International Patent Cooperation: The Next Step

Warren S. Wolfeld

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INTERNATIONAL PATENT COOPERATION:
THE NEXT STEP

Patents\(^1\) have assumed a fundamental role in encouraging innovation and invention in today's technologically oriented world. By granting inventors the exclusive right to exploit their inventions, patents provide a strong economic incentive for private innovation.\(^2\) Additionally, by requiring disclosure of inventions, patents facilitate further innovation by others.\(^3\) Society ultimately benefits from the resulting competition for technological superiority.\(^4\)

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1. A patent is "[a] grant made by [a] government to an inventor, conveying and securing to him the exclusive right to make, use and sell his invention for a term of years." BLACK'S LAW DICTIONARY 1013 (rev. 5th ed. 1979). In return for this grant, the inventor fully discloses his invention and makes it available to the public.

In the United States, a patent is represented by a document. The document is usually written by the inventor, or his agent, and is approved by the United States Patent and Trademark Office. It consists of three main sections: an abstract briefly describing the invention; a specification describing in detail the form and operation of the inventor's best embodiment of the invention; and a description delineating in precise terms the invention's scope and function. For a minimal fee, anyone may obtain a copy of a U.S. patent from the Patent and Trademark Office. Cf P. ROSENBERG, PATENT LAW FOUNDATIONALS A-3 to A-7 app. (1982) (reprint of a U.S. patent).

2. The basic purpose of a nation's patent system is to improve the level of technological development within that nation. A patent system accomplishes this goal by creating economic and psychological incentives for inventors to invent and disclose their inventions. Economically, a patent represents a potentially valuable monopoly. The prospect of obtaining a patent and the resulting monopoly encourages inventors to spend the money required to research, develop and commercialize new ideas. A patent insures a return on the investment. See Tegtmeyer, The Patent Cooperation Treaty, 42 Miss. L.J. 160, 160 (1971). Psychologically, a patent represents a personal achievement. It is a feather in the inventor's cap, bringing attention and respect from his peers.

3. Governments publish patents and make them easily accessible to the public. See, e.g., 37 C.F.R. §§ 1.11-1.13 (The United States requires patent files to be open to the public). The published patents contain detailed specifications fully describing the inventor's best embodiment of his invention at the time of filing. See, e.g., id. The United States requires the specifications to be so complete, clear and concise that anyone skilled in the relevant branch of engineering could make and use the invention by following them. 35 U.S.C. § 112 (1976). Competitors use the specifications as reliable sources of technical knowledge from which they can create new and better inventions. These subsequent inventions are then patented and provide a new basis for further development by others. Thus, a patent system transforms traditional price competition into a competition for technological superiority. See Beier, The Significance of the Patent System for Technological, Economic and Social Progress, 11 INT'L REV. INDUS. PROP. & COPYRIGHT L. 563, 570-75 (1980). Cf. D. SCHWARTZMAN, THE EXPECTED RETURN FROM PHARMACEUTICAL RESEARCH 19 (1975) (Drug companies view research and development expenditures for patentable products as a profitable application of capital funds; thus, the focus of competition among drug companies is the development of new drugs).

4. See Tegtmeyer, supra note 2, at 160.
To maximize profits from patented inventions, manufacturing enterprises attempt to lower their manufacturing costs and expand their markets. To help achieve these goals, many corporations are establishing multinational production facilities and sales networks. These new undertakings are making it increasingly necessary to secure adequate patent protection in several countries. Despite this need, existing methods for obtaining multinational patent protection are expensive and inefficient. Large scale international attempts to improve the situation have provided little assistance, and regional cooperative efforts have met with only limited success.

This Note examines past and present attempts at international patent cooperation and concludes that the wide variations existing among national patent laws pose a major obstacle to more effective multinational patent cooperation. The Note proposes a technique for achieving partial patent law unification, while maximizing the benefit to inventors, and without unduly deviating from national laws. The Note also illustrates the application of this technique to a few areas of patent law that might be addressed by a new treaty aimed at securing greater international patent cooperation.

7. See infra notes 40-56, 131-51 and accompanying text.
8. See infra notes 57-130 and accompanying text.
9. See infra notes 170-82 and accompanying text.
10. See infra notes 194-99 and accompanying text.
11. See infra notes 200-72 and accompanying text.

The following glossary should assist readers who are unfamiliar with patent terminology.

**Compulsory license**: A license that a nation requires a patentee to grant to an interested party. The conditions that trigger a compulsory license directive differ for various nations. Some common pre-conditions include the failure of a patentee to work his patent, the necessity of disclosure because the patent covers subject matter of vital national importance, and the inability of a third person to work his own patent without such a license. See infra notes 244-67 and accompanying text. Compulsory licenses are usually non-exclusive. See 2 J. Baxter & J. Sinnott, World Patent Law and Practice, 125-32.1 (1982) (survey of selected compulsory licensing laws).

**Interference**: A proceeding, initiated by a patent office, to determine who will be awarded a patent when two or more applicants seek a patent for the same invention. See P. Rosenberg, supra note 1, at §§ 10.01-10.2, at 10-1 to 10-54. In the United States, the applicant who first conceived of the invention, reduced it to practice, and exercised due diligence during this period, will be granted the patent. Id. at 10-2 to 10-3. Only nations that follow a first-to-invent priority rule need interference proceedings. For a discussion of the first-to-invent rule, see infra note 213 and accompanying text.

**License**: The transfer to another individual or entity of at least a portion of the rights an inventor secured under his patent. Licenses may be exclusive or non-exclusive. Under an exclusive license, a patentee surrenders all rights to make, use or sell his invention; under a non-exclusive license, a patentee retains some of these rights. Ordinarily, the rights retained by the patentee under a non-exclusive license include the right to grant additional non-exclusive licenses to other parties. See P. Rosenberg, supra note 1, at § 16.01(b), at 16-9 to 16-11.
I

THE NEED FOR INTERNATIONAL PATENT COOPERATION

Although patents and patent laws exist in most nations of the world, they secure rights which are basically territorial in nature. The exclusive rights conveyed by a patent, including, for example, the exclusive right to make, use or sell the patented invention, are

Novelty: Newness. An invention must be novel to be patentable. See P. Rosenberg, supra note 1, at 7-1 to 7-2. In the United States, one factor negating a finding of novelty is either the prior use or knowledge of the invention within the United States. 35 U.S.C. § 102(a) (1976). Thus, the United States has a domestic novelty standard; only evidence of domestic use or knowledge precludes a patent award. In other nations, prior use or knowledge of the invention anywhere in the world will negate a finding of novelty. These nations adopt an absolute novelty standard. See P. Rosenberg, supra note 1, at § 7.01, at 7-5.

Prior Art: All publicly available information in the relevant scientific discipline to which an inventor has access. This information may be found in issued patents, published papers, textbooks, or any other source that is generally available to the public. See id. at § 7.01, at 7-3 to 7-4. In the United States, the law conclusively presumes that inventors know the entire body of prior art related to their inventions. See id. at § 7.01.

Priority Date: The date beyond which a new publication describing an invention or rendering it obvious will not preclude patentability. 3 D. Chisum, Patents § 14.05[2] (1982). Most nations recognize the patent application filing date as the priority date. Under the Paris Convention, filing an application in any member nation fixes the priority date for all member nations. See infra notes 47-52 and accompanying text.

Priority of Invention: The first of two or more inventors to conceive, develop, and reduce an invention to practice has priority in securing a patent for that invention. Cf. 35 U.S.C. § 102(g) (1976) (method of determining who will be awarded a patent).

Priority Period: The period between the priority date and the date a patent is issued. Once an inventor's priority period begins, new technology or published references cannot negate the patentability of his invention. In effect, for the purpose of the inventor's application, the state of the art is frozen during the priority period.

Prosecution of Patents: The area of patent law practice that deals with the procedural steps necessary for securing a patent. The prosecution of a patent begins with the filing of a patent application and ends when a patent is finally issued. P. Rosenberg, supra note 1, at v-1.

Public Use Grace Period: The period during which an inventor may publicly use his invention without affecting the invention's patentability. Cf. 35 U.S.C. § 102(b) (1976) (Public exposure of an invention more than one year before filing date precludes patent issuance). Absent this grace period, test marketing or exhibiting an invention at a trade show, before filing a patent application, would preclude a determination of novelty.

Search: The patent office's examination of the prior art for references negating novelty or rendering an invention obvious. P. Rosenberg, supra note 1, at § 15.03(1), at 15-20 to 15.22.1.

Supranational Patent: A patent that has effect in more than one nation.

Validity: The propriety of a patent grant. A patent that is issued erroneously is invalid and unenforceable. A patent may be erroneously issued when the law on patentability is misconceived or an examiner overlooks relevant prior art. See P. Rosenberg, supra note 1, at § 17.05, at 17-24 to 17-27.

Working: Using the exclusive rights granted under a patent. Many nations require patentees to work their patents within that nation during a specified time period. See infra notes 246-56 and accompanying text. The United States, however, does not require a patent to be worked. See P. Rosenberg, supra note 1, at § 16.03(4), at 16-34.

12. Baxter found that 169 out of the 198 nations and territories he studied had patent laws. See 2 J. Baxter & J. Sinnott, supra note 11, at xvii-xix, xxi-xxii.
valid only within the territory of the grantor nation.\textsuperscript{13} This limited territorial protection fails to meet the needs of today's increasingly international industrial environment. Because increasing research and development costs narrow profit margins, an inventor can often justify incurring these costs only if he can be assured access to several national markets.\textsuperscript{14} Further, inventors need access to multinational patent literature to keep abreast of new technology.\textsuperscript{15} These factors are making an international approach to patents increasingly necessary.

Until recently, an inventor desiring multinational patent protection had to apply separately to the patent office of each target nation.\textsuperscript{16} Because each nation's patent office performs its own procedural and substantive review,\textsuperscript{17} separate filing results in a multiplicity of effort on the part of the applicant. Additionally, because variations in national criteria for the grant of a patent exist,\textsuperscript{18} separate filing may force an inventor to file applications in many nations before he can adequately assess the commercial viability of his invention.\textsuperscript{19} Thus, an inventor can incur substantial translation and prosecution costs for a merely speculative benefit.

Once multiple patents are issued, the inventor must deal with different and sometimes conflicting laws regarding the rights and duties accompanying them. Differences in the types of claims allowed\textsuperscript{20} and the scope of protection afforded by granting nations\textsuperscript{21}

\textsuperscript{13} P. Rosenberg, supra note 1, at § 18.01, at 18-2. A few nations, however, have formed small patent communities; a patent granted by one community nation is valid in all other community nations. A patent granted in Switzerland, for example, is valid in Liechtenstein, and vice-versa. See 2 J. Baxter & J. Sinnott, supra note 11, at xix-xxi.

\textsuperscript{14} This problem is especially acute in the pharmaceutical field. Stricter regulatory control has recently combined with other factors to greatly increase the costs of research and development. D. Schwartzman, supra note 3, at 48-49. The expected rate of return on research investment dropped from approximately eleven percent in 1960 to between three and five percent in 1973. \textit{Id.} at 36, 44.

\textsuperscript{15} Cf. Meller, \textit{The World-Wide Scope of Patenting}, 2 PRAC. APPROACH TO PATS., TRADEMARKS AND COPYRIGHTS 1, 3 (1981) (Approximately forty percent of all patent applications currently filed in the United States are of foreign origin; the information contained in these foreign applications is available to United States inventors).

\textsuperscript{16} P. Rosenberg, supra note 1, at § 19.01, at 19-2.

\textsuperscript{17} Id. at § 19.01, at 19-4 to 19-9.

\textsuperscript{18} Id. at 19-2.

\textsuperscript{19} An idea must be novel to be patentable. Different nations, however, define novelty differently. In the United States, for example, a delay in filing of up to one year from first public disclosure will not preclude novelty status. 35 U.S.C. § 102(b) (1976). The inventor can use the one year grace period to test market his invention. Austria, however, allows only a three month grace period. W. Lang, FOREIGN PATENT LAWS 24 (1968). Texts on international patent practice recommend filing patent applications in all target nations before any public disclosure is made. \textit{See, e.g., id.} at 25. For a definition of grace period, see supra note 11.

\textsuperscript{20} An invention that is described as a "product" in one nation, for example, may have to be described in terms of a "process" in another nation for the purpose of securing a patent. The availability of patent protection may differ depending on the invention's
may result in only partially overlapping patent protection. This incomplete multinational protection, together with other differences in nations' substantive laws, may severely complicate an inventor's worldwide manufacturing and marketing strategy.

In addition to imposing burdens on inventors, the limitations inherent in the current international patent system tax society as a whole. By performing their own searches and evaluations, the national patent offices incur tremendous duplication of effort and divert the large number of educated people they employ to perform examinations from innovative pursuits of their own.

The several international patent agreements concluded to date alleviate the above problems, but do not eliminate them. The most widely accepted agreement, the Paris Convention, establishes a twelve-month priority period among its eighty-eight member nations during which technological development by others will not affect patentability. This period effectively gives inventors a year in which to decide whether to apply for patents in member nations. A more recent agreement, the Patent Cooperation Treaty (PCT), classification. Compare, e.g., The Patents Law, 5727-1967, §§ 3, 7, reprinted in 2E J. Sinnott, WORLD PATENT LAW AND PRACTICE at Israel 3-4 (1982) (permitting patentability of chemicals and foods as products) with Law on Inventive Activity of October 19, 1972, § 12, reprinted in 2J J. Sinnott, supra, at Poland 4 (1982) (permitting patentability of chemicals and foods only if framed in terms of processes).

21. See infra notes 224-32 and accompanying text.


25. See infra note 47 and accompanying text.

26. See infra note 42 and accompanying text.

27. McKie, Patent Cooperation Treaty: A New Adventure in the Internationality of Patents, 4 N.C. J. OF INT'L L. & COM. REG. 249, 250 (1979). Although this one year period allows a patentee more time to file different national patent applications, many tasks must be performed during this one year. The application must be translated into the language of each target nation; the application must be revised to comply with each nation's unique formality requirements; a patent agent must be appointed in each nation; and national fees must be paid. These procedures may be both expensive and cumbersome. Id.

extends the priority period to twenty months, but is binding on only thirty-three nations. The PCT also reduces an inventor's paperwork by requiring him to file only one application with a central office. This latter procedure represents a vast improvement over the thirty-three individual national filings previously required for identical protection.

Duplication of examination effort, however, is not eliminated by the Paris Convention or the PCT. After the central office performs a prior art search and a non-binding preliminary examination, the application goes to each individual national office for an independent review. The individual nations still apply their own law to issues of patentability. Thus, duplicity in examining effort by patent offices and in prosecuting effort by the applicant remains. Further, a patent obtained in a given nation through the PCT is no different than a patent obtained directly through that nation's patent office; it is valid only in the territory of the grantor nation. The inventor is still forced to weave a marketing strategy through an international web of patent laws.

A few regional treaties establish consistent procedural and substantive provisions in the pre-grant patent laws of small groups of nations. Because some of these agreements provide for a central

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29. McKie, supra note 27, at 254. This provision allows an inventor more time to fulfill the expensive and time-consuming steps necessary for multi-national patent protection. Id.

30. The nations adopting the PCT are Australia, Austria, Belgium, Brazil, Cameroon, Central African Republic, Chad, Congo, Denmark, Finland, France, Gabon, the Federal Republic of Germany, Hong Kong, Hungary, Japan, Democratic People's Republic of Korea, Liechtenstein, Luxembourg, Madagascar, Malawi, Monaco, the Netherlands, Norway, Romania, Senegal, the Soviet Union, Sri Lanka, Sweden, Switzerland, Togo, the United Kingdom, and the United States. 2J J. Sinnott, supra note 20, at Pat. Coop. Treaty 2-3.

31. McKie, supra note 27, at 252.

32. Id. at 251-52. The applicant designates his target nations at the time of the initial application filing, but can withdraw any or all designations within 20 months of filing simply by abandoning his efforts to comply with formal national requirements. Id. at 254.

33. Id. at 253-54. See infra notes 135-37 and accompanying text.

34. See McKie, supra note 27, at 259 (Chances of obtaining patent protection in different nations through a PCT application vary because nations use different criteria in searches conducted by their own national offices). See also Roth, The Luxembourg Convention on the Community Patent: Complementary Application of National Law?, 7 GA. J. Int'l & Comp. L. 95, 102 (1977) (The PCT "is not primarily concerned with the establishment of an international patent, but with establishing procedures for sharing the work in the international processing of patents.").

35. Cf. PCT, supra note 28, at art. 11(3), reprinted in 2J J. Sinnott, supra note 20, at Pat. Coop. Treaty 8 (all international PCT patent applications will be treated as regular national applications in each designated State).

36. These cooperative attempts include the Convention on the Grant of European Patents, Oct. 5, 1973, 1978 Or. Brit. T.S. No. 20 (Cmd. 7090) [hereinafter cited as European Patent Convention or EPC], reprinted in 2J J. Sinnott, supra note 20, at EPC 2.1
office which grants binding patents,37 both the cost to an inventor38 and the duplication of effort among national patent offices are significantly reduced. Except for one proposed convention,39 however, no treaty provides for the unification of post-grant patent law. Much closer cooperation therefore is still needed in the international patent field to satisfy both the needs of inventors and of society.

II
HISTORICAL BACKGROUND
A. THE PARIS CONVENTION

The International Convention for the Protection of Industrial Property (Paris Convention),40 is the forerunner of all international patent cooperation agreements. Originally signed in 1883,41 this Convention is currently in force among eighty-eight nations, including all industrialized nations and most developing nations.42 The Convention represents the first step, albeit limited, toward international patent cooperation. Because the Convention originated when states clung tightly to notions of national sovereignty, even this limited cooperative effort is remarkable.43

The Paris Convention establishes four main principles of international patent law: national treatment; a twelve month priority period; deferral of penalties for nonworking; and approval of subse-

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37. See EPC, supra note 36, at art. 4, reprinted in 21 J. SINNOTT, supra note 20, at EPC 5-6; Afro-Malagasy Accord, supra note 36, at art. 1, reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 3-4.
38. See Meller, supra note 15, at 18-22 (comparing the cost of prosecuting national applications in the ten EPC member nations to the cost of filing through EPC procedures).
42. For a listing of Paris Convention members, see 19 INDUS. PROP. 8 (1980). Because different nations adhere to different revisions of the Paris Convention, this system of patent protection is particularly complicated and its smooth operation is impeded. Von Holstein, supra note 41, at 194.
quent agreements for further cooperation among member nations. Under the principle of national treatment, no member nation may treat a foreign patent applicant differently than it would treat its own citizen with respect to its national pre- or post-grant patent law. Thus, a foreign inventor who attempts to obtain or enforce a patent in a Paris Convention nation should not be handicapped solely because of his nationality. No member nation may use its patent system as a protectionist trade barrier.

The second important provision of the Paris Convention establishes a twelve month priority period. Most nations require an invention to be both novel and unobvious as of the date the patent application is filed. Any pre-filing reference disclosing the invention or rendering it obvious negates patentability. References published after the filing date but before patent grant have no preclusory effect. The Paris Convention permits inventors to file a patent application in any member nation and to claim the filing date of an application filed for that invention in any other member nation up to a year earlier. Thus, by filing for a patent in one nation, an inventor can, in effect, freeze the state of the art. Subsequent technological developments will not bar patentability in the other eighty-seven member nations. The priority period gives the inventor one year from the date of his initial filing to decide whether he wishes to incur the cost of filing in the other member nations.

44. See Von Holstein, supra note 41, at 193-95; Note, supra note 22, at 1004-05.
46. United States patent law arguably violates the principle of national treatment by excluding evidence of prior inventorship in a foreign country. This has the effect of favoring U.S. inventors over competing foreign inventors in interference proceedings. See Gansser, supra note 43, at 166-69. See infra notes 221-22 and accompanying text.
47. Paris Convention, supra note 24, at art. 4, reprinted in 2H J. Sinnott, supra note 20, at Conv. of Paris 6-9.
50. See supra note 11 for a discussion of novelty and prior art.
52. See P. Rosenberg, supra note 1, at § 18.07.
The third major Convention principle requires member nations to delay, for a specified number of years, the imposition of penalties for failure to work a patent. Many nations require a patentee to exploit or work his patent within the country. The patentee may therefore be required to begin manufacturing or marketing his product in that nation before doing so in other, and perhaps more profitable, nations. Non-compliance may result in compulsory licensing or revocation. The Convention's delay principle removes such restrictions on business flexibility.

Finally, the Convention permits member nations to enter into "special agreements" among themselves for stronger cooperation. Most existing international patent cooperation agreements fall within this "special agreement" clause.

B. INTER-AMERICAN AGREEMENTS

In 1910, the United States and nineteen Latin American states signed the first "special agreement," the Buenos Aires Convention. The agreement's provisions concerning national treatment and priority periods are very similar to those provided by the Paris Convention. The Convention includes some states that are not members of the Paris Convention. Two earlier agreements between different groups of Latin American nations were signed in 1889 and in 1902. The 1889 agreement remains in force between Peru and Argentina. The Buenos Aires Convention is still in force between

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53. Paris Convention, supra note 24, at art. 5A(4), reprinted in 2H J. SINNOTT, supra note 20, at Conv. of Paris 29.
54. See, e.g., Ministry of Economic Development, Decree No. 1190, art. 34 (1978) (Colombia), reprinted in 2C J. SINNOTT, supra note 20, at Colombia 11-12.
55. See, e.g., id.
59. Nations subscribing to the Buenos Aires Convention that do not subscribe to the Paris Convention include Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, El Salvador, and Venezuela. Compare Buenos Aires Convention, supra note 57, reprinted in 2H J. SINNOTT, supra note 20, at Pan-American 3 (list of signatories to Buenos Aires Convention), with 19 INDUS. PROP. 6-8 (1980) (list of nations that are members of the Paris Convention).
60. Treaty on Patents of Invention, Jan. 16, 1889, reprinted in 2H J. SINNOTT, supra note 20, at Montevideo 3.
C. AFRICA

In 1958, twelve former French Overseas Territories gained their independence.\footnote{Id. at 1006.} The patent laws that France had previously enacted for them remained in force, but only as separate laws within each territory.\footnote{See Finniss, The Protection of Industrial Property in the States Members of the African and Malagasy Organization for Economic Cooperation, 2 INDUS. PROP. 30, 30 (1963).} Because none of these new nations had the facilities for an individual patent office, they banded together to establish one central Industrial Property Office.\footnote{Id.} The resulting agreement, the Afro-Malagasy Accord, codifies the standards by which the Office is to evaluate applications. The codified areas of pre-grant patent law include provisions regarding patentable subject matter\footnote{Afro-Malagasy Accord, supra note 36, at Annex I, arts. 2, 3. reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 185-86.} and application formalities.\footnote{Id. at arts. 6-9, reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 187-89.} The Office does not examine applications for novelty;\footnote{See Afro-Malagasy Accord, supra note 36, at art. 11, reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 189-90.} thus, an adversary can later collaterally challenge a patent on that ground.\footnote{Afro-Malagasy Accord, supra note 36, at art. 25(1), reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 197.}

A patent granted under the Afro-Malagasy Accord is not unitary in character; it is separately valid in each member nation.\footnote{Afro-Malagasy Accord, supra note 36, at art. 1, reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 3-4.} Thus, one nation may declare a patent unenforceable within its territory without affecting the patent's status in the other member nations. To achieve some degree of consistency, the Accord requires member nations to adopt the complete set of patent laws prescribed in the agreement.\footnote{Afro-Malagasy Accord, supra note 36, at art. 2, reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 4.} In terms of breadth of subject matter coverage this Accord currently represents the most comprehensive attempt at international patent cooperation.

D. SCANDINAVIA

In 1964, Denmark, Finland, Norway and Sweden signed an
agreement to establish a Scandinavian Patent Community (SPC).  
Like the Afro-Malagasy Accord, the SPC would require each member nation to adopt a single uniform substantive patent law.  
Unlike the Afro-Malagasy Accord, however, the SPC would not provide for a central Nordic Patent Office. Rather, any member nation would have the power to grant a Nordic patent, which would be separately valid under each member nation’s uniform law.  
Further, both Nordic and national patents would be available. An applicant could apply for either separate national patents, or a single Nordic patent.

As instruments of international cooperation, the SPC and Afro-Malagasy Accord are comparable in scope. Each attempts to coordinate pre- and post-grant patent law. Because the SPC concerns industrially significant nations, however, its enforcement would greatly benefit the industrialized world and therefore would be of greater world-wide importance.

Although it is now believed that the SPC will never become effective in its present form, it did result in the modernization of the member nations’ patent laws.

E. Europe

In the early 1950’s, the Council of Europe’s Committee of Experts on Patents decided that any efforts to unify the highly complex patent laws of the European nations would have to be performed gradually. Subsequent history reveals that unification has indeed been gradual.

I. The Strasbourg Conventions

The Council of Europe sponsored three conventions that progressively improved patent cooperation. The First Strasbourg Conven-

73. See generally, Godenhjelm, The Scandinavian Patent Community, 4 INDUS. PROP. 10 (1965) (discussion of, and national responses to, the provisions of the SPC).
74. Id. at 11.
75. Id. at 13.
76. This practice substantially differs from provisions of the Afro-Malagasy Accord. The Accord provides that patent applications submitted to the Central Office are the equivalent of national applications in each member nation. Afro-Malagasy Accord, supra note 36, at art. 4, reprinted in 21 J. SINNOTT, supra note 20, at Malagasy 5.
77. Note, supra note 22, at 1011.
79. Lewin, supra note 78, at 22, 26; Note, supra note 22, at 1011.
80. Von Holstein, supra note 41, at 199.
vention\textsuperscript{81} was signed in 1953 and prescribes uniform patent application formalities.\textsuperscript{82} No member state may impose application requirements stricter than those prescribed in the Convention.\textsuperscript{83} Membership in this Convention has dwindled dramatically from its peak of twenty nations in 1973 to its current membership of five.\textsuperscript{84} The Second Strasbourg Convention\textsuperscript{85} was signed in 1954 and establishes an international patent classification system. Every examining patent office maintains a file in which its examiners search for prior art that may invalidate a new patent application.\textsuperscript{86} In most of these offices, the file contains patents from many different nations.\textsuperscript{87} The uniform classification system greatly simplifies the world-wide search for existing patents.\textsuperscript{88} Twenty-seven nations, including the United States, currently subscribe to the Second Strasbourg

\begin{footnotesize}
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\item \textsuperscript{82} Von Holstein, supra note 41, at 200. This convention was in force between a majority of Council of Europe members. \textit{See id.}
\item \textsuperscript{83} First Strasbourg Convention, supra note 81, at art. 1.
\item \textsuperscript{84} \textit{Compare Conventions Not Administered by WIPO, 13 INDUS.
PROP. 27, 28 (1974) (member nations as of 1973 included Austria, Belgium, Denmark, Finland, France, Federal Republic of Germany, Greece, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, South Africa, Spain, Sweden, Switzerland, Turkey, and the United Kingdom) with Conventions Not Administered by WIPO, 19 INDUS.
PROP. 21 (1980) (member nations as of 1980 included Iceland, Israel, South Africa, Spain and Turkey). This decline probably resulted from a switch by member nations to the newly established European Patent Convention (EPC) and its simpler filing procedures. The EPC sets out the formalities of applications for a European Patent and also permits applicants to convert to separate national applications without fulfilling new formalities. \textit{See EPC, supra} note 36, at arts. 78, 135-37, \textit{reprinted in} 21 J.
SINNOTT, supra note 20, at EPC 30, 52-53.
\item \textsuperscript{86} If prior art renders an invention obvious or negates a determination of novelty, an invention is not patentable. \textit{See supra} notes 48-52 and accompanying text. For a definition of “prior art,” \textit{see supra} note 11.
\item \textsuperscript{87} \textit{See, e.g.,} Dann, \textit{The Activities of the United States Patent Office Concerning Public Searches, Reading Centers, Microfilm Systems, Etc., THE ROLE OF PATENT INFORMATION IN RESEARCH AND DEVELOPMENT} 53, 53 (1975) (“In the United States, as elsewhere, the volume of patent literature in existence is continuing to expand dramatically . . . . [The U.S. Patent Office] now has some eleven million copies of U.S. patents in [its] files, and almost nine million foreign patents and other technical documents.”).
\item \textsuperscript{88} \textit{Cf.} Von Holstein, supra note 41, at 204 (While it is essential to develop expedient methods of conducting worldwide patent searches, the more important task assumed by this convention is the internationalization of the patent document, resulting in similar evaluations of patent applications, based on the same source of information). A uniform classification system would also provide a basis for a central international retrieval system. \textit{Cf.} Pfanner, \textit{The Technical Program of WIPO in the Patent Documentation and Information Retrieval Field, THE ROLE OF PATENT INFORMATION IN RESEARCH AND DEVELOPMENT} 27, 28-29 (1975) (The Committee for International Cooperation in Information Retrieval Among Examining Patent Offices (ICIREPAT), incorporated within the framework of the Paris Union, is designed “to promote international cooperation in the field of storage and retrieval of technical information, particularly in connection with
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The Third Strasbourg Convention resulted from more than eight years of comparative legal studies. Signed in 1963, this Convention coordinates the law on certain fundamental issues regarding patentability. The main value of the Convention is not in its admittedly important progress toward unifying national patent laws, but rather, in its delineation of categories in which issues of substantive law can be discussed. The Convention lists three requirements for patentability, defining each in general terms. Drafters of subsequent European agreements have been careful to use language compatible with these definitions. The Third Strasbourg Convention’s final entry into force in 1980 resulted mainly from the growing acceptance of the subsequent European agreements.

2. European and Community Patent Conventions

The European Economic Community (EEC) took the next step in European patent cooperation. Several court decisions had held that the principle of patent territoriality violated the Treaty of Rome. In response to these holdings, the EEC decided to promulgate a plan for a Community patent. In 1962, the EEC Commis...
sion published a Draft Convention to create a supranational patent for the six EEC nations. 99 Work on this ambitious plan stopped when France objected to the United Kingdom's participation in the negotiations. 100 At that time, the United Kingdom was not an EEC member. 101

In 1969, the EEC resumed work on its Community patent plan. 102 To circumvent earlier problems, a two-part scheme was introduced. 103 Part one proposed only a common granting procedure. Through a central European office, an inventor could obtain a series of national patents covering the nations he specified. 104 Any member of the Paris Convention could join in this part of the scheme. 105 Part two of the scheme prescribed a single, supranational patent, as contemplated under the 1962 Draft Convention, but covering only the territory of the six EEC nations. 106 An inventor from any nation, including the United Kingdom, could obtain a supranational patent under part two. 107

Work done on the above proposal resulted in the European Patent Convention (EPC) 108 of 1973 and the Community Patent Convention (CPC) 109 of 1975. The EPC establishes a central European Patent Office which is responsible for searching and examining European patent applications. 110 The Convention prescribes a complete substantive and procedural law on issues relating to patent grant. The Office grants a single patent, referred to as a European patent, consisting of a bundle of national patents that are separately valid in their respective nations. 111 The applicant designates the nations to be covered. These individual national patents carry the

99. Provisions in this draft included a universal novelty requirement, a 20-year term, renewal fees commencing two years after the original application, a deferred-examination system, and a provision allowing the application to be filed in French, German or English. Further, a European Patent Court and European Patent Office would be established, co-existing with national patent systems. Note, supra note 22, at 1008-11.
100. Vanaskie, supra note 97, at 83.
101. See infra note 107.
103. Id. at 54-55.
104. Id. at 54.
105. Id. at 55.
106. Id.
107. The United Kingdom joined the EEC in 1973 rendering the issue moot. Vanaskie, supra note 97, at 80 n.34. The United Kingdom now participates in both parts of the scheme. See 19 INDUS. PROP. 20 (1980) (listing the United Kingdom as participating in both the EPC and the CPC).
108. EPC, supra note 36.
109. CPC, supra note 39.
111. EPC, supra note 36, at art. 64, reprinted in 21 J. SINNOTT, supra note 20, at EPC 24.
same rights and duties as those domestically issued. Domestic law applies to all post-grant issues, except patent validity. The Convention lists the only grounds upon which a court may invalidate a European patent. Because each national patent is separately valid, however, invalidation in one nation does not mandate invalidation in any other nation.

Under the EPC, any group of member countries may enter into a separate "special agreement" for a single supranational patent valid among themselves. This patent may be granted or revoked only by the members as a unit. Thus, an inventor granted a European patent in any nation in the group would automatically receive rights and incur duties in the other nations participating in the agreement. The Community Patent Convention, which is not yet in force, satisfies the definition of a "special agreement."

The CPC is open only to EEC nations. If it enters into force, an inventor, who obtains a European patent and designates an EEC member as a target, will automatically obtain a Community patent covering all EEC nations. The Community patent will be enforced for the entire EEC through the courts of one member nation, and those courts will have to follow the post-grant patent

112. Id.
113. EPC, supra note 36, at art. 74, reprinted in 21 J. SimnotT, supra note 20, at EPC 28.
116. See EPC, supra note 36, at art. 142, reprinted in 21 J. SimnotT, supra note 20, at EPC 55.
117. See id. (requiring that such a patent be unitary in character).
118. See id.
119. Cf. CPC, supra note 39, at preamble, reprinted in 21 J. SimnotT, supra note 20, at Common Market 2-3 ("To establish a Community Patent System designed to achieve the objectives of the Treaty of Rome, it is necessary to conclude a convention constituting a special agreement within the meaning of art. 142 of the EPC").
120. CPC, supra note 39, at art. 97, reprinted in 21 J. SimnotT, supra note 20, at Common Market 74-76. Any new member of the EEC must also adhere to the CPC. CPC, supra note 39, at art. 95, reprinted in 21 J. SimnotT, supra note 20, at Common Market 73-74.
121. CPC, supra note 39, at arts. 2, 3, reprinted in 21 J. SimnotT, supra note 20, at Common Market 5-6.
122. CPC, supra note 39, at art. 2(2), reprinted in 21 J. SimnotT, supra note 20, at Common Market 33. The CPC specifies the nation whose courts will have exclusive jurisdiction in a given case. A precedential listing of nations is given if the most preferred nation cannot afford jurisdiction. See CPC, supra note 39, at arts. 39, 68-70, reprinted in 21 J. SimnotT, supra note 20, at Common Market 31-32, 53-56. The national court must defer, however, to the European Patent Office if the validity of the patent is called into question during the proceeding. CPC, supra note 39, at arts. 56-57, 76-77, reprinted in 21 J. SimnotT, supra note 20, at Common Market 44-46, 59-60.
law incorporated in the Convention.123
The post-grant substantive law codified in the CPC is not as comprehensive as the Afro-Malagasy Accord or the Scandinavian Patent Community codifications. Under the CPC, national law applies to questions of infringement124 and compulsory license requirements.125 The Convention also includes a transitional provision, available for ten years, allowing a member nation to invalidate a Community patent within its own borders.126 The national invalidation, however, must follow rules prescribed in the Convention and cannot affect the patent's status in other member nations.127

The EPC is currently in full force among eleven European nations.128 The CPC has been signed by all nine EEC nations, but only six of these nations have ratified it.129 Ratification by all nine member nations is necessary before the CPC can enter into force.130

F. PATENT COOPERATION TREATY

While European cooperation developed, the World Industrial Property Organization (WIPO) and its predecessor, the United International Bureaux for the Protection of Intellectual Property (BIRPI), also studied an agreement for greater international cooperation.131 This effort resulted in the adoption of the Patent Cooperation Treaty (PCT)132 in 1970.133 Although the PCT covers a broader geographic scope than previous "special agreements" under the Paris Conven-

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125. CPC, supra note 39, at arts. 46-48, reprinted in 21 J. SINSOT, supra note 20, at Common Market 36-38.
126. CPC, supra note 39, at art. 90, reprinted in 21 J. SINSOT, supra note 20, at Common Market 70-72. Upon request, the Council of the European Communities may extend the effect of a reservation an additional five years. Id.
127. Id.
128. Signatories to the EPC include Belgium, the Federal Republic of Germany, France, Italy, Liechtenstein, Luxembourg, the Netherlands, Sweden, Switzerland, and the United Kingdom. Although Austria has signed the agreement, it has adopted the option available under art. 167(2)(a) and (d), precluding patent protection for chemical, pharmaceutical, or food products. Haeretl & Singer, supra note 78, at 279.
129. Id. at 306. Denmark, Ireland, and the Netherlands have not yet ratified the CPC. Id.
130. Id. The CPC will enter into force three months after the last signatory ratifies the convention and deposits the instrument of ratification. CPC, supra note 39, at art. 98, reprinted in 21 J. SINSOT, supra note 20, at Common Market 76.
131. Thompson, supra note 102, at 55. As part of this effort, the six nations who receive the largest number of patent applications annually were consulted: France, the Federal Republic of Germany, Japan, the Soviet Union, the United Kingdom, and the United States. Id.
132. PCT, supra note 28.
133. Thompson, supra note 102, at 55.
tion, it fails to unify any substantive patent law. Rather, it is designed to simplify the procedure for obtaining multinational patent protection. Under the PCT, an inventor needs to file only one application for all nations in which he desires protection. A Central Receiving Office receives the application and determines whether it meets certain formal requirements. The Office then forwards the application, and all relevant prior art findings, to national patent offices for substantive processing. The PCT also extends the inventor's priority period to twenty months.

The PCT, the EPC, and the CPC are all compatible. Together they supply several alternative routes for inventors seeking multinational patent protection. Because none of these agreements replace individual national patents, an inventor has the traditional option of filing separate applications in each target country. Alternatively, if an inventor desires protection only in Europe, he may file a European patent application, designating specific target nations. This alternative allows an inventor to secure patent protection in as many as eleven countries by prosecuting a single application. If the CPC enters into force, a European patent application designating one EEC member as a target nation will automatically be treated as a Community patent application. If a patent is awarded, it will be valid in all nine EEC nations. The inventor may still designate any of the remaining EPC countries as additional

134. Thirty-three nations on six continents subscribe to the PCT. See supra note 30.
135. McKie, supra note 27, at 251-52.
136. PCT, supra note 28, at arts. 10, 11.
137. Id. at art. 20. Applicants from nations that have elected Chapter II coverage under the PCT may also request a non-binding determination of patentability. These confidential opinions are sent to the applicant who may then send them to national patent offices. McKie, supra note 27, at 258-59. The United States has elected not to be bound under Chapter II. Id. at 258.
138. See supra note 29 and accompanying text. The priority period is extended to twenty-five months if the applicant requests a preliminary patentability examination. McKie, supra note 27, at 258.
140. Even if the CPC enters into force, national patents will still be available. CPC, supra note 39, at art. 6, reprinting in 2J J. SINNOTT, supra note 20, at Common Market 7. Thus, if the CPC enters into force, four alternative routes to European patent protection will be available: the direct national patent route; the PCT-national route; the EPC route; and the PCT-EPC route. Kalikow, supra note 139, at 730. Determinative factors in deciding which route to pursue include: (1) location of the patent search; (2) the number of nations in which patent protection is sought; (3) time required for making foreign filing decisions; (4) language of the application and proceedings; (5) filing, translation and maintenance costs of securing patent protection; (6) likelihood of obtaining the patent; and (7) uniformity and scope of protection desired. Id.
141. See supra notes 110-15 & 128 and accompanying text.
142. See supra notes 120-23 and accompanying text.
As a third alternative, the PCT allows an inventor to seek patent protection in as many as thirty-three designated target nations by filing an international patent application. Although an inventor must prosecute his application separately in each nation, the PCT route reduces necessary paperwork and offers an extended priority period. Like the EPC applicant, a PCT applicant designating an EEC member as a target nation automatically applies for a Community patent.

Under a fourth alternative, an inventor may file a PCT application and designate the European Patent Office as one of his targets. By pursuing this alternative, an inventor gains the advantages of both the PCT and the EPC: paperwork is minimized because a single application suffices for all designated nations; the extended PCT priority period applies; and prosecution procedure is simplified. Although an inventor must prosecute his application separately in each non-European national office, a single prosecution for all designated European nations suffices. When the CPC enters into force, designation of an EEC nation will automatically result in a Community patent application.

An inventor may follow any or all of the above routes to multinational patent protection. In the final analysis, economics will likely dictate which route an inventor selects.

143. Cf. EPC, supra note 36, at art. 3, reprinted in 21 J. Sinnott, supra note 20, at EPC 5 (each applicant designates his target nations) and EPC, supra note 36, at arts. 142, 149(1), reprinted in 21 J. Sinnott, supra note 20, at EPC 55, 56 (permitting special agreements, such as the CPC, to require joint designation only of those nations party to the special agreement).

144. See supra notes 135-38 and accompanying text.

145. PCT, supra note 28, at art. 45, reprinted in 21 J. Sinnott, supra note 20, at Pat. Coop. Treaty 30 (provision allowing regional patent treaties); CPC, supra note 39, at preamble, reprinted in 21 J. Sinnott, supra note 20, at Common Market 2-3 (CPC is a regional patent treaty under the PCT).

146. See PCT, supra note 28, at arts. 2(xii)-(xiii), 4(1)(ii), reprinted in 21 J. Sinnott, supra note 20, at Pat. Coop. Treaty 3-5 (PCT applicants may designate regional patent offices as targets); EPC, supra note 36, at art. 153, reprinted in 21 J. Sinnott, supra note 20, at EPC 58 (European Patent Office may be designated as a regional patent office within the meaning of PCT art. 2(xiii)).

147. Cf. EPC, supra note 36, at art. 150, reprinted in 21 J. Sinnott, supra note 20, at EPC 57 (A PCT application designating the European Patent Office as a target automatically suffices as an EPC application).

148. See supra note 138 and accompanying text.

149. See supra note 110 and accompanying text.

150. Id.

151. CPC, supra note 39, at arts. 2, 3, reprinted in 21 J. Sinnott, supra note 20 at Common Market 5-6.

152. See supra note 140.
III

TOWARD UNIFICATION

A. A Basic Question: Unification or Harmonization?

Present international patent cooperation is limited: most nations have their own procedural and substantive patent law;¹⁵³ all industrially significant, as well as many developing nations, adhere to the Paris Convention and must accord national treatment to foreign applicants and patentees;¹⁵⁴ thirty-three members of the Paris Convention, having adopted the Patent Cooperation Treaty, give patent applicants the option of using a common international filing procedure;¹⁵⁵ and several regional arrangements create patents that are valid in member nations.¹⁵⁶

Some of the regional arrangements unify the pre-grant substantive patent law. Under the EPC, a central office, following rules prescribed in the treaty, grants a single patent that is valid in all member nations designated by the applicant.¹⁵⁷ The unified pre-grant patent law exists independently of the various national laws; it is codified in the treaty, not in the national codes, and it is administered by a central body.¹⁵⁸ The patent is not subject to different national laws until after it issues.¹⁵⁹ The Afro-Malagasy Accord also unifies pre-grant patent law and establishes a central administering office.¹⁶⁰ Like the European patent, once an Afro-Malagasy patent is issued, it becomes subject to the post-grant substantive law of each member nation.¹⁶¹ Unlike EPC members, however, all Afro-Malagasy nations have identical post-grant patent law codes.¹⁶² Thus, the Afro-Malagasy Accord harmonizes the post-grant patent law of its members. The post-grant patent law is not unified, though, because no central body administers it and different national interpretations will partly counteract the uniformity envisioned by the treaty.

¹⁵³. See supra note 12 and accompanying text.
¹⁵⁴. See supra notes 40-46 and accompanying text.
¹⁵⁵. See supra notes 131-38 and accompanying text.
¹⁵⁶. See supra notes 57-72, 108-30 and accompanying text.
¹⁵⁷. EPC, supra note 36, at arts. 1, 2, 3, 4(3), reprinted in 21 J. SInNOTT, supra note 20, at EPC 5-6.
¹⁵⁸. EPC, supra note 36, at arts. 1, 4, 52-105, reprinted in 21 J. SInNOTT, supra note 20, at EPC 5-6, 22-40.
¹⁵⁹. EPC, supra note 36, at art. 64, reprinted in 21 J. SInNOTT, supra note 20, at EPC 25.
The Scandinavian Patent Convention would harmonize both the pre-grant and post-grant patent laws of its members. Although any member nation could grant a Scandinavian patent, it would have to be done pursuant to the pre-grant patent law set out in the Convention and adopted by each member nation. Also, once a patent was granted, it would become subject to the same post-grant patent law that each member of the Convention is required to adopt.\textsuperscript{163}

The Community Patent Convention would unify both pre- and post-grant patent laws.\textsuperscript{164} Because only the European Patent Office can grant a Community patent, pre-grant law is necessarily unified. Similarly, because the CPC establishes a system of law independent of its members’ national systems, post-grant law is also unified.\textsuperscript{165}

The choice between harmonization and unification is important in any international system. Harmonization permits member states to retain most of their sovereign power, whereas unification demonstrates states’ commitment to a true international patent. If practical to implement, unification is the more desirable alternative.\textsuperscript{166} In the pre-grant area, a single international patent office would provide a uniform quality for both search and examination, as well as a uniform interpretation of the substantive law of patent grant. This consistency would permit courts to reach a more uniform view regarding the weight to accord a presumption of patent validity.\textsuperscript{167} Thus, a unified pre-grant law would enhance a patentee’s ability to estimate the strength of his patent. Mere harmonization of these areas would require courts to accord varying weights to presumptions of patent validity, depending on the quality of the search and examination conducted by the particular issuing office. A uniform interpretation of pre-grant substantive law would also discourage forum shopping by inventors.

Similarly, unification is more desirable than harmonization in the area of post-grant substantive patent law. Uniformity in this area assumes greater importance because the costs involved are much higher. Patent infringement litigation, for example, typically occurs only after one or both parties have invested substantial

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\textsuperscript{163} Godenhielm, \textit{supra} note 73, at 10-11.
\textsuperscript{164} CPC, \textit{supra} note 39. \textit{See supra} notes 116-23 and accompanying text.
\textsuperscript{165} CPC, \textit{supra} note 39, at art. 1, \textit{reprinted in} 2J J. Sinnott, \textit{supra} note 20, at Common Market 5.
\textsuperscript{166} Unification may be easier to achieve than harmonization. The experience of the EEC illustrates the long, arduous, and precise task that harmonization of various national patent laws involves. Further, nations are very sensitive to any change in their patent laws. It is easier for governments to establish common rules establishing new institutions that do not unduly interfere with their established national systems. Thompson, \textit{supra} note 102, at 57.
}
amounts of money in introducing a product into the market. Even if a code defining infringement is harmonized, different national interpretations can produce results almost as inconsistent as entirely different codes. Further, unification allows for the complete resolution of all issues in a single proceeding, whereas harmonization requires parties to relitigate identical issues in each relevant jurisdiction.

B. AN OBSTACLE TO UNIFICATION: NATIONS’ RELUCTANCE TO CHANGE

Differences between various national laws render unification in any substantive law area difficult. Patent law is no exception. At its first meeting, for example, the PCT Committee of Experts rejected the idea of a true international patent because it feared that the requisite coordination of the various national laws would take years. In addition, once a uniform codification is achieved, it will necessarily be inconsistent with various existing national patent laws. For this reason, many nations may be reluctant to adopt any uniform codification. During the PCT negotiations, for example, the United States delegation vehemently opposed a provision that would require the United States to alter its substantive law regarding novelty of invention. Similarly, Congress rejected a later effort to

168. Corporate secrecy usually prevents a patent holder from discovering allegedly infringing products until after they appear on the market.
169. One commentator believes that multi-jurisdictional litigation may be helpful to the parties involved. Each time an issue relating to a patent is litigated, the parties learn from the experience. They therefore become better able to litigate the same issue in another jurisdiction. Meller, supra note 15, at 15. This analysis, however, ignores several key factors. First, both parties learn from the original litigation experience. Thus, if one party learns how to improve his case, so will his opposing party. Neither party could expect a greater advantage in a subsequent proceeding. Second, because the various national patent systems are not unified, any advantage one party might achieve would be minimal. Each jurisdiction has its own procedural and substantive patent laws, and the parties must adapt their arguments to these different laws. Finally, any advantage that could be obtained through multi-jurisdictional litigation would be far outweighed by the legal cost incurred in multiple suits.
170. See, e.g., Beier, supra note 91, at 1. (“Every comparative lawyer is aware of the great difficulties in departing from long-established, deeply-rooted national solutions and will be pleased if small progress can be noted at the end of all harmonization endeavors.”).
172. McKie, supra note 27, at 259.

An invention must be novel to be patentable in the United States. 35 U.S.C. § 102 (1976). If the invention was described in any reference published by a third party before the date of invention, the invention is not novel. Id. § 102(a). Further, an invention is
modify the United States substantive patent law. President Johnson introduced the Patent Reform Act of 1967 to “bring the U.S. patent System more closely into harmony with those of other nations.” The bill would have: (1) eliminated the applicant’s one year grace period between publicly disclosing his invention and filing for a patent; (2) replaced the first-to-invent priority system with a first-to-file system; and (3) replaced the domestic novelty standard with an absolute international prior-art novelty standard. Both the American Bar Association and the American Patent Law Association opposed this bill.

As demonstrated by the Scandinavian Patent Convention, harmonization efforts may fail if participating nations are not ready to change their substantive laws. The SPC harmonized most of the substantive patent law in Sweden, Finland, Norway, and Denmark, but because of resistance in the industrial sector, the latter two nations never fully adopted the code. In addition to generally opposing the proposed Nordic patent system, Denmark and Norway found the extension of patent protection to foods and medicines especially objectionable. Thus, the SPC never entered

not novel if a third party applied for a U.S. patent for the same invention before the applying inventor’s stated date of invention. Id. § 102(e). During the PCT negotiations, the United States delegation feared that a proposed article would add a third factor negating a determination of novelty: the filing of a patent application with the PCT office prior to the new inventor’s stated date of invention. Such a provision is contrary to U.S. law. In re Hilmer, 359 F.2d 859, 149 U.S.P.Q. 480 (C.C.P.A. 1966).

Although the PCT effected some changes in United States patent laws, such changes merely concerned the content of patent applications. For example, U.S. law previously limited the number of dependent claims for each independent claim to five. This limitation has been eliminated by the PCT. Multiple dependent claims may now be filed. McKie, supra note 27, at 253. This is a change in form only; it does not substantially affect U.S. patent practice.

176. Note, supra note 22, at 1015-16.
177. See Nicolai, First-To-File vs. First-To-Invent: A Comparative Study Based on German and United States Patent Law, 3 INT’L REV. OF INDUS. PROP. & COPYRIGHT L. 103, 104 n.6 (1972).
178. The Afro-Malagasy Accord’s harmonization of the patent laws of member nations is similar to the SPC’s harmonization efforts. Existing conditions, however, favored harmonization of the patent laws of the Afro-Malagasy nations. All members were French overseas territories prior to gaining their independence in 1958. While French territories, the nations operated under a common patent law. After 1958, this law remained in effect in each member nation. Finniss, supra note 64, at 30-31. Thus, agreement on the substantive patent law provisions incorporated in the 1962 Accord was not difficult.
179. Lewin, supra note 78, at 22.
180. Id.
181. Id.
into force, and the Convention's efforts toward harmonization of Scandinavian laws were largely unrewarded.\textsuperscript{182}

When nations are not ready for complete unification, alternative measures may be pursued. Accepting the theory that partial unification is better than none at all,\textsuperscript{183} both the European Patent Convention and the Community Patent Convention stop short of complete unification. Membership in these Conventions does not require complete abandonment of a nation's substantive patent law and may account for their acceptance among a growing number of nations.\textsuperscript{184} These conventions use three techniques to tailor the effects of unification to the particular needs of their members.

\textbf{1. Bifurcation}

Two separate conventions constitute the European Patent System. The European Patent Convention unifies the pre-grant law regarding European patents, and lists the sole grounds for their revocation.\textsuperscript{185} The Community Patent Convention, which applies only to patents granted under the EPC,\textsuperscript{186} unifies a substantial amount of post-grant patent law. While eleven nations are members of the EPC,\textsuperscript{187} only six EPC members also belong to the CPC.\textsuperscript{188} This bifurcation, although evolving mainly from political considerations,\textsuperscript{189} demonstrates one technique a treaty can use to achieve different levels of substantive unification. Use of this technique is cumbersome, however, and should be used only when negotiations demonstrate a need for a major treaty division.

\textbf{2. Reservations}

Reservations are a more manageable technique for custom tailoring international agreements to meet diverse national needs. By subscribing to a reservation, a signatory nation stipulates that a particular section of the convention shall not apply to it. Generally, if a treaty provides reservations, any participating nation may subscribe to them. Both the EPC and the CPC permit reservations for certain

\begin{footnotesize}
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\item[182.] It is generally believed the SPC will never enter into force. \textit{See supra} note 78 and accompanying text.
\item[183.] \textit{See} Roth, \textit{supra} note 34, at 106.
\item[184.] Haertel & Singer, \textit{supra} note 78, at 298. \textit{See supra} notes 124-27 and accompanying text.
\item[185.] Vanaskie, \textit{supra} note 97, at 85. \textit{See supra} note 114 and accompanying text.
\item[186.] CPC, \textit{supra} note 39, at art. 1(2), \textit{reprinted in} 2J J. SINNOTT, \textit{supra} note 20, at Common Market 5.
\item[187.] Haertel & Singer, \textit{supra} note 78, at 279. \textit{See supra} note 128 for a listing of EPC member nations.
\item[188.] Haertel & Singer, \textit{supra} note 78, at 306.
\item[189.] \textit{See supra} notes 100-03 and accompanying text.
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provisions that radically depart from the national law of some member nations. When a nation subscribes to a reservation, that nation's domestic law fills the resulting gap in the treaty codification. There is some concern that the availability of reservations in the CPC may undermine the unification it otherwise achieves.

3. Deference to National Law

Finally, on some questions, an agreement can explicitly or implicitly defer to the patent laws of its member nations. The Community Patent Convention uses this technique. Deference to national laws proves especially useful in areas that are of special national concern and in which different laws will have little impact on the effective operation of the international patent system.

C. Intermediate Patent Unification: A Proposal

Agreements for international patent cooperation attempt to improve an inventor's economic incentive to obtain multinational patent protection. The EPC demonstrates that pre-grant patent law unification can substantially reduce the cost of obtaining multinational patent protection. Similarly, post-grant patent law unification can significantly improve the value of an inventor's patents. Because patent value assessments are simplified, an inventor's use of his patents becomes more capable of accurate cost/benefit analysis. Further, because patent litigation is concentrated in a single proceeding, an inventor’s assertion or defense of his patent becomes less

190. Notable examples include the provision on compulsory licensing for nonworking, CPC, supra note 39, at arts. 47, 82, 89, reprinted in 21 J. Sinnott, supra note 20, at Common Market 37, 63, 69-70, and the patentability of chemicals, pharmaceuticals, and foods, EPC, supra note 36, at art. 167(2)(a), reprinted in 21 J. Sinnott, supra note 20, at EPC 64-65.

191. Roth, supra note 34, at 122-26. Roth argues that the reservations available under the CPC allowing a Community patent to be declared invalid within the territory of a contracting state contradicts a fundamental goal and principle of the CPC—the creation of a common system of law for CPC members with a Community Patent having unitary effect in all member nations. This reservation may remain effective for fifteen years. Id. at 125. See CPC, supra note 39, at art. 90, reprinted in 21 J. Sinnott, supra note 20, at Common Market 70-72.

192. For example, under the CPC, national law determines the liability of infringers whose use began prior to an actual patent grant. Some nations allow a third party commercially using an invention pending the inventor's actual receipt of a patent to continue using the invention after the patent is granted. CPC, supra note 39, at art. 38, reprinted in 21 J. Sinnott, supra note 20, at Common Market 30-31.

193. In addition to relatively unimportant issues, the CPC defers to national law on one vitally important issue: infringement. Similarly, national law controls on the issue of compulsory licensing. See supra note 125 and accompanying text.

194. Under the EPC, filing costs total about $3,000 for a European patent that is valid in all member nations. The cost of filing applications for separate patents in each of these nations would be within the range of $10,000 to $20,000. Meller, supra note 15, at 9.
costly. On the other hand, the more closely a treaty's substantive law conforms to a nation's existing patent law, the more likely the nation will ratify the treaty. Thus, extensive treaty ratification will occur only when the treaty flexibly accommodates the differences between nations' existing patent laws.

The techniques used by the EPC and the CPC, bifurcation, reservations, and national law deference, attempt to reconcile conflicting national interests. A fourth device, legal alternatives, could similarly be used to encourage greater international patent cooperation. A treaty could provide two or three alternatives for the most important substantive issues on which national laws significantly differ. Before signing the treaty, each nation could select and adopt the alternative most closely resembling its own law. Because such a treaty would substantially reduce the number of different national requirements for patent protection, a patentee could more easily exploit his invention worldwide. Further, other benefits of unification would also inure to the patentee. Because the number of legal opinions regarding post-grant substantive issues would be drastically reduced, a patentee could more easily assess the strength of his patent and plan the commercial exploitation of his invention accordingly. Finally, the cost of worldwide patent litigation would be substantially reduced. Fewer issues would require litigation, and resolution of all litigated issues could take place in one forum.

195. See supra notes 170-84 and accompanying text. This proposition remains valid when an international patent law coexists with individual national patent systems. Although an international agreement may not require any change in member nations' laws regarding national patents, experience demonstrates that member nations will still incorporate such changes. Eight of the eleven nations signing the EPC have harmonized their national patent law with the EPC codification. Similarly, five of these eight nations have harmonized their law with the CPC codification that is not yet in effect. Haertel & Singer, supra note 78, at 298-99. This unrequired harmonization may result from the impracticality of one nation maintaining two different, and sometimes inconsistent, patent law systems. For a discussion of this spontaneous harmonization, see generally Beier, supra note 91, at 6-7.

196. This technique is analogous to the use of alternatives in the Uniform Commercial Code. In the warranty section of the UCC, U.C.C. § 2-318 (1978), the drafters codified three alternative forms of law so no state would be forced to adopt a provision that substantially deviated from its traditional law. This system of options is especially important in as controversial an area as expressed and implied warranties. See id., comment 3.

197. For a given area of substantive patent law in which alternatives are available, the parties to a dispute would litigate the issue as it is formulated under each relevant alternative. Suppose, for example, that the treaty permits each contracting nation to select either of two alternative formulations for the scope of the monopoly that will inure to the holder of an international patent within the nation's borders. See infra text following note 237. Then if a patentee sues an alleged infringer, he need litigate the question of infringement under no more than two formulations of the scope of his monopoly. This is true regardless of the number of nations in which the defendant is alleged to have infringed. Furthermore, the treaty could provide that both issues be decided in the same forum. If the defendant is not alleged to have infringed in any nation which subscribes
The use of legal alternatives is necessarily limited. First, it can be used only a few times in a treaty, and can provide only a few alternatives each time. If this limitation is ignored, the number of permutations will grow to equal the number of treaty signatories. The benefits inventors acquire as a result of unification must not be negated by allowing each member nation to adopt a unique set of alternatives fully embodying its already existing substantive law.\textsuperscript{198} Second, legal alternatives can be applied only to certain issues. It is unnecessary to apply this technique to minor issues, such as the determination of an annual maintenance fee. National law can adequately handle such issues without sacrificing any benefits of unification. Similarly, alternatives cannot effectively deal with major treaty divisions. Whether, for example, member nations wish to join in treaty provisions establishing a unitary supranational patent, is an inappropriate issue for a system of alternatives. Because this issue implicates strong political considerations, those joining in such provisions would probably want exclusive control over the addition of new members.\textsuperscript{199} The bifurcation technique used to separate the EPC and the CPC would more effectively handle such an issue.

While this Note does not attempt the ambitious task of proposing an entire treaty for international patent cooperation, it does examine sample areas of substantive patent law that such a treaty should address. For each substantive area discussed, two determinations will be made: (1) whether partial unification is possible and/or necessary; and (2) which technique for partial unification is appropriate. Various national patent laws will be used to support the chosen technique.

\section*{D. Application of the Proposal}

A more complete examination of the possibilities for unification of specific substantive areas of international patent law requires a treaty framework. The framework adopted here serves merely as a

\textsuperscript{198} This Note uses the term "substantive law" broadly to include such areas as compulsory licensing and the definition of novelty.

\textsuperscript{199} Creation of a unitary supranational patent requires some sacrifice by participating nations. If there is a common granting procedure, each nation is entrusting to an external body the power to decide whether an applicant is to enjoy monopoly rights in the nation's territory. If there is a unified system of post-grant substantive law, each nation is entrusting to an external body the power to decide the rights and liabilities of persons in the nation's territory. These external bodies do not necessarily owe allegiance to any particular nation. If participating nations are wary of delegating such powers, they may at least want veto power over who may exercise them.
model for this Note; various other treaty arrangements could be used.

The general treaty framework used herein makes several assumptions. First, it assumes that the treaty unifies pre-grant patent law. Thus, the treaty codifies all the procedural and substantive law relating to the grant of an international patent, and creates a central office with exclusive power to grant the patent. The existence of a central office simplifies the application process and provides a uniform standard for search and examination of applications. Further, the unified pre-grant law allows for the development of a uniform interpretation of the codified law.200

Second, the framework assumes that the treaty codifies a uniform post-grant patent law. Unlike the pre-grant law, however, there is no central administrative body. Rather, the treaty establishes that the interpretations of treaty provisions constitute a separate body of law existing independently of any national legal system.201 The courts of each member nation must follow the treaty interpretations and the decisions of the highest court of every other member nation. Thus, in time, a uniform body of substantive post-grant patent law would develop.202

Third, the treaty requires each applicant to designate the nations in which he desires protection. The applicant would gain patent rights only in the nations listed on his application.203 In addition, the patent is unitary; if invalidated by one member nation, it is invalid everywhere.204 Thus, resolution of disputes would occur in a single proceeding. To prevent forum shopping, the treaty specifies which member nation will have exclusive jurisdiction to determine a patent’s validity.205

200. See supra notes 166-67 and accompanying text. As demonstrated by the history of the EPC, unified pre-grant law can operate successfully. Further, the future success of the EPC may be even more promising. Haertel & Singer, supra note 78, at 305-08.

201. This approach closely parallels CPC provisions. CPC, supra note 39, at arts. 1-2, reprinted in 2 J. SINNOTT, supra note 20, at Common Market 5-6.

202. Ideally, the treaty would create a supranational patent court to hear final appeals from the national courts. It remains questionable, however, whether signatory nations would agree to relinquish so much of their sovereign power. The proposed provisions, modeled after the CPC, permit member nations to retain most of their sovereignty while still achieving some uniformity in the interpretation of post-grant substantive treaty provisions.

203. Although the EPC uses this approach, EPC, supra note 36, at arts. 2-3, reprinted in 2 J. SINNOTT, supra note 20, at EPC 5, the CPC does not. Under the CPC, an applicant cannot obtain protection in one Community nation without also obtaining it in all other Community nations. CPC, supra note 39, at arts. 2-3, reprinted in 23 J. SINNOTT, supra note 20, at Common Market 5-6.

204. This provision is modeled after the CPC approach. CPC, supra note 39, at art. 2(2), reprinted in 23 J. SINNOTT, supra note 20, at Common Market 5-6.

205. The CPC adopts this approach. Provisions of the CPC delineate which nation will have exclusive jurisdiction in a patent-dispute proceeding. Generally, the nation
Finally, the new international patent system would coexist with individual national patent systems and all presently existing international systems. The new treaty would be a special agreement within the meaning of the Paris Convention\textsuperscript{206} and the EPC,\textsuperscript{207} and would establish a regional patent within the meaning of the PCT.\textsuperscript{208} An applicant could choose to file separate national patent applications, as well as seek patent protection in different nations through the use of existing conventions.\textsuperscript{209} The new international system would provide a simple alternative; an applicant using the new system could gain patent protection in all member nations through a single filing procedure.

\section{Priority of Inventorship}

In every nation, only one inventor (or group of inventors working together) may patent a specific invention. Thus, when two inventors independently develop the same invention, the law must determine which one will receive the patent. Different nations use different criteria to resolve this issue. The United States,\textsuperscript{210} Canada,\textsuperscript{211} and the Philippines\textsuperscript{212} award the patent to the person who first conceived of the invention, regardless of who first applied for it ("first-to-invent" rule). This approach affords an inventor time to perfect his invention and evaluate its commercial feasibility before actually applying for a patent.\textsuperscript{213} All other Paris Convention nations grant the patent to the first inventor to file a patent application ("first-to-file" rule).\textsuperscript{214} This approach encourages the speedy

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having jurisdiction will be the nation where the applicant resided or was doing business at the time the patent application was filed. CPC, supra note 39, at art. 39(1)(2), \textit{reprinted in} 2J J. SINNOTT, supra note 20, at Common Market 31. When this provision is inapplicable, the CPC lists a precedential ordering of the nations that will have jurisdiction. CPC, supra note 39, at arts. 39, 69-70, \textit{reprinted in} 2J J. SINNOTT, supra note 20, at Common Market 31-32, 54-56.
\textsuperscript{206} Paris Convention, supra note 24, at art. 19, \textit{reprinted in} 2H J. SINNOTT, supra note 20, at Conv. of Paris 65.
\textsuperscript{207} EPC, supra note 36, at art. 142, \textit{reprinted in} 2I J. SINNOTT, supra note 20, at EPC 55.
\textsuperscript{208} PCT, supra note 28, at arts. 2(iv), 45, \textit{reprinted in} 2J J. SINNOTT, supra note 20, at Pat. Coop. Treaty 2.4, 30.
\textsuperscript{209} See supra notes 139-52 and accompanying text. Of course, an inventor would have to comply with all convention requirements, as well as observe all relevant priority periods, to secure the desired patent protection.
\textsuperscript{210} 35 U.S.C. §§ 102(g), 135 (1976).
\textsuperscript{211} Patent Act, CAN. REV. STAT. ch. 203, § 45 (1970), \textit{reprinted in} 2C J. SINNOTT, supra note 20, at Canada 31-34.
\textsuperscript{213} Nicolai, supra note 177, at 115.
\textsuperscript{214} Id. at 105.
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disclosure of inventions, while avoiding the expensive interference proceedings necessary to prove prior inventorship. Both rules are justifiable, and a conclusive evaluation of the relative merit of each rule is impossible without empirical studies. Yet, each nation is reluctant to abandon its preferred rule.

An international patent treaty must resolve the first-to-file vs. first-to-invent dichotomy. Because of the nearly universal support for the first-to-file rule and the tenacity with which the United States clings to the contrary first-to-invent rule, this issue may present the greatest impediment to the adoption of an international patent system.

Fortunately, a technique achieving partial unification may permit a compromise solution. The American desire to retain the first-to-invent rule may derive primarily from a United States evidence rule that effectively prevents a foreign applicant from proving a date of inventorship prior to his first United States or foreign patent application. In effect, the United States applies a first-to-file rule to foreign patent applicants, while applying a first-to-invent rule to domestic patent applicants. Thus, a United States patent applicant maintains a considerable advantage over a foreign applicant seeking patent protection for an identical invention.

Because the proposed patent treaty does not affect existing national systems, the American inventor would retain his advantage in a case where he and his rival are both seeking a traditional United States patent. If both inventors are seeking an international patent, however, the treaty should require the application of the first-

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215. Id. at 112. The first-to-file rule also reduces the burden on the Patent Office in determining facts regarding inventorship. Id.
216. The interference proceedings associated with U.S. patent law have been criticized sharply. The proceedings delay the issuance of a patent, as well as prolong the legal uncertainties regarding one's patent rights. Further, because such proceedings may be expensive, independent inventors and small businesses with limited financial resources are disadvantaged. Id. at 120.
217. Id. at 130.
218. See supra notes 174-77 and accompanying text.
219. See supra note 114 and accompanying text.
220. See supra notes 174-77 and accompanying text.
221. See 35 U.S.C. § 104 (1976); Clark, supra note 173, at 262-63; Nicolai, supra note 177, at 132.
223. See supra notes 206-09 and accompanying text.

As demonstrated by the EPC experience, even if a unified patent system is adopted and operates successfully, it is unlikely domestic patents will disappear. Since the EPC entered into force, the number of national patent applications filed by foreigners has decreased. This decrease, however, has been smaller than the number of applications filed for European patents. See Haertel & Singer, supra note 78, at 301.
to-file rule favored by the majority of nations. In return for this concession by the United States, the treaty should permit the United States to apply its first-to-invent rule where one inventor holds a traditional United States patent and the other holds an international patent that covers the United States.

The proposed treaty could achieve the above compromise solution through the use of a reservation. The treaty could require application of the first-to-file rule whenever an international patent is involved. Member nations would be able, however, to make a reservation whenever a domestic patent is involved. By making such a reservation, the United States would be able to apply its evidentiary exclusion rule against all foreign applicants seeking protection in the United States under either an international or national patent, if the competing domestic inventor holds a traditional United States patent. This reservation would eliminate a serious obstacle to international patent agreement without sacrificing the benefits attributable to international patent cooperation.

2. Patentable Subject Matter

Most nations issue patents for only certain types of inventions. Austria, for example, will not grant patents for inventions “contrary to law or morality or the subject matter of which is reserved to a monopoly of the Federal Republic . . . .”224 The EPC proscribes the patenting of plant and animal varieties and biological processes for their production, as well as any inventions contrary to the public order or morality.225 The EPC further restricts patentable subject matter by incorporating a narrow definition of “invention.” Unpatentable items include:

(a) discoveries, scientific theories and mathematical methods;
(b) aesthetic creations;
(c) schemes, rules and methods for performing mental acts, playing games, or doing business, and programs for computers; and
(d) presentations of information.226

While some nations make all subject matter patentable and then specifically exclude certain types of inventions, other nations provide patent protection only for certain enumerated classes of inven-

225. EPC, supra note 36, at art. 53, reprinted in 21 J. SINNOTT, supra note 20, at EPC 22. The EPC, however, specifically recognizes the patentability of processes and their products. Id.
226. EPC, supra note 36, at art. 52(2), reprinted in 21 J. SINNOTT, supra note 20, at EPC 22.
The United States, for example, will issue patents only for processes, machines, manufactures, and compositions of matter. Broad judicial interpretations of these provisions, however, partially conform the United States law on subject matter patentability with that of other nations.229

Although partial conformity among national patent laws exists, important differences remain. Perhaps the most controversial area of subject matter patentability concerns chemicals, pharmaceuticals, and foods. These items are clearly patentable in the United States, and as clearly unpatentable elsewhere.230 Many nations feel theoretically justified in excluding chemical products from patent protection because chemicals exist naturally, and, therefore, are merely discovered, not invented.231 The more practical reason given for denying protection in this area is that industry in these nations is still too primitive to warrant patent protection; it is said to be in the nations' best public interest to import these products instead of encouraging their domestic production.232

Although the modern trend favors removal of restrictions on the patentability of chemicals, pharmaceuticals, and foods, it might be unwise to bring these areas unconditionally under patent protection in an international patent agreement. In nations that still restrict patentability, coverage by an international agreement could throw the affected industries into disarray. These industries would suddenly be forced to seek patents for their products and to compete in technology rather than price.234 The difficulties arising from these changes might discourage nations from ratifying the international

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227. This approach has been followed by the United States since the initial enactment of its national patent laws in 1790. P. ROSENBERG, supra note 1, § 6.01, at 6-2.
229. For example, mental processes have been exempted from patent protection by judicial interpretation. P. ROSENBERG, supra note 1, at § 6.02(3), at 6-28.3. Similarly, the EPC excludes "schemes, rules and methods for performing mental acts" from its definition of patentable inventions. EPC, supra note 36, at art. 52(2)(c), reprinted in 21 J. SINNOTT, supra note 20, at EPC 22.
230. 2 J. BAXTER & J. SINNOTT, supra note 11, at 64.
231. Godenhielm, supra note 73, at 11.
232. Id.
233. For example, the EPC allows patents for chemicals, pharmaceuticals, and foods, but it permits contracting nations to make a reservation to this provision. Several signatory nations previously denied patents in these areas, but only Austria has elected to use the available reservation. Haertel & Singer, supra note 78, at 279. Denmark and Norway also previously failed to extend protection to these inventions, but as proposed in the Scandinavian uniform law, Lewin, supra note 78, at 22, have now amended their laws to provide such patent protection. See, e.g., The Consolidated Patents Act, § 1(3) (Denmark), reprinted in 2C J. SINNOTT, supra note 20, at Denmark 25.
234. See supra note 3.
If the treaty offers a reservation on the patentability of chemicals, pharmaceuticals, and foods, nations preferring to restrict patentability on these items are more apt to sign and adhere to it. A treaty including such a reservation would not change the current level of international patentable subject matter; those nations presently granting patent protection for these substances would continue to do so under the agreement, and those currently denying protection would subscribe to the reservation. An inventor desiring an international patent for a new chemical, pharmaceutical, or food would be permitted to designate as targets only those nations not subscribing to the reservation.

3. Scope of Monopoly Under Process Patents

A valid patent grants an inventor certain monopoly rights. A product patent may confer the exclusive right to use, manufacture, sell, offer to sell, or import the product. Monopoly rights granted under a process patent may include an exclusive right to use the process, as well as any of the other exclusive rights regarding products resulting from the process. Every nation, however, confers a different bundle of monopoly rights. One major variation involves patents for processes. Some nations only grant an exclusive right to use the process; other nations also grant an exclusive right to sell and import products resulting from use of the process. This distinction becomes particularly important when a third party uses the process outside the grantor nation’s boundaries and attempts to sell the resulting products within its boundaries. A national patent conferring monopoly rights over only the process would permit third party importation and sale. A national patent conferring exclusive rights over both the process and resulting products would prohibit these third party transactions.

235. Cf. Lewin, supra note 78, at 22. (Because the industrial sectors of Denmark and Norway objected to provisions of the proposed Nordic patent system, these provisions never entered into force, eliminating the possibility that the Scandinavian Patent Convention would become effective).

236. See, e.g., New Patent and Trademark Law in Mexico art. 37 (1976), reprinted in 2F J. SINNOTT, supra note 20, at Mexico 8 (A patent does not entitle the inventor to import either the patented product or a product manufactured through use of the patented process).

237. See, e.g., Austrian Patent Act 1977, § 22, reprinted in 2B J. SINNOTT, supra note 20, at Austria 16 ("The patentee alone is entitled to produce the subject matter of the invention industrially, to place it on the market, to offer it for sale or to make use of it."); Law on the Protection of Inventions by Patents (No. II of 1969), art. 11 (Hungary), reprinted in 2D J. SINNOTT, supra note 20, at Hungary 5 ("The exclusive right of working shall include systematic manufacture and exploitation as well as putting the subject of the invention on the market within the framework of economic activity.").
An international patent agreement that incorporates an accepted formulation of the exclusive rights to be granted under a patent would achieve greatest uniformity. If nations cannot agree on such a formulation, however, partial unification could be achieved through the use of legal alternatives. Participating nations could select one set of exclusive rights to be granted for product patents. Process patents would grant inventors only the exclusive right to use the process within the designated target nations. The treaty would then provide member nations with the option of also granting exclusive rights over products manufactured through the use of the process. In nations choosing the latter alternative, the patentee would receive the same bundle of rights granted under a pure product patent. Thus, only two variations would exist in this area of substantive patent law and member nations would have to deal with only minimal divergence from their present laws.

4. Contributory Infringement

A patent grants an inventor a bundle of exclusive rights that allows him to exploit his invention. An inventor has an infringement claim against any person who interferes with these rights. In certain circumstances, however, a person may aid in or help effect infringement of a patent without subjecting himself to liability. For example, a person supplying a machine part essential to the operation of a patented invention, though not an infringer himself, may be a contributory infringer of that patent.

Nations have not demonstrated a uniform approach to the problem of contributory infringement. Some nations do not specifically address the problem in their patent laws. Those nations that do recognize contributory infringement generally proscribe supplying the means to produce a patented invention and/or inducing infringement, but apply different standards to the actor's mental state, as well as to the requisite importance of the supplied means to the actual operation of the invention. In those nations that do not recognize the offense of contributory infringement, it is likely that

239. 2 J. BAXTER & J. SINNOTT, supra note 11, at 181. Contributory infringement is also referred to as indirect infringement.
240. Nations recognizing the doctrine of contributory infringement include Denmark, France, the Federal Republic of Germany, Iraq, Italy, Japan, the Netherlands, Sweden, Switzerland, Thailand, the United Kingdom, and the United States. Id. Nations that do not apply the doctrine include Argentina, Australia, Bangladesh, Belgium, Bophuthatswana, Brazil, Canada, India, Ireland, Israel, Malawi, Mexico, New Zealand, Pakistan, Rhodesia, South Africa, Sri Lanka, Spain, Transkei, and Zambia. Id. at 182.4.
241. See id. at 181-82.4 (a survey of the contributory infringement laws of selected foreign nations).
242. See id.
the law dealing with accomplice liability covers serious infringement cases.243

Legal alternatives may be used to achieve partial unification in the area of contributory infringement. Nonrecognition of contributory infringement may be such an integral aspect of a patent law system that a nation would rather forego adoption of the treaty than change its law to include such an offense. For nations already recognizing the offense, however, a change in the prescribed mental state or character of the act in question would more likely be acceptable.

A treaty provision on contributory infringement should give contracting nations the option of applying the doctrine within their borders. Those nations choosing to apply the doctrine would be required to adopt a single uniform definition of contributory infringement. Thus, although an international patent holder would be able to enjoin contributory infringement only in those nations choosing to recognize the doctrine, a single proceeding would resolve all factual questions concerning the alleged infringement. The patentee would benefit from this partial unification, while signatory nations would have the option of adopting a provision in closekeeping with their existing national patent law.

5. Compulsory Licensing

Because some patented ideas and inventions uniquely benefit society, all nations require inventors to license their patents to interested parties under certain circumstances. A patentee planning worldwide marketing operations must take into account the nonuniform circumstances under which various nations require a compulsory license. Generally, the circumstances that mandate compulsory licenses can be divided into three categories: an inventor fails to work his patent; the nation maintains a strong interest in the subject matter of the patent; and holders of dependent patents require a license to work their own patents.244

a. Nonworking

Under one view of the nature of a patent system, a patent repre-

243. See id. at 182.4-82.6 (a survey of the contributory infringement treatment in selected foreign nations that do not specifically recognize the doctrine).

sents a contract between an inventor and the state. A nation grants an inventor monopoly rights to his invention in return for the inventor's promise to exploit his invention for the ultimate benefit of the public. As a condition of the patent, most nations require a patentee to "work" the patent within that nation by the end of a certain grace period. Some nations, including the United States, rely only on economic incentives to encourage working.

Those nations that require working of a patent may impose the sanction of compulsory licensing for insufficient working. These nations, however, entertain different standards regarding the definition of "working." Some nations allow a patentee to satisfy the working requirement by importing the patented product, working the patent in another specified nation, or publicly offering to license the patent. Other nations, however, require actual production within the nation at a level sufficient to meet market demand. Nations subscribing to the Paris Convention cannot require compulsory licensing when the inventor has a legitimate reason for non-working. The period of time in which a patentee must begin to work his patent also varies among different nations. Paris Conven-

245. P. Rosenberg, supra note 1, at § 1.02, at 1-4 to 1-5. This view is accepted by the majority of the United States Courts. Id.
247. 2 J. Baxter & J. Sinnott, supra note 11, at 118. Other nations that do not prescribe penalties for nonworking include: Albania, the Bahamas, Bahrain, Belize, Chile, Fiji, Haiti, Jamaica, Mauritius, El Salvador, Somalia, South West Africa, the U.S.S.R., Vietnam, and Western Samoa. Id.
248. See, e.g., Patents Act, 1949, ch. 87 §§ 37-38 (Great Britain), reprinted in 2D J. Sinnott, supra note 20, at Great Britain 41-44. Great Britain also prescribes revocation and automatic lapsing of a patent for nonworking. Id.
249. Cf. 1 S. Ladas, PATENTS, TRADEMARKS, AND RELATED RIGHTS § 17, at 25-26 (1975) (Discussion of the working requirements in a selection of foreign nations).
250. See, e.g., The Patent Law and the Enforcement Law Thereof, art. 2.3(1) (Japan) (1959), reprinted in 2E J. Sinnott, supra note 20, at Japan 2. Importation of the patented product satisfies the working requirement in Bulgaria, Cuba, Greece, Hungary, Japan, Nicaragua, and Venezuela. 2 J. Baxter & J. Sinnott, supra note 11, at 121.
251. 2 J. Baxter & J. Sinnott, supra note 11, at 121. The Federal Republic of Germany, Greece, Honduras, Libya, Switzerland, and Tangier permit the working of a patent in certain other nations to satisfy the national working requirement.
252. Id. at 122. This offer, known as nominal working, will satisfy the working requirements in the following nations: Bangladesh, Bolivia, Bulgaria, Dominican Republic, Ireland, Lebanon, Nicaragua, Romania, Spain, Syria, and Turkey. Id.
253. See, e.g., Law 2527/1920 for Patents of Invention, art. 16.1(b) (Greece), reprinted in 2D J. Sinnott, supra note 20, at Greece 9.
254. An application for a compulsory license "shall be refused if the patentee justifies his inaction by legitimate reasons." Paris Convention, supra note 24, at art. 5A(4), reprinted in 2H J. Sinnott, supra note 20, at Conv. of Paris 47-48.
nations cannot require compulsory licensing until at least three years after the date of patent grant or four years after the date of application, whichever is later. Some nations that do not subscribe to the Paris Convention permit no grace period at all.

b. Special State or Public Interest in Subject Matter

Some nations provide for compulsory licensing when the nation or its residents have a special interest in the subject matter of the patent. Several nations prescribe compulsory licenses only when the patent concerns foods and medicines. The policy underlying such a provision is that these goods must be "available to the public at the lowest possible prices consistent with the patentee deriving a reasonable advantage from his patent rights." Other nations have similar provisions regarding any patents that are important to the broader needs of public health or national development. The United States limits compulsory licensing to certain narrow circumstances related to the public welfare.

c. Dependent patents

Most patented inventions are merely improvements over prior art. Thus, to produce a patented invention, a patentee may require a license under a previously issued patent. To facilitate the working of a patent, some nations require that holders of parent and improvement patents cross-license these patents in certain uniformly accepted circumstances. Nations that do not require working of a

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255. Paris Convention, supra note 24, at art. 5A(4), reprinted in 2H J. Sinnott, supra note 20, at Conv. of Paris 10. The developing nations have proposed an amendment to the Paris Convention that would reduce this grace period to two years. This amendment is presently under consideration. See Kunz-Hallstein, supra note 246, at 662 n.48; see generally Haar, Revision of the Paris Convention: A Realignment of Public and Private Interests in the International Patent System, 8 Brooklyn J. Int'l L. 77 (1982) (a discussion of attempted revisions to Art. 5A of the Paris Convention).

256. See 2 J. Baxter & J. Sinnott, supra note 11, at 118.

257. See, e.g., The Patents Act, 1970, § 97 (India), reprinted in 2D J. Sinnott, supra note 20, at India 58.

258. See, e.g., Law 2527/1920 for Patents of Invention, art. 16.3(b) (Greece), reprinted in 2D J. Sinnott, supra note 20, at Greece 9-10.

259. 2 J. Baxter & J. Sinnott, supra note 11, at 130.


262. P. Rosenberg, supra note 1, at § 1.03, at 1-11.

263. Greek patent law, for example, mandates cross-licensing where: (1) the improvement patent cannot be worked without using an earlier patented invention; and (2) the improvement has "real industrial value." Law 2527/1920 for Patents of Invention, art. 13 (Greece), reprinted in 2D J. Sinnott, supra note 20, at Greece 7, 8.
patent usually do not require cross-licensing of dependent patents.\textsuperscript{264}

National laws on compulsory licensing are too varied to attempt their complete unification in an international patent treaty. Many nations that have working requirements, for example, view patents as devices for obtaining technology from other nations.\textsuperscript{265} Those nations that impose no working requirements view patents mainly as an economic incentive for invention.\textsuperscript{266} These two views represent fundamentally different beliefs regarding the role of patents, and it is unlikely that any nation would change its compulsory licensing law to adopt the alternative view.\textsuperscript{267}

Partial unification of compulsory licensing laws could be achieved, however, in the following manner. First, a treaty should allow contracting nations to require patent licences in certain narrowly defined subject areas that implicate public policy concerns.\textsuperscript{268} Such areas might include devices for control of automobile emissions and safety devices for nuclear reactors. To minimize the treaty's interference with non-patent policies, the choice of these areas should be left to the subscribing nations.


\textsuperscript{265} Beier, supra note 3, at 564.

A working requirement encourages any of three practices on the part of a patentee: he may actually use the patented invention in the nation; he may license it to someone in the nation; or, if it satisfies the nation's working requirement, he may import the patented product into the nation. Greif, \textit{The Role of Patent Protected Imports in the Transfer of Technology to Developing Countries}, 10 \textit{Int'l Rev. Indus. Prop. & Copyright L.} 123, 125-26 (1979). At least the second of these practices transfers technology into the nation because:

(a) it provides a means of evaluating the subject matter of the license which unpatented technology may not provide, because it is generally secret;

(b) it ensures to the licensee the exclusivity of the right to make and sell the subject matter of the patent which is not ensured by know-how alone;

(c) it enables the licensee to obtain simultaneously with the patent license also the communication of unpatented know-how.

\textsuperscript{3} S. Ladas, supra note 249, at 1886.

\textsuperscript{266} See supra note 2.

\textsuperscript{267} By proposing a series of amendments, developing nations are seeking to liberalize the Paris Convention restrictions on compulsory licensing. \textit{See supra} note 255. The United States, however, has recently rejected similar attempts to liberalize its own compulsory licensing law. In 1973, Congress considered bills that would have required compulsory licensing of certain technological areas to ensure the public access to technological developments concerning public health and safety. These bills were never enacted. \textit{See Note, supra} note 244, at 1224.

\textsuperscript{268} The CPC incorporates this approach by specifically allowing compulsory licensing in areas of public interest. \textit{See CPC, supra} note 39, reprinted in 2J J. Sinnott, supra note 20, at Common Market 37.
Second, a treaty should provide three alternatives regarding the standards for compulsory licensing of inventions in other subject areas. Each nation should be able to choose either (1) no compulsory licensing within its territory; (2) compulsory licensing only when certain broadly defined national interests enumerated within the treaty are implicated; or (3) compulsory licensing whenever there is insufficient working of a patent or the national interests enumerated under option (2) are implicated. The national interests referred to in alternatives (2) and (3) may include national health, welfare, or security. The treaty should require, however, that a nation can grant a compulsory license on this ground only after a national decision-making body decides that the public interest in gaining access to the invention is weightier than the inventor's interest in maintaining his monopoly.\textsuperscript{269} Under alternative (3), the treaty should include a uniform definition of insufficient working, specifically addressing whether importation or nominal working\textsuperscript{270} will satisfy the working requirement. No alternative permitting compulsory licensing only for insufficient working is necessary because no national law currently allows compulsory licensing solely for this reason. Every nation that requires licensing for insufficient working also requires licensing when national health, welfare or security interests are involved.\textsuperscript{271}

Third, the treaty should allow the contracting parties to decide whether to require cross-licensing of dependent patents. For those nations choosing to require cross-licensing, the treaty should include a uniform set of criteria to determine the specific circumstances that will trigger the licensing requirement. For nations that adhere to the Paris Convention and choose not to require cross-licensing, dependence on a pre-existing patent would be a legitimate reason, within the meaning of the Paris Convention,\textsuperscript{272} for the nonworking of a patent.

The above framework requires the holder of an international patent to deal with only a few variations of compulsory licensing law. The patentee's situation would be substantially improved; he

\textsuperscript{269} Some national patent laws use this balancing technique. See, e.g., Law 2527/1920 for Patents of Invention, art. 16.3(b) (Greece), \textit{reprinted in} 2D J. SInnott, supra note 20, at Greece 9-10 (In determining whether to grant a compulsory license, ensuring the availability of a pharmaceutical product to the public is balanced against the inventor's interest in receiving fair compensation for his invention).

\textsuperscript{270} See \textit{supra} note 252 and accompanying text; 2 J. Baxter \& J. Sinnott, supra note 11, at 117-18.

\textsuperscript{271} Note, supra note 244, at 1218-19.

\textsuperscript{272} Under the Paris Convention, an application for a compulsory license based on nonworking of a patent will be denied if the inventor can present a legitimate reason for nonworking. Paris Convention, supra note 24, at art. 5A, \textit{reprinted in} 2H J. Sinnott, \textit{supra} note 20, at Conv. of Paris 47-48.
would no longer have to consider the wide range of compulsory licensing provisions he previously had to take into account when individual national patents were obtained. Moreover, under alternative compulsory licensing provisions available to each signatory, member nations would not have to adhere to provisions substantially different from their existing national law.

E. Summary

The above analysis selectively discusses a few of the substantial areas of patent law that an international patent treaty must address.\textsuperscript{273} As the analysis demonstrates, no uniform approach can be used to achieve partial unification of all substantive patent law areas. Partial unification of different substantive areas, however, can be achieved through the use of different unification techniques. Even the widely divergent views that exist in certain substantive law issues can be accommodated through these techniques without sacrificing the benefits of an international patent treaty.

IV

CONCLUSION

Because of the growing internationality of industry, multinational patent protection is becoming more and more necessary. Existing methods of obtaining such protection, however, are costly and inefficient. In addition, the lack of standardization among national patent laws hampers full exploitation of patent rights. These problems mandate closer international cooperation.

While complete unification of the international patent system is probably not possible at this time, the world can take a significant step in that direction. By considering both the desire of each nation to retain its own solutions in substantive areas of patent law and industry's need for consistency in these solutions, a treaty achieving partial unification should be possible. Various techniques, including the use of a bifurcated convention, the use of reservations, deference to pre-existing national law, and the provision of legal alternatives will aid the drafters in reaching compromise solutions acceptable to all parties. The resulting patent system will far more effectively

\textsuperscript{273} This analysis of the substantive areas of patent law is not exhaustive. Other critical areas an international treaty must address include: criteria for patentability, including standards for novelty and non-obviousness; interpretation of the claims in infringement suits; and national maintenance fees.
accomplish the goal of technological advancement, ultimately benefitting the general public of all participating nations.

Warren S. Wolfeld