

Brooklyn Journal of International Law

Volume 20

Issue 1

SYMPOSIUM:

Intellectual Property and Competition Law:

Changing Views in the European Community and
the United States of America

Article 4

9-1-1993

Beyond the Historical Lines of Demarcation: Competititon Law, Intellectual Property Rights, and International Trade After the GATT's Uruguay Round

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BEYOND THE HISTORICAL LINES OF DEMARCATION: COMPETITION LAW, INTELLECTUAL PROPERTY RIGHTS, AND INTERNATIONAL TRADE AFTER THE GATT'S URUGUAY ROUND

*J. H. Reichman**

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I. INTRODUCTION

Domestic regulation of technical innovation in free-market economies has traditionally evolved from several different directions at once, with parochial disregard for a more coherent approach to what has become a quintessentially transnational set of problems.¹ From one angle, intellectual property

1. See, e.g., Ernst-Ulrich Petersmann, *International Competition Rules for the GATT-MTO World Trade and Legal System*, 27 J. WORLD TRADE 35, 35-41 (1993); see also LINKING TRADE AND TECHNOLOGY POLICIES—AN INTERNATIONAL COMPARI-

rights derogate from the norms of free competition in order to overcome the "public goods" problem inherent in the commercial exploitation of intangible creations and to elevate routine technical skills to progressively higher levels.² Within this framework, state trade secret laws supplement federally granted exclusive property rights by providing some incentive to develop incremental innovation that falls short of the nonobviousness standard of patent law while discouraging industrial espionage, unethical behavior and corruption.³ From another angle, antitrust laws limit the exercise of proprietary rights in patents, copyrights, trademarks, and industrial know-how with a view to attenuating their anti-competitive effects.⁴ Unfair competition law, which prohibits acts that confuse and deceive consumers, reinforces this pro-competitive goal and sometimes enables courts to compensate for the inability of legislators to keep pace with technological advancement in a post-industrial economy.⁵ Given the different policy variables at stake in each of these often competing legal subcultures, and the conflicting interests of sovereign states at different

SON OF THE POLICIES OF INDUSTRIALIZED NATIONS (Martha C. Harris & Gordon E. Moore eds., 1992); INTERNATIONAL TECHNOLOGY TRANSFER: CONCEPTS, MEASURES AND COMPARISONS (Nathan Rosenberg & Claudio Frischtak eds., 1985); GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY (Mitchel B. Wallerstein et al. eds., 1993).

2. See, e.g., ROBERT P. BENKO, PROTECTING INTELLECTUAL PROPERTY RIGHTS—ISSUES AND CONTROVERSIES 17-19 (1987); Stanley M. Besen & Leo J. Raskind, *An Introduction to the Law and Economics of Intellectual Property*, 5 J. ECON. PERSP. 3 (1991); Michael Lehmann, *The Theory of Property Rights and the Protection of Intellectual and Industrial Property*, 16 INT'L REV. INDUS. PROP. & COPYRIGHT L. (IIC) 525 (1985); Michael Lehmann, *Property and Intellectual Property—Property Rights as Restrictions on Competition in Furtherance of Competition*, 20 IIC 1 (1989); see also *infra* note 188 and accompanying text.

3. See, e.g., STEPHEN P. LADAS, PATENTS, TRADEMARKS, AND RELATED RIGHTS—NATIONAL AND INTERNATIONAL PROTECTION 1617 (1975); David D. Friedman, William M. Landes & Richard A. Posner, *Some Economics of Trade Secret Law*, 5 J. ECON. PERSP. 61, 70 (1991); Edmund W. Kitch, *The Law and Economics of Rights in Valuable Information*, 9 J. LEGAL STUD. 683, 683-93, 699-701, 711-23 (1980).

4. See, e.g., WILLIAM C. HOLMES, INTELLECTUAL PROPERTY AND ANTITRUST LAW, chs. 11-38 (1993); 3 ROGER M. MILGRIM, MILGRIM ON TRADE SECRETS § 6.05 (1992); Valentine Korah, *EEC Licensing of Intellectual Property*, 4 FORDHAM INTELL. PROP., MEDIA & ENT. L.J. 55 (1993).

5. See, e.g., LADAS, *supra* note 3, at 1675-1742; J. H. Reichman, *Intellectual Property in International Trade: Opportunities and Risks of a GATT Connection*, 22 VAND. J. TRANSNAT'L L. 769-96 (1989) [hereinafter *GATT Connection*] (nonexistence of an international norm against misappropriation).

stages of development, it would be miraculous if the area of convergence in which these laws interact were not plagued with internal inconsistencies and contradictions.⁶

The changing nature of innovation under modern conditions, and the corresponding pressure such changes exert on conventional assumptions about the nature of competition itself,⁷ have exacerbated this unsatisfactory state of affairs. Almost without realizing it, let alone questioning it, traditional legal lore has assumed that manufacturers of most unpatented goods sold on the general products market can fend for themselves without governmental intervention to restrain the exercise of their competitors' legal rights to imitate.⁸ To this end, the patent system functions negatively by driving all unpatented innovation onto the general products market where free competition prevails.⁹ In that arena, the innovator's very ability to survive depends on the natural lead time that results from norms requiring competitors to reverse-engineer undisclosed know-how by fair rather than market-distorting means.¹⁰ Yet, innovators who produce information-based goods in a post-industrial economy encounter a chronic lack of natural lead time in which to recoup their investment and to accumulate profits for reinvestment in further innovation.¹¹

6. See, e.g., SPENCER W. WALLER, *INTERNATIONAL TRADE AND U.S. ANTITRUST LAW* § 9.01 (1993).

7. See generally J. H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. (forthcoming 1994) [hereinafter *Legal Hybrids*]; see also DIRECT PROTECTION OF INNOVATION 1-87 (William Kingston ed., 1987); Wendy J. Gordon, *On Owning Information: Intellectual Property and the Restitutionary Impulse*, 78 VA. L. REV. 149 (1992).

8. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141 (1989); *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964); *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964); *Kellogg Co. v. National Biscuit Co.*, 305 U.S. 111 (1938). But see *Two Pesos, Inc. v. Taco Cabana, Inc.*, 112 S. Ct. 2753 (1992); *Goldstein v. California*, 412 U.S. 546 (1973); *International News Serv. v. Associated Press*, 248 U.S. 215, 239-40 (1918) (recognizing quasi-property interest in an intangible information product of creative effort, skill and investment). See generally P. J. KAUFMANN, *PASSING OFF AND MISAPPROPRIATION* 3-4, 73-79 (1986); Leo J. Raskind, *The Misappropriation Doctrine as a Competitive Norm of Intellectual Property Law*, 75 MINN. L. REV. 875 (1991); Ralph S. Brown, *Design Protection: An Overview*, 34 UCLA L. Rev. 1341, 1357-58 (1987).

9. See generally *GATT Connection*, *supra* note 5, at 785-90 (negative mandate of the patent system); Paul Goldstein, *The Competitive Mandate: From Sears to Lear*, 59 CAL. L. REV. 873 (1971).

10. See, e.g., *UNIFORM TRADE SECRETS ACT*, 14 U.L.A. § 1(2) (1985); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476, 490 (1974); Friedman, Landes & Posner, *supra* note 3, at 70; see also *infra* text accompanying notes 29-39.

11. See, e.g., J. H. Reichman, *Computer Programs as Applied Scientific Know-*

Their inability to compete under the standard operating assumptions of traditional legal regimes has led to a proliferation of hybrid protectionist laws,¹² including statutory misappropriation laws prohibiting specific forms of slavish imitation, such as those recently enacted in Switzerland and Japan.¹³

The mixture of legal norms applicable to intellectual creations, including trade regulation laws, is thus evolving in two opposing directions. One trend favors the reduction of market-distorting practices that affect both domestic and international trade in the traditional objects of protection;¹⁴ the other tends to increase legal restraints on trade, including barriers to entry, affecting new objects of protection that would otherwise have to endure the rigors of free competition.¹⁵ Observers

How: Implications of Copyright Protection for Commercialized University Research, 42 VAND. L. REV. 639, 648-69 (1989) [hereinafter *Programs as Know-How*]; J. H. Reichman, *Overlapping Proprietary Rights in University-Generated Research Products: The Case of Computer Programs*, 17 COLUM.-VLA J.L. & ARTS 51, 78-93, 97-110, 122-25 (1992) [hereinafter *Overlapping Proprietary Rights*]; see also *infra* notes 44-45 and accompanying text.

12. See *Programs as Know-How*, *supra* note 11, at 662-67 (describing "patchwork quilt of protective devices . . . that has strained the classical system of intellectual property law to the breaking point"); see also *infra* text accompanying notes 82-95.

13. See *Loi fédérale contre la concurrence déloyale de 19 décembre 1986* [Federal Law on Unfair Competition of December 19, 1986] (effective March 1, 1988) (Switz.), translated in 27 INDUS. PROP. 1 (Laws & Treaties Supp. Sept. 1988); INSTITUTE OF INTELLECTUAL PROPERTY [JAPAN], CONCERNING THE REVISION OF UNFAIR COMPETITION PREVENTION LAW IN JAPAN 29-46 (1993) (instituting provisions prohibiting slavish imitation of most product configurations for a period of three years); see also Jean-Marc Mousseron, *La Protection du Savoir-Faire (Know-How)*, paper presented to the Seventh Annual Conference on "Doing Business Abroad," University of Ottawa (Canada), Nov. 17, 1993.

14. See, e.g., HAROLD C. WEGNER, *PATENT HARMONIZATION* 1-76 (1993); Ralph Oman, *Berne Revision: The Continuing Drama*, 4 FORDHAM INTELL. PROP., MEDIA & ENT. L.J. 139 (1993); Petersmann, *supra* note 1; J. H. Reichman, *The TRIPS Component of the GATT's Uruguay Round: Competitive Prospects for Intellectual Property Owners in an Integrated World Market*, 4 FORDHAM INTELL. PROP., MEDIA & ENT. L.J. 171 (1993) [hereinafter *TRIPS Component*]; see also Albert Trampusch, *Harmonization of Industrial Property Laws*, paper presented to the Seventh Annual Conference on "Doing Business Abroad," University of Ottawa (Canada), Nov. 17, 1993.

15. See, e.g., J. H. Reichman, *Electronic Information Tools—The Outer Edge of World Intellectual Property Law*, 24 IIC 446 (1993) [hereinafter *Electronic Information Tools*]; J. H. Reichman, *Past and Current Trends in the Evolution of Design Protection Law—A Comment*, 4 FORDHAM INTELL. PROP., MEDIA & ENT. L.J. 387 (1993) [hereinafter *Evolution of Design Protection*]; see also Peter S. Menell, *An Analysis of the Scope of Copyright Protection for Application Programs*, 41 STAN. L. REV. 1045 (1989); Dennis Karjala, *Copyright, Computer Software, and the*

must, therefore, take pains to distinguish traditional from nontraditional objects of protection when evaluating current developments, lest the drive for international harmonization of intellectual property, unfair competition and even antitrust laws¹⁶ obscure the mounting anticompetitive effects of new restraints on trade proliferating in all developed market economies.¹⁷

This Article does not address traditional antitrust concerns that fall within the expertise of other participants in this Symposium. Rather, it first examines the pivotal role of reverse-engineering under existing trade regulation laws and briefly reviews some of the pressures undermining this concept in the context of new technologies.¹⁸ The Article then considers the extent to which multilateral trade negotiations, within the framework of the GATT's Uruguay Round,¹⁹ have harmonized trade-regulation measures affecting the exercise of traditional intellectual property rights²⁰ while largely ignoring the systemic vulnerability of unpatented, noncopyrightable embodiments of advanced scientific and technical know-how to free-riding appropriation.²¹ The study closes with some preliminary findings from works-in-progress suggesting that direct protection of applied know-how in an integrated world economy will require a new intellectual property paradigm capable of assimilating regulatory approaches that have been artificially disarticulated behind the lines of demarcation separating traditional legal subcultures.²²

New Protectionism, 28 JURIMETRICS J. 33 (1987); Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine Readable Form*, 1984 DUKE L.J. 663.

16. See *supra* note 14.

17. See *infra* text accompanying notes 82-103.

18. See *infra* text accompanying notes 23-45.

19. See *Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations*, GATT Doc. MTN/FA/Add.1 (Dec. 15, 1993) [hereinafter Uruguay Round Final Act].

20. See *infra* text accompanying notes 104-57.

21. See *infra* text accompanying notes 175-85.

22. See *infra* text accompanying notes 186-97.

II. INTERACTION BETWEEN INTELLECTUAL PROPERTY AND TRADE REGULATION LAWS IN INNOVATION-BASED MARKET ECONOMIES

By providing exclusive property rights in return for the production of scarce intellectual goods, statutory intellectual property law seeks to overcome the risk of market failure that inheres in public goods generally and to ensure that free-riders do not appropriate the benefits that would otherwise accrue to investors in research and development. The positive role of these disciplines is widely acknowledged despite a lack of empirical support.²³ Nevertheless, policymakers concerned to promote investment in important new technologies often overstate the supposed benefits of specific intellectual property regimes while ignoring the negative economic functions of these regimes in relation to the complementary operations of competition law generally. If it was true that intellectual property laws balanced incentives to create against opportunities to compete in the specialized markets for qualifying intellectual goods, a healthy by-product of these laws was that courts and legislators traditionally drove nonqualifying intellectual goods onto the general products market where free competition prevailed. The negative economic functions of a mature patent system, for example, have been summarized in the following terms:

23. See *supra* note 2; *infra* note 188 and accompanying text; see also ROBERT P. MERGES, *PATENT LAW AND POLICY—CASES AND MATERIALS* 766-77 (1992); Wendy J. Gordon, *An Inquiry into the Merits of Copyright: The Challenges of Consistency, Consent, and Encouragement Theory*, 41 STAN. L. REV. 1343 (1989). Patents, for example, stimulate disclosure of major discoveries and, to a lesser extent, copyrights stimulate publication of artistic works. Both patents and copyrights overcome risk aversion in prospecting for path-breaking discoveries or for artistic works that capture the public's fancy. Exclusive property rights also facilitate a reasonably efficient allocation of resources to the task of transferring scientific breakthroughs to industry or of organizing costly public disseminations of artistic works whose commercial values cannot be determined in advance. See, e.g., Edmund W. Kitch, *Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977); Besen & Raskind, *supra* note 2. Resistance to traditional intellectual property rights tends, accordingly, to stress overriding limitations and exemptions that reflect the public interest in balancing incentives to create against the competitors' rights to imitate and improve upon new intellectual creations. See, e.g., Robert P. Merges & Richard Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990); 2 PAUL GOLDSTEIN, *COPYRIGHT: PRINCIPLES, LAW AND PRACTICE* § 10.1 (1989 & SUPP. 1993); L. RAY PATTERSON & STANLEY LINDBERG, *THE NATURE OF COPYRIGHT—A LAW OF USERS' RIGHTS* 193-213 (1991).

1. Nonpatented innovations remain subject to price competition and are free to imitate if disclosed;
2. Undisclosed, unpatentable innovations are free to reverse engineer but not to steal;
3. Patented inventions are not infringed by nonequivalent innovation;
4. Unfair competition law may not repress product imitation in the absence of confusion.²⁴

The critical attention lately paid to positive intellectual property law also tends to obscure three major functions of trade regulation law in market economies that are driven by constant technological innovation. First, unfair competition law as expressed in the norms governing trade secrets and confidential information actually determines the pace and direction of routine innovation.²⁵ Second, unfair competition law strives—often unsuccessfully—to overcome the market failure likely to result from an imbalance between legal incentives to create and the public's right to compete, especially when specific applications of intellectual property law appear to threaten chronic under-investment in high-risk research and development.²⁶ Third, principles drawn from antitrust law determine overriding public-interest limitations on contractual exercises of the exclusive rights that intellectual property laws provide.²⁷

24. *Legal Hybrids*, *supra* note 7; see also *supra* notes 2, 3, 8 & 23. The negative economic premises underlying copyright law can be summarized as follows: 1) Noncopyrightable productions or components thereof remain subject to price competition and are free to imitate if disclosed; 2) Nonprotectable ideas underlying clusters of independent creation are free to use but not to steal (built-in reverse-engineering); 3) Cultural policy not applicable to general products market; 4) Unfair competition law not to limit users' rights in the absence of confusion. *Legal Hybrids*, *supra* note 7.

25. See *infra* text accompanying notes 28-39.

26. See *infra* text accompanying notes 40-45.

27. See *infra* text accompanying notes 46-81.

A. Pivotal Role of Reverse-Engineering in Classical Trade Regulation Law

1. Competition Presupposes Natural Lead Time

While providing temporary monopolies to stimulate the production of high-risk, intangible creations, intellectual property law supplies statutory periods of artificial lead time to compensate, at least in part, for the loss of natural lead time that occurs when intellectual goods are subject to rapid imitation.²⁸ When no statutory exclusive rights apply, the availability of natural lead time largely depends on unfair competition norms operating through laws protecting trade secrets and confidential information. What seems insufficiently understood is that these laws determine the pace and direction of competition based on ordinary or routine skills by requiring second comers to reverse-engineer undisclosed, unpatented innovation by proper means.²⁹

Unpatented, noncopyrightable technologies may qualify for protection under state trade secret laws in the United States³⁰ or under the common law of confidential information in both the United States³¹ and the United Kingdom.³² Trade secret laws generally cover "any formula, pattern, device or compilation of information"³³ that confers a business advantage over

28. See, e.g., J. H. Reichman, *Design Protection and the New Technologies: The United States Experience in a Transnational Perspective*, 19 U. BALT. L. REV. 8, 17, 134-45 (1989/1990), [hereinafter *Designs and New Technologies*].

29. The term "ordinary competition" refers to all the products and processes of routine innovation—incremental innovation—that the patent system, with its stiff test of nonobviousness, negatively subjects to free competition. See 35 U.S.C. § 103 (1988 & Supp. 1993); *supra* note 24 and accompanying text.

30. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 160 (1989); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974); 2 MILGRIM, *supra* note 4, § 7.08.

31. See, e.g., *Roboserve, Ltd. v. Tom's Foods, Inc.*, 940 F.2d 1441, 1453-56 (11th Cir. 1991) (preemption of trade secret claim by federal patent law, which gave right to reverse engineer on facts as stated, did not necessarily preclude liability for breach of confidence based on expectations of the parties); JAY DRATLER, JR., *INTELLECTUAL PROPERTY LAW: COMMERCIAL, CREATIVE, AND INDUSTRIAL PROPERTY* § 4.05 (1)(b)-(c) (1993).

32. See, e.g., W.R. CORNISH, *INTELLECTUAL PROPERTY: PATENTS, COPYRIGHT, TRADE MARKS AND ALLIED RIGHTS* 215-19 (2d ed. 1989); FRANCIS GURRY, *BREACH OF CONFIDENCE* 90-97 (1984); see also ALLISON COLEMAN, *THE LEGAL PROTECTION OF TRADE SECRETS* 8-9 (1992). For the situation in other countries prior to the GATT's Uruguay Round, see, e.g., LADAS, *supra* note 3, at 1616-74.

33. RESTATEMENT OF TORTS § 757 cmt. b (1939).

competitors, so long as it is sufficiently definite and not commonly known in the trade, and so long as reasonable precautions are taken to preserve its secrecy.³⁴ Assuming that a given discovery fits within the operative definition of a trade secret, such eligibility confers no exclusive rights to make, use, sell or reproduce it in the manner of patents or of other statutory intellectual property rights.³⁵ Rather, third-party acquisition of secret knowledge becomes actionable only when obtained by improper means, that is to say, in ways that are excluded by private agreement or that violate a confidential relationship or that otherwise offend public policy. Trade secrets that are voluntarily revealed, insufficiently guarded or reverse-engineered by proper means lose all protection and become subject to free competition.³⁶

Third parties seeking to compete effectively will thus have to reverse-engineer the originator's undisclosed know-how underlying a new but unpatented product or process; establish autonomous modes of production; develop effective lines of distribution; and establish their own reputations as producers of quality goods. Because this task of catching up to the originator's head start takes time and costs money, it presumably endowed traditional innovators with a period of natural lead time in which to gain a foothold on the market.³⁷ Competition under standard nineteenth century conditions was thus rooted in the natural lead time that trade secret law initially provided and in the ability of consumers to identify the sources of innovative products that trademark law later provided.³⁸

34. *Id.*; UTSA, *supra* note 10, § 1(4); *Rockwell Graphic Sys. v. DEV Indus.*, 925 F.2d 174 (7th Cir. 1991).

35. *See, e.g., Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476, 490 (1974); *Rockwell*, 925 F.2d at 179 (suggesting that a theory that gave the trade secret holder a property right valid against the world would be preempted by the federal patent statute).

36. *See, e.g., UTSA, supra* note 10, § 1(2); *DRATLER, supra* note 31, § 4.04(2); *COLEMAN, supra* note 32, at 25.

37. *See, e.g., HANNS ULLRICH, STANDARDS OF PATENTABILITY FOR EUROPEAN INVENTIONS: SHOULD AN INVENTIVE STEP ADVANCE THE ART?* 106 (1977); *Brown, supra* note 8, at 1388 ("The originator will have had a head start. That is often the only advantage our system grants . . . and it is often enough.").

38. *See, e.g., Friedman, Landes & Posner, supra* note 3; *William M. Landes & Richard A. Posner, Trademark Law: An Economic Perspective*, 30 J.L. & ECON. 265, 297-306 (1987); *see also LADAS, supra* note 3, at 967-68.

These laws are, in turn, merely specialized and, often, codified functions of the general law of unfair competition.³⁹

2. Contraction of Natural Lead Time in the Commercialization of Applied Scientific Know-How

In practice, the mesh between intellectual property law and the laws governing confidentiality and trade secrets was imperfect even during the nineteenth century, when traditional forms of engineering occupied the forefront of attention and clear lines still separated theoretical from applied science⁴⁰ as well as industrial from artistic property laws.⁴¹ Of particular concern in this period were commercial designs, both aesthetic and functional in nature, whose creative contribution is usually embodied in products sold on the general products market.⁴² Because neither classical intellectual property law nor classical trade secret law guaranteed industrial designers sufficient lead time against slavish duplication, free-riding second comers could appropriate the benefits accruing from investment in innovative design without contributing to the costs of research and development. As a result, both statutory intellectual property laws and the general laws of unfair competition are still struggling to fill this gap in most industrialized countries.⁴³

39. See, e.g., FRANÇOIS DESSEMONTET, *THE LEGAL PROTECTION OF KNOW-HOW IN THE UNITED STATES OF AMERICA* 11-48, 322-53 (2d ed. 1976).

40. See Allan Newell, *The Models Are Broken, The Models are Broken!*, 47 U. PITT. L. REV. 1023, 1026, 1033 (1986) (discussing the breakdown of this distinction); Rebecca Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177, 195 (1987); *Electronic Information Tools*, *supra* note 15, at 472-75.

41. See, e.g., *Legal Hybrids*, *supra* note 7, *passim* (documenting and diagnosing breakdown of historical demarcation line separating industrial from artistic property).

42. See generally *Designs and New Technologies*, *supra* note 28, at 126-36, 138-45.

43. See, e.g., *Overlapping Proprietary Rights*, *supra* note 11, at 110-21 (discussing hybrid laws protecting aesthetic and functional designs as well as integrated circuit designs); *Designs and New Technologies*, *supra* note 28, at 8-11 (foreign design laws), 37-42 (foreign utility model laws contrasted with domestic design patent law), 81-123 (concurrent protection of trade dress: the judge-made design law); see also *Evolution of Design Protection*, *supra* note 15, at 392-97 (updating and criticizing broad protection of product configurations as appearance trade dress under Lanham Act § 43(a), 15 U.S.C. § 1125(a) (1988)); J. H. Reichman, *Design Protection and the Legislative Agenda*, 55 LAW & CONTEMP.

By now it has become evident that today's information technologies, together with other important new technologies, such as integrated circuit designs and biogenetic engineering, slip through the cracks between intellectual property law and trade secret law into that same netherworld of chronically insufficient lead time that previously engulfed industrial art. Several articles have analyzed this phenomenon, which typically concerns *incremental innovation bearing know-how on its face*.⁴⁴ Stated simply, today's most valuable technologies often fail to meet the nonobvious standard of patent law because they partake of merely incremental advances beyond the prior art, while their functional character remains alien to both the spirit and economic assumptions of copyright law, which implements cultural rather than industrial policies. Yet, such technologies obtain little or no natural lead time in classical trade secret law because they consist essentially of intangible scientific or technical know-how that becomes embodied in products sold on the open market. Any third parties who obtain the tangible products can quickly duplicate the valuable information they contain and thereby appropriate the fruits of the innovator's investment in research and development, with no corresponding investment of their own. Under modern conditions, in other words,

a major problem with the kinds of innovative know-how underlying important new technologies is that they do not lend themselves to secrecy even when they represent the fruit of enormous investment in research and development. Because third parties can rapidly duplicate the embodied information and offer virtually the same products at lower prices than those of the originators, there is no secure interval of lead time in which to recuperate the originators' initial investment or their losses from unsuccessful essays, not to mention the goal of turning a profit.⁴⁵

PROBS. 281-82, 290-96 (1992) [hereinafter *Legislative Agenda*].

44. See, e.g., *Programs as Know-How*, *supra* note 11, at 648-69; *Electronic Information Tools*, *supra* note 15, at 468-74; see also Pamela Samuelson, *Benson Revisited: The Case Against Patent Protection for Algorithms and Other Computer Program-Related Inventions*, 39 EMORY L.J. 1025, 1148-53 (1990).

45. Reichman, *Designs and New Technologies*, *supra* note 28, at 137. "From a behavioral standpoint, investors in applied scientific know-how find the copyright paradigm attractive because of its inherent disposition to supply artificial lead time to all comers without regard to innovative merit and without requiring originators to preselect the products that are most worthy of protection." *Id.* at 144.

3. Pressures on the Doctrine of Misuse

Trade regulation law has typically sought either to prevent abusive extensions of the patent monopoly and of other statutory intellectual property rights⁴⁶ or to defend the public's right to use unpatented (or no-longer-patented) innovation against either state legislation or private contractual agreements that unduly limit that right.⁴⁷ In the United States, critical attention focuses mainly on the soundness of applying antitrust principles to limit the exercise of statutory monopolies in ways that appear to undermine the intended balance between protection and free competition.⁴⁸ The tendency is to apply a rule of reason—rather than per se restraints—in most cases.⁴⁹ The extent to which courts can strike down allegedly

See also *supra* note 24 and accompanying text.

46. See, e.g., *Morton Salt Co. v. G. S. Suppinger Co.*, 314 U.S. 488 (1942) (tying); *Adams v. Burke*, 84 U.S. (17 Wall.) 453 (1873) (first sale); *Automatic Radio Mfg. Co. v. Hazeltine Research, Inc.*, 339 U.S. 827 (1950) (package licenses); see generally Leo J. Raskind, *Licensing Under United States Antitrust Law*, 20 BROOK. J. INT'L L. 49 (1994); Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1815 (1984); see also WARD S. BOWMAN, *PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL* (1973).

47. See, e.g., *Transparent-Wrap Mach. Corp. v. Stokes & Smith Co.*, 329 U.S. 637 (1947) (grant-back clauses); *Brulotte v. Thys Co.*, 379 U.S. 29 (1964) (invalidating patent term extension by private agreement); *Lear, Inc. v. Adkins*, 395 U.S. 653 (1969), criticized in Rochelle Cooper Dreyfuss, *Dethroning Lear: Licensee Estoppel and the Incentive to Innovate*, 72 U. VA. L. REV. 677 (1986); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141 (1989) (invalidating state law prohibiting use of plug-mold method of reverse-engineering unpatented design). But see *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979) (upholding hybrid pre-application royalty agreement imposing lesser royalties if patent failed to issue). See generally MERGES, *supra* note 23, at 898-900 (discussing immutable limits on "contracting around the patent code").

48. See, e.g., Kaplow, *supra* note 46, *passim*; Mark A. Lemley, *The Economic Irrationality of the Patent Misuse Doctrine*, 78 CAL. L. REV. 1599 (1990). See also Christian C. Taylor, *No Challenge Termination Clauses: Incorporating Innovation Policy and Risk Allocation into Patent Licensing Law*, 69 IND. L.J. 215 (1993); Michael P. Chu, Note, *An Antitrust Solution to the New Wave of Predatory Patent Infringement Litigation*, 33 WM. & MARY L. REV. 1341 (1992); A. Samuel Oddi, *Contributory Infringement/Patent Misuse: Metaphysics and Metamorphosis*, 44 U. PITT. L. REV. 73 (1982).

49. See, e.g., *Senza-Gel Corp. v. Seiffhart*, 803 F.2d 661 (Fed. Cir. 1986); *Windsurfing Int'l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1001-02 (Fed. Cir. 1986) ("Recent economic analysis questions the rationale behind holding any licensing practice per se anti-competitive"); WALLER, *supra* note 6, § 9.04 (suggesting that price restraints may remain subject to per se constraints). See also Alan A. Geraldi,

abusive licensing clauses without establishing full-fledged violations of the antitrust laws has proved particularly controversial,⁵⁰ while efforts to distinguish the principles applicable to licenses of trade secrets from principles applicable to licenses of patents or of a mix of patents and trade secrets have proved clumsy at best.⁵¹ Clumsier still, and even more controversial, is the extension of the misuse doctrine to unpatented but copyrightable forms of innovation, notably computer programs.⁵²

In the European Union, greater emphasis is placed on "abuse of a dominant position" and on the need to improve the free flow of goods between member states generally.⁵³ In both

Misuse: An Equitable Defense to Intellectual Property Infringement Actions, 14 HASTINGS COMM. & ENT. L.J., 235, 240-43 (1992); Byron A. Bilicki, Note, *Standard Antitrust Analysis and the Doctrine of Patent Misuse: A Unification Under the Rule of Reason*, 46 U. PITT. L. REV. 209 (1984).

50. See 35 U.S.C. § 271(d) (1986 & Supp. VI 1991), amended by Pub. L. No. 100-73, 102 Stat. 4674 (1988); *USM Corp. v. SPS Techs., Inc.*, 694 F.2d 505, 511 (7th Cir. 1982) (Posner, C.J.); *MERGES*, *supra* note 23, at 908-15 (linking distinctive doctrine of patent misuse under 35 U.S.C. § 271(d) with patentees' efforts to broaden the scope of issued patents contractually). See also Martin J. Adelman, *Property Rights Theory and Patent Antitrust: The Role of Compulsory Licensing*, 52 N.Y.U. L. REV. 977, 991-1013 (1977); Lemley, *supra* note 48.

51. See generally MILGRAM, *supra* note 4, § 6.05(4), *et seq.*; see also John W. Ryan, *The Treatment of Territorial Restraints Under Patent and Know-How Licenses*, 3 ALB. L.J. SCI. & TECH. 155 (1993); S. Stephen Hilmy, Note, *Bonito Boats' Resurrection of the Preemption Controversy: The Patent Leverage Charade and the Lanham Act "End Around"*, 69 TEX. L. REV. 729, 750-53 (1991).

52. See, e.g., *Lasercomb Am., Inc. v. Reynolds*, 911 F.2d 970 (4th Cir. 1990); *Ashton-Tate Corp. v. Fox Software, Inc.*, 760 F. Supp. 831 (C.D. Cal. 1990); *Digidyne Corp. v. Data General Corp.*, 734 F.2d 1336 (9th Cir. 1984), *cert. denied*, 473 U.S. 908 (1985); see also *Sega Enter. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1523-24, 1529-30 (9th Cir. 1992) (stating that attempts to monopolize the market by making it impossible for others to compete violates purpose of copyright law, and holding that use of trademark to exclude competitors from the market is inconsistent with Lanham Act §§ 32(1)(a), 43(a), 15 U.S.C. §§ 1114(1)(a), 1125(a)). See generally Phillip Abromats, Note, *Copyright Misuse and Anticompetitive Software Licensing Restrictions: Lasercomb America, Inc. v. Reynolds*, 52 U. PITT. L. REV. 630 (1991) [hereinafter *Pittsburgh Note*]; Scott A. Miskimon, Note, *Divorcing Public Policy from Economic Reality: The Fourth Circuit's Copyright Misuse Doctrine in Lasercomb America, Inc. v. Reynolds*, 69 N.C. L. REV. 1672 (1991); Gary Myers, Note, *Tying Arrangements and the Computer Industry: Digidyne Corp. v. Data General Corp.*, 1985 DUKE L.J. 1027.

53. See, e.g., VALENTINE KORAH, AN INTRODUCTORY GUIDE TO EEC COMPETITION LAW AND PRACTICE (4th ed. 1990); ISABELLE ROUDARD, DROIT EUROPEAN DES LICENCES EXCLUSIVES DE BREVETS 98-199 (1989); Roger J. Goebel, *The Interplay Between Intellectual Property Rights and Free Movement of Goods in the European Community*, 4 FORDHAM INTELL. PROP., MEDIA & ENT. L.J. 125 (1993).

the European Union and Japan, considerable efforts are made to encourage legal certainty by distinguishing permissible from impermissible licensing clauses in the abstract.⁵⁴ Formal distinctions between rules governing patent licenses and rules applicable to know-how licenses have also received greater attention in both the European Union⁵⁵ and Japan⁵⁶ than in the United States.⁵⁷ Nevertheless, these abstract criteria have so far proved hard to apply with any degree of coherence,⁵⁸ and in Europe at least, a more laissez-faire attitude may presage a drift toward more rule of reason analysis in practice, with its attendant uncertainties.⁵⁹

In the rest of the world, a much broader notion of abuse, traditionally centering on obligations to work patents locally,

54. See, e.g., TERUO DOI, *INTELLECTUAL PROPERTY PROTECTION AND MANAGEMENT-LAW AND PRACTICE IN JAPAN* 303, 309-25 (1992); Fair Trade Commission [Japan], *Japan: Guidelines for the Regulation of Unfair Trade Practices With Respect to Patent and Know-How Licensing Agreements*, 21 IIC 662 (1990); Korah, *supra* note 4.

55. See, e.g., GUILLERMO CABANELLAS & JOSE MASSAGUER, *KNOW-HOW AGREEMENTS AND EEC COMPETITION LAW* 65-242 (1991); VALENTINE KORAH, *KNOW-HOW LICENSING AGREEMENTS AND THE EEC COMPETITION RULES—REGULATION 556/89* (1989) [hereinafter *KNOW-HOW LICENSING*]; J. PAGENBERG & B. GEISSLER, *LICENSE AGREEMENTS—PATENTS, UTILITY MODELS, KNOW-HOW, COMPUTER SOFTWARE* (2d ed. 1989).

56. See, e.g., DOI, *supra* note 54, at 325-40; Yoshio Ohara, *New Japanese Guidelines for the Regulation of Restrictive Clauses in Patent and Know-How Licensing Agreements*, 21 IIC 645 (1990).

57. See *supra* note 51 and accompanying text.

58. See, e.g., Hanns Ullrich, *Patents and Know-How, Free Trade, Interenterprise Cooperation and Competition Within the Internal European Market*, 23 IIC 583, 604 (1992) (stating that the "question of whether, how, and to what extent this rationale of industrial property may also justify restraints of trade in the context of the contractual (rather than the individual) exploitation of the exclusive right is a matter of permanent controversy"); Hans-Werner Moritz, *Assignment of Computer Software for Use on a Data Processing System and the Applicability of Know-How Licensing Rules*, 21 IIC 799 (1990); Ronald E. Myrick, *Influences Affecting the Licensing of Rights in a Unitary European Market*, 4 FORDHAM INTELL. PROP., MEDIA & ENT. L.J. 81, 96-123 (1993); see also Bradley J. Nicholson, *Japanese Fair Trade Commission Guidelines for Licensing Agreements: An Overview and a Critique*, 21 GA. J. INT'L & COMP. L. 2 (1991); Moritz Röttinger, *The Exhaustion of Copyright—Copyright and the Rules on the Free Movement of Goods*, 157 REVUE INTERNATIONALE DU DROIT D'AUTEUR (R.I.D.A.) 50 (1993).

59. See, e.g., Ben Smulders, *European Community Competition Law and Licensing Agreements*, 20 BROOK. J. INT'L L. 25 (1994) (discussing proposed modifications of the block exemptions); Korah, *supra* note 4, at 79-80 (acknowledging a more laissez-faire attitude and preferring more rule of reason, but conceding "that is not the European way"); Ullrich, *supra* note 58 (acknowledging need for overhaul, but preferring rules that provide more certainty).

prevailed in both domestic and international laws, at least prior to the GATT's Uruguay Round.⁶⁰ Developing countries continue to emphasize these broader notions of abuse in connection with their concern to promote a more effective transfer of technology from developed to developing countries.⁶¹

This is not the place to evaluate the relative merits of these different approaches. The point worth stressing here is that none of them seems likely to succeed when extended more or less uncritically to new technologies that fit imperfectly within the patent and copyright paradigms to begin with.⁶²

For example, the vulnerability of packaged software to decompilation has led producers to impose stringent licensing restrictions on vendees and users that greatly constrain both the user's right to make additional copies and the purchaser's freedom to reverse-engineer.⁶³ Unlike patents, however, which last seventeen to twenty years, copyrights last from seventy-five to one hundred years.⁶⁴ Moreover, fears that innovation may lag without strong protection of functional works has tempted some courts to expand the copyright owner's exclusive right to prepare derivative works to the point where it indirectly protects ideas, systems, processes, and other formally intelligible matter.⁶⁵ As a result, other courts hostile to this

60. See *TRIPS Component*, *supra* note 14, at 204-10; *infra* text accompanying notes 110-23.

61. See, e.g., *Draft International Code of Conduct on the Transfer of Technology*, U.N. Conference on Trade & Dev. (UNCTAD), U.N. Doc. TD/CODE/TOT/47 (1985) [hereinafter *Draft TOT Code*]; MICHAEL BLAKENY, *LEGAL ASPECTS OF THE TRANSFER OF TECHNOLOGY TO DEVELOPING COUNTRIES* 96-97 (1989); GUILLERMO CABANELLAS, *ANTITRUST AND DIRECT REGULATION OF INTERNATIONAL TRANSFER OF TECHNOLOGY TRANSACTIONS* (1984); WOLFGANG FIKENTSCHER, *THE DRAFT INTERNATIONAL CODE OF CONDUCT ON THE TRANSFER OF TECHNOLOGY* (1980).

62. See generally *Programs as Know-How*, *supra* note 11, at 648-62; see also John H. Barton, Robert B. Dellenbach & Paul Kuruk, *Toward a Theory of Technology Licensing*, 25 *STAN. J. INT'L L.* 195 (1988).

63. See, e.g., *Lasercomb America Inc. v. Reynolds*, 911 F.2d 970 (4th Cir. 1990); *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255 (5th Cir. 1988) (construing 17 U.S.C. § 117 (1988)); see also PATTERSON & LINDBERG, *supra* note 23, at 193-213 (distinguishing personal use from fair use); 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, 595-621 (1992).

64. Cf. 17 U.S.C. § 302(c) (1988); 35 U.S.C. § 154 (1988).

65. See 17 U.S.C. §§ 102(b), 103, 106(2) (1988); *Electronic Information Tools*, *supra* note 15, at 456-61 ("the derivative work at odds with information technologies"). See also Pamela Samuelson, *Computer Programs, User Interfaces, and Section 102(b) of the Copyright Act of 1976: A Critique of Lotus v. Paperback*, 55 *LAW & CONTEMP. PROBS.* 311 (1992).

trend may find grounds for extending the doctrine of misuse to licenses of copyrighted computer programs and of certain other unpatented technologies that would remain independently valid⁶⁶ even if the misuse doctrine as applied to patents were questionable in the absence of a full-fledged antitrust violation.⁶⁷ This said, the leading judicial decision applying traditional misuse doctrines to copyrighted computer software may have painted with too broad a brush to inspire confidence.⁶⁸

The legal protection of databases and other factual works raises additional problems that will not prove easy to resolve. For example, when publishers need to rely on copyright law, they may not meet the requirements of creative authorship at all,⁶⁹ and even if they do, their copyrights may not prevent third parties from freely using the disparate facts presented in a protected compilation.⁷⁰ At the same time, publishers of some electronic information tools have imposed two-party licensing agreements that subordinate even the use of disseminated, uncopyrightable information to harsh terms and restrictions that appear inconsistent with the balance of public and private interests achieved under copyright laws.⁷¹

Because subscribers entering any on-line database must log in and out, the proprietors' physical control over the data

66. See, e.g., Paul Goldstein, *Infringement of Copyright in Computer Programs*, 47 U. PITT. L. REV. 1119, 1127-29 (1986); 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, 60-65, 87-99 (1993).

67. Cf. Lemley, *supra* note 48; MERGES, *supra* note 23, at 898-900; see also Thomas M. Susman, *Tying, Refusals to License, and Copyright Misuse: The Patent Misuse Model*, 36 J. COPYRIGHT SOC'Y U.S.A. 300 (1989).

68. *Lasercomb America Inc. v. Reynolds*, 911 F.2d 970 (4th Cir. 1990); see *supra* note 52.

69. See 17 U.S.C. § 102 (a)(b) (1988); J.H. Reichman, *Goldstein on Copyright Law: A Realist's Approach to a Technological Age*, 43 STAN. L. REV. 943, 949-55 (1991) (book review).

70. *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991); see, e.g., Leo J. Raskind, *Assessing the Impact of Feist*, 17 U. DAYTON L. REV. 331 (1992); L. Ray Patterson, *Copyright Overextended: A Preliminary Inquiry Into the Need for a Federal Statute of Unfair Competition*, 17 U. DAYTON L. REV. 385 (1992); Dennis S. Karjala, *Copyright and Misappropriation*, 17 U. DAYTON L. REV. 885 (1992); see generally Symposium, *Copyright Protection For Computer Data Bases, CD-ROMS and Factual Compilations*, 17 U. DAYTON L. REV. 323 (1992).

71. See, e.g., U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, *FINDING A BALANCE: COMPUTER SOFTWARE, INTELLECTUAL PROPERTY, AND THE CHALLENGE OF TECHNOLOGICAL CHANGE* 166-79 (1992) [hereinafter OTA REPORT 1992].

may enable them to charge for each and every use of electronically processed information. This includes uses like those customarily regarded as privileged, such as the making of copies for personal use or for research purposes.⁷² Yet, such practices disregard the fact that copyright law as such does not protect against end use in general nor does it prevent the use of disparate facts in particular.⁷³ Even when dissemination occurs in hard copy form, such as a CD-ROM, digital technology enables originators who constantly update the data to charge, directly or indirectly, for all uses and to impose harsh contractual conditions in two-party agreements that largely fall outside of the domestic copyright laws. The privatization of information without safeguards to foster certain socially beneficial uses of information at acceptable costs could thus retard technological progress. It remains to be seen whether courts and legislators can devise unconventional public policy limitations on both the statutory protection and private licensing of computerized databases irrespective of the traditional statutory norms of copyright law or the doctrine of misuse.⁷⁴

72. OTA REPORT, *supra* note 71; Thomas J. DeLoughry, *Computers and Copyrights—U.S. Panel Hears Differing Views on How to Protect Intellectual Property in Electronic Era*, CHRON. HIGHER EDUC., Nov. 24, 1993, at A15-A16; see also PATTISON & LINDBERG, *supra* note 23, at 193-213.

73. See *supra* notes 69-70 and accompanying text; 17 U.S.C. §§ 109(a), 202 (1988); Ralph S. Brown, *Eligibility for Copyright Protection: A Search for Principled Standards*, 70 MINN. L. REV. 579, 588-89 (1985) [hereinafter *Principled Standards*].

74. See J.H. Reichman, *Implications of the Draft TRIPS Agreement for Developing Countries as Competitors in an Integrated World Market*, U.N. Conference on Trade and Development, Discussion Paper No. 73, U.N. Doc. UNCTAD/OSG/DP/73 (1993) at 24-26 (suggesting that answers to some of these questions may come from agencies in developing countries). In the European Union, competition law recently prevented the publishers of copyrighted listings of daily television programs from refusing to license other publishers seeking to produce comprehensive weekly television guides covering the United Kingdom and Ireland. This ruling emerged from three decisions that are collectively referred to as the *Magill Case*. See Case T-69/89, RTE v. Commission, 1991 E.C.R. II-485, 4 C.M.L.R. 586 (Ct. First Instance 1991); Case T-70/89, BBC v. Commission, 1991 E.C.R. II-535, 4 C.M.L.R. 669 (Ct. First Instance 1991); and Case T-76/89, ITP v. Commission, 1991 E.C.R. II-575, 4 C.M.L.R. 745 (Ct. First Instance 1991), discussed in Smulders, *supra* note 59, at 37 n.61. But what if the daily television listings in question were not copyrightable subject matter, as might have occurred in the United States after the Supreme Court's decision in *Feist Pubs., Inc. v. Rural Tel. Serv. Co.*, 111 S. Ct. 1282 (1991)? Would a refusal to license similar data by similarly situated publishers escape judicial or administrative scrutiny merely because the proprietors possessed no statutory grant of exclusive property rights?

The vulnerability of new technologies to rapid appropriation by free-riders also skews the Supreme Court's efforts to defend the public's right to reverse-engineer unpatented innovation within the parameters set by *Brulotte*, *Aronson* and *Bonito Boats*.⁷⁵ Legal restrictions on the licensing of technological know-how that made perfect sense under nineteenth century conditions may prove inefficient when entrepreneurs faced with a chronic shortage of natural lead time fear to invest in the kind of research and development that yields unpatentable products and processes worth copying. By the same token, if neither state nor federal law prevents rapid duplication of advanced technical know-how that does not lend itself to trade secret protection, the end result could discourage, rather than encourage, that very competitive process the Supreme Court in *Bonito Boats* uncritically sought to vindicate.⁷⁶

As manufacturers struggle to overcome the know-how gap that persists at the very core of the world's intellectual property system, notwithstanding the TRIPS component of the GATT's Uruguay Round,⁷⁷ they will tend to impose contractual limits on their licensees' power to reverse-engineer or otherwise exploit the licensors' unpatented know-how that exceed the normative limits of traditional intellectual property and antitrust laws. Yet, it is the very failure of the world's intellectual property system to address the problem of *incremental innovation bearing know-how on its face*⁷⁸ that makes such defensive contractual measures both necessary and, depending on the facts, sometimes economically reasonable as well. In

75. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 156-57 (1989) (reaffirming that trade-secret licensing agreements cannot "substantially impede" the policy goals of the federal patent system by providing post-expiration "patent-like protection to intellectual creations which would otherwise remain unprotected as a matter of federal law"); *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979); *Brulotte v. Thys Co.*, 379 U.S. 29 (1964); see also *Span-Deck, Inc. v. Fab-Can, Inc.*, 677 F.2d 1237 (8th Cir. 1982), *cert. denied*, 459 U.S. 981 (1982); Hilmy, *supra* note 51, at 749-53.

76. *Bonito Boats*, 489 U.S. at 141 (holding that state plug-mold statute could not prevent third-party from reproducing advanced design of boat hull by direct molding process under *Sears-Compco*); Gordon, *supra* note 7 (discussing concept of "malcompetitive copying"); see also *Designs and New Technologies*, *supra* note 28, at 111-23; John S. Wiley, *Bonito Boats: Uninformed But Mandatory Innovation Policy*, 1989 SUP. CT. REV. 283 (1989).

77. See *infra* text accompanying notes 175-85.

78. See, e.g., *Electronic Information Tools*, *supra* note 15, at 468-75 ("information as applied know-how"); see *infra* text accompanying notes 177-84.

seeking to promote competition, one cannot automatically apply traditional notions of misuse to new technologies without risk of worsening the potential market failure inherent in a chronic shortage of natural lead time.⁷⁹

Legislators seeking to identify and address the root causes of the crisis facing the world's intellectual property system need to resist makeshift solutions that either distort established legal paradigms devised for different social purposes or add to the proliferation of hybrid protectionist regimes being thrown at a moving target.⁸⁰ In the meanwhile, application of the misuse doctrine to the licensing of new technologies will raise questions for which there are few reliable precedents. If the situation nonetheless mandates that some action be taken, courts and administrators must take pains to distinguish between old and new objects of regulatory concern and must not assume that principles suitable for the former will yield satisfactory results when applied to the latter. Otherwise, uncritical application of traditional legal doctrines will lead these same courts down a zig-zag path between intermittent states of excessive intervention and mindless judicial restraint.⁸¹

B. The Competitive Ethos Endangered from Within

Responding to the lack of protection for applied scientific know-how as such, governments have tended either to deform the patent and copyright laws in an effort to accommodate subject matter for which the classical regimes are inherently unsuited or to multiply hybrid legal regimes granting exclusive property rights to unpatentable innovation that has nowhere else to go. Both tendencies generate cumulative protectionist effects that offset the long-term competitive gains expected from major harmonization exercises, including the results of multilateral trade negotiations embodied in the TRIPS component of the GATT's Uruguay Round.⁸²

79. See *supra* text accompanying notes 29, 44-45.

80. See, e.g., *Overlapping Proprietary Rights*, *supra* note 11, at 53-57, 60-65, 110-23; *infra* text accompanying notes 83-95.

81. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141 (1989); cf. *Two Pesos, Inc. v. Taco Cabana, Inc.*, 112 S. Ct. 2753 (1992) (*criticized in Evolution of Design Law*, *supra* note 15, at 392-97). See also *Evolution of Design Law*, *supra* note 15, at 387-92 (describing recurring cyclical pattern in world-wide design protection law).

82. See Uruguay Round Final Act, *supra* note 19, Agreement on Trade-Related

Under the rubric of recent developments, for example, one may note a revived interest in the patenting of computer programs⁸³ (despite a successful campaign to bring software within the Berne Convention on the excuse that patents were unavailable);⁸⁴ a legislative proposal to lower the nonobviousness standard for biogenetic processes affecting recombinant DNA in the United States;⁸⁵ and a proposal to protect noncopyrightable databases under *sui generis* regimes in the European Union.⁸⁶ The protection of plant varieties internationally has shifted from a modified copyright approach to a modified patent approach without elevating the prerequisites of eligibility, just when most developing countries will find themselves obliged to protect plant varieties under the TRIPS Agreement.⁸⁷

To complete the picture, one should recall that the protection of innovative functional designs under patent-like standards in the utility model laws some countries enacted a long time ago⁸⁸ has given way to mandatory protection of virtually all integrated circuit designs on modified copyright principles in countries adhering to the GATT.⁸⁹ This, in turn, has led

Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods, MTN/FA II-A1C (1993) [hereinafter TRIPS Agreement].

83. See, e.g., OTA REPORT 1992, *supra* note 71, at 23-35, 51-56; COMPUTER SCIENCE AND TELECOMMUNICATIONS BOARD, NATIONAL RESEARCH COUNCIL, NATIONAL ACADEMY OF SCIENCES, INTELLECTUAL PROPERTY ISSUES IN SOFTWARE 31-38, 62-66 (1991).

84. See TRIPS Agreement, *supra* note 82, art. 10(1); Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, art. 2(1), 828 U.N.T.S. 221 [hereinafter Berne Convention]; TRIPS Component, *supra* note 14, at 198-203, 229-35.

85. See S. 8815, 103d Cong., 1st Sess. (1993) (a proposed statute that would overturn *In re Durden*, 763 F.2d 1406 (Fed. Cir. 1985), by amending the Patent Code to provide that a biotechnology process for making or using a product may be considered nonobvious if the starting material or resulting product is novel and nonobvious); see also Dan L. Burk, *Biotechnology and Patent Law: Fitting Innovation Into the Procrustean Bed*, 17 RUTGERS COMPUTER & TECH. L.J. 1 (1991).

86. Commission Proposal for a Council Directive on the Legal Protection of Databases, COM(93)342 final [hereinafter EC Proposed Directive on Databases].

87. See TRIPS Agreement, *supra* note 82, art. 27 (3)(b); International Convention for the Protection of New Varieties of Plants (UPOV Convention), Dec. 2, 1961, as revised, Geneva, Oct. 23, 1978, 33 U.S.T. 2704, amended and opened for signature March 19, 1991; TRIPS Component, *supra* note 14, at 192-98, 246-47.

88. See, e.g., *Electronic Information Tools*, *supra* note 15, at 451-55 ("tool design in comparative industrial property law").

89. See Treaty on Intellectual Property in Respect of Integrated Circuits, opened for signature May 26, 1989, 28 I.L.M. 1477 [hereinafter Washington Trea-

the United Kingdom to protect virtually all functional designs in an unregistered design right, operating on modified copyright principles, that requires no appreciable creative contribution to qualify.⁹⁰ A variant of the United Kingdom's unregistered design right has been endorsed by the Commission of the European Union,⁹¹ and wholesale protection of functional designs in the European Union would increase the pressure on the United States to follow suit.⁹² Meanwhile, the United States federal courts already protect product configurations for an indefinite period of time under a spurious theory of "appearance trade dress;"⁹³ the Swiss unfair competition law of 1986 permits innovators to interdict slavish imitation of technologically novel products until the costs of research and development have been recuperated;⁹⁴ and the Japanese unfair competition law of 1993 prohibits slavish imitation of most product configurations for a period of three years.⁹⁵

These developments compromise the competitive ethos from within. Traditionally, trade secrets laws invest competitors with an absolute right to imitate every unpatented, noncopyrightable product provided they reverse-engineer its innovative features by proper means. This is what *Sears-Compco* and *Bonito Boats* continue to teach.⁹⁶ Yet, every

tyl]; TRIPS Agreement, *supra* note 82, art. 35; *TRIPS Component*, *supra* note 14, at 247-49.

90. Copyright, Designs and Patents Act, 1988, ch 48, §§ 213-264 (Eng.); *see, e.g.,* Christine Fellner, *The New United Kingdom Industrial Design Law*, 19 U. BALT. L. REV. 369 (1989/1990).

91. *See* Commission Proposal for a European Parliament and Council Regulation on the Community Design, COM (93) 342 final at 9 and Explanatory Memorandum, COM (93) 344 final COD 464, at art. 2 [hereinafter EC Commission's Explanatory Memorandum]; *see also* Hugh Griffiths, *Overview of Developments in Europe on Industrial Design Protection*, 4 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 359 (1993); *Evolution of Design Law*, *supra* note 15, at 397-400; William T. Fryer, III, *International Industrial Design Law Developments*, 4 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 373 (1993).

92. *See, e.g.,* Ralph S. Brown, *Copyright-Like Protection for Designs*, 19 U. BALT. L. REV. 308, 314-23 (1989/1990); *Legislative Agenda*, *supra* note 43, at 293-96.

93. *See, e.g.,* *Evolution of Design Law*, *supra* note 15, at 392-97 ("appearance trade dress: from *Bonito Boats* to *Two Pesos*"); *see generally* *Designs and New Technologies*, *supra* note 28, at 81-123 ("concurrent protection of trade dress: the judge-made design law").

94. *See supra* note 13; Franz Probst, *Protection of Integrated Circuits in Switzerland*, 10 EUR. INTELL. PROP. REV. (E.I.P.R.) 108 (1988).

95. *See supra* note 13.

96. *See supra* notes 8, 75-76 and accompanying text.

single product sold on the general products market carries a functional design, and current attempts to universalize the United Kingdom's unregistered design right could, in effect, protect virtually all save the most commonplace functional designs.⁹⁷ Notwithstanding the competitive mandate handed down from the nineteenth century, the overall trend today is to override classical free-market premises and to organize in their stead a system in which virtually every product sold on the products market comes freighted with the exclusive rights of intellectual property laws.

In this context, one must cautiously evaluate the prospects for worldwide competition with respect to intellectual goods covered by the TRIPS component of the GATT's Uruguay Round.⁹⁸ As regards traditional objects of protection that the Paris and Berne Conventions already governed,⁹⁹ considerable progress was made in harmonizing international minimum standards whose competitive effects have withstood the test of time. In the long run, these achievements should stimulate greater investment in research and development everywhere, and they should intensify competition in an integrated world market.¹⁰⁰

At the same time, the TRIPS Agreement has left the know-how gap afflicting domestic intellectual property systems largely unaddressed at the international level, as explained below.¹⁰¹ The protectionist momentum building up in the sphere of nontraditional innovation will thus continue unabated, if only because special interests can always persuade

97. See, e.g., EC Commission's Explanatory Memorandum, *supra* note 91, at 18:

Some have expressed concerns that manufacture of certain functional products may be monopolized by the existence of design rights, these allegations being based upon the absence of a distinction between aesthetic and functional design. However, experience shows that this distinction is largely arbitrary and that protection for functional designs needs in any case to be provided for by some means.

(emphasis added).

98. See *supra* note 82; *infra* text accompanying notes 104-57.

99. See Berne Convention, *supra* note 84; Paris Convention for the Protection of Industrial Property, March 20, 1883, as last revised, Stockholm, July 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305 [hereinafter Paris Convention].

100. See generally *TRIPS Component*, *supra* note 14, at 254-66 ("integrating intellectual property into international economic law").

101. See *infra* text accompanying notes 175-85.

credulous government officials that "protection . . . needs in any case to be provided for by some means,"¹⁰² regardless of its cumulative anticompetitive effects. Unless timely steps are taken to deal with the puzzle of applied know-how on its own terms,¹⁰³ the long-term protectionist tide engulfing nontraditional objects of protection could offset the competitive gains expected to flow from the harmonization of laws governing more traditional objects of protection whose relative share of total investment in research and development seems likely to decline in the twenty-first century.

III. INTEGRATION OF INTELLECTUAL PROPERTY RIGHTS AND UNFAIR TRADE LAWS IN A POST-GATT REGULATORY REGIME

A. *Pertinent Achievements of the TRIPS Agreement*

The absorption of classical intellectual property law into international economic law will gradually establish universal minimum standards governing the relations between innovators and second comers in an integrated world market.¹⁰⁴ As finalized in December, 1993, the TRIPS component of the GATT's Uruguay Round falls short of achieving the maximalist goals that the developed countries hoped to achieve when multilateral trade negotiations began in 1986.¹⁰⁵ Rather, it mandates mostly time-tested, basic norms of international intellectual property law as enshrined either in the Paris and Berne Conventions¹⁰⁶ or in equally venerable institutions, such as trade secret laws, that all developed legal systems recognize in one form or another. To the extent that the TRIPS Agreement significantly elevates the level of protection beyond that found in these Conventions, as certainly occurs with respect to patents, for example, the developing countries have extracted concessions and safeguards that few would have predicted at the outset of the negotiations.¹⁰⁷ The following remarks direct

102. See *supra* note 97.

103. See *infra* text accompanying notes 190-97.

104. See *TRIPS Component*, *supra* note 14, at 173-78, 254-66.

105. See *TRIPS Component*, *supra* note 14, at 179-80; *GATT Connection*, *supra* note 5, at 869-91 (criticizing maximalist objectives of early initiatives and defending the goal of harmonizing minimum standards that had achieved broad consensus).

106. See *supra* notes 84 & 99.

107. See *generally TRIPS Component*, *supra* note 14, at 181-210.

attention to specific aspects of the TRIPS Agreement that bear on competition law in general.¹⁰⁸

1. Limits on the Patent Monopoly

The TRIPS Agreement mandates the extension of patentability to virtually all fields of technology recognized in developed patent systems; it requires patent protection for a uniform term of twenty years; and it secures legal recognition of the patentee's exclusive right to import the relevant products.¹⁰⁹ The TRIPS Agreement thus largely overrides the obligation to work patents locally, as set out in Article 5A of the Paris Convention.¹¹⁰ Nevertheless, to the extent that foreign inventors do not make patented technology available on reasonable terms, the TRIPS Agreement allows domestic governments to take measures to restore the competitive balance.

108. For this writer's analysis of the TRIPS Agreement as a whole, see generally *TRIPS Component*, *supra* note 14; *Implications of the Draft TRIPS Agreement for Developing Countries*, *supra* note 74; see also *GATT Connection*, *supra* note 5.

109. See TRIPS Agreement, *supra* note 82, arts. 27, 28, 33, 34. The Agreement further requires member states to protect products obtained directly from a patented process, TRIPS Agreement, *supra*, art. 28(1)(b), and it makes "patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced." TRIPS Agreement, *supra*, art. 27(1). Even those member countries that had not yet adhered to the Paris Convention, notably India, would have to respect articles 1-12 and 19 of the Paris Convention in the future. TRIPS Agreement, *supra* note 82, art. 2(1). See Paris Convention, *supra* note 99, arts. 1-12, 19.

The developing countries' rights to defer implementation of these provisions vary with the relative economic capacity of the country concerned and with the subject matter at issue. All developing countries obtain a five-year transition period during which they need not conform domestic laws to the proposed international minimum standards. For the least-developed countries (LDC's), this blanket exemption lasts ten years and may be extended as circumstances require. See TRIPS Agreement, *supra* note 82, arts. 65(1), (2) (allowing developing countries a five-year transitional period in general), 66 (ten-year exemption requiring LDC's to provide only national treatment and MFN treatment and to comply with any WIPO undertakings previously incurred). However, pipeline provisions added at the last moment seem to require most countries to provide some minimum, interim protection for existing patents governing "pharmaceutical and agricultural chemical products." See TRIPS Agreement, *supra* note 82, arts. 70(8), (9). These provisions lie beyond the scope of the present study.

110. See Paris Convention, *supra* note 99, art. 5A; G.H.C. BODENHAUSEN, GUIDE TO THE APPLICATION OF THE PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY AS REVISED AT STOCKHOLM IN 1967, at 67-73 (1968).

a. Compulsory Licenses for Unreasonably Priced Imports

Article 30 of the TRIPS Agreement declares that member states should tolerate only "limited exceptions to the exclusive rights" that Article 28 confers. Article 31 nonetheless acknowledges that the domestic laws allow "for other use . . . without the authorization of the right holder."¹¹¹ Several provisions of the TRIPS Agreement then spell out the bases and conditions for governmentally imposed "other use," and there appears to be considerable leeway for interpretation.

For example, Article 7 of the Agreement suggests that regulatory action may be warranted when the protection and enforcement of intellectual property rights does not "contribute to the promotion of . . . innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users . . . and in a manner conducive to social and economic welfare, and to a balance of rights and obligations." Similarly, Article 8(1) recognizes an overriding need "to protect public health and nutrition, and to promote the public interest in sectors of vital importance to . . . socio-economic and technological development" through measures consistent with the TRIPS Agreement as a whole. Article 8(2) expressly authorizes appropriate measures to prevent "abuse of intellectual property rights."¹¹² Taken together, these articles preserve and expand potential grounds for limiting a patentee's exclusive rights that Article 5A of the Paris Convention has long recognized, and they explicitly entitle developing countries to assimilate concerns about economic development into these limitations.¹¹³

111. See TRIPS Agreement, *supra* note 82, arts. 20, 28, 31.

112. See TRIPS Agreement, *supra* note 82, arts. 7, 8.

113. See *supra* note 110; see also *TRIPS Component*, *supra* note 14, at 260-66 (discussing relation of these articles to dispute resolution process); *infra* text accompanying notes 125-28 (discussing abuse in narrow sense of United States law). Even forfeiture or revocation of the offending patent remains technically feasible under Article 32 of the TRIPS Agreement, subject to an opportunity for judicial review. See TRIPS Agreement, *supra* note 82, art. 32. Forfeiture, however, remains a drastic remedy that the Paris Convention had already subjected to numerous limitations and conditions. For example, states could not revoke a patent merely because the patentee imported the patented products instead of working the patent locally; nor could states impose forfeiture to rectify "abuse" of the patentee's exclusive rights when a compulsory license would suffice; and a period of compulsory licensing must normally precede even a justifiable action to revoke on grounds of abuse. See Paris Convention, *supra* note 99, art. 5A(1), (3). Forfeiture on other public-interest grounds remains a theoretical possibility. Cf. BODENHAUSEN, *supra*

The standard form of remedial action remains compulsory licensing, as it was under Article 5A of the Paris Convention, subject to important refinements and conditions that Article 31 of the TRIPS Agreement attempts to introduce.¹¹⁴ In principle, both the public-interest exception and measures to prevent abuse, respectively stipulated in Articles 8(1) and 8(2) of the TRIPS Agreement, could justify resort to compulsory licensing. In the past, however, arguments about the meaning of "abuse" engendered considerable controversy. While a few developed countries, notably the United States, limit the concept to anti-competitive practices bordering on antitrust violations, most countries—and a leading commentator—consider the doctrine of abuse applicable if a patentee fails to work the patent locally in due course or "refuses to grant licenses on reasonable terms and thereby hampers industrial development, or does not supply the national market with sufficient quantities of the patented product, or demands excessive prices for such products."¹¹⁵

The TRIPS Agreement merges this broader concept of abuse with the public-interest exception for purposes of compulsory licensing under Articles 8(1) and 8(2). However, considerable effort has been made to discredit the nonworking of foreign patents locally as a sufficient basis for triggering such licenses.¹¹⁶ The TRIPS Agreement then subjects all non-exclusive compulsory licenses sounding in any of the bases established by Article 8 to the conditions of Article 31. The latter article normally requires a would-be licensee to seek a negotiated license from the right holder and to pay equitable

note 110, at 70 (distinguishing measures required by the public interest from measures to prevent abuse and contending that legislation pertaining to the public interest was not subject to Article 5A (3), (4) of the Paris Convention). But states that resort to this remedy in any but the most exceptional circumstances should expect to elicit protests under the TRIPS dispute settlement framework. See *TRIPS Component*, *supra* note 14, at 258-63.

114. See TRIPS Agreement, *supra* note 82, art. 31.

115. BODENHAUSEN, *supra* note 110, at 71; *cf. infra* note 125 and accompanying text.

116. See TRIPS Agreement, *supra* note 82, art. 8(1) (relating public interest exception to the promotion of "socio-economic and technological development," which overlaps the broader concept of "abuse"); art. 31 (conditions of compulsory licenses); art. 27(1) (providing that "patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.").

compensation if these negotiations fail to produce a voluntary license on reasonable terms and conditions. Article 31 also imposes restrictions on the exportation of products resulting from such a nonvoluntary license.¹¹⁷

Derecognition of the long-standing obligation to work patents locally complements the TRIPS decision to vindicate the patentee's exclusive right to import the patented products.¹¹⁸ By the same token, the Agreement allows governments directly to address the primary concern underlying the old local-working requirement, namely, monopolistic pricing.¹¹⁹ To this end, Article 31(b) allows member states to impose nonexclusive compulsory licenses when, despite negotiations with the rights holders, the latter have failed to license the patented technology "on reasonable commercial terms and conditions."¹²⁰

The sole exception to the compulsory licenses available under Article 31(b) is for patented "semiconductor technology." Article 31(c), as revised at the last minute, now exempts semiconductor technology from compulsory licenses for "other use" in general, while tolerating compulsory licenses for "public noncommercial use" or to remedy anti-competitive practices.¹²¹ Unpatented semiconductor layout designs subject to integrated circuit laws are also immunized from compulsory licenses for "other use," notwithstanding contrary provisions in the Washington Treaty.¹²²

117. See TRIPS Agreement, *supra* note 82, art. 31(b)-(j).

118. See TRIPS Agreement, *supra* note 82, art. 28(1)(a).

119. See, e.g., George A. Zaphiriou, *Transnational Technology Protection*, 40 AM. J. COMP. L. 879, 889 (1992) (citing authorities); Guillermo Cabanellas, *The Consequences of Stricter Working Requirements for Patentees Under the Paris Convention*, 19 IIC 158 (1988) (economic arguments against compulsory local working). See also BLAKENY, *supra* note 61, at 88-90.

120. See TRIPS Agreement, *supra* note 82, art. 31(b).

121. See TRIPS Agreement, *supra* note 82, art. 31(c).

122. Unpatented semiconductor technologies remain subject to the TRIPS Agreement, *supra* note 82, arts. 35-38 on integrated circuit designs, which are largely governed by the Washington Treaty, *supra* note 89. That Treaty did allow developing countries to impose compulsory licenses on semiconductor chip designs for broad reasons of public interest. See *TRIPS Component*, *supra* note 14, at 247-49 (citing authorities). However, the Final Act's TRIPS Agreement, *supra* note 82, as revised at the last moment, expressly refers in art. 37(2) on chip designs to art. 31(c) on patented "semiconductor technology," see *supra* note 82. In effect, arts. 32(2) of the Washington Treaty and 31(c) of TRIPS, when read together, incorporate an immunity from compulsory licenses for "other use" (but not for "public noncommercial use" and "anti-competitive practices") into the Washington Treaty.

Apart from semiconductor technologies, all patented inventions remain subject to compulsory licenses for "other use" if the conditions of Article 31 are met. While these conditions do limit the availability of such licenses to some extent, they also confirm the legitimacy of imposing compulsory licenses to rectify economically unreasonable behavior, especially in regard to pricing or harsh contractual conditions.¹²³ The requirement that would-be compulsory licensees negotiate seriously with rights holders to obtain exclusive licenses on reasonable terms will thus increase the pressure on foreign patentees to deal on reasonable terms and to obviate the conditions that lead governments to seek compulsory licensing in the first instance.

b. Other Abuses and the Public-Interest Exception

As regards measures to prevent abuse in the narrow sense of the term, Article 31(k) exempts compulsory licenses that correct "anti-competitive practices" from some of the constraints discussed above, including restrictions on exports of the resulting products and the duty to negotiate as a precondition of the license, provided that some judicial or administrative body has verified the anticompetitive nature of the practice in question.¹²⁴ In the United States, such practices border on antitrust violations, and the federal appellate courts almost always apply a rule of reason.¹²⁵ The European Commission, instead, follows an elaborate set of regulations, built around block exemptions, that limit licensors of both patents and know-how in detailed and specified ways.¹²⁶

123. See TRIPS Agreement, *supra* note 82, arts. 31(a) - (e). Excessive reliance on this safeguard could eventually elicit claims of impairment and nullification, whether violatory or nonviolatory in nature. See *TRIPS Component*, *supra* note 14, at 257-58, 261. However, a last-minute concession to the developing countries seems to have put at least a five-year moratorium on claims of impairment by nonviolatory acts arising under the TRIPS Agreement. See TRIPS Agreement, *supra* note 82, art. 64 (incorporating by reference Uruguay Round Final Act, *supra* note 19, Understanding on Rules and Procedures Governing the Settlement of Disputes, Dec. 15, 1993, MTN/FA II-A2, paragraphs 26.1, 26.2).

124. See TRIPS Agreement, *supra* note 82, arts. 8(2), 31(k).

125. See, e.g., DRATLER, *supra* note 31, § 2.06[4]; Raskind, *supra* note 50; 35 U.S.C. § 271(d) (Supp. 1993); see *supra* notes 47-52 and accompanying text.

126. See *supra* notes 53-59 and accompanying text. For a similar approach in Japan, see *supra* notes 54 & 56.

The developing countries remain free to pick and choose among differing regulatory frameworks with a view to proscribing a set of anti-competitive practices that reflect their own needs and national development strategies.¹²⁷ Whether the more permissive conditions of Article 31(k) will apply to any given compulsory license, however, could still depend on unsound distinctions between justifications sounding in "public interest" and "abuse," on the one hand, and those sounding in "anti-competitive practices," on the other.¹²⁸ To complicate matters further, Article 8(2) of the TRIPS Agreement expressly empowers developing countries to adopt appropriate measures to deal with abusive licensing practices that "adversely affect the international transfer of technology." Ideally, measures to implement this provision would emerge from negotiations with the developed countries, and Article 40 commits both sides to further consultations concerning measures that adversely affect the transfer of technology, including abuse of intellectual property rights.¹²⁹ Nevertheless, until the present lack of consensus gives way to agreed international standards of competition law,¹³⁰ states may continue to rely on unilateral regulatory measures subject to the risk of protest by other, adversely affected states.¹³¹

Beyond traditional notions of "public interest" and "abuse," the TRIPS Agreement introduces new and more expansive concepts whose outer limits have yet to be delineated at the international level. As noted, Article 7 stresses the "promotion of technological innovation and . . . the transfer and dissemination of technology . . . in a manner conducive to social and economic welfare." Article 8(1) expands potential public-interest exceptions to sectors other than public health and nutrition that are "of vital importance to . . . socio-economic and technological development," and Article 8(2) seeks to ensure "the international transfer of technology."¹³² In addition, Article

127. See TRIPS Agreement, *supra* note 82, arts. 8(2), 40; Barton et al., *supra* note 62, at 211-17; *infra* text accompanying notes 140-52.

128. See TRIPS Agreement, *supra* note 82, art. 31(k); see also *supra* notes 114-17 and accompanying text.

129. See TRIPS Agreement, *supra* note 82, arts. 8(2), 40.

130. See *infra* text accompanying notes 142-52.

131. See TRIPS Component, *supra* note 14, at 256-57 (discussing trade policy review mechanism of TRIPS Agreement, *supra* note 82, art. 71); see also *infra* notes 149-51 and accompanying text.

132. See TRIPS Agreement, *supra* note 82, arts. 7, 8(1), 8(2). These articles

66 underscores the least-developed countries' "need for flexibility to create a viable technological base," and it must be read in conjunction with the other provisions favoring this group of countries.¹³³

All these provisions arm the developing countries with legal bases for maintaining a considerable degree of domestic control over intellectual property policies in a post-TRIPS environment. While the meaning of any particular clause must emerge from evolving state practice, taken together they clearly sanction public-interest exceptions of importance to the developing countries while rejecting the more extreme measures these countries proposed during the Paris Revision process.¹³⁴ Eventually, specific public-interest safeguards essential to national economic development will have to be worked out on a case-by-case basis, in order to deal with particular complaints about the socially harmful effects of technological dependency that are not offset by enhanced market access, and the resulting compromises are likely to give both sides less than they want.

2. Anticounterfeiting Measures and Border Controls

The TRIPS Agreement commits both developed and developing countries to border-control measures to repress imports of counterfeit goods.¹³⁵ The imposition of border controls for these purposes represents one of the most legitimate and promising results of the TRIPS exercise, provided that states implement the necessary measures in a nondiscriminatory fashion and do not erect disguised barriers to trade.¹³⁶ Such

must be correlated with dispute resolution procedures under the TRIPS Agreement; see *TRIPS Component*, *supra* note 14, at 260-62.

133. See TRIPS Agreement, *supra* note 82, art. 66(1); *TRIPS Component*, *supra* note 14, at 256, 258-59. The principle of differential and more favorable treatment for Least-Developed Countries (as distinct from developing countries under U.N. practice) was reinforced at the last moment. See Uruguay Round, Final Act, *supra* note 19, Decision on Measures in Favor of Least-Developed Countries, Dec. 15, 1993, MTN/FA III-1.

134. See *GATT Connection*, *supra* note 5, at 817 n.315 (citing authorities).

135. See TRIPS Agreement, *supra* note 82, arts. 41 (general obligations as to the enforcement of intellectual property rights), 46, 51-61, 69 (special requirements related to border control measures and counterfeit goods), 51 n.14 (defining, for purposes of border control measures, "counterfeit trademark" and "pirated copyright goods").

136. See, e.g., Robert W. Kastenmeier & David W. Beier, *International Trade*

measures will succeed only so long as the participating states enforce them vigilantly, which will require both developed and developing countries to curb powerful vested interests. If, instead, the enforcement machinery in any given country breaks down despite the risk of sanctions by adversely affected states, it will undermine the overall effectiveness of the transnational system that the Agreement envisioned.

3. Trade Secrets and Confidential Information

The TRIPS Agreement will eventually require all member countries to protect undisclosed information under some form of trade secret law (or equivalent confidentiality laws).¹³⁷ A systematic failure to provide trade secret protection should thus become actionable at the international level as a distinct component of the international regime of unfair competition law already regulated by Article 10*bis* of the Paris Convention. However, unlike past violations of the Paris Convention, which never led to litigation between states, future violations of Article 10*bis* would become justiciable within the revised dispute-resolution machinery of the GATT itself.¹³⁸

At bottom, the trade secret provisions of the TRIPS Agreement impose no greater burdens on entrepreneurs in developing countries than on small- and medium-sized firms in developed countries while entitling them all to lead-time protection against unethical conduct and industrial espionage. To operate successfully under this regime, unlicensed entrepreneurs in developing countries must learn to acquire unpatented foreign technology through self-help methods of reverse-engineering rather than by improper means that avoid any contribution to the global costs of research and development. This task, facilitated by the availability of technical engineering skills on the global labor market, tends to root the technology in the local

and *Intellectual Property: Promise, Risks, and Reality*, 22 VAND. J. TRANSNAT'L L. 285, 297-98 (1989) (noting need for U.S. to eliminate discriminatory effects of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337 (1988)); *GATT Connection*, *supra* note 5, at 829-39 (discussing GATT's Article XX(d), which forbids the use of intellectual property norms as disguised barriers to trade), 887-89 (discussing current pressures on Article XX(d)).

137. See TRIPS Agreement, *supra* note 82, art. 39 (section is entitled "Protection of Undisclosed Information").

138. See *supra* note 123; *TRIPS Component*, *supra* note 14, at 258-63 (discussing nullification and impairment of benefits under the TRIPS Agreement).

culture and to provide a basis for future research and development as well as export potential. Trade secret protection benefits innovators everywhere and, as elsewhere explained, it could greatly stimulate the licensing of foreign technology to developing countries by reducing both transaction costs and risk aversion.¹³⁹

4. Licensing and Unfair Competition in General

One of the general principles established in Article 8 of the TRIPS Agreement is the right of states to adopt appropriate measures "to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or *adversely affect the international transfer of technology*."¹⁴⁰ This principle then acquires greater specificity in regard to both patents, as previously discussed, and trademarks. As regards the latter, states "may determine conditions on the licensing and assignment of trademarks," but are no longer permitted to impose compulsory licenses on trademark proprietors.¹⁴¹

Article 40 of the TRIPS Agreement recognizes the legitimacy of controlling anti-competitive practices in contractual licenses affecting intellectual property rights generally.¹⁴² However, Article 40(1) acknowledges the lack of consensus in this area¹⁴³ by admitting that states agree only "that some licensing practices or conditions pertaining to intellectual property rights . . . restrain competition" and "may have adverse effects on trade and may impede the transfer and dissemination of technology."¹⁴⁴ The general right of member states to regulate licensing agreements, already set out in article 8, is then reformulated in Article 40(2) so as to allow single states to legislate against "licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant

139. See *TRIPS Component*, *supra* note 14, at 236-39 (citing authorities).

140. See TRIPS Agreement, *supra* note 82, art. 8(2) (emphasis added).

141. See *supra* text accompanying notes 112-34; TRIPS Agreement, *supra* note 82, art. 21.

142. See TRIPS Agreement, *supra* note 82, art. 40 and title to Section 8.

143. See *supra* notes 115 & 125-26 and accompanying text.

144. See TRIPS Agreement, *supra* note 82, art. 40(1).

market."¹⁴⁵ Evidently, this provision attempts to address the kinds of abuse that developed countries normally recognize,¹⁴⁶ without necessarily limiting the developing countries from proceeding on other grounds either under the formulation of Article 8 or under broader principles inherent in the objectives set out in Article 7 and in the public-interest exception set out in Article 8(1).¹⁴⁷ Even with regard to abuse in the narrow sense of Article 40(2), the negotiators could only agree to name "exclusive grantback conditions, conditions preventing challenges to validity and coercive package licensing" as examples of practices that states may legislate against.¹⁴⁸

Given this lack of consensus and its attendant soft-law approach, the logical solution was to require consultations when conflicts occur.¹⁴⁹ In this respect Article 40(3) cuts two ways. It allows developing countries in particular cases to request information from developed countries that bears on alleged violations of local regulations, which could embarrass the alleged violator before his own government.¹⁵⁰ But it also allows developed countries to demand consultations when they view the local action or regulations as exceeding the mandate of Article 40.¹⁵¹

The likely consequence of these provisions is a further round of talks in which both sides try to establish a greater consensus concerning actions to restrain misuse of intellectual property rights.¹⁵² Indeed, the express legitimization of a demand for consultations to deal with questionable regulatory acts appears to mandate further negotiations along these lines, even if the uncertain application of antitrust principles to intellectual property rights in the developed countries themselves casts doubt on the efficacy of such negotiations.

Meanwhile, with specific regard to unfair competition law as distinct from antitrust in general and misuse in particular, one should not overlook the fact that the TRIPS Agreement

145. See TRIPS Agreement, *supra* note 82, arts. 8, 40(2).

146. See *supra* text accompanying notes 46-59.

147. See TRIPS Agreement, *supra* note 82, arts. 7, 8(1).

148. See TRIPS Agreement, *supra* note 82, art. 40(2).

149. See TRIPS Agreement, *supra* note 82, art. 40(3), (4).

150. See TRIPS Agreement, *supra* note 82, art. 40(3).

151. See TRIPS Agreement, *supra* note 82, art. 40(3), (4).

152. See *infra* text accompanying notes 173-74; *TRIPS Component*, *supra* note 14, at 264-66.

incorporates Article 10*bis* of the Paris Convention by reference.¹⁵³ Article 10*bis* proscribes acts "contrary to honest practices in industrial commercial matters" as established in international trade.¹⁵⁴ A consensus exists regarding traditional acts of passing off and related activities sounding in the deception or confusion of consumers, which are addressed by Lanham Act section 43(a) in the United States.¹⁵⁵ While the outer limits of Article 10*bis* remain to be clarified, and some scholars fear that unfair competition law in general is not yet ripe for harmonization,¹⁵⁶ states that continue to tolerate practices that blatantly deceive or confuse consumers with regard to foreign products could find themselves embroiled in the dispute-settlement procedures established in the Uruguay Round.¹⁵⁷

B. Future Projects and a Major Omission

1. The Draft International Antitrust Code

In all countries, efforts to implement higher intellectual property standards will increase the strain on related aspects of competition law that are not directly covered by the TRIPS Agreement. Identifying the parameters of healthy competition valid for all players in an integrated world market will thus become a pressing task for the international community in a post-TRIPS economic environment.¹⁵⁸ Yet, this task has

153. See TRIPS Agreement, *supra* note 82, art. 2(1) (incorporating minimum standards of Paris Convention, *supra* note 99).

154. See Paris Convention, *supra* note 99, art. 10*bis*(2); BODENHAUSEN, *supra* note 110, at 144.

155. See Paris Convention, *supra* note 99, art. 10*bis*(3) [1], [2], [3]; Lanham Act § 43(a), 15 U.S.C. § 1125(a) (1988).

156. See, e.g., Gerhard Schricker, *European Harmonization of Unfair Competition Law—A Futile Venture?*, 156 IIC 788 (1991).

157. See TRIPS Component, *supra* note 14, at 258-63.

158. See, e.g., Petersmann, *supra* note 1, *passim*; John H. Jackson, *GATT and the Future of International Trade Institutions*, 18 BROOK. J. INT'L L. 11, 24 (1992) (stressing that monopolies "can undo the trade liberalization effect of reduced tariffs and nontariff barriers."); see also John H. Jackson, *Statement on Competition and Trade Policy Before the U.S. Senate Committee on the Judiciary* (1992), reprinted in 26 J. WORLD TRADE 110 (1992); David P. Fidler, *Competition Law and International Relations*, 41 INT'L & COMP. L.Q. 563 (1992). Although the TRIPS Agreement recognizes numerous exceptions to intellectual property rights for purposes of enhancing competition, see *supra* text accompanying notes 124-52, it never addresses the meaning of competition or the tenets of competition law.

become more complicated than ever because innovators, users, and second comers all have different stakes in fashioning the rules of fair competition applicable to an integrated world market, and their interests will increasingly vary more with their economic roles than with the geopolitical affiliations of their respective national states.

Over time, indeed, competition under the new rules of a TRIPS Agreement may gradually blur the national boundaries that have proved so disruptive in the present negotiations. For example, the affinities between small- and medium-sized firms in both developed and developing countries may eventually outweigh the affinities between small and large firms operating within a single national territory. Interests shared transnationally should, in turn, make it dangerous for states to allow domestic oligopolists to control future negotiations on either intellectual property rights or competition law to the extent they controlled the recent multilateral trade negotiations bearing on TRIPS. Developed countries that too aggressively seek to define competition law in terms acceptable to their oligopolistic exporters could hurt those small- and medium-sized firms that are the real engines of innovation at home. Developing countries that overly regulate the large firms operating in their territories could render the business climate less hospitable to their own small- and medium-sized firms.

In any event, antitrust law must remain an integral part of ongoing international discussions of intellectual property rights,¹⁵⁹ even if doubts persist concerning the ability of states to harmonize unfair competition laws as such.¹⁶⁰ To this end, an intrepid group of scholars, organized by Professor Ernst-Ullrich Petersmann, has undertaken to elaborate a Draft International Antitrust Code to be submitted to the GATT's legislative body for future consideration.¹⁶¹

159. See, e.g., Thomas Cottier, *The Prospects for Intellectual Property in GATT*, 28 COMMON MKT. L. REV. 383, 410 (1991). For one authoritative assessment of the case for and against harmonization, and of the difficulties attendant upon an affirmative answer, see the excellent article by Prof. Petersmann, *supra* note 1, at 59-78.

160. See Schricker, *supra* note 156.

161. See Working Group, International Antitrust Code, *Draft International Antitrust Code as a GATT-MTO-Plurilateral Trade Agreement*, Munich, Germany, July 10, 1993, reprinted in 5 WORLD TRADE MATERIALS 126 (1993) [hereinafter *Draft Antitrust Code*] (signed by Dr. Joseph Drexler, Prof. Wolfgang Fikentscher, Prof. Eleanor M. Fox, Dr. Andreas Fuchs, Andreas Heinemann, Prof. Ullrich Immenga,

While the bulk of their recommendations lie beyond the scope of this Article, the Working Group's proposals in regard to "Restraints in Connection with Intellectual Property Rights" deserve mention here.¹⁶² A first set of relevant proposals in Article 6, which consider the application of general principles of antitrust law, rather tamely restate the drafters' preferred interpretation of existing European Union law.¹⁶³ Rather than elaborating a concept of misuse as such, the Draft International Antitrust Code emphasizes the legitimacy of exercising "an intellectual property right within the limits of the legal content of such rights" so as not to "entail restraints of competition."¹⁶⁴ It does prohibit abuse of a dominant position by obtaining or exercising intellectual property rights, and it also prohibits pooling these rights "to suppress technology or raise prices."¹⁶⁵

On the topic of licensing in general, the Draft Antitrust Code stresses the legitimate purposes of licensing more than the grounds for determining misuse, and it expressly authorizes "licenses which may be exclusive and territorially restricted" as well as the imposition of other "justified obligations and restrictions."¹⁶⁶ In the same vein, the comments to the Draft Code take pains to specify the kinds of presumably permissible clauses that licensors could insert in a typical agreement covering the licensing of patented products and processes. These include obligations to produce goods and services "necessary" to exploit the invention; minimum royalty and quantity terms; field of use restrictions; restrictions on sublicensing and assignments; and obligations to use the licensor's mark. Also allowed are obligations not to divulge the licensor's know-how even after expiration of the patent if the know-how remains secret; to cooperate with regard to infringement actions and to observe quality standards; to "grant one another a non-exclusive license in respect of inventions relating to improvements

Dr. Hans Peter Kunz-Hallstein, Prof. Ernst-Ullrich Petersmann, Prof. Walter R. Schlupe, Prof. Akira Shoda, Prof. Stanislaw J. Soltysinski, and Prof. Lawrence A. Sullivan); see also Petersmann, *supra* note 1, at 78-83.

162. See *Draft Antitrust Code*, *supra* note 161, at 31-35.

163. Compare *Draft Antitrust Code*, *supra* note 161, art. 6, § 1(a), (b), (c), at 156-57 with Korah, *supra* note 4.

164. See *Draft Antitrust Code*, *supra* note 161, art. 6, § 1(a).

165. See *Draft Antitrust Code*, *supra* note 161, art. 6, § 1(b) (c).

166. See *Draft Antitrust Code*, *supra* note 161, art. 6, § 2.

and new applications;" and a "most-favored" terms clause to keep licensees on an equal footing.¹⁶⁷

The only illegal acts the Draft Code expressly recognizes in the licensing context are obligations "not to challenge the validity of the licensed right" and "to respect the license right even though [the patent] may have expired."¹⁶⁸ Even these provisions may be "found reasonable in a particular case."¹⁶⁹ On the whole, however, the licensor who strays too far from the approved conditions set out above becomes subject to a rule of reason, and must "bear the burden of proof" that he or she has not exceeded the legal scope of the exclusive rights in question.¹⁷⁰

To its credit, the Draft Code recognizes know-how licenses as a special class and, in their regard, expressly authorizes both exclusive territorial restraints and other "justified obligations and restrictions."¹⁷¹ The Draft Code does not further specify the nature of these permissible obligations and restrictions, although it forbids licensors from obliging licensees "not to use the licensed know-how at the end of the agreement . . . if . . . [it] has become public knowledge for any other reason than a breach of contract committed by the licensee."¹⁷² A rule of reason thus seems to apply in most cases.

While these proposals would prove too conservative for many observers even in developed countries, they are manifestly at odds with the approaches favored at different times by the developing countries.¹⁷³ Yet, the developing countries will require the cooperation of the developed countries in formulating guidelines for the licensing of both patented and unpatented technologies in order to effectuate transfers of technology without unduly discouraging direct foreign investment. If, in future negotiations, the developing countries proved willing to exchange greater short-term protection of innovative products embodying unpatented know-how for a commitment by the

167. See *Draft Antitrust Code*, *supra* note 161, art. 6, cmt. 3.

168. See *Draft Antitrust Code*, *supra* note 161, art. 6, cmt. 5.

169. See *Draft Antitrust Code*, *supra* note 161, at 160.

170. See *Draft Antitrust Code*, *supra* note 161, art. 6, cmt. 6.

171. See *Draft Antitrust Code*, *supra* note 161, art. 6, § 3.

172. See *Draft Antitrust Code*, *supra* note 161, art. 6, § 3.

173. See *supra* note 61 and accompanying text; Barton et al., *supra* note 62, at 208-17; see generally STEPHEN Z. SZCZEPANSKI, *ECKSTROM'S LICENSING IN FOREIGN AND DOMESTIC OPERATIONS*, chs. 26-45 (rev. ed. 1994).

industrialized countries to support an International Code of Conduct on the Transfer of Technology, it might open a new chapter in international competition law.¹⁷⁴

2. The Know-How Gap in TRIPS

Meanwhile, a major shortcoming of the TRIPS Agreement is that it reproduces at the international level the very know-how gap that, as was demonstrated earlier, continues to plague all the domestic laws underlying the existing international intellectual property system.¹⁷⁵ This follows largely because the United States negotiators, blinded by a particular view of the cathedral, confined their efforts to securing copyright protection for electronic information tools under the aegis of the Berne Convention without considering the need for supplementary forms of relief lying outside copyright and trade secret laws in their present form.¹⁷⁶ In this way, the copyright approach to computer programs was not buttressed by any corresponding understanding with the developing countries that would prevent or retard imitation of the noncopyrightable, unpatented components of computer programs that become embodied in material supports sold on the open market.¹⁷⁷

To be sure, if oligopolistic suppliers could fully control the elaboration of their domestic copyright laws, these laws would become de facto industrial property laws capable of protecting even the structural components of computer programs primarily responsible for functional behavior. Some early decisions leaned in this direction.¹⁷⁸ Beginning in the late 1980s, however, numerous legal scholars, both individually and collectively, declared that traditional copyright principles (as recently

174. Cf. *GATT Connection*, *supra* note 5, at 870-72, 875-78; *supra* note 61; see *infra* text accompanying notes 179-84.

175. See *supra* text accompanying notes 40-45.

176. See TRIPS Agreement, *supra* note 82, art. 10 (section is entitled "Computer Programs and Compilations of Data."); *TRIPS Component*, *supra* note 14, at 224-25, 229-35.

177. See *supra* text accompanying notes 44-45.

178. See, e.g., *Whelan Assocs., Inc. v. Jaslow Dental Lab.*, 797 F.2d 1222 (3d Cir. 1986) (broad copyright protection for elements of structure, sequence and organization), *cert. denied*, 479 U.S. 1031 (1987); *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990); Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 106 (1993) (approving this trend).

reaffirmed by the United States Supreme Court) prevented software producers from obtaining patent-like protection of either program function or standardized components of user interfaces through the back door.¹⁷⁹ A spate of decisions recently handed down by the federal appellate courts tend to uphold this thesis by significantly reducing the range of program elements likely to qualify as copyrightable expression.¹⁸⁰ Still other decisions now permit second comers to make intermediate copies of an originator's object code for purposes of reverse-engineering noncopyrightable ideas or components that they cannot reasonably discover by other means, so long as the second comers independently create their own end products without embodying the originators' protectible expression.¹⁸¹

Copyright protection of computer programs in the United States still prevents the wholesale duplication of any given

179. See, e.g., Samuelson, *supra* note 65; *Programs as Know-How*, *supra* note 11, at 691-93, 693 n.288; Menell, *supra* note 15; Karjala, *supra* note 15.

180. See *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823 (10th Cir. 1993); *Computer Assocs., Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992); *Brown Bag Software v. Symantec Corp.*, 960 F.2d 1465 (9th Cir. 1992); *Plains Cotton Coop. Ass'n v. Goodpasture Computer Servs.*, 807 F.2d 1256 (5th Cir. 1987). See generally Dennis S. Karjala, *Recent United States and International Developments in Software Protection* (pts. 1 & 2), 16 E.I.P.R. 13, 58 (1994); Randall Davis, *The Nature of Software and Its Consequences for Establishing and Evaluating Similarity*, 5 SOFTWARE L. J. 299 (1992).

181. See *Sega Enters., Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Atari Games, Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832 (Fed. Cir. 1992). These cases hold that when circumstances unduly restrict access to the noncopyrightable elements of a computer program, it is fair use for a potential competitor to decompile publicly distributed object code in order to reconstruct the originator's undisclosed source code, so long as the second comer's end product does not embody the originator's protected expression and there is no misappropriation of trade secrets or any breach of fiduciary obligations. This result follows from new and old Supreme Court decisions that prevent the exclusive reproduction rights of copyright law from indirectly protecting unpatented technical ideas, principles, processes, systems or methods of operation, which third parties must remain free to reverse engineer. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 161-64 (1989) (stressing competitor's right to reverse engineer unpatented products); *Baker v. Selden*, 101 U.S. 99 (1879); *Programs as Know-How*, *supra* note 11, at 691-93, 693 n.288. Whether the European Communities' Directive on Software also allows reverse engineering for purposes of analytical use in addition to interoperability remains to be seen. See, e.g., BRIDGET CZARNOTA & ROBERT J. HART, *LEGAL PROTECTION OF COMPUTER PROGRAMS IN EUROPE—A GUIDE TO THE EC DIRECTIVE 73-86* (1991); Linda G. Morrison, Note, *The EC Directive on the Legal Protection of Computer Programs: Does It Leave Room for Reverse Engineering Beyond the Need for Interoperability?*, 25 VAND. J. TRANSNAT'L L. 293 (1992).

program, and especially its code, much like unfair competition law appears to do in Germany. But neither copyright nor trade secret laws prevent reimplementations of functionally equivalent behavior by proper means, nor will these laws impede second comers in developing countries from using components that are functionally determined or that constitute either standards of efficiency in the trade or market-determined standards that consumers require.¹⁸²

Moreover, the same know-how gap likely to perpetuate a chronic state of underproduction for computer programs also applies to many products of biogenetic engineering, to industrial designs, and to other important new technologies that rest mainly on advances in applied know-how rather than on patentable discoveries.¹⁸³ Although the need for some provisory, transnational "gentlemen's agreement" covering the duplication of unpatented, noncopyrightable embodiments of applied know-how was pointed out in 1989,¹⁸⁴ and there is evidence that the developing countries might have acquiesced in such an interim solution, the developed countries' negotiators took no steps in this direction.

As a result, the pressures on domestic courts and legislators to fill a gap in the world's intellectual property system will grow more acute as the century draws to an end. Legislators, in particular, will find it tempting to throw more ill-conceived *sui generis* laws at this moving target; while both courts and legislators struggling to adapt nineteenth century economic principles to twenty-first century innovation may continue to expand the misappropriation branch of unfair competition law with no firm analytical or economic foundations to support their endeavors. The protectionist tide discussed earlier in this Article will thus continue to rise unless timely steps are taken to develop a new intellectual property paradigm capable of dealing with applied scientific know-how on its own terms.¹⁸⁵

182. See *supra* notes 179-80; *TRIPS Component*, *supra* note 14, at 229-35.

183. See *supra* text accompanying notes 40-45.

184. See *GATT Connection*, *supra* note 5, at 875-78.

185. See *supra* text accompanying notes 82-103; *infra* notes 190-97.

IV. BEYOND THE HISTORICAL LINES OF DEMARCATION

The foregoing discussion suggests that scholars and lawmakers must avoid two dogmas when considering the application of antitrust principles to the exercise of intellectual property rights in a post-industrial environment. One dogma to avoid is that antitrust and intellectual property laws promote inherently antithetical goals. The other, equally misleading dogma is that antitrust laws should treat intellectual property rights just like any other form of property.¹⁸⁶ Instead, enlightened policy making for an information age¹⁸⁷ requires an awareness of the peculiar properties of intangibility, indivisibility, and inexhaustibility¹⁸⁸ that led nineteenth century scholars to recognize "intellectual property" as a distinctive class of rights that differed from other kinds of property familiar from Roman law.¹⁸⁹ Starting from this premise, scholars and lawmakers must further combine principles drawn from heretofore artificially disarticulated legal subcultures—including intellectual property law, unfair competition law, trade secret law, and antitrust law—into a unified regulatory framework that implements a coherent innovation policy.

To this end, two works-in-progress explore the theoretical and practical foundations of a third legal paradigm that looks beyond "art" and "inventions" in order to address the protection of applied know-how as such, and they develop a concrete model for adapting this theory to the protection of

186. See, e.g., Charles Rule, *Monopoly Power and Intellectual Property Rights Under United States Antitrust Law*, Address at the Symposium on Intellectual Property Rights and Competition Law, Brooklyn Law School, Brooklyn, New York (April 15, 1994) (unpublished).

187. See, e.g. STEPHEN SAXBY, *THE AGE OF INFORMATION—THE PAST DEVELOPMENT AND FUTURE SIGNIFICANCE OF COMPUTING AND COMMUNICATIONS* 1-41, 85-146 (1991).

188. "Indivisibility" refers to the "public good" characteristic of information: No one person's consumption diminishes its availability to others. See, e.g., BENKO, *supra* note 2, at 21 (stressing that "knowledge goods . . . create problems of market failure, externalities, and appropriability"); WILLIAM KINGSTON, *INNOVATION, CREATIVITY AND LAW* 83-85 (1990); Ejan Mackaay, *An Economic View of Information Law*, in *INFORMATION LAW TOWARDS THE 21ST CENTURY* 43-65 (Willem F. Korthals Altes et al. eds., 1992).

189. See 1 STEPHEN LADAS, *THE INTERNATIONAL PROTECTION OF LITERARY AND ARTISTIC PROPERTY* 1-12 (1938) (noting that term "intellectual property" was not coined until the nineteenth century, when Kohler and Picard perceived that artistic and industrial property laws had more in common with each other than with the older forms of property known to Roman law).

noncopyrightable, unpatented components of computer programs.¹⁹⁰ Since both works will soon be published, it suffices to indicate some of the underlying conceptual foundations pertinent to the topic at hand.

The more one examines the various hybrid legal regimes that have lately proliferated in the widening gap between the international patent and copyright systems,¹⁹¹ the more one is struck by their makeweight natures and by the lack of any conceptual, economic, or empirical rationales capable of justifying the social costs of any known regime of exclusive property rights operating outside these dominant paradigms. If one then re-examines the way in which unpatented, noncopyrightable know-how is actually transferred from the laboratory to industry, one is struck by the lattice work of individual contractual transactions that do the work and by the accumulated transaction costs their repetition continues to engender. Because these two-party deals may unduly limit the public's right to reverse-engineer the know-how in question, the regulatory burden of defending that interest adds considerably to these transaction costs.¹⁹² Where administrators neglect this regulatory burden, as often occurs in the United States, the transaction costs are shifted to courts, which must police these bargains case-by-case, or to consumers at large, who defray the true costs of the many contractually imposed barriers to entry that go unregulated. Where, instead, the regulation of know-how transfer agreements becomes too intrusive, as arguably occurs in the European Union, a casuistic administrative approach adds so much to overall transaction costs as to become both inefficient and laxly enforced in the end.¹⁹³

The solution to the problem of legal protection for applied scientific know-how thus turns, in the first instance, on the stipulation of a standard, off-the-rack contractual deal applicable to eligible forms of innovation. The standard deal would confer a minimum but sufficient degree of lead-time protection on investment in unpatented innovation while encouraging

190. See *Legal Hybrids*, *supra* note 7; Pamela Samuelson, Randall Davis, Mitchell Kapor & J.H. Reichman, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. (forthcoming 1994).

191. See *supra* text accompanying notes 82-95.

192. See *supra* text accompanying notes 46-81.

193. See *supra* notes 48-59 and accompanying text.

second comers to make efficient decisions about further investment in incremental innovation without regard to the barriers to entry characteristic of exclusive property rights. Besides providing those who develop "incremental innovation bearing know-how on its face" with artificial lead time,¹⁹⁴ the standard deal must also guarantee the public's right to adapt and extend these same innovations, either by lawful forms of reverse-engineering or by substitute legal transactions that require some contribution to the technical community's overall costs of research and development. The standard contractual deal would, in effect, operate *erga omnes*, in the sense that its provisions would bind all second comers once innovators satisfied minimum eligibility requirements. But its legal machinery would tend to promote competition, rather than impede it, and it would not provide monopolistic incentive structures in the manner of traditional intellectual property rights.¹⁹⁵

The proper aim of a standard know-how deal is to stimulate competition by avoiding market failure; by regulating the pace and direction of reverse-engineering, and defining its lawful characteristics; and by encouraging second comers to continue the process of incremental innovation in exchange for a contractually imposed contribution to the overall cost of research and development.¹⁹⁶ Such a regime would thus combine elements of classical trade secret law with elements of competition law, without introducing more exclusive property rights than already exist; and it would blur the lines of demarcation that artificially separate intellectual property law from its sister legal subcultures under traditional modes of analysis. The primary objective is to provide a minimum period of artificial lead time in order to avoid both the market failure and the unjust enrichment problems that currently afflict know-how applied to industrial products sold on the general products market.¹⁹⁷ While the market would continue to determine the value of unpatented innovation, originators could not erect barriers to entry nor could second comers free-ride on the

194. See *supra* text accompanying notes 44-45.

195. See generally *Legal Hybrids*, *supra* note 7.

196. See generally *Legal Hybrids*, *supra* note 7.

197. See *supra* notes 44-45 and accompanying text; see also Gordon, *supra* note 7.

investment in research and development that the technological community as a whole requires for its sustenance.

Those who find these principles of interest are invited to examine the forthcoming works-in-progress and to participate in this endeavor by providing constructive criticism. However adventurous such proposals may seem at first glance, they are less radical by far than the present penchant for expanding and multiplying exclusive property rights in every direction. There is no avoiding the issue, no clinging to obsolete legal solutions without unacceptably high costs to the developed countries' comparative advantage in the field of high technology. No matter how uncertain and difficult it will be to develop a law that appropriately protects applied know-how, the unknown risks it entails are outweighed by the greater risks inherent in continuing to adapt existing legal institutions to new technologies for which they are inherently unsuited.

As matters stand, rather than facing up to the new problems that might arise from efforts to devise a regime to protect applied know-how as such, the world's intellectual property community is witnessing both the destabilization of its paradigmatic foundations, as patent, copyright and trademark systems mutate in unexpected ways under the pressure of events, and a proliferation of legal hybrids that mock the competitive ethos. Sooner or later, unless these tendencies are resisted in the interest of a more rational and constructive debate, a discredited intellectual property system risks collapsing of its own protectionist weight.

