee* and *Bonito Boats* patent preemption factors to mass market license restrictions on RE for interoperability purposes strongly suggests that patent law should preempt contract law when it is merely an instrument to try to patentize trade secret information.²⁰³ In trying to draw a reasonable line between the policy of freedom of contract to prevent free riding by cloning trade secrets and the competing interests in competition and interoperability, limiting patent preemption or state public policy invalidation to the narrow case of terms preventing RE for interop-

¹⁹⁸ *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 489–90 (1974).

¹⁹⁹ Professor Frederic Meeker questioned whether such leakage is present due to the potential outsourcing of RE to one of the jurisdictions discussed *infra* at Part VI. However, the question is whether it is legal to discover and use IO in the U.S. Since the answer is no (at best, one might be able to discover it in an interoperability-friendly jurisdiction, and then use the IO in a product in the U.S. but not publish the information), it would be ironic if leakage by virtue of international outsourcing at the expense of U.S. industry was what the *Kewanee* court had in mind.

²⁰⁰ 17 U.S.C. § 1201(f) (2000); see discussion *infra* at Part IV.B.

²⁰¹ See *Kewanee*, 416 U.S. at 493.

²⁰² See *infra* Part III.D.

²⁰³ This analysis may also be appropriate in any case where a non-negotiated license is used to try to obtain a patent-like monopoly on information, particularly where the information is functional in nature.

erability best balances the competing interests and complies with recent Congressional intent reflected in § 1201(f) of the DMCA.²⁰⁴

Only one case has peripherally touched upon this issue. In *DVD Copy Control Ass'n, Inc. v. Bunner*, the Supreme Court of California reversed a Court of Appeals ruling that dissolved a preliminary injunction against website operators who allegedly possessed trade secret material which would enable decrypting DVD copy control on their sites or linked to other sites with such information.²⁰⁵ In remanding the case, the California Supreme Court ruled that the Court of Appeals has to “‘make an independent examination of the entire record’ and determine whether the evidence in the record supports the factual findings necessary to establish that the preliminary injunction was warranted under California’s trade secret law.”²⁰⁶ The majority assumed but did not decide that the initial acquisition of the secret IO by Jan Johansen violated the plaintiff’s shrinkwrap license.²⁰⁷

In a concurring opinion, Justice Moreno agreed that the Court of Appeals needed “to clarify how the prior restraint doctrine under the First Amendment applies to the publication of alleged trade secrets.”²⁰⁸ However, Justice Moreno also ruled that there was no need for further proceedings because the plaintiff’s trade secret claim was “patently without merit” because the information was no longer still secret.²⁰⁹ In addition, he noted in a final footnote that the information was likely acquired through proper means by RE the software:

I also note that it is highly doubtful the alleged trade secret was acquired by improper means within the meaning of the trade secret law. Civil Code section 3426.1, subdivision (a), defining “improper means,” states “[r]everse engineering . . . alone shall not be considered improper means.” Apparently the word “alone” refers to the fact that the item reverse engineered would have to be obtained “by a fair

²⁰⁴ 17 U.S.C. § 1201(f) (1999); see *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1455 (7th Cir. 1996); see *supra* Part IV.B.

²⁰⁵ 75 P.3d 1, 19–20 (Cal. 2003).

²⁰⁶ *Id.* at 20 (citation omitted).

²⁰⁷ *Id.* at 10 n.5 (holding “[t]herefore, we need not decide . . . whether Johansen acquired the trade secrets by improper means when he reverse engineered the Xing software in violation of a license agreement”).

²⁰⁸ *Id.* at 21.

²⁰⁹ See *id.*

and honest means, such as purchase of the item on the open market for reverse engineering to be lawful.” According to the allegations of the complaint, the alleged initial misappropriator of CSS, Jon Johannsen, acquired the secret through reverse engineering. There is no allegation that he acquired the product containing CSS unlawfully, and that therefore improper means were employed. The DVD CCA argument below that violation of a “click license” agreement prohibiting reverse engineering constituted the improper means does not appear to have merit. To be sure, contract plays an important role in trade secret law by protecting the trade secret holder against “unauthorized use or disclosure through a contract *with the recipient of a disclosure*” or others who have had special access to trade secret information, via confidentiality agreements and the like. But nowhere has it been recognized that a party wishing to protect proprietary information may employ a consumer form contract to, in effect, change the statutory definition of “improper means” under trade secret law to include reverse engineering, so that an alleged trade secret holder may bring an action even against a nonparty to that contract. Moreover, if trade secret law did allow alleged trade secret holders to redefine “improper means” to include reverse engineering, it would likely be preempted by federal patent law, which alone grants universal protection for a limited time against the right to reverse engineer.²¹⁰

Other than this discussion in a footnote in a concurring decision, to date there have only been broad based arguments by commentators about patent preemption for mass market license RE restrictions. Over a decade ago, Professor Rice relied upon the second *Kewanee* factor—that trade secrets do not operate “against the world”—to argue that all mass market license restrictions on RE of software should be preempted by patent law:

Shrink-wrap license prohibitions against reverse engineering alter the operation of those [trade secret] liability rules and the public policies which they reflect in a manner that accomplishes exclusion. That substantially enhances trade

²¹⁰*Id.* at 28 n.5 (citations omitted).

secret law, making it more like patent law without the disclosure requirement and temporal limit of federal law. It is that effect which poses the prospect of patent law preemption.²¹¹

Professor Lemley also raised the specter of patent preemption yet ultimately found it unsatisfying because based on a general review of Supreme Court cases, “[p]atent [p]reemption [l]acks [n]uance.”²¹² Professor Reichman and Jonathan Franklin noted in passing that “[i]n an ideal world, perhaps, an enlightened preemption doctrine might ask the right questions,” but then quickly rejected it as politically impractical and too “wooden” a doctrinal tool.²¹³

However, a careful reading of Judge Friendly’s opinion in *Painton* suggests that courts can apply patent preemption to portions of mass market license clauses in a nuanced and enlightened way.²¹⁴ Judge Friendly recognized in dicta that were patent preemption to apply with respect to an agreement, a court “might be willing to recognize aspects of the agreement less offensive to the policy of the patent laws . . .”²¹⁵ Accordingly, a court might utilize a time honored approach of blue penciling a contract clause to avoid only that which is contrary to patent law.²¹⁶ Even Judge Easterbrook’s opinion in *ProCD* leaves open the prospect that a particular contract case might necessitate application of preemption.²¹⁷

To avoid any misunderstanding, it is critical to highlight how circumscribed patent preemption of contract law would be under this analysis. First, negotiated contracts would be unaffected. Second, only to the extent a non-negotiated mass market clause is interpreted to bar discovery and use of IO might it be preempted.²¹⁸ Thus, a court would preempt a clause inso-

²¹¹Rice, *supra* note 98 at 571. Ironically, even Professor Rice has shifted his efforts to focus on copyright preemption and only mentions conflicts with patent and trade secret law as additional reasons for invalidating mass market restrictions on reverse engineering. See David A. Rice, *Copyright and Contract: Preemption After Bowers v. Baystate*, 9 ROGER WILLIAMS L. REV. 595, 628–34 (2004); see also commentators mentioned *supra* note 143. But see Koffshy, *supra* note 101 (rejecting patent preemption without any detailed analysis of *Kewanee* reasoning).

²¹²Lemley, *supra* note 192, at 145.

²¹³Reichman & Franklin, *supra* note 105, at 920–22.

²¹⁴See generally *Painton & Co. v. Bourns, Inc.*, 442 F.2d 216 (2d Cir. 1971).

²¹⁵*Painton & Co. v. Bourns, Inc.*, 442 F.2d 216, 226 n.8 (2d Cir. 1971).

²¹⁶See discussion of UCITA § 105 *infra* Part V.A.

²¹⁷*ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1455 (7th Cir. 1996). See *infra* Part III.D.

²¹⁸Professor Jane Ginsburg also raised an interesting scenario—what if a party, as in *ProCD*

far as it extended to discovery and use of IO, but enforce the clause otherwise.²¹⁹ To highlight why this approach makes sense, a comparison of two types of licenses is appropriate: (1) an IO license for a limited purpose, subject to an obligation of secrecy and (2) a non-negotiated mass market license of object code software subject to a prohibition against RE to learn IO solely to develop an independent program interoperable with the licensed program.

Nothing in the application of the *Kewanee* and *Bonito Boats* factors raises doubts as to the enforceability of a license of secret IO.²²⁰ In such a case, the subject of the license would be the information, not the software product (as in example two). Thus, enforcement of license one would not run afoul of the proposed patent preemption analysis²²¹ but would in fact further the permissible state policy of encouraging controlled dissemination of information by licensing of trade secrets recognized in *Kewanee*.²²² A competitor would remain free to RE the software for interoperability purposes. Thus, no risk of creation of a property right against the world exists in such information. In contrast, the restriction in license two goes to the

offered different versions (at different prices) of the product wherein the consumer version (at a lower price) prohibited RE for interoperability purposes and a business version (at a higher price) did not prohibit such activity? Would the restriction in the consumer version be preempted? Although one could say this presents a case at the borderline, the stronger argument would appear to be that the consumer version should not be preempted because it does not prevent the world from RE the product—a party could lawfully acquire the business version and reverse engineer it to discover the IO.

²¹⁹In addition, the interoperability developer would need to proceed very carefully in discovering and documenting the necessary IO to avoid claims of either copyright infringement or misuse of trade secret information other than IO. For this reason, the interoperability developer might utilize additional procedures to evidence that it only accessed and used the IO it would be entitled to use. See, e.g., *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1526 (9th Cir. 1992) (outlining Accolade's clean room procedure).

²²⁰See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 149–50 (1989); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 471 (1974).

²²¹See *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 266 (1979) (holding that state trade secrets law was not preempted even where royalty payment obligation extended beyond time when patent application was rejected since licensee obtained first-to-market benefit and expressly negotiated rate based upon possibility that no patent would issue in certain period of time).

²²²*Kewanee Oil Co.*, 416 U.S. at 486–87; see *ProCD, Inc.*, 86 F.3d at 1454–55 (referring to the procompetitive effect of contract law in protecting trade secrets); *Painton & Co. v. Bourns, Inc.*, 442 F.2d 216, 225–26 (2d Cir. 1971) (“[s]haring of technological know-how on the basis of proper agreements has been beneficial not only within this country but in its relations with others”).

heart of the concerns about patent law discussed above and would frustrate the patent regime.²²³ As such, enforcement by state courts should be preempted.

In addition, the Supreme Court's reasoning would support enforcement of a shrink-wrap or web-wrap term prohibiting RE extending to IO during product development.²²⁴ In preempting the Florida statute, the Supreme Court in *Bonito Boats* noted that trade secret protection is most important during the product development stage, rather than after the product enters the market:

The Florida statute substantially reduces this competitive incentive [available via reverse engineering], thus eroding the general rule of free competition upon which the attractiveness of the federal patent bargain depends. The protections of state trade secret law are most effective at the developmental stage, before a product has been marketed and the threat of reverse engineering becomes real.²²⁵

Thus, even non-negotiated licenses accompanying limited distribution of an alpha, beta, or other pre-market launch test versions of software could contain an enforceable term prohibiting access to IO. The reasons are clear: (1) the length of the restriction is almost certain to be much shorter than the patent term and (2) the restriction does not conflict with the fundamental trade secret limiting principle of freedom to RE a product generally available in the marketplace.²²⁶

One issue arises as to whether patent preemption should apply to IO which is not in fact patentable. The *Kewanee* Court considered and rejected a "partial pre-emption" approach because "it would be undesirable to impose the almost impossible burden on state courts to determine the patentability—in fact and in the mind of a reasonable inventor—of a discovery which has not been patented and remains entirely uncircumscribed by expert analysis in the administrative process."²²⁷

²²³ *Kewanee Oil Co.*, 416 U.S. at 485–86.

²²⁴ See *Aronson*, 440 U.S. at 266 (1979); see *supra* text accompanying note 221.

²²⁵ *Bonito Boats, Inc.*, 489 U.S. at 161.

²²⁶ Obviously there might be some scenario where a closed technologist mischaracterized its ongoing distribution of a product as being still "in development," but that would simply require a court to look beyond a party's potentially self-serving characterization of its distribution.

²²⁷ *Kewanee Oil Co.*, 416 U.S. at 492.

In view of the above arguments, it seems curious that no court has directly considered this patent preemption analysis. One wonders why the recent debate among commentators, litigants, and the courts has been limited primarily to copyright preemption of contract law. In retrospect, perhaps the reason for the focus on copyright and contract law was due to uncertainty over the availability of patent protection for computer software.²²⁸ However, with that issue now resolved in the affirmative, it seems clear that the focus should shift to patent preemption of contract law.

Given the availability of patent protection for interoperability related aspects of software, a fresh read of *Kewanee*, *Bonito Boats*, and the other patent preemption cases discussed above provide a sufficiently nuanced, enlightened, and pragmatic approach, which should invoke patent preemption of RE prohibitions only to the extent that they bar discovery of IO.²²⁹ Applying this new lens to extant cases shows how patent protection analysis and outcomes may be affected.

D. Applying Patent Preemption Lens to Recent Decisions: Bowers, Davidson, ProCD

Changing the lens from the current copyright/contract preemption debate to a focus on the interplay of patent, trade secret policy, and contract law as an instrument for protecting trade secrets provides a new way for courts to consider the matter. In sum, the appropriate hierarchy for protection of IO is patent primacy, with weaker trade secret protection, including use of contract law as an instrument of that weaker protection. However, where enforcement of a particular term would result in stronger state protection than the federal patent regime, the term must be preempted.²³⁰ Such

²²⁸ See, e.g., Reichman & Franklin, *supra* note 105, at 940 (characterizing compatibility information as “unpatentable . . . ideas”).

²²⁹ See generally *Kewanee Oil Co.*, 416 U.S. 470; *Bonito Boats, Inc.*, 489 U.S. 141.

²³⁰ Interestingly, Professor Miller, *supra* note 110, at 772, recently raised concerns about enforcing shrinkwrap licenses such as those presented in *Bowers v. Baystate Techs., Inc.*, 320 F.3d 1317, 1321 (Fed. Cir. 2003), and *ProCD v. Zeidenberg*, 86 F.3d 1447, 1454–55 (7th Cir. 1996), without court scrutiny of de facto monopoly risks: “Those courts should have determined whether the restrictive contracts at issue provided the sellers with de facto idea monopolies.” Ironically, Professor Miller did not cite to *Davidson & Assocs. v. Jung*, 422 F.3d 630, 632 (8th Cir. 2005), arguably the most troubling case in terms of effecting a de facto monopoly on IO, whereas both *Bowers* and *ProCD* may not present the de facto monopoly risk when analyzed using the patent preemption five factor test suggested in this Article.

is the case of non-negotiated mass market licenses restricting discovery and use of IO.

The proper approach for courts must be first to determine if a reasonable interpretation avoids the clash of policies. As such, courts may simply interpret narrowly terms restricting RE solely to cover activity directed at discovering secrets to clone features (as contrasted with activity to learn interfaces for interoperability purposes), in light of the underlying competing federal and state trade secret policy considerations which potentially conflict with contract law. If such interpretation cannot be feasible, then the contract law exception for competing public policy analysis should be employed.²³¹ Courts should address the patent preemption only as a last resort.

Bowers v. Baystate Technologies, Inc. presents a case where a copyright preemption and contract focus has left ambiguities on the question of whether a mass-market term can bar RE to discover and use IO.²³² In *Bowers*, the Federal Circuit enforced a mass market restriction on RE notwithstanding a claim of copyright preemption.²³³ Factually, it appears to be a case of cloning.²³⁴ The defendant reverse engineered the plaintiff's product to copy its functionality, but did not reference any IO.²³⁵ In ruling that copyright did not preempt the shrink wrap license term restricting RE, the court held that there was an extra element in the contract beyond what copyright covered—that extra element was the contract-created duty not to discover and use the uncopyrightable trade secret ideas which inhered in the software.²³⁶

²³¹ Arguably the only scenario where this would have to occur would be the presence of contract language such as “notwithstanding any other laws or policies or any other provisions of this agreement to the contrary, the licensee shall under no circumstances reverse engineer the licensed product for purposes of discovery of interoperability information necessary to and otherwise unavailable for the licensee to develop an interoperable product.” See *infra* Part V.A.

²³² See generally 320 F.3d 1317 (Fed. Cir. 2003).

²³³ *Id.* at 1326–28.

²³⁴ *Id.* at 1321. *Bowers* is a factually complex case because the defendant copied aspects of the plaintiff's program related to the user interface of the program. However, this case contained no issues about data formats or IO as used in this article. See definition *supra* at Part II.B. See also *id.* at 1326 (“The record also contains evidence of extensive and unusual similarities between Geodraft and the accused Draft-Pak—further evidence of reverse engineering.”).

²³⁵ *Id.*

²³⁶ *Id.* at 1323–24.

In adopting the reasoning of *ProCD* and enforcing the contract, the court's decision sheds minimal light on a case involving IO.²³⁷ Arguably, the court reserved judgment:

In making this determination, this court has left untouched the conclusions reached in *Atari Games v. Nintendo* regarding reverse engineering as a statutory fair use exception to copyright infringement. In *Atari*, this court stated that, with respect to 17 U.S.C. § 107 (fair use section of the Copyright Act), “[t]he legislative history of section 107 suggests that courts should adapt the fair use exception to accommodate new technological innovations.” This court noted “[a] prohibition on all copying whatsoever would stifle the free flow of ideas without serving any legitimate interest of the copyright holder.” Therefore, this court held “reverse engineering object code to discern the unprotectable ideas in a computer program is a fair use.” Application of the First Circuit’s view distinguishing a state law contract claim having additional elements of proof from a copyright claim does not alter the findings of *Atari*. Likewise, this claim distinction does not conflict with the expressly defined circumstances in which reverse engineering is not copyright infringement under 17 U.S.C. § 1201(f) (section of the Digital Millennium Copyright Act) and 17 U.S.C. § 906 (section directed to mask works).²³⁸

The Federal Circuit’s discussion of the distinction between copyright and use of contract law to prevent misappropriation of trade secrets may be all that the court intended by stating that it did not alter the copyright decision in *Atari*.²³⁹ However, the reference to § 1201(f) of the DMCA may be more telling because that section expresses congressional intent to override contract in certain cases involving RE to discover and use IO.²⁴⁰ Reading from this perspective, the court’s statement that the “claim distinction [between contract and copyright] does not conflict with the expressly defined

²³⁷ *ProCD v. Zeidenberg*, 86 F.3d 1447, 1454–55 (7th Cir. 1996).

²³⁸ *Bowers*, 320 F.3d at 1325 (citations omitted).

²³⁹ See generally *Atari Games Corp. v. Nintendo of America, Inc.*, 975 F.2d 832 (Fed. Cir. 1992).

²⁴⁰ See *supra* Part IV.B.

circumstances in which reverse engineering is not copyright infringement under [§ 1201(f)]” may be the court’s way of expressly recognizing that RE for purposes of interoperability was not being considered.²⁴¹

In interpreting the specific clause, the *Bowers* court stated:

In this case, the contract unambiguously prohibits “reverse engineering.” That term means ordinarily “to study or analyze (a device, as a microchip for computers) in order to learn details of design, construction, and operation, perhaps to produce a copy or an improved version.” Thus, the contract in this case broadly prohibits any “reverse engineering” of the subject matter covered by the shrink-wrap agreement.²⁴²

The court went on to state, “The shrink-wrap license agreement prohibited, *inter alia*, all reverse engineering of Mr. Bowers’ software, protection encompassing but more extensive than copyright protection, which prohibits only certain copying.”²⁴³

There are two ways to interpret the court’s reasoning. One is that the court enforced a contract to prevent RE to discover all ideas unprotectable by copyright, which would include IO. A second reading is simply that a mass market license is enforceable to prevent RE of trade secrets which inhere in software other than IO (i.e., to prevent cloning functionality generally).

It is unfortunate that the court’s use of the phrase “all reverse engineering” arguably comports better with the former view, which would preclude discovery and use of IO—an interpretation in conflict with the patent preemption analysis outline above.²⁴⁴

Had the court been presented with the issue from the patent preemption/trade secret perspective suggested in this Article, it very well may have provided greater attention to its interpretation of the contract clause and explicitly construed it to exclude IO to avoid a patent preemption risk. Nonetheless, the court did not confront that issue and the finding of breach of an enforceable contract term is consistent with the analysis suggested in this

²⁴¹ *Bowers*, 320 F.3d at 1325.

²⁴² *Id.* at 1326 (citations omitted).

²⁴³ *Id.* at 1327.

²⁴⁴ *Id.*

Article (i.e., that courts should enforce mass market prohibitions on RE for purposes of cloning functionality generally).

Interestingly, Judge Dyk's dissent captures the key distinction between individually negotiated terms and those subsumed in a mass market license, but which may be at odds with other policies: "I nonetheless agree with the majority opinion that a state can permit parties to contract away a fair use defense or to agree not to engage in uses of copyrighted material that are permitted by the copyright law, if the contract is freely negotiated."²⁴⁵ Unfortunately, Judge Dyk limited his disagreement solely to the debate of balancing federal copyright policy vis-à-vis state contract policy (which includes use of contract as an instrument to enforce a trade secret).²⁴⁶ As such, the opinion did not address the critical issue of considering either federal patent law or other public policies to determine the appropriate scope of state trade secrets rights and their enforcement by contract law.²⁴⁷

In sum, *Bowers* is worth reconsidering from this new perspective. Ironically, the court's focus on federal copyright policy vis-à-vis state freedom of contract policy may be due to defendant's failure to plead patent preemption.²⁴⁸ For whatever reason, the court does not discuss the critical issue of whether enforcing a RE prohibition clause in a mass market context upsets the fundamental trade secret principle concerning RE products in the marketplace and impermissibly conflicts with patent law.²⁴⁹ Since the case did not involve IO, it is distinguishable on its facts.

Davidson & Associates v. Jung is yet another case stuck in the copyright and freedom of contract rut.²⁵⁰ Once again, as in *Bowers*, the focus on copyright theories (preemption and misuse) may stem from a failure to recognize the key role of patent law.²⁵¹ Ironically, this focus by the court again

²⁴⁵ *Id.* at 1336 (Dyk, J. dissenting).

²⁴⁶ *Id.* at 1336–37.

²⁴⁷ *See generally id.*

²⁴⁸ *Id.*

²⁴⁹ *Id.* Interestingly, an amici brief filed in the Court of Appeal hints at this issue but approaches it from a copyright conflicts preemption analysis. *See supra* note 196. Again, this could be due to the failure to plead a patent preemption defense.

²⁵⁰ 422 F.3d 630, 638–40 (8th Cir. 2005).

²⁵¹ *See generally Davidson & Assocs.*, 422 F.3d 630.

may simply be due to defendant's failure to plead patent preemption as a defense.²⁵²

In *Davidson*, the defendants asserted that they reverse engineered solely to discover protocols and other format information needed to build server software which would interoperate with Davidson's software.²⁵³ However, the record is unclear if defendants discovered and used any other secret information beyond that which was needed for interoperability.²⁵⁴ If the defendants' and plaintiff's products were functionally similar, but that occurred from external intelligent observation by defendants, then there would not appear to be any basis for claiming contract breach (i.e. misappropriation of a trade secret) solely due to defendants' RE of plaintiff's software to discover IO.²⁵⁵

The point is that patent, copyright, and trade secret law and policy support override a non-negotiated mass market restriction to the extent the defendants obtained and used only IO. If the enforcement of the contract term prevented use of such information, then the fundamental balance between the incentives available under the limited term and scope of patent law would potentially be outweighed by the reward offered by state enforcement of the clause: a de facto monopoly of potentially perpetual duration to exclude others from discovering IO whose use in an interoperable product is readily detectable in the marketplace because of its compatibility feature.

However, if discovery and use of Davidson's secrets extended beyond the narrow field of functional IO, which strikes at the core of federal patent and copyright law, the court properly held the defendants accountable to the contract restriction.

²⁵² See generally Defendant's Amended Answer and Counterclaims to Plaintiff's Second Amended Complaint, *Davidson & Assocs. v. Internet Gateway, Inc.*, No. 4:02-CV-498 CAS (E.D. Mo. Dec. 4, 2002).

²⁵³ *Davidson & Assocs.*, 422 F.3d at 636.

²⁵⁴ *Id.* at 635–36. The plaintiff argued in the district court that defendants “copied elements that would preserve player account information, display of icons and presentation of banners” and the court found that “defendant's action constituted more than enabling interoperability.” Memorandum and Order at 32, *Davidson & Assocs. v. Internet Gateway, Inc.*, 334 F. Supp. 2d 1164 (E.D. Mo. 2004). Using RE to obtain any such non-interoperability secrets would be impermissible under the analysis put forward in this Article.

²⁵⁵ Arguably, the district court may have had a misinformed view of what copyright protects because the court considered the fact that defendants' server was a “functional alternative” to plaintiff's software within the “realm of copyright infringement.” Memorandum and Order, *supra* note 255, at 32.

Finally, *ProCD* must be considered, because it is so broadly cited for the general proposition that mass market license terms are enforceable.²⁵⁶ At the outset, the rule adopted in *ProCD* is worth stating: “Shrinkwrap licenses are enforceable unless their terms are objectionable on grounds applicable to contracts in general (for example, if they violate a rule of positive law, or if they are unconscionable).”²⁵⁷ At a minimum, the case is not directly on point since the defendant did not seek to RE the software to discover and use IO.²⁵⁸ As such, this case did not necessarily implicate patent preemption. In addition, the recognition that “general” grounds of exception to contract enforcement apply to shrink-wrap licenses expressly reserves the prospect that a public policy or patent preemption could apply in a future case.²⁵⁹ In fact, Judge Easterbrook very carefully made clear that a situation could be presented where preemption might apply to a private contract: “Like the Supreme Court in *Wolens*, we think it prudent to refrain from adopting a rule that anything with the label ‘contract’ is necessarily outside the preemption clause: the variations and possibilities are too numerous to foresee.”²⁶⁰

The challenge with *ProCD* is that a careful analysis of Judge Easterbrook’s reasoning and dicta highlights questions on the issue of whether a shrink-wrap license is enforceable “against the world” as contemplated by the *Kewanee* and *Bonito Boat* decisions in the context of a non-negotiated mass market license restriction on RE to discover and use IO in 2006.²⁶¹ In addition, language suggests that a RE prohibition is consistent with trade secret law.²⁶² Since the language is merely dicta, nothing prevents recon-

²⁵⁶ See, e.g., *Specht v. Netscape Commc’ns Corp.*, 150 F. Supp. 2d 585, 592 (S.D.N.Y. 2001), aff’d, 306 F.3d 17 (2d Cir. 2002).

²⁵⁷ *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1449 (7th Cir. 1996).

²⁵⁸ See *id.* at 1449–50. In fact, the holding is consistent with the view expressed *supra* text accompanying notes 220–22 that enforcement by state law of licenses of information is consistent with Supreme Court teachings and as such provides the rationale for a limited purpose license of IO.

²⁵⁹ See *infra* Part V.A.

²⁶⁰ *ProCD*, 86 F.3d at 1455.

²⁶¹ *Id.* at 1453–54; *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 490 (1974); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 161 (1989).

²⁶² *ProCD*, 86 F.3d at 1455 (“To the extent licenses facilitate distribution of object code while concealing the source code (the point of a clause forbidding disassembly), they serve the same procompetitive functions as does the law of trade secrets.”). Although this is true in the case of source code information generally, it is not true of IO because of the teachings of *Kewanee* and *Bonito Boats*, discussed *supra* Part IV.C.

sideration of these issues in a case which directly raises the issue of enforcement of a mass-market clause which bars discovery and use of IO to preclude development of an independent interoperable product.²⁶³

The central assumption implicit in Judge Easterbrook's conclusion that the *ProCD* shrink-wrap was not a public right enforceable "against the world," but rather a private contract right, was that one can actually find software available on the street without an enforceable contract term.²⁶⁴ Thus, he reasons:

Rights "equivalent to any of the exclusive rights within the general scope of copyright" are rights established *by law*—rights that restrict the options of persons who are strangers to the author. Copyright law forbids duplication, public performance, and so on, unless the person wishing to copy or perform the work gets permission; silence means a ban on copying. A copyright is a right against the world. Contracts, by contrast, generally affect only their parties; strangers may do as they please, so contracts do not create "exclusive rights." Someone who found a copy of [plaintiff's software product which included telephone listings] on the street would not be affected by the shrink-wrap license—though the federal copyright laws of their own force would limit the finder's ability to copy or transmit the application program.²⁶⁵

Several points are worth noting about this analysis as applied to patent preemption of a term preventing RE to discover and use IO. Amazingly, they all stem from the assumption that "strangers. . . who [find]. . . a copy of [software] on the street would not be affected by the shrink-wrap license."²⁶⁶

The "strangers on the street" assumption is so critical because whether such "strangers" are real or fictional in 2006 lies at the heart of the reasoning in *Kewanee* and *Bonito Boats*.²⁶⁷ First, the freedom to RE a product available in the marketplace without being subject to a contract restric-

²⁶³ *ProCD*, 86 F.3d at 1455.

²⁶⁴ *Id.* at 1454.

²⁶⁵ *Id.* (emphasis in original).

²⁶⁶ *Id.*

²⁶⁷ *See supra* Part III.B.

tion—the first *Kewanee* factor—is satisfied in the case of software by *ProCD*'s “strangers on the street.”²⁶⁸ Second, *Kewanee* made clear that if a state law is enforceable “against the world,” it may be at risk of patent preemption.²⁶⁹ It is only by existence of the “strangers on the street” that the shrink-wrap license in *ProCD* is not enforceable against the world.²⁷⁰

Thus, to satisfy two of the *Kewanee* factors, the existence of “strangers on the street” free of any contract restriction are critical.²⁷¹ The problem with software is that *ProCD*'s “strangers on the street” have become, in the real world of software distribution in 2006—virtual, not real, strangers—due to the dramatic changes in the way in which software is now typically made available to the public. The copy of the *ProCD* software which is assumed to be available to “strangers on the street” is a relic of a now outmoded approach to distribution of software.²⁷² No one merely includes a sheet of paper printed with the license in a box that separately contains a disk on which resides the object code version of the software. Today, even in the case of tangible copies of software available for distribution (and thus theoretically available for strangers to pick up on the street), the software itself typically includes the license.²⁷³ In the increasingly common context of web distribution, the license is part of the software and affirmative assent by electronic keystroke to the terms is a prerequisite to access to the software.²⁷⁴ In addition, the new claim under § 1202 of the DMCA for altering copyright management information creates a separate cause of action against anyone who attempts to strip the license terms from the software.²⁷⁵ The point is in the increasingly prevalent era of digital availability via the internet, the license is part of the code and the federal law of § 1202 bars its separation.²⁷⁶ As such, *ProCD*'s “strangers” have become entirely fictional because no one can practically gain access to software without encountering the license.

²⁶⁸ See *Kewanee Oil Co. v. Bicon Corp.*, 416 U.S. 470, 470 (1974).

²⁶⁹ *Id.* at 490.

²⁷⁰ See *ProCD*, 86 F.3d at 1454.

²⁷¹ See *id.*; see also *Kewanee*, 416 U.S. at 470.

²⁷² *ProCD*, 86 F.3d at 1454.

²⁷³ See *supra* Part II.A.

²⁷⁴ See Reichman & Franklin, *supra* note 105.

²⁷⁵ 17 U.S.C. § 1202 (2000).

²⁷⁶ *Id.*

Finally, since no party raised the issue of patent preemption, Judge Easterbrook's passing comments in *ProCD* about *Kewanee* are just that—dicta.²⁷⁷ The case did not require scrutiny of the *Kewanee* and *Bonito Boats* factors to determine whether a state contract term might result in a “de facto monopoly” right equivalent to or stronger than a patent.²⁷⁸ Therefore, his dictum about the procompetitive functions of a shrink wrap RE prohibition on software should not be misinterpreted.²⁷⁹ He was not presented with an argument that such a clause was extending to IO, as contrasted with other trade secret source code information. Had that been the case, then reliance on *Kewanee* and *Bonito Boats* would have presented the case which he hypothesized that “the variations and possibilities are too numerous to foresee” and that might lead to preemption.²⁸⁰

In sum, the holding of *ProCD* complies with the patent preemption and public policy analysis presented in this Article.²⁸¹ In addition, and more importantly, the reasoning of *ProCD* does not help in analyzing some of the issues presented in this Article for two reasons.²⁸² First, the fundamental assumption in *ProCD* concerning the manner in which the public gains access to software no longer reflects marketplace reality in 2006 because software is not typically available distinct from its license.²⁸³ Second, since *ProCD* solely raised copyright preemption—which this author suggests is inapposite to the question of contractual control of discovery and use of IO—dicta on *Kewanee* and *Bonito Boat* in *ProCD* understandably do not reflect the detailed teachings of those cases in the case of patent preemption.²⁸⁴

Interestingly, the patent preemption analysis suggested in this Article may provide a reasoned approach to *ProCD* and the broader issue of the bounds imposed by federal intellectual property law on use of contract (or some other form of state regulation) to control access to and use of useful

²⁷⁷ *ProCD*, 86 F.3d at 1454.

²⁷⁸ *Id.*; see *supra* Part III.C.

²⁷⁹ See *ProCD*, 86 F.3d at 1455; see also *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 475 (1974); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 148 (1989).

²⁸⁰ *ProCD*, 86 F.3d at 1455.

²⁸¹ *Id.*

²⁸² *Id.*

²⁸³ *Id.* at 1450. If a case arose where plaintiff could show some realistic manner by which a stranger could lawfully possess a copy without encountering the license, then patent preemption might not be implicated. See *supra* note 218.

²⁸⁴ *Id.* at 1453–54; see *Kewanee*, 416 U.S. at 475; *Bonito Boats*, 489 U.S. at 148.

data.²⁸⁵ Arguably, the question depends upon the patent preemption factors outlined in Part III.C.: (1) whether state regulation results in a de facto patent-like monopoly in such data, (2) whether impermissible regulatory competition exists in IP for functional data in the federal system, and (3) whether Congress has expressed any intent in terms of the role of federal versus state regulation of such useful information.²⁸⁶ If enforcement of the contract term is tantamount to a patent-like monopoly and there is a real risk of regulatory competition, then the risk of patent preemption is great. Since other sources of the data compilation could not be secured by a copyright in *ProCD*, no risk arose that enforcement of the contract was tantamount to a state monopoly in the data.²⁸⁷ This approach also concurs with the underlying reasoning of Judge Posner in *Assessment Technologies of WI, LLC v. WIREdata Inc.*, where he strongly suggested that use of a mass market software license to effectively control access to and use of public domain data very well might be copyright misuse because it could effect monopoly type control over the data.²⁸⁸

Unfortunately, one reading of *Bowers*, *Davidson*, and *ProCD* may lead some to conclude—erroneously in this author’s opinion—that mass market license terms restricting RE to discover and use IO are enforceable and con-

²⁸⁵ *ProCD*, 86 F.3d at 1455.

²⁸⁶ Cf. Maureen A. O’Rourke, *Copyright Preemption After the ProCD Case: A Market-Based Approach*, 12 BERKLEY TECH. L.J. 53, 55 (1997); see also generally Miller *supra* note 110.

²⁸⁷ *ProCD, Inc.*, 86 F.3d at 1449.

²⁸⁸ 350 F.3d 640, 641–42 (7th Cir. 2003) (explaining that where a licensor sought to use mass market license and copyright to prevent licensees from disclosing to realtors real property tax assessment data collected and organized using the software and not otherwise available). Justice Posner strongly suggested that copyright misuse might bar enforcement; he characterized the case as such:

This case is about the attempt of a copyright owner to use copyright law to block access to data that not only are neither copyrightable nor copyrighted, but were not created or obtained by the copyright owner. The owner is trying to secrete the data in its copyrighted program—a program the existence of which reduced the likelihood that the data would be retained in a form in which they would have been readily accessible. It would be appalling if such an attempt could succeed.

Id. at 641–42. In upholding an attorney fee award against the plaintiff, Justice Posner described *Assessment Technologies of WI* as a case where “[t]he plaintiff was rather transparently seeking to annex a portion of the intellectual public domain.” *Assessment Techs. of WI v. WIREdata, Inc.*, 361 F.3d 434, 437 (7th Cir. 2004).

sistent with federal policy.²⁸⁹ For the reasons discussed above, this conclusion is solely because courts have undertaken a copyright, rather than patent and state trade secret, policy and preemption analysis.

This unfortunately results in an apparent realignment of public policy in favor of a technology distributor who elects to introduce its technology to the mass market under a license. It enables the technologist, without any federal IP rights in its IO, to assert exclusivity—against the world—to that information. This lies at the heart of the patent regime.

As discussed below, recent copyright decisions unequivocally reflect that patent law has primacy in the area of control of IO.²⁹⁰ In addition, recent congressional action in amending the Copyright Act expresses a federal policy in favor of RE of technical protections of copyrighted works where necessary to develop an independent interoperable product.²⁹¹ Cumulatively, these actions indicate that recent cases have too readily enforced mass-market license terms prohibiting RE, regardless of purpose. This does not comply with repeated cautions from the Supreme Court to be mindful that patent is the proper form of IP for useful inventions.²⁹²

IV. FEDERAL COPYRIGHT LAW ON DISCOVERY AND USE OF INTEROPERABILITY INFORMATION

A. *Fair Use Decisions and the Primacy of Patent Law*

Recent copyright fair use decisions support RE for interoperability.²⁹³ Courts have recognized that RE of software to learn necessary interface information to develop independent programs which can interoperate with the targeted software or with another product that is compatible with the closed

²⁸⁹ *Bowers v. Baystate Techs., Inc.*, 302 F.3d 1334, 1341 (Fed. Cir. 2002); *Davidson & Assocs. v. Jung*, 422 F.3d 630, 637–42 (8th Cir. 2005); *ProCD, Inc.*, 86 F.3d at 1449.

²⁹⁰ *See, e.g., Mitel, Inc. v. Iatel, Inc.*, 124 F.3d 1366, 1372 (10th Cir. 1997).

²⁹¹ Copyright Act, 17 U.S.C. § 1201 (2000).

²⁹² *See Baker v. Selden*, 101 U.S. 99, 102 (1879); *see also Mazer v. Stein*, 347 U.S. 201, 217–18 (1954).

²⁹³ Federal trademark policy also values product compatibility over enforcement of trademark rights. *See Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 843–44 (Fed. Cir. 1992) (holding that a competitor's use of Sega's trademark as part of initialization process was lawful because Sega elected to use its trademark functionally as part of its trademark security system even where it resulted in confusing mislabeling of competitor's product). *But see Qualitex Co. v. Jacobson Prods. Co.*, 514 U.S. 159, 166 (1994) (holding that color compatibility of products as a form of functionality fell within role of trademark policy).

technologist's product is fair use.²⁹⁴ Thus, courts have defended copying of interface information—whether directly used by end users²⁹⁵ or indirectly by allowing a program to interoperate with another program²⁹⁶—and may excuse intermediate infringement of a software program. The underlying rationale holds that copyright does not protect ideas, processes, data formats, and methods of operation.²⁹⁷ As such, a competitor may fairly do an act that would otherwise be copyright infringement (decompiling or disassembling a software program) to ascertain the IO needed to build an independent interoperable program.²⁹⁸

²⁹⁴ *Bateman v. Mnemonics, Inc.*, 79 F.3d 1532, 1542, 1547 (11th Cir. 1996); *Sony Computer Entm't, Inc. v. Connectix Corp.*, 203 F.3d 596, 602–03 (9th Cir. 2000).

²⁹⁵ *See Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 815 (1st Cir. 1995) (explaining that copyright in software cannot be used to prevent another party from using keystroke commands, the method of operation by which a human interfaces with the program; the majority held that keystroke commands were uncopyrightable “methods of operation” under 17 U.S.C. § 102(b), as contrasted with Justice Boudin’s concurrence which came to the same conclusion by a fair use analysis, 49 F.3d at 819–22, *aff'd per curiam*, 516 U.S. 233, 233 (1996) (affirming the lower court by an equally divided Supreme Court)).

²⁹⁶ *See Sega Enters, Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1527–28 (9th Cir. 1992); *NEC Corp. v. Intel Corp.*, 10 U.S.P.Q.2d 1177, 1188–89 (N.D. Cal. 1989) (finding no copyright infringement of Intel’s microcode where “the expression of NEC’s microcode was constrained by the use of the macroinstruction set and hardware of the 8086/88”); *Sony Computer Entm't, Inc.*, 203 F.3d at 606.

²⁹⁷ 17 U.S.C. § 102(b) (2000); *Lotus Dev. Corp.*, 49 F.3d at 815; *Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366, 1372, 1376 (10th Cir. 1997) (holding that command codes for accessing telephone device unprotected by copyright because they were “dictated by external functionality and compatibility requirements of the computer and telecommunications industries”); *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 836 (10th Cir. 1993); *Computer Assocs. Int'l Inc. v. Altai Inc.*, 23 U.S.P.Q.2d 1241, 1250–51 (E.D.N.Y. 1991), *superseded on rehearing* by 982 F.2d 693 (2nd Cir. 1992).

²⁹⁸ One interesting issue which remains the subject of some controversy is whether an interface or protocol is itself copyrightable. Decisions have not been consistent on the copyrightability of interfaces. *Bateman*, 79 F.3d at 1547 (“It is an incorrect statement of the law that interface specifications are not copyrightable as a matter of law.”); *cf. Lotus*, 49 F.3d at 815 (holding that keystroke commands could not be secured by a copyright because they were “method of operation”); *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 126 F.3d 977, 979 (7th Cir. 1997) (holding that taxonomy of insurance billing codes are copyrightable, and potentially single five-digit number within taxonomy may also be copyrightable expression); *see Computer Assocs. Int'l Inc. v. Altai Inc.*, *infra* note 312. *See also Lemley*, *supra* note 24, at 1242–44 & n.16. Drawing an analogy to the law relating to copyright protection of forms, copyrightability needs to be assessed on a case-by-case basis to determine if there is expressive material beyond that is necessary to implement or use the interface or protocol. In contrast, copyright does not protect interfaces under the European Union Software Directive. Council Directive 91/250, 1991 O.J. (L 122) 111, 111 (EC)

The outcome in these cases relating to access and use of IO is consistent with the fundamental teaching of *Baker v. Selden*: although a party can acquire a copyright in a work which embodies creative expression, that right cannot interfere with the right to practice the useful art or method of operation embodied in the work which is the province of patent law.²⁹⁹ Thus, in *Baker*, the Supreme Court determined that copyright would not extend to foreclose use of a form embodied in a copyright work necessary to practice a bookkeeping method.³⁰⁰ The Court reasoned that the ability to control the practice of a method of operation was the province of patent, not copyright:

To give to the author of the book an exclusive property in the art described therein, when no examination of its novelty has ever been officially made, would be a surprise and a fraud upon the public. That is the province of letters-patent, not of copyright. The claim to an invention or discovery of an art or manufacture must be subjected to the examination of the Patent Office before an exclusive right therein can be obtained; and it can only be secured by a patent from the government.³⁰¹

A review of the key copyright cases involving RE to discover and use IO shows consistent support for this principle. This underlying tenet of the primary place of the regime of patent, not copyright, in connection with the right to use functional matter (such as a format—the software equivalent to the form in *Baker*) should inform the analysis of whether patent or copyright principles should govern the question of preemption of state contract terms which bar discovery and use of IO.³⁰²

(“Whereas, for the avoidance of doubt, it has to be made clear that only the expression of a computer program is protected and that ideas and principles which underlie any element of a program, including those which underlie its interfaces, are not protected by copyright under this Directive.”).

²⁹⁹ 101 U.S. 99, 103 (1879).

³⁰⁰ *Id.* at 104.

³⁰¹ *Id.* at 102.

³⁰² *Id.* Early in the debate about the role of patent and copyright protection of software, commentators recognized that the primacy of patent over copyright as to functional aspects of software was important to consider from a preemption perspective. See McManis, *supra* note 15, at 95 (1993) (citing D.C. Toedt, *Bonito Boats, and Primacy of the Patent System—Are There Implications for Software Copyrights?* COMPUTER LAW., Apr. 1987, at 12).

Sega Enterprises, Ltd. v. Accolade, Inc. was the first case to hold that RE of software to discover and use IO is a fair use.³⁰³ The Ninth Circuit held that Accolade's disassembly of Sega's machine readable object code (which was publicly available) into human-readable source code was permissible to identify the information necessary for Accolade to develop an independent game program that would be compatible with the Sega Genesis game platform.³⁰⁴

In order to discover the interface information, Accolade copied and made a derivative of the Sega object code, both of which *prima facie* fall within the exclusive rights of a copyright holder.³⁰⁵ However, the Ninth Circuit concluded that Accolade's disassembly was a fair use under Section 107 of the Copyright Act:

Because, in the case before us, disassembly is the only means of gaining access to those unprotected aspects of the program, and because Accolade has a legitimate interest in gaining such access (in order to determine how to make its cartridges compatible with the Genesis console), we agree with Accolade['s] [fair use assertion].³⁰⁶

The *Sega* court recognized that a contrary ruling would amount to an unacceptable "de facto monopoly" on IO by reliance on copyright law:

[T]he fact that computer programs are distributed for public use in object code form often precludes public access to the ideas and functional concepts contained in those programs, and thus confers on the copyright owner a *de facto* monopoly over those ideas and functional concepts. That result defeats the fundamental purpose of the Copyright Act—to encourage the production of original works by protecting the expressive elements of those works while leaving the ideas, facts, and functional concepts in the public domain for others to build on.³⁰⁷

³⁰³ 977 F.2d 1510, 1527–28 (9th Cir. 1992).

³⁰⁴ *Id.*

³⁰⁵ *Id.* at 1514–15.

³⁰⁶ *Id.* at 1520.

³⁰⁷ *Id.* at 1527 (emphasis in original) (citing *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 350 (1991)).

A review of this reasoning suggests that the court's logic is partially correct: enforcing such a copyright claim would confer a de facto monopoly over [interoperability] ideas and functional concepts. However, fundamentally it is the patent primacy teaching of *Baker* (which underlies section 102(b) of the Copyright Act) which dictates the outcome.³⁰⁸ Thus, it is inappropriate to assert copyright in a work to prevent another from practicing the useful art (i.e. the format or method for interoperation) by barring discovery and use of that which inheres in the work.

Not surprisingly, in *Atari Games Corp. v. Nintendo of America, Inc.*, the Federal Circuit—the court most acutely familiar with the exclusive role of patents to address functional information—found the attempted use of copyright law to bar discovery of IO conflicted with the exclusive domain of patent law because it created “patent-like protection.”³⁰⁹ Relying on *Bonito Boats*, the Court stated:

To protect processes or methods of operation, a creator must look to patent laws. An author cannot acquire patent-like protection by putting an idea, process, or method of operation in an unintelligible format and asserting copyright infringement against those who try to understand that idea, process, or method of operation.³¹⁰

The Second Circuit in *Computer Associates International Inc. v. Altai Inc.*,³¹¹ specifically addressed whether IO is protected by copyright by considering *Baker v. Selden*:

To the extent that an accounting text and a computer program are both “a set of statements or instructions . . . to bring about a certain result,” they are roughly analogous. In the former case, the processes are ultimately conducted by human agency; in the latter, by electronic means. In either case, as already stated, the processes themselves are not protectable. But the holding in *Baker* goes farther. The

³⁰⁸ *Baker v. Seldon*, 101 U.S. 99, 102 (1879).

³⁰⁹ *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832, 839 (Fed. Cir. 1992); see *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 162 (1989) (noting congressional recognition of the importance of “nationwide uniformity in patent law” by conferring Federal Circuit with exclusive jurisdiction of all patent appeals).

³¹⁰ *Atari Games Corp.*, 975 F.2d at 842.

³¹¹ 982 F.2d 693 (1992).

Court concluded that those aspects of a work, which “must necessarily be used as incident to” the idea, system or process that the work describes, are also not copyrightable. Selden’s ledger sheets, therefore, enjoyed no copyright protection because they were “necessary incidents to” the system of accounting that he described. From this reasoning, we conclude that those elements of computer program that are necessarily incidental to its function are similarly unprotectable.³¹²

The Second Circuit then proceeded to outline the now well-accepted abstraction, filtration, and comparison test to determine non-literal infringement of the structure of a computer program.³¹³ The court specifically identified “compatibility” requirements as the type of elements dictated by external factors which should not be protected by copyright and thus “filtered” out:

(b) *Elements Dictated By External Factors*

We have stated that where “it is virtually impossible to write about a particular historical era or fictional theme without employing certain ‘stock’ or standard literary devices,” such expression is not copyrightable. . . . This is known as the *scenes a faire* doctrine, and like “merger,” it has its analogous application to computer programs. Professor Nimmer points out that “in many instances it is virtually impossible to write a program to perform particular functions in a specific computing environment without employing standard techniques.” This is a result of the fact that a programmer’s freedom of design choice is often circumscribed by extrinsic considerations such as (1) the mechanical specifications of the computer on which a particular program is intended to run; (2) compatibility requirements of other programs with which a program is designated to operate in conjunction; (3) computer manufacturers’ design standards³¹⁴

³¹² *Id.* at 704–05 (citations omitted).

³¹³ *Id.* at 706–12.

³¹⁴ *Id.* at 709–10 (emphasis in original).

In affirming the district court's finding of no infringement, the Second Circuit specifically applied the above compatibility constraint:

The district court also found that the overlap exhibited between the list of services required for both ADAPTER [plaintiff's program] and OSCAR 3.5 [defendant's allegedly infringing program] was "determined by the demands of the operating system and of the applications program to which it [was] to be linked through ADAPTER or OSCAR." In other words, this aspect of the program's structure was dictated by the nature of other programs with which it was designed to interact and, thus, is not protected by copyright.³¹⁵

The Tenth Circuit decision in *Gates Rubber Co. v. Bando Chemical Industries*, also recognized the risk of extending copyright protection to prevent use of methods of interoperation in a section of the opinion entitled, "The Process-Expression Dichotomy":

Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or processes adopted by the programmer, rather than merely to the "writing" expressing his ideas. §102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of copyright law.³¹⁶

The Court discussed *Baker* and recognized that "[c]ertain processes may be the subject of patent law protection."³¹⁷ Presciently, the Tenth Circuit, in relying on *Sega* for the proposition that "compatibility requirements" are excluded from copyright protection by the *scenes a faire* doctrine, provided caution:

We recognize that the *scenes a faire* doctrine may implicate the protectability of interfacing and that the topic is very sensitive and has the potential to effect widely the law of

³¹⁵ *Id.* at 1259–60 (alteration in original).

³¹⁶ 9 F.3d 823, 836–37 (10th Cir. 1993) (citing H.R. REP. NO. 94-1476 at 57 (1976)).

³¹⁷ *Id.* at 837.

computer copyright. This appeal does not require us to determine the scope of the *scenes a faire* doctrine as it relates to interfacing and accordingly we refrain from discussing the issue.³¹⁸

Finally, the Eleventh Circuit decision in *Bateman v. Mnemonics, Inc.* is significant because the court specifically identified patent and trade secret law, not copyright, as the appropriate legal regimes for protection of IO.³¹⁹ In rejecting a claim for copyright in a data format needed for telecommunication interoperability, the court stated, “In no case, however, should copyright protection be extended to functional results obtained when program instructions are executed and such results are processes of the type better left to patent and trade secret protection.”³²⁰

Collectively, these cases support the proposition that copyright cannot be asserted to prevent RE to discover and use IO.³²¹ However, none of them address whether a contract term can override the right to RE to discover and use IO.

The Fifth Circuit has encountered the conflict between copyright and contract in *Alcatel USA, Inc. v. DGI Technologies, Inc.*³²² The court upheld a jury finding that a contractual restriction on RE constituted copyright misuse.³²³ In an earlier appeal in this case, the Fifth Circuit used the same

³¹⁸ *Id.* at 838 n.14 (emphasis in original) (discussing *Sega Enters, Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1525–27 (9th Cir. 1992)).

³¹⁹ 79 F.3d 1532, 1547 n.33 (11th Cir. 1996).

³²⁰ *Id.*

³²¹ *Gates Rubber Co.*, 9 F.3d at 836–37; *Bateman v. Mnemonics, Inc.*, 79 F.3d 1532, 1547 n.33 (11th Cir. 1996).

³²² 166 F.3d 772, 777 (5th Cir. 1999).

³²³ *Id.*; see also *DSC Comm'ns Corp. v. DGI Techs., Inc.*, 81 F.3d 597, 600–01 (5th Cir. 1996), *aff'd in part, rev'd in part*, 166 F.3d 772 (5th Cir. 1999). However, other courts have rejected the copyright misuse defense. See generally *Davidson & Assocs. v. Jung*, 422 F.3d 630 (8th Cir. 2005). Although some have argued that copyright misuse would be the correct tool to apply to a shrink wrap provision restricting RE (see, e.g., James A.D. White, *Misuse or Fair Use: That is the Software Copyright Question*, 12 BERKLEY TECH. L.J. 251, 308 (1997)), arguably it is too blunt an instrument because it leads a court to suspend any copyright assertion until the misuse is cured. Given the uncertainty on this issue, this is too draconian an outcome with regard to IO. The enlightened contract interpretation, public policy and patent preemption analysis suggested in this article works better to address functional IO. Interestingly, the application of the public policy rule to contract may also be better suited to address other concerns of terms which may conflict with other public policies. See *infra* Part V.A. (specifically mentioning free speech and concerns implicated in a non-negotiated mass market license context).

reasoning as *Sega* and *Atari* concerning impropriety of copyright assertion to obtain a patent-like monopoly without a patent to rule that copyright misuse might bar enforcement of a license:

DGI may well prevail on the defense of copyright misuse, because DSC seems to be attempting to use its copyright to obtain a patent-like monopoly over unpatented microprocessor cards. Any competing microprocessor card developed for use on DSC phone switches must be compatible with DSC's copyrighted operating system software. In order to ensure that its card is compatible, a competitor such as DGI must test the card on a DSC phone switch. Such a test necessarily involves making a copy of DSC's copyrighted operating system, which copy is downloaded into the card's memory when the card is booted up. If DSC is allowed to prevent such copying, then it can prevent anyone from developing a competing microprocessor card, even though it has not patented the card. The defense of copyright misuse "forbids the use of the [copyright] to secure an exclusive right or limited monopoly not granted by the [Copyright] Office," including a limited monopoly over microprocessor cards (citation omitted). Therefore, DGI's asserting the misuse defense could cast substantial doubt on the predictability of success by DSC.³²⁴

The First Circuit squarely came to this conclusion in *Lotus*, where it held that the keystroke commands for human interoperating with the software was a method of operation within § 102(b) of the Copyright Act and thus not copyrightable.³²⁵

A broader understanding of these decisions demonstrates their consistency with the general principle to channel protection of subject matter between patent and copyright, with the primacy of patent law for functional matters (i.e. useful arts).³²⁶ The Intellectual Property clause in the Constitu-

³²⁴*D.S.C. Commc'ns Corp.*, 81 F.3d. at 601 (citing *Lasercomb Am., Inc. v. Reynolds*, 911 F.2d 970, 977 (4th Cir. 1990) (brackets in original)); see also *Assessment Techs. v. WIREdata, Inc.*, 350 F.3d 640, 641-42 (7th Cir. 2003) (discussed *supra* at note 289).

³²⁵*Lotus Dev. Corp. v. Borland Int'l Inc.* 49 F.3d 807, 815 (1st Cir. 1995).

³²⁶See, e.g., *Mazer v. Stein*, 347 U.S. 201 (1954); see also Dennis S. Karjala & Peter S. Menell, *Applying Fundamental Copyright Principles to Lotus Development Corp. v. Borland International, Inc.*, 10 HIGH TECH. L.J. 177, 184-86 (1995).

tion makes clear that inventors receive patents to promote progress in the useful arts and authors receive copyright to promote writings and other artistic/creative expressions.³²⁷ The net result is that patent law (not copyright law) has primacy in addressing protection of functional subject matter, such as formats and methods for interoperation of computer software.³²⁸

Arguably it is this teaching which was somehow lost in the recent cases where the propriety of contract to control discovery and use of IO has been considered solely from a mistaken focus on copyright law. Since IO is functional in nature, the proper Constitutional focus should primarily be patent, not copyright, law. Thus, patent, not copyright law, is the primary source of law at the federal level for protection of functional information.³²⁹ With this in mind, it becomes apparent that arguments about copyright preemption of state regulation by contract of IO are at most secondary considerations: the appropriate question asks whether state protection of IO by mass market license prohibitions on RE clashes with the patent regime established under the Intellectual Property Clause of the Constitution.

Nonetheless, the above cases cumulatively reflect an underlying federal policy supporting RE to enable the development of interoperable software even where there may be potential adverse market effects on the original technologist. The Digital Millennium Copyright Act embodies this same policy.³³⁰

³²⁷ Patent provides a monopoly right that excludes competition even by an independent inventor in return for public disclosure of the invention. To qualify for the exclusionary right over methods of operation and other functional ideas, patent law imposes a rigorous threshold of novelty and nonobvious. In contrast, copyright has the low originality standard for protection but does not provide an exclusionary monopoly to practice any methods of operation, processes, or functions.

³²⁸ See McManis *supra* note 15, at 95–99.

³²⁹ One implication of this change in focus from copyright to patent is that application of fair use will not be material—i.e., the *Baker* patent primacy principle does not require a court to consider the impact on the market for the underlying software to determine if the use is permissible. *Baker v. Selden*, 101 U.S. 99, 102 (1879). *Cf.* *Sony Computer Entm't, Inc. v. Connectix Corp.*, 203 F.3d 596, 607 (9th Cir. 2000) (explaining that under copyright law, the court had to consider the potential harm to the market for Sony's work). Since *Baker* teaches that copyright law cannot be used to effect a patent on the useful art, surely increased competition relating to interoperable products will not risk loss of a privilege for RE (whereas that is a factor if the copyright lens, with its fair use factors, is applicable). Arguably, a way to reconcile this potential harm under copyright law would be akin to the proposition with parody—the mere fact that a biting criticism (an effective interoperable product) may adversely affect the market for the underlying work is not a legally cognizable harm. *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 591–92 (1994).

³³⁰ 17 U.S.C. § 1201 (2000).

B. Section 1201(f) of the Digital Millennium Copyright Act

In 1998, Congress enacted the Digital Millennium Copyright Act (“DMCA”).³³¹ Section 1201 of the DMCA establishes new causes of action against persons who either circumvent a technological measure which protects a copyrighted work or manufacture, import, offer to the public, or traffic in any technology or component that is primarily designed to circumvent such a technological measure.³³² In essence, § 1201 claims amount to a federal rule against reverse engineering technological protection of copyrighted works.³³³

Congress created an exception to § 1201 where a party engages in RE for purposes of discovery and use of IO to develop an independent interoperable product.³³⁴ The legislative history makes clear that “[t]he purpose of this [exception] is to foster competition and innovation in the computer and software industry.”³³⁵ Section 1201(f)(1) of the DMCA provides a defense to a claim that a person has circumvented technical protection of a copyrighted work to develop an interoperable program and § 1201(f)(2) provides a defense where a person develops and employs a tool to circumvent for purposes of interoperability.³³⁶ Section 1201(f)(1) states:

[A] person who has lawfully obtained the right to use a copy of a computer program may circumvent a technologi-

³³¹ *Id.*

³³² *Id.*

³³³ *Id.*

³³⁴ *Id.* § 1201(f). Recent decisions interpreting the application of § 1201 reflect a concern about parties improperly asserting § 1201 violations to prevent competition in after-market interoperable products. *See, e.g.,* Lexmark Int’l, Inc. v. Static Control Components, Inc., 387 F.3d 522, 549 (6th Cir. 2004) (involving replacement printer cartridges); Chamberlain Group, Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1197–98 (Fed. Cir. 2004) (involving replacement garage door opener handheld device). *See generally* Raymond T. Nimmer, *DMCA Overview*, 842 PLI/Pat 55 (2005).

³³⁵ S. REP. NO. 105-190, at 13 (1998).

³³⁶ 17 U.S.C. § 1201(f)(1), (3) (2001). The requirements of the two subsections are: (1) lawfully obtaining the right to use a copy of the program, (2) circumventing a particular portion, (3) solely to identify and analyze elements, (4) not previously readily available to the reverse engineer, (5) necessary to achieve IO of (6) an independently created program with (7) other programs, and (8) provided the acts of identification and analysis do not constitute copyright infringement. *Id.* Whereas subsections 1201(f)(1)–(2) are limited solely to “acts of identification and analysis [which] do not constitute infringement under [the Copyright Act],” (f)(3) also requires that the identification and analysis not “violate applicable law other than this section.” *Id.*

cal measure that effectively controls access to a particular portion of that program for the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve interoperability of an independently created computer program with other programs, and that have not previously been readily available to the person engaging in the circumvention, to the extent any such acts of identification and analysis do not constitute infringement under this title.³³⁷

Section 1201(f)(3) provides:

The information acquired through the acts permitted under paragraph (1), and the means permitted under paragraph (2), may be made available to others if the person referred to in paragraph (1) or (2), as the case may be, provides such information or means solely for the purpose of enabling interoperability of an independently created computer program with other programs, and to the extent that doing so does not constitute infringement under this title or violate applicable law other than this section.³³⁸

There is some ambiguity about what § 1201(f)(3) addresses.³³⁹ One interpretation suggests that it covers the scenario where a developer outsources to a third party the RE to discover IO. A second interpretation suggests that § 1201(f)(3) addresses the issue of whether an interoperability developer may freely distribute a product which includes IO obtained by the means and tools of § 1201(f)(1) and (2).³⁴⁰ Regardless of the interpretation, § 1201(f)(3) requires that the acts of identification and analysis neither (1) constitute copyright infringement (which is also required if the work is done in-house) nor (2) violate applicable law.³⁴¹

³³⁷ *Id.* § 1201 (f)(1).

³³⁸ *Id.* § 1201(f)(3).

³³⁹ I would like to thank Professor Ginsburg for suggesting that I discuss this issue.

³⁴⁰ *Id.* § 1201(f)(1)–(2). One reason why this author believes the former interpretation is more persuasive is that depending upon the particular interoperability method, the interoperable product may not necessarily “make available to others” the IO but rather merely embody the fruits of development using such information. It would not seem logical for Congress to have sought to differentiate interoperable products which must distribute IO as contrasted with other interoperable products which solely were developed through use of such IO but do not need to include it.

³⁴¹ *Id.* § 1201(f)(3).

No detailed language in § 1201 provides that a contract term restricting RE is invalid. However, a comparison of the particular wording of § 1201(f)(1) and (f)(2) with § 1201(f)(3) and the exceptions for encryption research in § 1201(g), protection of personally identifiable information in § 1201(i), and security testing in § 1201(j) may bear on the question of supremacy of federal interoperability policy vis-à-vis enforcement of a contract term to the contrary.³⁴² Although all three 1201(f) subsections require that “any such acts of identification and analysis. . . not constitute [copyright] infringement,” only § 1201(f)(3) adds the requirement that other “applicable law” not be violated.³⁴³ Likewise, the encryption research, protection of personally identifiable information and security testing sections require that either “applicable law” or “other law” not be violated.³⁴⁴

The statute does not define “applicable law.”³⁴⁵ A number of possible interpretations of the § 1201(f) exceptions exist as to the question of preemption of contrary contract terms.³⁴⁶ One interpretation suggests that “applicable law” solely refers to statutory and regulatory law.³⁴⁷ A second interpretation holds that “applicable law” includes contract law, but the omission of “applicable law” from § 1201(f)(1) and (2) merely reflects congressional intent that a defense will not be lost under those subsections where the RE violates a contract. As such, the RE is lawful under § 1201, but that leaves contract law enforceable. A third interpretation says that “applicable law” includes contract law and the absence of this requirement in § 1201(f)(1) and (2) preempts an inconsistent contract term, as a matter of either implicit preemption or conflict preemption. If a court enforced a

³⁴² *Id.* § 1201(f)–(g), (i)–(j).

³⁴³ *Id.* § 1201(f). Interestingly, § 1201 uses different language for different exceptions: protection of personally identifying information under § 1201(i) must not be “in violation of any other law”; security testing under § 1201(j) must “not constitute infringement under this title or a violation of applicable law other than this section, including section 1030 of title 18 and those provisions of title 18 amended by the Computer Fraud and Abuse Act of 1986”; encryption research under § 1201(g) must “not constitute infringement under this title or a violation of applicable law other than this section, including section 1030 of title 18 and those provisions of title 18 amended by the Computer Fraud and Abuse Act of 1986.” 17 U.S.C. § 1201 (2000).

³⁴⁴ *Id.* § 1201(g), (i), (j).

³⁴⁵ *See id.* § 1201(f).

³⁴⁶ Professor Ginsburg suggests the possibility that a mistake accounts for the absence of “applicable law” from § 1201(f)(1)–(2).

³⁴⁷ For example, this interpretation might cover the *Atari* scenario when defense counsel violated copyright rules by obtaining a copy of plaintiff’s work deposited with the Library of Congress. *See Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 842 (Fed. Cir. 1992).

contract restriction notwithstanding § 1201(f)(1) and (2), the purpose of Congress to foster interoperability would be frustrated.

In interpreting the statute, construing § 1201(f)(3) as addressing solely the outsourcing of RE may arguably be the most plausible interpretation to minimize the situations where preemption of contract law may occur. The absence of the requirement of compliance with applicable law in § 1201(f)(1) and (2) to qualify for the RE exception to a circumvention claim arguably indicates congressional intent that federal policy favoring RE for interoperability is more important than enforcing a contractual restriction on such activity. Therefore, conflict preemption is required as to an inconsistent license term. The distinction in treatment under § 1201(f)(1) and (f)(2) as contrasted with § 1201(f)(3) places greater constraints on a third party hired to undertake RE.³⁴⁸ Where such a third party is involved, contract law could restrict any such RE. Arguably, this reflects congressional concern that outsourcing sensitive RE is disfavored in the law.³⁴⁹

Unfortunately, the legislative history on this provision is silent on the relationship between the statute and contract terms purporting to restrict RE.³⁵⁰ However, the House Report is clear on the federal policy of promoting interoperability of software programs:

Section 102(f) is intended to promote reverse engineering by permitting the circumvention of access control technologies for the sole purpose of achieving software interoperability. Section 102(f)(1) permits the act of circumvention in only certain instances. To begin with, the copy of the computer program which is the subject of the analysis must be lawfully acquired (i.e., the computer program must be acquired from a legitimate source, along with any necessary serial codes, passwords, or other such means as may be necessary to be able to use the program as it was designed to be used by a consumer of the product). In ad-

³⁴⁸ 17 U.S.C. § 1201(f)(1)–(3).

³⁴⁹ If that is the case, it provides further support for why the current regulation competition among state and foreign jurisdictions on the enforceability of contract restrictions on RE is contrary to federal patent law and policy against such regulatory competition. The net effect may particularly contradict federal patent interests because parties may outsource such activity internationally and thereby benefit foreign industry at the expense of the U.S. economy. *See infra* Part VI.

³⁵⁰ *See generally* H.R. REP. NO. 105-551, pt. 2 (1998).

dition, the acts must be limited to those elements of the program which must be analyzed to achieve interoperability of an independently created program with other programs. The resulting product must also be a new and original work, in that it may not infringe the original computer program. Moreover, the objective of the analysis must be to identify and extract such elements as are necessary to achieve interoperability which are not otherwise available to the person. Finally, the goal of this section is to ensure that current law is not changed, and not to encourage or permit infringement. Thus, each of the acts undertaken must avoid infringing the copyright of the author of the underlying computer program.³⁵¹

In sum, Congress recognized the importance of RE to discover and use IO.³⁵² In addition, a close reading of the particular language used by Congress suggests that § 1201(f)(1) and (2) may preempt state contract law to the extent a contract term prohibits a party from RE solely for the purpose of developing an interoperable product.³⁵³ In instances where a party internally undertakes the necessary RE, such a term frustrates the purpose of § 1201(f).³⁵⁴

Cumulatively, the fair use decisions and § 1201(f) reflect a federal policy in favor of RE for purposes of discovery and use of IO where the information is needed to develop an interoperable independent program.³⁵⁵ In addition, because of the strong federal interest, Congress has arguably preempted contract terms to the contrary where a company circumvents technological protection of a copyrighted work in-house so it can develop an interoperable product.

³⁵¹ *Id.* at 42.

³⁵² *See id.*

³⁵³ *Id.* This is a case of “explicit” preemption because Congress implies in the structure and purpose of § 1201(f) that federal law will preempt state law. *See* ROBERT A. GORMAN & JANE C. GINSBURG, *COPYRIGHT: CASES AND MATERIALS* 902 (6th ed. 2002).

³⁵⁴ *See generally* H.R. REP. NO. 105-551, pt. 2 (1998).

³⁵⁵ Federal policy in favor of RE is also codified as an exception to the scope of protection of semiconductor chip products. The Semiconductor Chip Protection Act of 1984 excuses RE of a semiconductor chip where the party “reproduce[s] the mask work solely for the purpose of teaching, analyzing, or evaluating the concepts or techniques embodied in the mask work or the circuitry, logic flow, or organization of components used in the mask work; or . . . incorporate[s] the results of such conduct in an original mask work” 17 U.S.C. § 906(a) (2000).

For the reasons discussed in Part III and reinforced in the copyright fair use cases discussed above, the debate in the courts and literature has been misplaced in focusing primarily on whether the above articulated federal copyright policy supporting interoperability requires preemption of enforcement of a mass market license term to the contrary by virtue of § 301 of the Copyright Act or a copyright conflicts theory.³⁵⁶ With the exception of one circuit, the trend of the courts is that federal law does not preempt RE prohibitions in mass market licenses.³⁵⁷

For the reasons discussed in this Article, scrutiny of patent and trade secret law provides the proper lens for considering the propriety of enforcing state contract law restrictions on RE to discover IO. However, patent preemption is not the sole—and in fact should be the last—resort for any court considering the enforceability of a non-negotiated mass market license restriction on RE for purposes of interoperability. For that reason, public policy exceptions to contract law need to be reviewed.

V. PUBLIC POLICY EXCEPTION TO CONTRACT LAW: BALANCING FEDERAL INTEROPERABILITY POLICY, TRADE SECRET AND CONTRACT INTERESTS

A. *Public Policy Exception to Contract Law*

In addition to the compelling patent preemption basis for invalidating certain non-negotiated mass market license terms which prohibit RE for interoperability purposes, a review of state contract law principles also supports invalidation. It is well established law that public policy may outweigh freedom of contract.³⁵⁸

³⁵⁶ 17 U.S.C. § 301 (2000); *see, e.g.*, commentators listed *supra* note 100.

³⁵⁷ *See supra* Part III.D.; *see also* *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 847–48 (10th Cir. 1993) (holding that federal law does not preempt Colorado state law because the state law requires “the extra element” of a breach of trust). Note that most of the copyright preemption debate has focused on § 301, rather than a general conflict with copyright theory of preemption. Brief of the Institute of Electrical and Electronics Engineers—United States of America, the American Library Association, the American Association of Law Libraries and the Association of Research Libraries as Amici Curiae in Support of Petitioner at 14, *Bowers v. Baystate Techs., Inc.*, 302 F.3d 1334 (Fed. Cir. 2002) (No. 01-1108), *rev'd in part*, 320 F.3d 1317 (2003).

³⁵⁸ RESTATEMENT (SECOND) OF CONTRACTS § 178 (1981). For general discussion of public policy limits on IP licensing, *see* Lemley, *supra* note 24 at 163–71; Mark A. Lemley, *The Economic Irrationality of the Patent Misuse Doctrine*, 78 CAL. L. REV. 1599, 1611–12 (1990); Reichman & Franklin, *supra* note 105, at 925–27.

One key question is whether a mass market contract term can override the fundamental trade secret principle of freedom to RE a lawfully acquired, publicly available product. The two times courts have considered anything close to this question, they have determined that an asserted obligation running with a publicly available product cannot override the freedom to RE. In *Chicago Lock*, the Ninth Circuit held, “Imposing an obligation of non-disclosure on lock owners would frustrate the intent of California courts to disallow protection to trade secrets discovered through ‘fair and honest means.’”³⁵⁹

In *DVD Copy Control*, Justice Moreno, in his concurring opinion, directly addressed the issue of the relationship of trade secret policy and contract law, and strongly suggested that a mass market restriction prohibiting RE would conflict with California trade secret law.³⁶⁰

Section 105 of UCITA, now adopted as the law of Maryland and Virginia, embodies this same public policy override principle.³⁶¹ Under section 105(b) of UCITA, a contract term may be unenforceable if it “violates a fundamental public policy,” with particular emphasis on federal public policy:

(b) If a term of a contract violates a fundamental public policy, the court may refuse to enforce the contract, enforce the remainder of the contract without the impermissible term, or limit the application of the impermissible term so as to avoid a result contrary to public policy, in each case to the extent that the interest in enforcement is clearly outweighed by a public policy against enforcement of the term.³⁶²

³⁵⁹ *Chicago Lock Co. v. Fanberg*, 676 F.2d 400, 405 (9th Cir. 1982).

³⁶⁰ *DVD Copy Control Ass’n, Inc. v. Bunner*, 75 P.3d 1, 28 n.5 (Cal. 2003) (Moreno, J., concurring); *see supra* at Part IV.C.

³⁶¹ UCITA § 105(b) (2002). In addition to section 105(b), section 118 specifically overrides terms prohibiting RE to discover the IO information necessary and otherwise unavailable to develop an independent interoperable program. In essence, UCITA has indirectly adopted the European Union approach by following the approach in § 1201(f) of the Digital Millennium Copyright Act. Comment 4 to section 118 makes clear that this is the first time an express contract invalidation rule has been adopted on this issue; MD. CODE ANN., COM. LAW §§ 21.101–21.120 (LexisNexis 2005); VA. CODE ANN. §§ 59.1-501.1–59.1-509.2 (2001).

³⁶² UCITA § 105(b).

Comment 3 to section 105 provides:

3. Public Policy Invalidation. Contract terms may be unenforceable because of federal preemption under subsection (a) of this section or because they are unconscionable under Section 111. In addition, subsection (b) sets out the legal principle that in certain circumstances terms may be unenforceable because they violate a fundamental public policy that clearly overrides the policy favoring enforcement of private transactions as between the parties. The principle that courts may invalidate a term of a contract on public policy grounds is recognized at common law and in the *Restatement (Second) of Contracts* § 178 et. seq. See, e.g., *Livingston v. Tapscott*, 585 So. 2d 839 (Ala. 1991); *Occidental Sav. & Loan Ass'n v. Venco Partnership*, 293 N.W.2d 843 (Neb. 1980).³⁶³

In addition, the comment notes, “In light of the national and international integration of the digital economy, courts should be reluctant to invalidate terms based on purely local policies.”³⁶⁴ However, the comment particularly identifies “innovation, competition, fair comment and fair use” as “[t]he offsetting public policies most likely to apply to transactions within this Act.”³⁶⁵ In addition, it notes that “contractual terms, particularly those arising from a context without negotiation, may be impermissible if they violate fundamental public policy.”³⁶⁶

On the issue of balancing trade secret and contract law interests, the commentators noted the inherent tension:

Trade secret law allows information to be transferred subject to considerable contractual limitations on disclosure which facilitates the exploitation and commercial application of new technology. On the other hand, trade secret law does not prohibit reverse engineering of lawfully acquired goods available on the open market. Striking the appropriate balance depends on a variety of contextual factors that

³⁶³ *Id.* § 105 cmt. 3.

³⁶⁴ *Id.*

³⁶⁵ *Id.*

³⁶⁶ *Id.*

can only be assessed on a case-by-case basis with an eye to national policies.³⁶⁷

Justice Moreno raised precisely this concern in *DVD Copy Control*, discussed in Part III.C above, where he indicates that a non-negotiated mass market consumer license term cannot override the trade secret policy of freedom to RE.³⁶⁸

The comment also notes that federal copyright and patent laws should be considered as relevant fundamental public policy:

[C]ourts also may look to federal copyright and patent laws for guidance on what types of limitations on the rights of owners of information ordinarily seem appropriate, recognizing, however, that private parties ordinarily have sound commercial reasons for contracting for limitations on use and that enforcing private ordering arrangements in itself reflects a fundamental public policy enacted throughout the Uniform Commercial Code and common law.³⁶⁹

The comment then directly identifies RE as an area where courts will need to weigh competing policies:

In part because of the transformations caused by digital information, many areas of public information policy are in flux and subject to extensive debate. In several instances these debates are conducted within the domain of copyright or patent laws, such as whether copying a copyrighted work for purposes of reverse engineering is an infringement. This Act does not address these issues of national policy, but how they are resolved may be instructive to courts in applying this subsection. A recent national statement of policy on the relationship between reverse engineering, security testing, and copyright in digital information can be found at 17 U.S.C. §1201 (1999). It recognizes a policy not to prohibit some reverse engineering. . . . This policy may outweigh a contract term to the contrary.

³⁶⁷ *Id.*

³⁶⁸ *DVD Copy Control Ass'n, Inc. v. Bunner*, 75 P.3d 1, 28 n.5 (Cal. 2003) (Moreno, J., concurring); *see also supra* Part IV.C.

³⁶⁹ UCITA § 105 cmt. 3.

This subsection deals with policies that implicate the broader public interest and the balance between enforcing private transactions and the need to protect the public domain of information.³⁷⁰

Arguably, UCITA and its Official Comment reflect general principles.³⁷¹ As such, courts in non-UCITA jurisdictions should find the analysis useful in weighing competing public policies. Courts should also take heed of the Prefatory Note to the UTSA concerning the balance between patent and trade secret policy.³⁷²

In sum, federal patent and copyright law and policies, coupled with the fundamental trade secret law principle of the freedom to RE publicly available products, cumulatively outweigh the general policy of freedom of contract in the case of a non-negotiated mass market contract term barring RE for interoperability purposes. The UCITA and its commentary are path-breaking in the United States for expressly recognizing the potential adverse policy implications of enforcing mass market license terms which may be interpreted to restrict RE for purposes of interoperability.³⁷³

B. A Reasonable Contract Interpretation Path

Cumulatively, strong public policy reasons exist why any mass market license term prohibiting RE should be invalidated solely to the extent that it bars RE for purposes of developing an interoperable product.³⁷⁴ However, to avoid the difficult issue of deciding whether public policy requires invalidating a contract term, a preferred approach is for courts to interpret narrowly any clauses addressing RE in order to limit their application when properly viewed against the background of competing public policies.³⁷⁵

Such an approach would be supported by the doctrine of *contra proferentum* (i.e., any ambiguity in a contract should be construed against the drafter).³⁷⁶ A reasonable drafter using the undefined phrase “reverse engi-

³⁷⁰ *Id.* See section 118 for provisions dealing with reverse engineering for purposes of interoperability and Official Comment 3 to that section.

³⁷¹ UCITA § 105.

³⁷² *Id.*; see *supra* Part II.E.

³⁷³ UCITA § 105 cmt. 3.

³⁷⁴ *Id.*

³⁷⁵ Lemley, *supra* note 192, at 161.

³⁷⁶ RESTATEMENT (SECOND) OF CONTRACTS § 206 (1981); but see *S.O.S., Inc. v. Payday*,

neer” would be presumed to be aware of the federal copyright policies supporting RE for interoperability, the primacy of federal patent policies in regulating access to and use of IO, and the general trade secret principle of freedom to RE products generally available in the marketplace.³⁷⁷ Since the phrase “reverse engineer” is ambiguous and could be construed either to be consistent with or antagonistic to these federal and state trade secret policies, the former interpretation should be employed. This same approach can be reached if a court found that federal principles need to be applied to limit the scope of the contract term.³⁷⁸

This approach does not preclude negotiation of a contract term restricting RE which includes prohibitions on the discovery and use of IO.³⁷⁹ Rather, state court enforcement of statutory waivers would properly analyze such a clause.³⁸⁰

With the above patent preemption, public policy invalidation, and contract interpretation analyses in mind, let’s return to a particular example of a closed platform in the marketplace.

C. A Case Study: *Apple iTunes*

Given the fact that courts have applied California law to restrict RE and that Apple is an example of a closed technologist where third parties and consumers have made clear a desire for interoperable products, iTunes presents a good case study for application of the approach suggested in this Article.³⁸¹

Inc., 886 F.2d 1081, 1087–88 (9th Cir. 1989) (rejecting application of California rule of *contra proferentum* to copyright license where it would override proposition that copyright does not impliedly grant rights). See also Lemley, *supra* note 192, at 161 (noting that “[o]ther cases . . . impose federal restrictions on contract terms in order to protect important aspects of federal policy”).

³⁷⁷ See Lemley, *supra* note 192, at 161.

³⁷⁸ *Id.* n.232 (“[f]ederalism principles dictate that state rules of contractual construction cannot interfere with federal law or policy”) (quoting *SQL Solutions, Inc. v. Oracle Corp.*, No. C-91-1079 MHP, 1991 U.S. Dist. LEXIS 21097, at *7 (N.D. Cal. Dec. 18, 1991)).

³⁷⁹ See *supra* Part IV.C. and text accompanying note 218.

³⁸⁰ I would like to thank Annette L. Hurst for identifying this approach as potentially applicable to this issue.

³⁸¹ See *Davidson & Assocs. v. Jung*, 422 F.3d 630, 639 (8th Cir. 2005). Interestingly, Apple’s recent procurement of an interoperability related patent suggests that Apple realizes it is just a matter of time before the courts address this issue and determine that use of copyright, trade secret and mass market licenses will not afford protection of interoperability information for the reasons outlined in this Article. See, e.g., ThinkSecret.com, Apple Patent Watch: March/April 2005, May

1. Contract Interpretation

The Apple iTunes license³⁸² is the starting place for the analysis:

2. Permitted License Uses and Restrictions. This License allows you to install and use the Apple Software. The Apple Software may be used to reproduce materials so long as such use is limited to reproduction of non-copyrighted materials, materials in which you own the copyright, or materials you are authorized or legally permitted to reproduce. You may not make the Apple Software available over a network where it could be used by multiple computers at the same time. You may make one copy of the Apple Software in machine-readable form for backup purposes only; provided that the backup copy must include all copyright or other proprietary notices contained on the original. *Except as and only to the extent expressly permitted in this License or by applicable law, you may not copy, decompile, reverse engineer, disassemble, modify, or create derivative works of the Apple Software or any part thereof.*³⁸³

Arguably a reasonable interpretation of the language, “[e]xcept as . . . expressly permitted. . . by applicable law” should include consideration of the California Uniform Trade Secrets Act.³⁸⁴ Section 3426.1 (a) of the Act expressly states, “[r]everse engineering. . . alone shall not be considered improper means.”³⁸⁵ The reasoning of the California Supreme Court in *Cadence Design Systems, Inc. v. Avant! Corp.* and of Justice Moreno in his concurrence in *DVD Copy Control* coupled with the analysis of the Ninth Circuit in *Chicago Lock* all support the proposition that California contract law must be read in a manner consistent with California trade secrets law.³⁸⁶

4, 2005, <http://www.thinksecret.com/news/patents05may.html> (last visited Sept. 26, 2006) (“Patent 6,871,349 covers a method and apparatus for relaying events intended for a first application program to a second application program. David Akhond, Gregory Scown, and Johnathon Kaminar are listed as the inventors. The patent was filed September 29, 2000 and was awarded March 22, 2005.”).

³⁸² Apple Computer, Inc., Software License Agreement for iTunes (2006), <http://images.apple.com/legal/sla/itunes.pdf>.

³⁸³ *Id.* at 1 (emphasis added). Most vendors include language similar to Apple.

³⁸⁴ *Id.*; CAL. CIV. CODE § 3426 (Deering 2006).

³⁸⁵ CAL. CIV. CODE § 3426.1(a) (Deering 2006).

³⁸⁶ See *Cadence Design Sys., Inc. v. Avant! Corp.*, 57 P.3d 647, 650–651 (Cal. 2002); *DVD*

Accordingly, the express proviso in Paragraph 2 of the iTunes license should be read to permit RE for interoperability purposes, particularly when one considers other federal public policies favoring interoperability.³⁸⁷ However, if a court were to interpret the clause to cover RE for interoperability purposes, a contract public policy analysis should lead to invalidation.³⁸⁸

2. Contract Public Policy Analysis: California Law—Balancing Competing Trade Secret, Federal Patent and Copyright Laws with Freedom of Contract Policies

No California court (or federal court applying California law) has expressly ruled on the issue of whether the public policies embodied in federal copyright and patent law favoring RE solely for interoperability purposes, and California trade secret law, override enforcement of a shrink or web wrap license prohibiting RE for purposes of discovery and use of IO to develop an independent interoperable product.³⁸⁹ A close analysis of one key amendment to the language of the UTSA as adopted by the California legislature provides support for the fundamental importance of freedom to RE as a limit on the scope of California state trade secret law.³⁹⁰ Rather than satisfying itself with reference to RE as a “proper means” to acquire a trade secret in the Official Comment to the UTSA, the California Legislature modified the UTSA and added the following positive statement at the end of the definition of “improper means”: “Reverse engineering or independent derivation alone shall not be considered improper means.”³⁹¹

Copy Control Ass’n, Inc. v. Bunner, 75 P.3d 1, 28 (Cal. 2003) (Moreno, J. concurring); Chicago Lock Co. v. Fanberg, 676 F.2d 400, 404 (9th Cir. 1982); see also *supra* Part III.C. and Part V.C.2.

³⁸⁷ Apple Computer, Inc., Software License Agreement for iTunes (2006), <http://images.apple.com/legal/sla/itunes.pdf>.

³⁸⁸ RESTATEMENT (SECOND) OF CONTRACTS § 207 (1981).

³⁸⁹ Institute of Electrical and Electronics Engineers, Inc.-USA [IEEE-USA] raised this issue in an amicus brief filed with the Court of Appeal in *DVD Copy Control*. See Brief as Amici Curiae Supporting Petitioner, 31 Cal. 4th 864 (Cal. Sup. Ct. 2002) (brief at pp. 4–9). However, IEEE-USA argued that any shrink wrap term restricting RE, regardless of purpose (whether to clone or to interoperate), violated of the California Uniform Trade Secrets Act. For the reasons discussed in this article, this argument goes too far—there are both federal and general procompetitive reasons why such a clause should be enforceable except where it purports to prevent discovery and use of IO.

³⁹⁰ CAL. CIV. CODE § 3426.1(a) (Deering 2006).

³⁹¹ *Id.*

In one of the leading California cases discussing California trade secret law, the California Supreme Court made clear that the freedom to RE a publicly available product codified in Section 3426.1(a) of the California Trade Secret Acts fundamentally distinguished between trade secret protection and patent law:

Thus, the legal protection accorded trade secrets is fundamentally different from that given to patents, in which the patent owner acquires a limited term monopoly over the patented technology, and use of that technology by whatever means infringes the patent. The owner of the trade secret is protected only against the appropriation of the secret by improper means and the subsequent use or disclosure of the improperly acquired secret. There are various legitimate means, such as reverse engineering, by which a trade secret can be acquired and used.³⁹²

In addition, the reasoning of the Ninth Circuit in *Chicago Lock* supports the proposition that the freedom to RE a publicly available product underlies California law as a fundamental public policy.³⁹³ Finally, Justice Moreno's analysis in his concurrence in *DVD Copy Control* casts serious doubt on the enforceability, under California law, of a non-negotiated mass market license term barring RE for purposes of interoperability.³⁹⁴ When viewed together with the general public policy analysis discussed in Part V.A above, there appear to be very compelling reasons why the Apple RE restriction, if somehow interpreted to preclude RE for purposes of developing an interoperable product, should be invalidated as a matter of public policy.

3. Patent Preemption

If, for some reason, the courts did not apply a public policy invalidation, then the patent preemption analysis presented in this Article provides a strong case for preemption. Otherwise, Apple would have a reasonable al-

³⁹² *Cadence Design Sys. v. Avant! Corp.*, 57 P.3d 647, 650–51 (Cal. 2002).

³⁹³ *Chicago Lock Co. v. Fanberg*, 676 F.2d 400, 404 (9th Cir. 1982); *see also supra* Part III.C.

³⁹⁴ *DVD Copy Control Ass'n, Inc. v. Bunner*, 75 P.3d 1, 21 (Cal. 2003) (Moreno, J. concurring); *see also supra* Part III.C.

ternative to patent protection under the guise of a non-negotiated mass market contract-enforced trade secret providing nationwide rights.

Ironically, if courts interpret the Apple mass market license clause broadly to preclude RE for interoperability and proceed to enforce the clause notwithstanding competing public policy and patent preemption claims, Apple's competitors very well may have incentive to conduct RE activities directed toward interoperability in jurisdictions whose policies favor interoperability over contract. In fact, the mere presence of such legally untested terms in a license may have a chilling effect on U.S.-based development and encourage developers to move offshore. That result highlights yet another reason why state regulatory competition in protection of IO clashes with federal patent and copyright policies.

VI. THE INTERNATIONAL LANDSCAPE

While the contract/interoperability debate continues in the U.S., an increasing number of critical foreign jurisdictions are adopting a policy that interoperability overrides contract terms to the contrary.³⁹⁵ This development is significant on several levels: (1) it reflects different public policy approaches; (2) it sheds light on the potential dissonance between recent U.S. state contract law decisions upholding RE prohibitions and foreign rules overriding contract terms in favor of interoperability policy; and (3) it provides a clear example of IP rule arbitrage, which is but one type of jurisdictional rule competition.³⁹⁶

Considered in this light, the trend in a number of significant foreign jurisdictions favors interoperability over freedom of contract (consistent with the *Kewanee* and *Bonito Boats* analysis in Part III.C above) and encourages investment in interoperability-related research and development in their jurisdiction, arguably at the expense of the United States.³⁹⁷

As a starting point, the EU Directive on Software Protection pioneered in expressly addressing the policy conflict between enforcing contract terms and encouraging interoperable software.³⁹⁸ Article 6 makes clear that contract terms prohibiting RE are invalid where a lawful possessor needs to de-

³⁹⁵ See *infra* notes 397–402 and accompanying text.

³⁹⁶ See, e.g., INTERNATIONAL REGULATORY COMPETITION AND COORDINATION: PERSPECTIVES ON ECONOMIC REGULATION IN EUROPE AND THE UNITED STATES (William W. Bratton et al. eds., Clarendon Press Oxford 1996); see generally Samuelson, *supra* note 89.

³⁹⁷ Samuelson, *supra* note 89.

³⁹⁸ Council Directive 91/250, art. 6, 1991 O.J. (L122) 42 (EU).

compile a software program to ascertain information necessary to and not otherwise available to achieve interoperability.³⁹⁹

A review of a number of key industrial and developing countries reveals that the European Union, Australia, China, India, and Indonesia, all have laws holding unenforceable a contract term restricting RE for purposes of developing an independent interoperable program. Two different doctrinal approaches lead to this result. First, some jurisdictions have adopted some

³⁹⁹ *Id.* Article 6 provides:

Article 6 Decompilation

1. The authorization of the rightholder shall not be required where reproduction of the code and translation of its form within the meaning of Article 4 (a) and (b) are indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs, provided that the following conditions are met:

(a) these acts are performed by the licensee or by another person having a right to use a copy of a program, or on their behalf by a person authorized to [sic] so;

(b) the information necessary to achieve interoperability has not previously been readily available to the persons referred to in subparagraph (a); and

(c) these acts are confined to the parts of the original program which are necessary to achieve interoperability.

2. The provisions of paragraph 1 shall not permit the information obtained through its application:

(a) to be used for goals other than to achieve the interoperability of the independently created computer program;

(b) to be given to others, except when necessary for the interoperability of the independently created computer program; or

(c) to be used for the development, production or marketing of a computer program substantially similar in its expression, or for any other act which infringes copyright.

3. In accordance with the provisions of the Berne Convention for the protection of Literary and Artistic Works, the provisions of this Article may not be interpreted in such a way as to allow its application to be used in a manner which unreasonably prejudices the right holder's legitimate interests or conflicts with a normal exploitation of the computer program.

Id.

form of Article 6 of European Directive.⁴⁰⁰ The second approach applies a “public policy” exception to contract enforcement and recognizes that copyright policy permits RE to discover and use IO to develop an independent interoperable product. China, India and Indonesia are examples of this second approach.

Regardless of the doctrinal approach adopted, the point is an increasing number of critical countries with growing technology industries allow RE for interoperability purposes notwithstanding a contract term to the contrary. The net result is that an IO developer may feel an incentive to outsource interoperability related development to one of these countries at the expense of U.S. industry.⁴⁰¹

VII. CONCLUSION

Inherent in the Intellectual Property clause of the Constitution is the primacy of the patent regime to provide incentives to create useful arts. For this reason, courts, as early as *Baker v. Seldon*, have held that copyright cannot be used as an instrument to affect a “patent-like monopoly” on the format for data entry necessary to practice a useful art.⁴⁰² In the computer era, recent cases reflect this teaching, holding that copyright in software cannot be used as an instrument to protect the data formats and other functional information which inheres in a program and is necessary for interoperation with another computer program.

⁴⁰⁰ *Id.*

⁴⁰¹ See, e.g., Ann Harrison, *Battle Brews Over Reverse Engineering* (May 8, 2000), available at <http://archives.cnn.com/2000/TECH/computing/05/08/reverse.engineering.idg/> (“Meanwhile, some developers are moving their reverse-engineering projects offshore to avoid U.S. rules.”). Whether the ultimate independently developed interoperable product can lawfully be imported (if developed outside the U.S.) and distributed in the U.S. remains a key question. The issue requires a conflict of law analysis, which is beyond the scope of this Article. Some argue that foreign law (such as Art. 6 of the EU Software Directive) would control and make it lawful to reverse engineer in a foreign country (e.g., in an EU country) notwithstanding a license prohibition, and that the licensor could not assert breach of contract for the subsequent distribution in the U.S. of an independently developed program that used the information lawfully obtained in Europe. Suffice it to say, this is an open question and the mere potential that interoperability developers may pursue such international outsourcing highlights an ironic implication of enforcement of mass market terms restricting RE for interoperability purposes where interoperability complies with federal policies. The irony compounds if Congress has intended to limit the exception to a DMCA § 1201 claim to prevent outsourcing of RE of technical protection of a copyrighted work. 17 U.S.C. § 1201 (2000). See *supra* Part IV.B.

⁴⁰² *Baker v. Selden*, 101 U.S. 99, 102 (1879).

Notwithstanding this primacy of patent law to protect IO, courts and commentators have mistakenly focused on copyright principles to determine the propriety of state contract law (shrink and web wrap licenses) as an instrument to control discovery and use of such information. However, patent preemption, trade secret, and general contract principles provide the correct lens for considering the enforceability of such license restrictions. The Supreme Court decisions in *Kewanee* and *Bonito Boats* are clear that if state regulation of information is not weaker than patent law and in effect competes with patent protection and its limited term, it must be preempted.⁴⁰³

A careful analysis of mass market license terms restricting discovery and use of IO for purposes of developing an interoperable product appears to fail the test because a technologist may elect state protection by use of contract law to protect IO rather than obtain a patent. Furthermore, there is serious regulatory competition as evidenced by rulings of the Seventh, Eighth, and Federal Circuits which could be interpreted as providing a basis for such state regulation by contract, as contrasted with the Third and Fifth Circuits, and UCITA jurisdictions. The net effect of this regulation competition is that interoperability developers may have incentive to outsource research and development related to interoperability to one of the increasing number of key foreign jurisdictions with law consistent with federal policy that would override a contract term restricting RE to discover and use IO for purposes of developing an interoperable product.

Enlightened courts can avoid this conflict by using classic contract interpretation tools to limit application of mass market clauses on RE to exclude IO discovered solely to develop an interoperable product. In the rare case of an unavoidable conflict, courts can rely on traditional contract public policy doctrine to invalidate a term to the extent it impairs such activity. Thus, only in the rare case where a court does not find either of these principles available will patent preemption be mandated.

The centrality of interoperability in the computer, telecommunication, and related industries cannot be taken lightly—ultimately, whether U.S. law incents innovation or encourages parties to outsource internationally has dramatic long-term implications on U.S. industry and the economy. Accordingly, courts must begin to address the issue of protection of IO in a clearer fashion, with proper reference to the delicate balance of incentives,

⁴⁰³*Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 479–480 (1974); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 (1988).

including the primacy of patent law and policy established by the Intellectual Property Clause of the U.S. Constitution.

Finally, application of the patent preemption/public policy analysis outlined in this Article to any case where contract law leads to a de facto monopoly on useful data may perhaps be of even greater significance than the issue of interoperability, which is but one type of functional information. Arguably this analysis provides a new lens to consider ProCD-type licenses which protect uncopyrightable useful data and suggests a limiting principle, beyond copyright, to address risks of monopolizing such data under the guise of contract law.