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THE BEST PATENT PRACTICE OR MERE COMPROMISE? A REVIEW OF THE CURRENT DRAFT OF THE SUBSTANTIVE PATENT LAW TREATY AND A PROPOSAL FOR A "FIRST-TO-INVENT" EXCEPTION FOR DOMESTIC APPLICANTS

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*260 Introduction

Harmonizing the substantive law of patent systems around the world proves to be a difficult task despite the proclaimed benefits of establishing a global patent ***261** system.[1] The most difficult hurdle is the United States' adherence to the first-to-invent system.[2] Although commentators advocate the benefits of patent harmonization and the first-to-file system,[3] the United States inventors' attachment to the first-to-invent principle is so strong that past international negotiations that would have led the United States to relinquish its first-to-invent system ended in failure.[4]

The establishment of a global patent system has become an urgent necessity for patent offices in advanced industrial countries, particularly the United States, Japan, and Europe. The number of patent applicants seeking protection outside of the country of origin has drastically increased because of market globalization.[5] When the patentable subject matter in areas such as biotechnology and computer software was expanded, the number of patent applications in those areas increased, as did the level of education necessary for examiners of such subject matter.[6] Enactment of the Bayh-Dole Act[7] in the United States and its equivalent legislation in Asia and Europe brought new patent applicants, who play an important role in the development of patent policy. The enactment of the Agreement on Trade Related Aspects of Intellectual Property Rights, including Trade in Counterfeit Goods of ***262** the General Agreement on Tariffs and Trade (TRIPS),[8] expanded participation of developing countries in the global market and induced inventors in industrial countries to seek patents in those developing countries.[9] In addition, the United States Patent and Trademark Office (USPTO) faces the new challenge of retaining patent examiners when the industry is experiencing a shortage of well-trained patent professionals.[10] To make matters worse, the recent changes in prosecution history estoppel are expected to significantly increase the administrative burden on the USPTO.[11] In short, the USPTO will not survive without implementing a system to reduce this administrative burden.

It is all the more urgent that the new initiative for patent harmonization under the Substantive Patent Law Treaty (SPLT) be successful because of the necessity to reduce the administrative burden on the patent offices. The most frequently used patent offices, the USPTO,[12] the European Patent Office (EPO),[13] and the Japan Patent Office (JPO)[14] partially solved this problem by expanding collaboration among their examination offices by sharing databases, prior art search results, etc.[15] To address this urgent need, the Paris Union member states' delegations to the SPLT initiative agreed to limit the scope of the negotiations to substantive issues relating to the grant of a patent, where harmonization is essential for patent offices to reach the same examination result.[16] Creating a system to enable participating ***263** offices to mutually recognize examination results is the goal. The cost of international patent prosecution is expected to decrease and procedures for applicants to obtain patents in different countries simplified by using this system.

There has not been sufficient debate in patent law circles regarding the cost of harmonization, particularly the loss of diversity.[17] A legal commentator properly pointed out some of the benefits of diversity, such as conforming the law to local preferences, providing a check on government through competition, and permitting experimentation and innovation in the law.[18] However, in addition to addressing the benefits of harmonization advocated by the majority of scholars, including the legal commentator himself, there is urgency to address the needs of patent offices.[19]

Several legislative efforts and international agreements have removed major variations in the substantive patent law in TRIPS countries. Case law in this area is dominated by the policy of promoting the useful arts and innovations and brings some uniformity to patent jurisprudence in the United States, Europe, and Japan.[20] Thus, the impact of harmonization brought by the new initiative might be, in fact, marginal.

Accordingly, in Part I of this paper I review the past efforts of patent harmonization. In Part II, I review the current draft of the SPLT and compare its major articles with Title 35 of the United States Code, the European Patent Convention (EPC),[21] and Japanese Patent Law (JPL).[22] In Part III, I analyze the changes expected by the integration of the SPLT into U.S. patent practice and examine if such changes would result in the best patent practice. I propose that the best practice takes into account underlying patent policies in such instances in which the changes merely reflect a compromise with the European/Japanese practice. In particular, in Part III, I also argue that such changes brought about by the SPLT are marginal because the current U.S. system is, in reality, a first-to-file system with limited exceptions for first-to-invent priority. Implementation of the SPLT in the United States only requires removing that exception and introducing a simple, user-friendly system that is particularly beneficial to applicants with limited resources. However, all the legitimate benefits of and compelling policy reasons for a first-to- ***264** file system still may not convince die-hard first-to-invent advocates. Therefore, in Part IV, I propose maintaining an exception for use of the existing system and creation of a quasi-second tier system for patent protection. Such a system will give these first-to-invent advocates a chance to experience the acclaimed benefits of the first-to-file system while keeping first-to-invent options open until they are ready to completely convert to the

first-to-file regime.

I. Historical Background

A. Pre-1993 Activities

The first major efforts to bring uniformity to patent systems around the world and to promote collaboration among patent offices started with the execution of the Paris Convention for the Protection of Industrial Property in 1883 (Paris Convention).[23] Uniformity of patent legislation was an important goal at the beginning of negotiations.[24] However, recognizing significant differences in national laws and industrial developments, the Paris Union relinquished the idea of a substantive uniform patent law and took a more realistic view, adopting only the very basic principle of putting foreign patent applicants on an equal footing with domestic applicants.[25] As a result, the 1883 Paris Convention included provisions for national treatment[26] and right of priority.[27] Unfortunately, it did not include any requirements with respect to patentability or infringement.[28]

Over the last century, the number of members of the Paris Union significantly increased, which created different factions representing different interests.[29] Conflicting interests between developed and developing countries regarding the necessary minimum level of protection have become obvious, making it almost impossible for the members to reach an agreement to revise provisions in the Convention. Two attempts to introduce a worldwide grace period failed.[30] As a result, no revision has been made since the conferences held in Nice in 1957 and in Lisbon in 1958. Despite the deadlock, Article 19 of the Paris Convention allows member ***265** states that share similar interests to execute special agreements for the protection of industrial property.[31]

Substantive aspects of a country's patent law, such as requirements for protection and exclusive rights, reflect the level of industrial development in each member state, and, thus, it is more difficult for member states to reach a consensus on these issues than on procedural aspects. Accordingly, the Paris Union decided to deal with unification of formality and procedural aspects first. In the 1960s, member states commenced negotiations to create a special agreement that streamlined multinational applications.[32] This effort resulted in the Patent Cooperation Treaty (PCT), which came into force on January 24, 1978.[33] In drafting the PCT, all substantive issues were deliberately left out of the negotiations. Thus, the PCT emphasized that the results of an international preliminary examination are merely advisory and have no binding effect.[34] The authority to grant a patent is left exclusively with the member states in which protection is sought.

The private sector started a new initiative to unify substantive patent law in the early 1980s.[35] In its 1982 Moscow meeting, the International Association for the Protection of Industrial Property (AIPPI)[36] adopted a resolution to establish a uniform international grace period that allows inventors who disclose their inventions prior to filing patent applications to obtain patents as long as they file an application within the grace period.[37] When the Organization for Economic Cooperation and Development (OECD) supported this resolution, the Paris Union decided to investigate the feasibility of adopting a worldwide grace period either as part of the Paris Convention or as a special agreement under Article 19.[38] This effort to adopt a uniform grace period expanded to negotiations for harmonizing certain substantive patent law provisions. After a series of expert committee meetings, the International Bureau of the World Intellectual Property Organization (WIPO) prepared the "Basic Proposal" for the Treaty Supplementing the Paris Convention (PLT).[39] The Basic Proposal was submitted to the Hague Diplomatic Conference ***266** in 1991 with the expectation to complete the treaty negotiation and execute the PLT.[40]

However, the PLT Basic Proposal initiative failed to lead to a harmonization of substantive patent law. Although actively involved in the negotiations, the United States realized that if it were to execute the treaty the U.S. patent system would have to undergo a major change because the PLT Basic Proposal is based on the first-to-file principle with an international twelve-month grace period.[41] However, under the first Bush administration, the United States was ready to commit to this major change at the urging of the report published in 1992 by the Advisory Commission on Patent Law Reform.[42] Introducing the Patent System Harmonization Act of 1992, experts testified to the superior efficiency of the first-to-file system, compared to the first-to-invent system, at the joint hearing before the Subcommittee on Patents, Copyrights, and Trademarks of the Senate Committee on the Judiciary and the Subcommittee on Intellectual Property and Judicial Administration of the House Committee on the Judiciary.[43] However, once the Clinton administration came into office, all patent harmonization negotiations were put on hold.[44] Upon the appointment of Bruce Lehman as the new Commissioner of the United States

Patent and Trademark Office in 1993, the United States indefinitely postponed the conference to finalize the PLT Basic Proposal.[45]

B. Post-1993

As far as the international effort for patent harmonization is concerned, the United States is the target of criticism from its trading partners, particularly Europe and Japan. Many hold the view that the hard efforts expended in negotiating the PLT Basic Proposal were wasted by the refusal of the United States to conclude the negotiations. However, the United States has made substantial efforts over the last decade to prepare its patent system to make the transition to a first-to-file system by instituting several major patent law revisions. The United States also took an active role in the international arena to harmonize patent laws in both substantive and procedural aspects. It is very important to note that these efforts removed many issues that would have been negotiated had the PLT Basic Proposal been adopted.

***267** First, the United States led discussions to raise the minimum standard for intellectual property protection by expanding the scope of GATT.[46] This effort concluded with the execution of the TRIPS Agreement[47] and brought about the most significant changes with respect to the harmonization of substantive patent law since the establishment of the Paris Union.[48] Although the first-to-file dispute and other non-trade related issues are intentionally left for negotiation through the WIPO forum, for the first time TRIPS succeeded in setting the fundamental requirements for patentability[49] and required each member state to provide patent protection in all fields of technology.[50]

Second, although the United States suspended its effort to harmonize substantive patent law in the WIPO arena, it continued to actively engage in negotiations to harmonize formality and procedural requirements in the patent granting procedure under the PLT. After the failure of attempts to harmonize substantive patent law through the PTL Basic Proposal, the Paris Union members shifted the focus of the PLT negotiations to formality and procedural aspects to keep the momentum of harmonization going and to retain U.S. participation in negotiations.[51] In this new effort, the United States took a key role by setting the scope for harmonization and creating an interface with the PCT.[52]

Although the PCT extensively harmonized formality requirements, the scope was limited to requirements regarding the content of the application and the establishment of the date of the application. Furthermore, the PCT only applies to international applications filed under the PCT (PCT route).[53] Formality requirements ***268** under the PCT do not bind regular applications filed in multiple countries claiming priority under the Paris Convention (Paris route).[54] The Patent Law Treaty (PLT), executed in 2000,[55] addressed this issue. The treaty significantly eased the burden of applicants seeking to obtain patents in multiple countries through both the PCT and Paris routes.

Third, the United States adopted all elements proposed by the Patent Law Reform Advisory Commission (Commission).[56] In its 1992 report, the Commission recommended the adoption of a provisional application filing system and a limited prior-user's right in exchange for a worldwide grace period.[57] Additionally, the 1994 Uruguay Round Agreements Act (URAA)[58] established a "domestic priority system" and allows inventors to file a provisional application that will not be examined but will establish a priority filing date once a complete application is filed under § 111(a).[59] The goal of the Patent Reform Commission in recommending a provisional application was to provide a simple and inexpensive method to establish an early priority date on which the novelty and non-obviousness of an invention will be examined.[60] The current provisional application attains this goal by allowing applicants to file an application at a reduced cost without claims or inventors' oaths and declarations.[61]

As part of the 1999 American Inventor Protection Act,[62] the First Inventor Defense Act of 1999 introduced a limited quasi-prior-user's right.[63] In its 1992 report, ***269** the Commission defined the prior-user right as a right to raise a defense of prior use of a patented invention to a claim of infringement under the first-to-file system.[64] The first-inventor's defense can be asserted against a claim of infringement if an inventor acted in good faith and actually reduced the subject matter to practice at least one year before the effective filing date of the disputed patent and commercially used the subject matter before the effective filing date of the disputed patent.[65] Although this defense is available only regarding methods of doing or conducting business,[66] the "method" is broadly defined to cover processes resulting in products because the statute refers to the sale or other disposition of a useful end product of such method.[67] While maintaining the first-to-invent system, the United States no longer requires first inventors to challenge a patent that was erroneously granted to a second inventor in order to continue to use their inventions. Instead, first inventors can simply raise a defense to infringement by establishing that they were the first-to-invent and the first-to-use in this country.

Finally, major differences between U.S. substantive patent law and patent laws of other developed countries have been removed through the enactment of the 1994 URAA and the 1999 American Inventor Protection Act. The URAA removed the worst aspect of the U.S. first-to-invent system, discrimination against foreign applicants, at least for applicants from NAFTA and WTO member states to comply with the non-discrimination policy under TRIPS.[68] Prior to the establishment of the WTO, the U.S. first-to-invent system effectively discriminated against inventions made outside the United States by preventing foreign applicants for U.S. patents from establishing a date of application by reference to knowledge or use of the invention in a foreign country.[69] It is natural for foreign inventors to engage in activities that give rise to their inventions in their own countries. Thus, it is likely that foreign inventors were prevented from taking advantage of the first-to-invent system, even if they were the first-to-invent, unless the knowledge or use of the invention was sent to someone, such as a patent attorney in the United States.[70] As ***270** of January 1, 1996, inventors from NAFTA and WTO member-nations can rely on activities within the territory of NAFTA and WTO member countries to establish first inventorship.[71] Although foreign applicants may still be discouraged from engaging in complex and expensive interference procedures, the 1994 WTO Revision put foreign applicants on an equal footing with U.S. applicants.

Another serious flaw of the pre-1994 U.S. patent system was the patent term provision that resulted in submarine patents.[72] Although European and Japanese patent systems adopted a patent term of twenty-years from the filing date, prior to WTO, the U.S. statute established the patent term from the date of issuance.[73] By intentionally extending prosecution and delaying issuance of the patent, applicants abused the system and tried to capture technologies which were long believed to be in the public domain by redrafting claims to cover such technologies based on the original disclosure filed years before but kept secret during the prolonged prosecution.[74] To address this problem, the 1994 URAA changed the patent term from seventeen-years from the date of issuance to twenty-years from the filing date and brought the U.S. term in line with European and Japanese terms.[75]

Another major difference between the United States and European and Japanese patent systems was the absence of a system in the United States for early publication of the application before patent issuance. Under the European Patent Convention and Japanese Patent Law, the content of all applications are automatically published eighteen-months from the priority date regardless of the stage of examination.[76] An early publication system completely eliminates submarine patent problems and results in a number of economic benefits by making available to the public technological information included in the applications.[77] The Domestic ***271** Publication of Foreign Filed Patent Applications Act of 1999,[78] which is part of the 1999 American Inventor Protection Act, introduced an early publication system and enables the USPTO to publish the content of an application after eighteen-months from the priority date.[79] Although applicants who do not wish to obtain patents outside the United States can prevent publications of their applications by filing a request, a risk of submarine patents resulting from the unpublished applications is marginal because more than 75 percent of all U.S. applications are also filed outside the United States.[80] Moreover, applicants are strongly discouraged from taking advantage of the exception to prevent publication because additional protection through a newly introduced provisional right is not available unless applications are published.[81]

In short, although the United States did not actively participate in the WIPO forum over the past decade beyond the formality harmonization discussions, the United States has been active in revising its own patent system and setting an international standard toward a global patent system through multilateral and bilateral negotiations.[82] This effort provides the platform that Paris Union members will start negotiating from, which is completely different from the early 1990s when the PLT Basic Proposal failed.

C. Resumption of U.S. Leadership

The change of U.S. administrations again brought a significant movement for furthering patent harmonization in the international arena.[83] At the fourth Standing Committee on the Law of Patents (SCP) held in November 2000, the United States returned to play a key role in international negotiations through the WIPO and proposed to limit the scope of negotiations to issues related to the drafting, filing, and examination of patent applications to facilitate work-sharing among patent offices.[84] This U.S. proposal for furthering "deep harmonization" of both law and ***272** practice, with the goal of mutual recognition or according full faith and credit to examination results, was widely supported by the SCP delegations.[85]

In keeping this limited scope and goal in mind, WIPO's International Bureau presented a first draft of the Substantive Patent Law Treaty (SPLT) at the fifth SCP session held in May 2001.[86] Many provisions in the first draft included two alternatives so delegations could register their preferences. SCP Delegations reviewed the first draft article by article and indicated their

enthusiasm for continuing negotiations.[87] Based on this May 2001 draft, the USPTO listed issues related to various substantive patent law aspects and sought public opinion.[88] These issues relate to points in the first draft that will require the United States to change current practice.[89]

WIPO's International Bureau further revised the first draft, reflecting the comments presented at the fifth session, and presented a second draft in the sixth session in November 2001.[90] The discussion at the sixth session began with a report from the U.S. Delegation that included opinions indicating divided positions on many issues, including the first-to-file-principle.[91] Although the U.S. Delegation was not ready to clarify its position, it nevertheless supported the SPC's effort to establish the best practices for substantive patent law.[92] Incorporating all comments at the sixth session, the most recent draft of the SPLT is now circulating among SPC delegations for review.[93] This most recent draft was presented at the seventh meeting held May 6 to May 10, 2002, at WIPO headquarters in Geneva, Switzerland. The discussions and negotiations at the seventh meeting highlighted different views on several provisions in the latest draft. Therefore, several more revisions ***273** are expected before submitting to the Diplomatic Conference of Paris Union General Assembly for adoption of a new treaty.[94]

II. Review of the Most Recent SPLT Draft

The SPLT is different from any previous treaty dealing with the substantive aspects of patent law. The degree of harmonization the SPLT tries to accomplish is much more comprehensive than the Paris Convention[95] or WTO-TRIPS[96] because the articles and regulations establishing the basic conditions for patentability and description requirements reflect the current practices in major patent jurisdictions, such as the United States, Europe, and Japan, and gives direction as to which of these practices should be adopted. However, the scope of the SPLT is narrower than the last failed draft of the Patent Law Treaty[97] because the SPLT does not apply to infringement issues.[98]

Although the SPLT's primary goal is to deal only with substantive law issues, the draft treaty includes some formality and procedural requirements closely related to substantive patent law requirements.[99] Particularly, one can view description requirements for the specification and claims and allowable amendment requirements[100] as substantive patentability requirements if viewed in combination with patentability conditions, such as utility.[101] These formality and procedural issues are also governed by the PCT[102] and the PLT.[103] However, these provisions are ***274** also included in the SPLT because the applicable scopes of the PCT, PLT, and SPLT are different.[104]

The SPLT is applicable to both the PCT route international applications and Paris route applications.[105] Formality requirements under the PCT were originally developed to uniformly handle PCT route international applications filed in different patent offices. To further harmonize formality requirements applicable to both the Paris route and PCT route applications and to avoid any conflict between the PCT and the PLT, PLT Article 6 incorporated PCT formality requirements.[106] Thus, under the PLT, the PCT requirements apply to both Paris and PCT route applications.[107] However, both the PCT and the PLT include a clear disclaimer of any binding effect with respect to substantive patent law issues.[108] Since some formality requirements (e.g., enabling disclosure) are linked with a substantive patent law requirement (e.g., utility), the SPLT includes provisions for these substantive-law-linked requirements to ensure that once the SPLT is executed, both substantive and formality aspects of these requirements bind patent offices in examining PCT and Paris routes applications.[109]

The most recent SPLT draft is primarily based on the law and practice of European countries, namely, the European Patent Convention.[110] Since Japan has already revised many aspects of its patent law to harmonize with the European Patent Convention, many provisions in the current SPLT have already been incorporated into Japanese Patent Law. However, a significant number of provisions obviously reflect the U.S. patent statute and U.S. case law, which will require the EPC and JPL to change in order to execute the SPLT. Furthermore, WIPO's International Bureau intentionally drafted some unique provisions that are different from both the U.S. and European/Japanese patent law and practice.

In the field of intellectual property, the law and practices developed by European countries were adopted "as is" for previous international standards.[111] Thus, some European scholars may view the current draft of the SPLT as unfairly favoring ***275** the U.S. system and argue for adoption of the European Patent Convention "as is."[112] Americans may view the current draft as still too European but find it better than any other draft prepared for the PLT or the PCT, as it reflects a fair bargain between the U.S. and European/Japanese systems. The next section of this paper reviews important articles in the current SPLT draft and discusses whether the provisions in these articles are American, European, or unique in comparison with Title 35 of the United States Code, the EPC, and JPL.

A. First-To-File Principle

1. Published Prior Art

SPLT Article 8 provides the definition of both published and unpublished prior art references.[113] It makes prior art any information which has been made available to the public before the application date and earlier applications pending in the patent office on the application date. Its current text follows the European model overall because it mirrors the definition of the prior art in the EPC[114] as well as JPL.[115] This article addresses the most controversial issue, the first-to-file versus the first-to-invent debate between the United States and the rest of the world.[116] SPLT Article 8 corresponds to 35 U.S.C. § 102 and defines the prior art on the basis of the first-to-file principle. Unlike the lengthy and complex provisions in § 102, Article 8 is very simple and easy to understand.

SPLT Article 8(1)[117] can be viewed as corresponding to § 102(a) and § 102(b) regarding the published prior art.[118] However, Article 8 is different from § 102(a) because the current 35 U.S.C. § 102(a) determines the novelty of invention ***276** as of the invention date, instead of the filing date.[119] Moreover, SPLT Article 8(1) is applicable to both disclosures by inventors and third parties[120] in contrast to § 102(a), which only applies to disclosures by third parties.[121] In contrast, § 102(b) is similar to Article 8(1) in determining the prior art as of the filing date and giving a definition of the published prior art.[122] It also applies to both inventors and third parties.[123] However, the prior art that becomes available during the one-year grace period is excluded from the definition of prior art.[124] Thus, one can view § 102(b) as the combination of the SPLT Article 8(1) definition of prior art and Article 9, the allowance of a grace period.[125]

Further, § 102 includes provisions that do not exist in SPLT Article 8. Specifically, § 102(c) governing abandonment[126] and § 102(d) governing foreign applications do not fall into the definition of Article 8.[127] Inventors' secret commercial use that gives rise to public use or an on sale bar under § 102(b) is not included in the prior art.[128] Although first-to-file patent professionals view these provisions as a type of prior art, U.S. patent professionals distinguish these statutory bar provisions from the prior art provisions because of the different policies underlying these two sets of provisions. Statutory bar provisions, § 102 (b), (c) and (d), are unique to the U.S. patent system because they were introduced to encourage early filing and to remedy the problem inherent in the first-to-invent system, i.e., the delay in filing an application.[129] Because the novelty provision under the first-to-file principle inherently includes a mechanism for encouraging early filing, the SPLT does not include any additional definitions for published prior art except for Article 8(1).

Another major difference in Article 8(1) is that by defining prior art as "all information, which has been made available to the public anywhere in the world in ***277** any form," there is no discrimination between domestic and foreign prior art.[130] This provision also mirrors the EPC and JPL.[131] In contrast, under the current U.S. patent statute, only information which is described in a published patent or printed publication constitutes the prior art if the invention has become available outside the United States.[132] If information is not in a written form but has become known or used, such as sale of an invention without any written disclosure, the information must be available in the United States to constitute the prior art under § 102(a) and (b).[133]

As briefly discussed above, Article 8(1) is also different from § 102(a) and (b) because the critical factor for determining whether information constitutes the prior art under Article 8(1) is the availability of information to the public.[134] Regardless of the circumstances surrounding the disclosure, any form of making information available to the public constitutes prior art.[135] In other words, as long as the invention is kept secret, it does not constitute prior art. This simple definition reflects the ordinary meaning of prior art and parallels the definition of prior art under the EPC and JPL.[136] In contrast, as far as inventors' activities are concerned, the definition of the prior art under the U.S. patent system is complicated and difficult to understand. A public use may not constitute "public use" under § 102(b) if the use falls within the experimental use exception.[137] A secret use may constitute "public use" under § 102(b) if the use is for a commercial purpose.[138]

2. Undisclosed Prior Art

SPLT Article 8(2)[139] corresponds to 35 U.S.C. § 102(e) and (g) in prescribing the effect of unpublished prior art.[140] Article 8(2) is, in essence, European because it defines the unpublished prior art under the first-to-file principle. However, ***278** it also reflects some American influence because it uses prior art provisions to determine the priority among multiple applications for the same invention. This is the same approach taken by Title 35 U.S.C., which does not include any separate provision for the first-to-invent priority but includes § 102(e) and (g), which define an earlier invention as prior art and give the patent a defeating right only to the earlier invention.[141]

This SPLT and U.S. approach differ from the European and Japanese approach that provides separate provisions to determine the first-to-file priority, if more than one application is filed for the same invention.[142] The EPC and JPL view the effect of an earlier application as creating a right to a European or Japanese patent.[143] This right includes both priority rights to obtain a patent and defensive rights to prevent others from obtaining a patent. These European and Japanese patent rights are not limited to the claimed subject matter but also cover subject matter described but not claimed in the applications.[144]

The most significant difference between Article 8(2) and 35 U.S.C. § 102(e) and (g) is what constitutes prior art. Because Article 8(2) defines prior art under the first-to-file principle, an earlier application instead of an earlier invention constitutes prior art under Article 8(2).[145] Under 35 U.S.C., an earlier invention is determined under the priority rule provided in § 102(g). In contrast, under the SPLT, an earlier application is determined by the priority date or actual filing date granted by a patent office upon fulfillment of the formality requirements necessary to establish the filing date under the PCT and PLT. The whole content of the application is prior art under the SPLT,[146] as is the case in 35 U.S.C. with respect to an earlier invention[147] and in the EPC and JPL regarding an earlier application.[148]

Another important difference between SPLT Article 8(2) and 35 U.S.C. § 102(e) and (g) is the timing concerning when the prior art patent-defeating effect becomes available. U.S. courts and the USPTO distinguish between an affirmative ***279** priority effect entitling one to obtain a patent from a defensive effect to defeat the patentability of later inventions.[149] The affirmative right is attached only to claimed subject matter. In contrast, the defensive right is associated with claimed or unclaimed subject matter disclosed in the specification. U.S. courts introduced this distinction through statutory interpretation limiting the effect of secret prior art, § 102(e) and § 102(g), and refused to give unclaimed but disclosed subject matter the patent-defeating effect as of the foreign priority date.[150] As a result, any unclaimed subject matter disclosed in an unpublished pending U.S. application is given prior art effect only as of the actual filing date.[151] In contrast, neither the EPC nor JPL discriminate between claimed and unclaimed subject matter and give both the effect of prior art as of the priority date.[152] The SPLT took the European/Japanese approach by expressly rejecting the discriminative approach adopted by the USPTO and U.S. courts. Rule 9(2) requires patent offices to give prior art effect as of the priority date as long as the subject matter is disclosed in the unpublished earlier application and its previous application on which a priority is claimed.[153]

The SPLT is also European with respect to the applicable scope of unpublished prior art.[154] The EPC and JPL follow the same restrictive approach, limiting the use of secret prior art for rejecting later claims only for lack of novelty.[155] Under current U.S. case law, the USPTO can use the content of an earlier application under § 102(e) to reject later claims for lack of both novelty and non-obviousness.[156] Over the U.S. Delegation's objection, this restrictive scope was moved from the Regulation into Article 8(2) of the SPLT.[157] The SPLT Regulation ***280** also limits the applicability of the double patenting doctrine to identical inventions.[158]

However, Article 8(2) has an American aspect in that it excludes the application of unpublished prior art when the earlier application was filed by the same applicant of the later application that is under examination as of the filing date of the later application.[159] This exception to the application of unpublished prior art was introduced to avoid the so-called "self-collision" problem.[160] Title 35 U.S.C. § 102(e) provides a similar exception by excluding as prior art earlier applications by the same inventor.[161] Japanese Patent Law also provides a similar exception.[162] In contrast, the EPC does not provide an exception to avoid self-collision and, thus, needs to introduce such an exception once the SPLT is executed.[163]

B. Article 9: Grace Period

SPLT Article 9 provides an exception to the prior art under Article 8 and defines information which does not affect the patentability of a claimed invention although the information is made available to the public prior to the filing date.[164] It provides two options, Alternative A and B, for setting conditions for a grace period. Alternative A provides details of categories of disclosures that qualify for the grace period.[165] In contrast, Alternative B only recites the general principle of a grace period and sets a period of twelve-months for the grace period while leaving details of conditions regarding the disclosure categories, etc., to the Regulations.[166] There is no substantial difference between the two alternatives because the same conditions in Alternative A will be provided in the Regulations. However, by providing ***281** the conditions in the Regulations instead of the Treaty, Alternative A gives member states flexibility to change the conditions.

Article 9 is European because it provides a grace period as an exception to the novelty requirement under the first-to-file principle. Joseph Straus, a scholar of a first-to-file country, defines a grace period as "a specific period of time prior to the

inventor or his/her successor in title filing of a patent application, during which disclosures of an invention do not forfeit a right to patent the invention."[167] The significance of a grace period is very different in the first-to-invent and first-to-file systems. Under the first-to-file system, an invention must be new and not obvious from the prior art as of the filing date, thus the principle is to refuse to patent old inventions.[168] The grace period is an exception to the first-to-file principle. A grace period system allows patent offices to remove from the prior art certain categories of information that have become available as of the filing date so that patent offices can grant patents to an old or obvious invention. Because both Alternatives A and B provide a grace period as an exception to the first-to-file novelty requirement by removing certain categories of information from the prior art, Article 9 is European.

Under a true first-to-invent system, a grace period is not an exception, but a principle that the invention is new and non-obvious as of the invention date even if the invention has become old prior to the filing date through a disclosure by an inventor or third party.[169] However, to encourage early disclosure through a patent application, U.S. case law modified the true first-to-invent system by introducing statutory bars that prevent inventors from obtaining a patent after the expiration of a grace period if inventors engage in one of the activities listed in § 102(b) and (d).[170] Thus, a statutory bar that limits a period for filing an application after a disclosure is an exception. Neither Alternative A nor B follows this American approach.

However, the grace period of Article 9 is an extensive modification of the European approach because both Alternatives A and B reflect the American approach and cover a much broader scope of categories of information that qualify to take advantage of the grace period than the scope under the EPC and JPL. Because a grace period is an exception, both the EPC and JPL limit the categories of information and prescribe detailed conditions for taking advantage of the exception.[171] ***282** The scope of categories available for a grace period under the EPC is very narrow; only two categories of information can qualify for a grace period:[172] (1) a display at an international exhibition as allowed under the Paris Convention[173] and (2) an evident abuse in relation to the applicant and his legal predecessor.[174] The scope of categories under JPL is broader than the EPC because, in addition to an evident abuse[175] and a display at an international exhibition,[176] JPL qualifies for a grace period to (1) a disclosure by the inventor for the purpose of experiment; (2) a disclosure by the inventor in a printed publication; and (3) a disclosure by the inventor in a printed publication at a science meeting recognized by JPO Commissioner.[177] However, it limits activities that qualify for a grace period to these categories. Both the EPC and JPL require applicants to request the grace period upon application.[178] Further, the grace period is six months from the actual filing date for the EPC and the JPL.[179]

In contrast, because the principle underlying the U.S. patent system is to award patents to new and non-obvious inventions as of the invention date, the U.S. patent statute provides no limitation with respect to categories of information that qualify for the grace period.[180] Information that may constitute the prior art under § 102(a) if the information is disclosed by a third party is not prior art under § 102(b).[181] The grace period under § 102(b) is twelve-months from the actual filing date instead of six-months.[182]

***283** Article 9 is more closely in line with the U.S. system. It adopts the twelve-month grace period of the U.S.[183] and has fewer restrictions on the scope of information qualified for the grace period than the European and Japanese systems do. Like 35 U.S.C. § 102(b), any category of information is qualified for the grace period as long as the information resulted from acts of inventors and acts directly or indirectly derived from the inventor.[184] Article 9 also allows a grace period for unauthorized disclosures by a patent office.[185] The major difference between Article 9 and 35 U.S.C. § 102(b) regarding conditions for the grace period is that the start date of the grace period under the Regulations is the priority date instead of the actual filing date.[186]

Regarding the priority of entitlement to a patent between two inventors during the grace period, Article 9 adopts the European approach because a first-to-file principle controls the priority. Because Article 9 does not allow the removal from the prior art of disclosure by a third party (Inventor A) with respect to an invention by the inventor (Inventor B) of the claim under examination, a third party's (Inventor A) early application constitutes the unpublished prior art under Article 8(2).[187] This early publication will prevent the inventor (Inventor B) who disclosed the invention during the grace period but was the second-to-file from obtaining a patent. The third party (Inventor A) who is the first-to-file can obtain a patent only if she files an application prior to the disclosure by the inventor (Inventor B) who tried to take advantage of the grace period. This is exactly the same practice as the current grace period system under the EPC and JPL.[188]

This approach is very different from the American approach. Under the U.S. first-to-invent system, a third party's (Inventor A) early application does not prevent ***284** an inventor (Inventor B) who discloses his invention during the grace period from obtaining a patent if she (Inventor B) shows an earlier invention date under the priority rule of § 102(g).[189] Since the third party's (Inventor A) filing date is presumed to be the invention date, an inventor of the disclosure (Inventor B) bears the

burden to establish priority over the first-to-file inventor (Inventor A).[190]

SPLT Article 9 provides intervening rights for a third party who started to use an invention after the invention was disclosed to the public but before the actual filing date or priority date of the application for a patent on the invention.[191] Many delegations indicated concern over the rights of thirty parties affected by the introduction of a grace period.[192] The most persuasive argument raised against the introduction of a grace period is that it gives rise to legal uncertainty with respect to a right of a third party who obtains information from a disclosure and starts to use the information with a belief that the information fell into the public domain.[193] To avoid any hardship on such a third party who, in good faith, used an invention or prepared to use an invention during the grace period, Alternative A provides a right to the party to continue to use the invention.[194]

C. Articles 10 and 11: Description Requirements

The SPLT not only requires two of the three separate disclosures required in the specification of a U.S. patent application under 35 U.S.C. § 112, P 1,[195] the enablement and written description requirements, but also requires claim definiteness, as does 35 U.S.C. § 112, P 2. Overall, the SPLT's description requirement is more similar to the European system because it does not require the inventor to specify the best mode and views the written description requirement as a requirement for claims, instead of a requirement for specifications.[196] The language of the description requirements in the SPLT[197] mirrors the language of the EPC, although U.S. ***285** influence is evident in the parts of the text that reflect U.S. case law and practice.[198]

1. Enablement

The enablement requirement is provided in Article 10.[199] The language of Article 10 is primarily imported from the EPC.[200] However, Articles 10 and 11 were modified by U.S. influence. Article 10(1) is a combination of EPC and 35 U.S.C. § 112, P 1. The first half of Article 10(1) copied the language of Article 83 of the EPC,[201] as well as Article 28, 1(a) of WTO-TRIPS.[202] The last half closely parallels the text of 35 U.S.C. § 112, P 1 that provides the enablement requirement.[203] Under U.S. case law, the enablement requirement includes two elements. The first element requires that a specification include a disclosure of how to make[204] and how to use the product recited in the claim.[205] SPLT Article 10 addresses this first element of the enablement requirement.

The second element of the enablement requirement prescribes the relationship between the claims and the disclosure in the specification.[206] In essence, claims should not be so broad as to cover non-enabled embodiments. If no reasonable correlation exists between the narrow disclosure in the specification and the broad claim, the specification does not meet the requirements of enablement.[207] If the scope of the claims is broader than the scope of disclosure, the claims are rejected under 35 U.S.C. § 112, P 1 as not being supported by the original claim or by an enablement disclosure.[208]

***286** Furthermore, the second element of enablement also requires that the specification must disclose any claimed invention in such clarity as to enable one skilled in the art to practice the invention without undue experimentation.[209]

Article 10 addresses the second element through Rule 10,[210] which lists factors developed by U.S. courts to decide whether undue experimentation is necessary to practice the claimed invention.[211] The EPO and JPO adopted this U.S. practice and use similar factors for assessing undue experimentation.[212] Thus, this second element of the enablement requirement is both American and European/Japanese in nature.

2. Written Description

The written description requirement of 35 U.S.C. § 112, P 1 is provided for in SPLT Article 11(3)(b) as part of the description requirement for claims.[213] Although the SPLT adopts the European approach of viewing the written description as fulfilling a requirement for claims to be supported by the specification, it is modified by a strong American influence.[214] The language of Article 11(3)(b) is a restatement of the written description requirement in U.S. case law.[215] The U.S. Delegation insisted on this requirement over the objections of other delegations that ***287** the requirement is redundant with the enablement requirement under Article 10 and unnecessary.[216]

3. Best Mode

A primary reason to view the SPLT description requirement as European is its failure to require inventors to disclose the best mode for carrying out their inventions.[217] The SPLT current draft does not require any disclosure of the best mode, although WTO-TRIPS expressly gives member states an option to require such disclosure.[218] Because neither the EPC nor JPL requires a disclosure of best mode, lack of this provision indicates that member states should not require a disclosure of the best mode contemplated by the inventor as of the filing date.[219]

4. Claim Definiteness

SPLT Article 11(1) and (2) provides the description requirement for claims and, thus, should be read to correspond to the claim definiteness requirement under 35 U.S.C. § 112, P 2.[220] SPLT Article 11(1) mirrors the first sentence of EPC Article 84.[221] Article 11(2) and (3) copy the second sentence of EPC Article 84, divided into two parts, with words added for clarification.[222] Except for some minor variations of terms, 35 U.S.C. § 112, P 2 and EPC Article 84 are essentially the same.[223] JPL Article 36, P 5 closely parallels EPC Article 84. In substance, the current draft of Article 11 is both American and European/Japanese.

D. Claim Interpretation and the Doctrine of Equivalents

1. Fundamental Rules

Although member states agreed to limit the scope of international negotiations to issues relating to patent granting procedures and expressly guaranteed the freedom of member states to apply their own substantive requirements for determining infringement,[224] the SPLT addresses issues relating to claim scope and ***288** claim interpretation.[225] It is necessary to address such issues because claims define the subject matter that will be examined for the determination of patentability.[226] Because of the significant impact on examination results, provisions for claim interpretation were modified extensively through each draft revision. At the sixth session, WIPO's International Bureau removed two articles for claim interpretation and protection scope that were included in the SPLT but were independent from Article 11 that provides the description requirement for claims.[227] In place of the two articles, which provided for both claim interpretation and the doctrine of equivalents, only one general principle for claim interpretation was added, Article 11(4). However, in the most recent draft, WIPO's International Bureau expanded Article 11(4) to provide for both claim interpretation and the doctrine of equivalents.[228]

SPLT's fundamental rules for claim interpretation and protection scope are neutral as to both the U.S. and European/Japanese approaches because the rules follow the European approach in the EPC but clarify them with restatements of U.S. case law. SPLT Article 11(4)(a) provides a rule that, while the language of claims defines the subject matter to be examined, the patent offices can take into account the description and drawings in the specification, as well as the general knowledge of one skilled in the art as of the filing date.[229] This rule closely mirrors the language of articles in the EPC and JPO, establishing the roles of claims and other parts of the patent document.[230] However, SPLT Article 11(4)(a) lists, as a claim interpretation aid, the general knowledge of one skilled in the art,[231] which neither the EPC nor JPO expressly endorses for use in claim interpretation.[232] Like U.S. case law,[233] the SPLT uses the perspective of one skilled in the art, as of the filing date, to interpret claims.[234] This paragraph was added to avoid claim interpretations ***289** that limit the literal coverage to what is explicitly disclosed in the specification and drawings.[235]

Further, the most recent draft added a rule requiring patent offices to give due account to equivalents of the elements expressly recited in the claims.[236] Since neither the EPC nor JPL provides for equivalents and 35 U.S.C. provides equivalents only with respect to means-plus-function claims, it is not clear how patent offices and courts should apply Article 11(4)(b). However, if the article is read to parallel the protocol of the EPC for claim interpretation, the article requires protection beyond literal infringement, including protection from infringement by equivalents, and prohibits strictly limiting protection to the literal meaning of claims.[237] Rule 12 of the SPLT Regulations expressly endorses the prohibition against strict literal interpretation.[238] Japanese courts also follow the same approach in giving protection by equivalents if certain conditions are met.[239]

Although the U.S. patent statute does not include any provisions for claim interpretation, except for a special rule for means-plus-function claims in § 112, P 6,[240] the rules in Article 11(4) closely parallel claim interpretation rules developed by U.S. courts. The first rule in Article 11(4)(a), to use claim language as the primary basis for interpretation while taking into account the general knowledge of one skilled in the art at the time of filing, reflects the use of claim interpretation aides, such as specification, drafting, and file wrapper, by U.S. courts.[241] The second rule in Article 11(4)(b), taking into account

equivalents of claimed elements, reflects protection under the doctrine of equivalents and literal equivalents under ***290** § 112, P 6, both of which are firmly endorsed by the U.S. Supreme Court.[242] Thus, Article 11(4) follows the European/Japanese approach and the U.S. approach.

SPLT Rule 12[243] restates the Federal Circuit's canons of claim interpretation.[244] Rule 12(1)(a) codifies the rule that claim terms should be given their ordinary meaning as understood by one skilled in the field of the invention.[245] Rule 12(2)(a) codified a prohibition against reading limitations into the claims from the specification and the preferred embodiment.[246] Rule 12(2)(b) provides the exception to the above two rules, the doctrine of the patentee as lexicographer:[247] if a description in the specification clearly altered the ordinary meaning of claim terms and gave them a special meaning, the terms are limited to the special meaning.[248]

However, Rule 12(2)(b) can be read to go beyond the Federal Circuit's canons of claim construction and guarantee broad claim interpretation. The Rule prohibits reading limitations into the claims from the specification, stating the fact that:

> [the] claimed invention includes additional features not found in the examples disclosed in the application or patent, lacks features found in such examples or does not achieve every objective or possess every advantage cited or inherent in such examples shall not remove that claimed invention from the scope of the claims.[249]

This clause can be read to prohibit the Federal Circuit's practice of interpreting the scope of claim terms in light of support found in the written description, which effectively reads some limitations into the claims from the specification.[250]

As to the protection by equivalents under Article 11(4)(b),[251] Rule 12(5)[252] codifies the function-way-result test and known-interchangeability test used by U.S. ***291** courts to find equivalency between the claimed element and the accused infringing element.[253] Although European and Japanese tests for finding equivalency are similar to the U.S. known-interchangeability test,[254] Rule 12(5) is more closely in line with the American and Japanese approach in adopting the time of infringement to apply the equivalence test.[255] In contrast, some European countries apply the test as of the filing date.[256] Further, Rule 12(6) expressly endorses the U.S. practice of limiting the literal scope and equivalent scope by the statements made by the applicant or patent owner during the prosecution and opposition/re-examination proceeding.[257]

2. Special Rules

Contrary to the fundamental rule, rules for special claims in Rule 12(3) through 12(6) are very European/Japanese.[258] Rule 12(4)(a) and (b) sets forth a rule for interpreting means-plus-function claims and requires a claim construction to cover any structure or materials that are capable of performing the recited function.[259] This rule parallels the claim construction doctrine adopted by the EPO and JPO,[260] but conflicts with claim construction by U.S. courts under 35 U.S.C. § 112, P 6.[261]

***292** Rule 12(4)(c) provides a special rule for interpreting product-by-process claims and requires claims to be construed in terms of the product.[262] This rule reflects claim construction adopted by the EPO and JPO.[263] The USPTO follows this approach by requiring the product recited in the claim be new and non-obvious from the prior art, independent from the process recited in the claim.[264]

However, in determining infringement, two panel decisions of the Federal Circuit have adopted conflicting views. The Scripps court followed the European approach and held that a product-by-process claim should not be limited to products made by the process recited in the product-by-process claims.[265] In contrast, the Atlantic Thermoplastics court reviewed the Supreme Court cases and held that product-by-process claims extend only to the end-product made by the process recited in the product-by-process claims.[266] These conflicting panel decisions introduced serious confusion in lower courts' claim interpretation of product-by-process claims.[267] Although the Atlantic Thermoplastic court endorsed the USPTO to apply a claim construction during the prosecution different from that for the validity and infringement during litigation,[268] more recent U.S. case law seems to require the USPTO to apply the same claim construction rules for patentability, validity and infringement.[269] Thus, the Federal Circuit's adoption of the Atlantic Thermoplastic approach may bring a change in the USPTO's current examination practice. Such change will result in a conflict with the current draft Rule 12(4)(c).

Rule 12(4)(d) provides for construction of claims directed to use of a product and is also in line with European and Japanese practice but conflicts with current U.S. practice.[270] Both the EPO and JPO expressly endorse inclusion of use claims in their applications. Both uphold patentability of a new use in a known old product if such use is inherent but not made available to

the public through the prior art, as long as the subject matter drafted in the product claim is limited to the particular ***293** use.[271] In contrast, the USPTO and U.S. courts reject patentability of a new use in a known old product.[272] They also reject patentability of a new use in an analogous compound of a known product if the new use is inherent in the known product.[273]

E. Article 12: Conditions of Patentability

1. Patent Eligible Subject Matter

SPLT Article 12 lays out all four essential conditions for patentability required under U.S. law: (1) patent eligible subject matter; (2) utility under 35 U.S.C. § 101; (3) novelty under § 102; and (4) inventive step/non-obviousness under § 103.[274] In particular, the SPLT's definition of patent eligible subject matter[275] was one of the most controversial articles[276] because this definition differed significantly from European practice and can be read to conflict with WTO-TRIPS Article 27.[277]

Until the sixth session, Article 12(1)(a) only required a claimed invention to be made or used in any field of activity and did not expressly limit the invention to be within a field of technology.[278] Thus, the previous proposed scope read much more broadly than the current draft scope of patent eligible subject matter.[279] Responding to criticisms of the original broad language "in any field of activity," the WIPO International Bureau added Article 12(1)(a) to the SPLT's most recent draft to limit patentable subject matter to products or processes in "all fields of technology." Article 12(1)(b) further explains the scope of patentable subject matter and ***294** lists items that do not constitute patent eligible subject matter.[280] The list of patent ineligible subject matter in the most recent draft does not include controversial items, such as computer software and methods of doing business.[281]

The SPLT's original definition of patent eligible subject matter is very much American. Obviously, WIPO's International Bureau intentionally adopted the broad language to reflect the Federal Circuit's broad definition of patent eligible subject matter, which permits the granting of patents on any subject matter as long as such subject matter produces a useful, concrete, and tangible result.[282] The current draft definition is still in line with the U.S. definition because the patent eligibility test of the Federal Circuit, if interpreted in the context of the U.S. Supreme Court precedent on the question, also requires the subject matter to be in a technological art or an application of a law of nature.[283]

In contrast, the EPC expressly lists computer software and methods of doing business as patent ineligible subject matter[284] and thus, is narrower than the scope of patent eligibility under the most recent SPLT draft. European countries traditionally require the claimed invention to have a technical character to give rise to patent eligible subject matter;[285] therefore, the EPC Rule expressly requires the claims to be defined in terms of the technical features of the invention.[286] In interpreting patent eligibility under the EPC, the EPO applies the technical character requirement to limit the scope of patent eligible subject matter by requiring a technical contribution.[287] The EU recently published a proposal for a directive with respect to the patentability of computer implemented inventions and endorsed the EPO's application of the technical character requirement.[288] The new draft definition, ***295** introducing the field of technology limitation, reflects a compromise of this restrictive European approach and the broad U.S. approach.

The scope of patent eligibility under the most recent SPLT draft is also in line with Japanese practice. The earlier draft definition could be viewed as broader than patent eligible subject matter under Japanese Patent Law because it did not expressly require utilization of a law of nature.[289] However, regarding the patentability of computer software and business methods, the Japanese requirement for patent eligible subject matter is broader than the European requirement because, under Japanese law, a claimed invention gives rise to patent eligible subject matter if the invention uses computer hardware resources, which, thereby, utilize the law of nature.[290] To clarify that computer software as such is patent eligible subject matter as a product invention, the JPO recently introduced a bill to revise the definition of invention exploitation, which revision became effective on January 1, 2003.[291] In short, the scope of patent eligibility under Japanese Patent Law closely parallels the scope under 35 U.S.C. and the SPLT.

2. Utility/Industrial Applicability

In addition to Article 12(1), Article 12(4) of the most recent draft provides a separate requirement of industrial applicability/utility.[292] Until the sixth session, the SPLT took a unique approach, different from both European/Japanese and U.S. approaches because the draft did not expressly provide for any utility or industrial applicability requirement.[293] According to the WIPO International Bureau, the earlier draft did not include a separate provision for utility because such a

requirement is subsumed in other requirements, such as patent eligible subject matter and enablement.[294] This approach could be viewed to reflect recent U.S. case law because one can view Federal Circuit decisions requiring a useful result for determining patent eligibility as having merged patent eligible subject matter and utility.[295] ***296** With respect to biotechnology, the USPTO addresses specific utility issues under the enablement and written description requirements.[296]

However, the most recent draft added a separate industrial applicability requirement to accommodate requests from EPC countries and many other countries that follow the European tradition.[297] SPLT Article 12(4) provides three options to define industrial applicability.[298] The first option is the broadest and defines industrial applicability as being made or used for exploitation in any field of commercial activities.[299] The second option defines industrial applicability as being made or used in any kind of industry. This definition is narrower than the first option because it imported the language of industrial applicability from the EPC.[300] The EPO interprets the language to deny patentability for methods of medical treatment for humans or animals as not having industrial application.[301] Japanese Patent Law includes language similar to the EPC,[302] and, thus, the JPO excludes medical methods from patentability for lack of industrial applicability.[303] The third option requires a specific, substantial, and credible utility, which mirrors the USPTO's interpretation of U.S case law dealing with specific utility.[304] This option is narrower than the second option because it excludes inventions having only potential uses.[305] However, the option can also be viewed as being broader than the second option because it does not exclude medical methods. Thus, depending on the option being adopted, the industrial applicability under the SPLT is either American, European/Japanese, or broader than any of the current systems.

Further, responding to requests from developing countries, the most recent draft introduced Article 12(5), a catch-all provision to exclude certain types of inventions ***297** from patentability.[306] Although Article 12(5) indicates that the conditions for excluding inventions are given by the Regulations, rules for such conditions have not been published by WIPO's International Bureau.

3. Novelty

The novelty provision in SPLT Article 12(2) provides that a claimed invention is novel if it does not form part of the prior art.[307] This provision is European, Japanese,[308] and American, although the language of Article 12(2) closely parallels the language of the EPC Article 54.[309] The U.S. patent statute does not include any particular provision that parallels the language of Article 12(2).[310] However, U.S. practice is perfectly in line with the most recent SPLT draft novelty requirement because Rule 14 further explains the application of the novelty standard under Article 12(2) and simply codifies the anticipation rule developed by U.S. courts.[311] Rule 14(1)(i) codifies the single prior art rule under the identity requirement in Lewmar Marine Inc.,[312] and Rule 14(1)(ii) codifies the enablement requirement for finding anticipation in Titanium Metals Corp.[313]

Rule 14(2) was added to clarify the scope of prior art used by examiners in patent offices.[314] The rule endorses the expansive view of U.S. courts that establishes the scope of a prior art reference to be from the perspective of a person of ordinary skill in the art. This view allows the USPTO and courts to find anticipation ***298** even if an element is merely inherently disclosed, as long as one skilled in the art would recognize the element.[315] In spite of the single prior art rule, draft guidelines allow patent offices to use other references provided that such references are used as evidence for determining the scope of a primary reference and whether a primary reference enables the claimed invention.[316] This use of other references parallels the U.S. courts use of extrinsic evidence, i.e., evidence for (1) showing a characteristic is inherent in the primary prior art reference[317] and (2) for determining the enabling nature of a prior art reference.[318] The rule under the SPLT Guidelines for determining the novelty of generic and species disclosures[319] is also common in the United States, Europe, and Japan.[320]

A unique feature of Rule 14 is that it defines the time at which a prior art reference is evaluated as the time when the prior art has become available to the public.[321] United States, European, and Japanese patent statutes do not clarify the particular point of timing to evaluate a prior art reference.[322] This rule reflects the EPO practice in which the examiner reads a prior art reference as one skilled in the art would on the effective date of the document (e.g., the effective date of a previously published document would be its publication date).[323]

4. Inventive Step

The SPLT Article 12(3) requires an inventive step which exists in a claimed invention if the differences and similarities between the claimed invention and the prior art as a whole would not have been obvious to a person skilled in the art.[324] This definition of the inventive step mirrors the European definition of inventive ***299** step.[325] However, the substance of the SPLT's inventive step is the American doctrine of non-obviousness because the method of assessing inventive step in Rule

15[326] and the corresponding Guidelines[327] fairly parallels the method of assessing non-obviousness under U.S. case law. Rule 15(1) codifies the rule that permits a combination of multiple prior art references for rejecting claims for lack of non-obviousness.[328] Rule 15(4) also reflects U.S. practice[329] because it codifies the Federal Circuit's test of suggestion or motivation to combine more than one prior art reference.[330] The Guidelines further explain the test by listing factors that U.S. courts take into account in finding a motivation.[331]

Moreover, the SPLT Guidelines for the methodology of assessing inventive step[332] codifies the Graham inquiry[333] and secondary considerations.[334] In contrast, neither the SPLT nor its regulations expressly endorse the practice uniformly adopted by EPC member states, the problem-solution approach, used to assess inventive step.[335] Since the SPLT's European definition of inventive step also uses the term "obviousness" and the definition will be applied in the manner used by the USPTO and U.S. Courts, the SPLT's inventive step/non-obviousness standard is more American than European.

*300 III. Review of the Impact on U.S. Practice Resulting from the Most Recent SPLT Draft and a Proposal to Change the SPLT in Respect of the Best Practice

The review of the current draft of the SPLT in Part II of this paper reveals that it reflects a fair bargain between the United States and Europe/Japan. The U.S., European, and Japanese patent statutes have already been harmonized with respect to many issues. However, differences remain where the language of the provisions for these issues is based on the European Patent Convention. The SPLT modified the European approach to reflect USPTO practice and U.S. case law. Nevertheless, many believe that adoption of the SPLT will bring a significant change in U.S. practice, particularly regarding the adoption of the first-to-file principle under SPLT Article 8. This belief is based on the view that the U.S. first-to-invent system is vastly different from the first-to-file protocol followed by the rest of the world.

However, is the U.S. first-to-invent system in fact very different from the first-to-file system? Will adoption of the most recent draft of the SPLT bring a major change in U.S. practice? In an attempt to answer these questions, this part of the paper examines the impact of the SPLT on current U.S. practice and analyzes if changes brought by the SPLT will benefit U.S. patent applicants and patent owners. The analysis particularly focuses on the interests of small inventors, namely individual inventors and public-funded research institutions such as universities, whose resources for patent applications are limited. Further, some provisions in the most recent SPLT draft are simply European/Japanese because the majority of Paris Union member states follow the European tradition or are merely a compromise between the United States and the European/Japanese practices and, thus, do not necessarily reflect the best practice. Accordingly, this section also criticizes these provisions with respect to underlying policies and proposes changes.

A. Novelty and Priority

1. Published Prior Art

i) First-To-File

Adoption of the most recent draft SPLT Article 8(1) will require the United States to abandon the first-to-invent principle in favor of awarding the patent to the first-to-file. Some believe this shift in the priority principle will bring a drastic change in the U.S. patent system.[336] However, while some hold this belief,[337] the change brought by adoption of the SPLT will in fact be marginal. First, the majority ***301** of U.S. patent applicants and owners are interested in obtaining patents outside the United States and, thus, have already adopted the practice of first-to-file.[338] Unless inventors follow the first-to-file principle, their rights for patent or priority in major markets such as Europe and Japan are lost for lack of novelty.

Further, the examination practice of the USPTO also follows the first-to-file system, with a limited exception for the first-to-invent. The USPTO determines the novelty and non-obviousness under § 102(a) as of the filing date for the majority of applications because the filing date of a U.S. patent application with an adequate disclosure of the invention is presumed to be the invention date.[339] Only if an examiner finds a reference published earlier than the filing date is an inventor given a chance to eliminate the prior art reference by showing an earlier invention, unless the subject matter is claimed in a U.S. patent.[340] However, unsophisticated inventors often fail to take advantage of this practice because they do not keep records of activities resulting in the invention and cannot show an earlier invention with corroborative evidence.[341] It follows then that if § 102(a) is restated reflecting this current USPTO practice, the language should read that "an invention was known or used

by others . . . before the application (not invention as currently provided) except that an inventor can establish an invention date prior to the disclosure."[342]

The view that the United States has a first-to file system is also supported by the fact that § 102 (b) functions like the priority and novelty provisions under the first-to-file system.[343] This is because the USPTO determines the patentability (i.e., novelty and non-obviousness) of inventions based upon the filing date, and certain activities that occur more than one-year prior to the filing date will serve as an absolute bar to patentability.[344] This fundamental rule is common to all first-to-file countries.[345] Since the 1829 Pennock decision, inventions have been excluded ***302** from the definition of first inventions if they were publicly used or on sale prior to the filing date.[346] Introduction of a grace period by the Patent Act of 1839 made it possible for inventors to obtain patents on publicly known inventions as of the filing date only if an application was filed within the grace period.[347] This means that the U.S. patent system awards the majority of patents to inventions that are new and non-obvious as of the filing date with a one-year grace period in which inventors are allowed to exploit their inventions to find commercial value.

The heart of the U.S. first-to-invent system, the priority rule under § 102(g), also primarily follows the first-to-file principle by favoring inventors who file their applications first.[348] This is because any party who is not the first-to-file, a junior party, bears the burden of presenting evidence as to the date of actual reduction to practice or earlier conception.[349] A junior party also bears the ultimate burden of persuasion with respect to all issues of fact for establishing priority.[350] If the junior party filed an application before issuance of a patent to the first-to-file, the burden of persuasion is to prove an earlier invention by a preponderance of the evidence.[351] Once a patent issues to the first-to-file, the junior party must prove an earlier invention by clear and convincing evidence.[352] Further, U.S. case law requires applicants to produce corroborative evidence relating to the complex legal concepts required to show priority.[353] Due to this heavy burden, the first-to-invent but second-to-file often fails to establish priority over the first-to-file but second-to-invent.[354]

In addition to this difficulty of showing an early invention date, the high cost associated with an interference proceeding discourages second-to-file inventors ***303** from taking advantage of the first-to-invent priority rule.[355] As a result, only a very small portion of U.S. applicants, less than 0.1%, engage in a priority contest in an interference proceeding. It follows that, under the current USPTO practice, the impact of eliminating the first-to-invent exception should be minimal.

The first-to-invent system is often viewed as being more favorable to small inventors than the first-to-file system.[356] This assessment, however, is a myth.[357] It is doubtful that many inventors with limited budgets can afford to take advantage of the expensive interference regime.[358] Small inventors believe that the first-to-invent principle favors them in that they can rely on a mere conception of an invention and remove the financial burden of filing an application.[359] However, mere conception is never sufficient to show a date of invention under the current U.S. first-to-file priority rule.[360]

In principle, under the current U.S. priority rule, the priority is granted to the first person who reduces the invention to practice.[361] This principle is supported by the patent policy that encourages not only creation of useful inventions but also disclosure of inventions through reduction of the invention to practice.[362] An inventor can reduce his invention to practice by filing an application with the USPTO[363] or by constructing and testing a prototype.[364] Although small inventors ***304** express their concern over filing costs,[365] constructing and testing a prototype is often even more expensive than filing an application.

The priority rule provides an exception to the first-to-reduce-to-practice principle by allowing inventors to rely on the date of conception.[366] However, unless an inventor reduces the invention to practice, he or she cannot rely on the conception date.[367] Moreover, an inventor must continuously work on the invention to reduce it to practice because an inventor's lack of activity on the invention gives rise to a lack of diligence and prevents the inventor from relying on the date of conception.[368] Even if an inventor reduces the invention to practice, an unreasonable delay in filing an application with the USPTO gives rise to abandonment and prevents an award of priority.[369] Unfortunately, lack of funding seldom justifies a delay caused by lack of diligence or abandonment.[370]

In short, the current United States' first-to-invent priority rule disfavors inventors who stop working on an invention before filing an application with the USPTO. Taking into account the hardships that a first-to-conceive but second-to-reduce to practice inventor encounters under the current priority rule, the belief that the U.S. first-to-invent system favors small inventors is not only false, but it is also misleading. Many unsophisticated inventors may lose a chance to obtain a patent because they are misled by the language "first-to-invent," believing that their early conception of an invention can establish priority under § 102(g).

Even worse, this discrepancy between the current language of § 102(a) and (g) and USPTO practice creates needless complexity in the system, which makes it difficult for both U.S. and non-U.S. patent applicants and patent owners to understand.[371] This discrepancy also gives an excuse to other countries to criticize the United States for following a first-to-invent system, when in practice the United States follows a first-to-file system. Revising § 102(a) to reflect a first-to-file system will bring the statute more in line with USPTO practice and eliminate the complexity. To simplify the patent system and to discourage inventors from relying ***305** only on a mere conception of an invention to establish their right to a patent, it is best to remove the exception of awarding priority to an earlier inventor.

ii) Removal of Geographical Restrictions

An adoption of SPLT Article (1) will require the United States to remove the geographical restrictions that limit the definition of prior art.[372] This change will simplify the USPTO's examination practice and prepare the U.S. patent system for a networked society. The current U.S. system discriminates between written and unwritten information and removes from the prior art unwritten information that is available only in foreign countries.[373] This distinction introduces unnecessary complexity in examination at the USPTO.

It is a common practice for scientific meetings and conferences to publish submitted papers and proceedings through the Internet. This practice has introduced a difficult question as to whether information on the Internet that is not printed out constitutes a printed publication and, if the information qualifies only as known information, whether the information is known in this country. It is very difficult to identify where information on the Internet is known. Obviously, this distinction is outdated with the recent development of a network society.[374]

A legal commentator also argues that the geographical limitation is unconstitutional because the copyright and patent clause[375] prohibits a grant of patents on inventions in the public domain.[376] Taking account of the recent development of network society and technologies, the limitation effectively allows the patenting of such inventions. She also points out other reasons for removing the geographical limitation, including a prevention of US piracy from foreign countries.[377]

Further, it is arguable that the geographical limitation on the prior art may violate the spirit of non-discrimination under TRIPs by conditioning the effect of prior art on the place of invention.[378] Even worse, the discrimination functions ***306** against U.S. inventors because foreign activities do not trigger the grace period, which gives foreign applicants more time to exploit the invention prior to filing for a U.S. patent.[379] Removal of geographical limitations will improve the U.S. system by eliminating examination complexity and discrimination against U.S. inventors.

iii) Meaning of "Public Use"

An adoption of SPLT Article 8(1) will also require the United States to eliminate the secret-commercial-use bar and experimental-use exception under § 102(b).[380] The elimination of these doctrines will make the application of priority and novelty provisions simpler and easier for U.S. applicants and patent owners to understand what types of activities will forfeit their rights to a patent. The novelty rule under the U.S. patent system is complicated and difficult to understand because case law changed the meaning of a public use under § 102(b). While an inventor's public use may not constitute "public use" under the patent statute if the use falls within the experimental-use exception,[381] a secret use may constitute "public use" under the patent statute if the use is for a commercial purpose.[382]

These doctrines, experimental-use exception and secret-commercial-use bar, were introduced to promote the following four policies: (1) avoid detrimental reliance by the public with respect to inventions the public reasonably has come to believe are freely available; (2) encourage early disclosure through a patent application; (3) preserve a reasonable time for the inventor to determine the potential value of the invention; and (4) prevent an inventor from attempting to extend the patent term by adding the period of secret use to the statutory twenty years.[383]

However, these policies can also be well served by adopting the first-to-file system with a grace period and, in turn, these complex doctrines will be unnecessary. A determination of novelty based on the filing date under SPLT Article 8 discourages a disclosure prior to the filing date and gives enough incentive to file early.[384] The third policy is well served by introduction of a one-year grace period ***307** if the current draft SPLT Article 9 is adopted.[385] The fourth policy has marginal value under the modern intellectual property system where trade secrets and patents coexist.[386] Under the first-to-file system, an inventor is given an option to protect the invention as a trade secret while taking the risk that a third party will file first.[387] Since patent owners in other countries enjoy this option, U.S. patent owners would be unfairly disadvantaged unless the same option is

given to them by adopting the first-to-file system.

Elimination of these doctrines will also serve U.S. applicants and patent owners well because these doctrines introduce uncertainty in the validity of U.S. patents. This uncertainty results from a difficult question as to whether an activity prior to the critical date falls within the statutory definition of "public use" or "on sale."[388] In addition, the policy of early application is easily frustrated by the presence of these doctrines because inventors can avoid triggering a grace period by carefully drafting claims to distinguish subject matter on sale, which will effectively extend a grace period.[389]

Moreover, the secret-commercial-use bar and the experimental-use exception mislead U.S. inventors. The secret-commercial-use bar is a judicially developed doctrine.[390] Nothing in the language of § 102(b) suggests that a secret use falls within the definition of "public use" or "on sale" when the use is for a commercial purpose.[391] Although U.S. case law indicates that this bar is applicable only to the act of an inventor, as opposed to an action by a third party,[392] nothing in § 102(b) suggests any discrimination between the inventor's act and the act of another.[393] Thus, U.S. inventors are very likely to be misled into believing that commercial exploitation ***308** of an invention would not prevent them from obtaining a patent as long as the inventions are kept secret. The secret-commercial-use bar is the so-called "secret prior art," which has been extensively criticized because it introduces uncertainty into the validity of U.S. patents.[394]

The experimental-use exception is also a judicially developed doctrine.[395] No language for the doctrine is found in the prior art definition under § 102.[396] This exception is seen as giving inventors enough time to perfect an invention.[397] However, the complexity of conditions necessary to apply the doctrine has in fact created a pitfall for inventors who often forfeit their right to a patent by failing to meet a condition.[398] In short, elimination of these complex judicial doctrines would make the U.S. patent system simpler and more manageable by U.S. inventors and reduce the risk of forfeiture of rights to a patent for inventors who are not familiar with these judicially created doctrines.

iv) Removal of § 102(c) and § 102(d)

An adoption of SPLT Article 8 and revision of § 102(a) and (b) will make § 102 (c) (abandonment) unnecessary because a first-to-file model inherently motivates inventors to file an application with the USPTO as early as possible. Even under the current patent statute, the USPTO seldom cites § 102(c) for rejecting claims because § 102(b) subsumes activities that may give rise to abandonment under § 102(c).[399] Only the following two situations may fall under § 102(c) but not § 102(b): (1) non-commercial secret use of an invention; and (2) public use resulting from an inventor's action giving rise to abandonment during the grace period.[400]

Regarding the first situation, allowing inventors to keep their inventions secret without commercial exploitation would not conflict with the policy of preventing inventors from extending the patent term. Thus, there is no justifiable reason to punish an inventor by eliminating the right to obtain a patent if he or she decides to ***309** wait to file an application and take the risk of an earlier application being filed by a third party. In the second situation, an inventor should have an absolute right to use the grace period to make a decision regarding filing of an application, regardless of whether or not acts by the inventor lead to reliance by a third party as to the inventor's intention to seek a patent.[401] Also, in an exceptional case, a third party that relied on the inventor's act of abandonment is protected by the estoppel doctrine.[402] A removal of § 102(c) makes the U.S. system simpler, and the impact would be marginal.

An adoption of SPLT Article 8(1) will require the United States to eliminate § 102(d). This section aims to encourage foreign applicants who obtain patent protection abroad to promptly file with the USPTO.[403] This goal is already well served by the priority system under the Paris Convention because the Convention requires applicants to file in another country within one-year of the application date of the first filing (priority date) within the Paris Union.[404] Meeting the requirement under the Paris Convention automatically meets the one-year filing requirement under § 102(d).[405] Therefore, since the USPTO seldom cites § 102(d) for rejecting claims, the impact of removing § 102(d) will be minimal.

Additionally, § 102(d) has a serious flaw in that it unfairly discriminates against inventions made outside the United States because it imposes an additional bar to foreign originated inventions. Thus, it is arguable that § 102 (d) may violate the non-discrimination provision in WTO-TRIPS with respect to the place of invention.[406] Not only is § 102(d) unnecessary, but it also provides a source of criticism from U.S. trade partners and should be removed.

2. Unpublished Prior Art: Revision of § 102(e)

i) The Hilmer Doctrine

The adoption of SPLT Article 8(2) will require the United States to revise § 102(e) to make a pending application prior art as of the filing date of the later application (instead of the invention date under the current law). It will also require the United States to eliminate the Hilmer doctrine.[407] The Hilmer doctrine gives ***310** effect to § 102(e) prior art as of the actual U.S. filing date instead of the foreign priority date, despite the fact that 35 U.S.C. § 119 allows a claim of priority for applications originally filed in foreign countries.[408] Revising § 102(e) will have a marginal effect on current U.S. practice. With respect to the change from the invention date to the filing date, as discussed in the context of § 102(a), the USPTO examines the majority of applications under the first-to-file principle.[409] This is also true with respect to the prior art under § 102(e). Applicants can eliminate § 102(e) prior art only if they can establish an earlier invention date.[410]

Elimination of the Hilmer doctrine will better serve U.S. inventors by eliminating the illogical problems resulting from its application.[411] The strongest argument against the Hilmer doctrine is that application of Hilmer results in a double patenting problem through the issuance of multiple patents to obvious inventions,[412]although there are other arguments from the international patent community.[413] The double patenting problem is somewhat remedied by the Deckler decision because the Deckler court applied the interference estoppel doctrine broadly and prevented the applicant from seeking a second priority contest with respect to obvious inventions through an interference proceeding.[414] This expansive use of the estoppel doctrine effectively prevents multiple patents being issued on obvious inventions as long as claims are contested through an interference proceeding. Accordingly, some commentators even view Deckler as essentially overruling Hilmer.[415]

The execution of the SPLT will provide a good opportunity to remove the controversial Hilmer doctrine because there is no justifiable reason to keep the doctrine over criticisms from U.S. trade partners. First, disclosure of patentability on ***311** indistinguishable inventions brings no benefits to the public.[416] Second, the Hilmer court's major concern in using the foreign priority date for a patent-defeating effect was to prevent the expansion of secret prior art.[417] This concern over secret prior art has been significantly remedied by the introduction of an early publication system under the 1999 AIPA because the content of all applications will be automatically published after eighteen-months from the filing date.[418] The risk will be further reduced if the United States adopts the first-to-file principle and eliminates any prior art effect of secret prior inventions.

Finally, the Hilmer doctrine introduced unnecessary complexity in determining the § 102(e) prior art effect of international applications filed under the PCT because the current provision discriminates against applications published in a language other than English.[419] This discrimination can be viewed as violating the non-discrimination provision under TRIPS.[420] To clarify the holding of Deckler and ensure compliance with TRIPS, § 102(e) prior art should be redefined under the first-to-file principle by clearly negating the applicability of the Hilmer doctrine. Such revision will bring only a marginal impact on the current practice because the Hilmer doctrine has been seldom raised in the USPTO and court proceedings since its adoption.[421]

ii) Applicable Scope

Adoption of SPLT Article 8(2) will also require the United States to stop using § 102(e) prior art in non-obviousness determinations because the SPLT requires member states to use § 102(e) prior art in novelty determinations only.[422] Although the impact of such a change may be minor, this restrictive use of § 102(e) prior art is not the best practice when taking into account the policies underlying the double patenting doctrine. It is very likely that WIPO's International Bureau adopted this approach simply because the majority of Paris Union member states have adopted this approach.

The primary policy underlying the double patenting doctrine is to prevent patentees from extending their terms by obtaining multiple patents on the same invention. ***312** [423] However, the SPLT's restrictive use of § 102(e) prior art allows issuance of multiple patents on obvious variations.[424] By filing applications on obvious inventions before the eighteen-month early publication of the early application, inventors can effectively extend the twenty-year patent term up to the eighteen-months.

Further, issuance of multiple patents on obvious inventions also leads to a double jeopardy problem because obvious inventions often qualify as equivalents under the doctrine of equivalents.[425] Because the SPLT rule requires disclosure of the identity of the applicants and inventors only as of the filing date of the later application that is under examination, applicants and patent owners can freely transfer rights for obvious inventions during patent prosecution and after patent issuance. This follows that competitors are exposed to a risk of suit by different patent owners regarding the same subject matter if the subject matter literally infringes a claim of one owner and infringes a claim of another under the doctrine of equivalents. Due to these concerns, the JPO uses a relaxed novelty standard for rejecting claims that are substantially the same as subject

matter disclosed in a pending earlier application under the Japanese Patent Law Article 29 bis.[426]

This additional separate protection for obvious inventions is unnecessary because it is very likely that these variations are protected by equivalents under the SPLT.[427] It follows then that the SPLT guarantees double protection for obvious inventions. Because a disclosure of obvious variations makes only marginal contributions to the state of the art, there is no reasonable justification to keep the restrictive application, especially with the risk of the double jeopardy problem resulting from such application.

B. Grace Period

The most significant benefit the SPLT will bring to U.S. applicants and patent owners is the worldwide adoption of a grace period. The world-wide twelve month grace period, unlike the questionable benefits provided by the current U.S. first-to-invent system, will bring a real and substantial benefit to small inventors.[428] A first-to-file system without a grace period provides "disincentives" for small inventors, particularly universities, public research organizations, and government agencies ***313** to be open and prompt in reporting research results in the scientific literature. The SPLT, with the first-to-file principle and a non-restrictive one-year grace period, will be the most beneficial to small inventors, enabling American researchers to freely engage in joint activities with researchers from other countries.

The last two decades have seen an expansion of patent eligible subject matter,[429] which resulted from participation in patent procurement and enforcement by universities and public research institutions.[430] In addition, the enactment of the Bayh-Dole Act[431] and its equivalents in the United States and other countries has made it necessary for universities and public research institutions to acquire rights in the fruits of their research and has encouraged commercialization through technology transfer.[432] Although technology transfer offices were almost non-existent when the last effort toward patent harmonization started in the early 80's, these offices now play an important role in patent procurement and enforcement.[433] Without a grace period, public research organizations are either denied access to the patent system or must adopt corporate methods of controlling information. Both practices are adverse to innovation in the public interest. This argument applies not only to U.S. universities, but it also applies worldwide.[434]

Under the first-to-file system that all other countries follow, any disclosure forfeits a right to a patent. However, the majority of other countries provides a grace period and excludes pre-filing disclosure of an invention from the prior art in examining the invention.[435] Among those countries providing a grace period, 57% adopted a six-month grace period and 30% adopted a one-year grace period.[436] Of these, 52% provide for a grace period starting from the actual filing date and 45% provide a grace period starting from the priority date under the Paris Convention. ***314** [437] Most countries adopt a disclosure-specific grace period, in which only certain categories of disclosure are qualified to take advantage of a grace period.[438] The most popular disclosure-qualified categories include: (a) experimental use; (b) disclosure by an applicant; (c) disclosure by a third party; (d) abuse of right; (e) display at an international exhibition; and (f) presentation at a scientific meeting.[439]

Even in a country with a disclosure-specific grace period such as Japan, a significant number of applicants take advantage of the grace period.[440] A survey of Japanese applicants revealed a willingness to expand the grace period to harmonize with the U.S. grace period and revealed criticism against the limited scope of activities entitled to the grace period under the European Patent Convention.[441]

In contrast, European applicants are reluctant to provide a grace period covering a more general scope of activities.[442] Industry experts emphasized the disadvantages of a grace period in introducing legal uncertainty.[443] Since most countries have a disclosure-specific grace period, the novelty of an invention depends on a determination of whether a pre-filing disclosure qualifies under one of the listed categories. This results in significant uncertainty in patent validity. Further, when a pre-filing second disclosure occurs, the restrictive system requires determination of whether the second disclosure originates from an earlier pre-filing disclosure that qualified under the listed categories. This increases administrative costs and may result in a significant examination delay.[444] However, those who advocate for the adoption of a grace period point to the change in the socio-economic environment resulting from the participation of universities and research organizations and emphasize the necessity to develop a system to encourage early academic publication while maintaining a right to a patent.[445]

Since the enactment of the Bayh-Dole Act,[446] participation by universities in the patent system has become vital to science and technology innovation in the United States because university-based research can have an important effect on ***315** markets and on the direction of public support for government-sponsored research. Without patent backing, potential

investors have little incentive to invest in inventions that may challenge existing markets or which, once developed, are merely duplicated by others who were unwilling to take the risk of developing the invention into a commercial product. However, without a worldwide uniform grace period, the patent rights of U.S. research organizations are lost outside the United States, and, therefore, these organizations also may decline to take advantage of the U.S. grace period because potential licensees often prefer to receive a worldwide license.[447] To maintain active participation by universities and public research organizations, the United States should insist on a generous grace period with the term of twelve months, instead of the six months.

Article 9 shows a strong American influence and brings more changes to European and Japanese patent practices than to U.S. practice. 35 U.S.C. is in line with SPLT Article 9 in limiting the applicable scope of a grace period to disclosures by the inventor.[448] The SPLT also provides a grace period for disclosures by a third party, including a patent office, who obtains information from the inventor and by a patent office that derives information either directly or indirectly from the inventor's own act.[449] The term "others" in 35 U.S.C. § 102(a) can be interpreted to cover these disclosures.

However, the SPLT still brings some significant changes to the current grace period under § 102(b).[450] Among these changes, the most significant is the effect on the prior art of third party activities during the grace period. Under the current first-to-invent principle, a third party's disclosure constitutes prior art under § 102(a), but the inventor can eliminate the disclosure as prior art by establishing an earlier invention date.[451] Under the SPLT grace period, an inventor can no longer establish an early invention date because the SPLT follows the first-to-file principle. Thus, 35 U.S.C. § 102 should be revised accordingly.

Under the revised § 102, which follows SPLT Articles 8 and 9, a third party's disclosure before the inventor files an application will jeopardize the novelty of an invention, even if the inventor can remove his own disclosure through the operation of the grace period.[452] If the party files earlier than the inventor's disclosure, the third party is entitled to a patent unless there is some other reason for unpatentability. In contrast, if the third party files an application later than the inventor's disclosure, ***316** but earlier than the inventor's application date, neither the third party nor the inventor can obtain a patent.[453] The impact of this change is marginal when an inventor is not the first-to-file because of the difficulties in establishing an earlier invention date.[454] When the inventor is the first-to-file, but a third party discloses the invention prior to the inventor's filing date, the inventor will still be able to continue to use the invention because the third party is not the first to file and, thus, will not be entitled to the patent.[455]

Further, adoption of SPLT requires the United States to expand the scope of the first-to-invent defense that is currently limited to methods of doing business.[456] The conditions for giving rise to the defense should be revised to cover a third party who used the invention for the business purpose or started preparation for such use during the period between the date of the disclosure by the applicant and the filing date regardless of the timing to actually reduce the invention to practice.[457]

Adoption of Article 9 will bring a tremendous benefit to small inventors. In the past, small inventors (particularly public research institutions) were unable to take full advantage of the grace period under the United States patent system because industry-licensees prefer to obtain international licenses. If rights outside the United States, particularly in significant markets like Europe and Japan, are lost due to a pre-filing disclosure, the value of their inventions are substantially diminished with respect to these prospective licensees.[458] Moreover, due to limited budget and resources in making filing decisions, small inventors need to assess the commercial value of their inventions by communicating with prospective licensees. However, the lack of a grace period in other countries makes this communication difficult. Accordingly, adoption of Article 9 will enable small inventors not only to take full advantage of the grace period under the United States patent system, but also to preserve their patent rights in Europe and Japan. Obviously, the uncertainty about which European countries are concerned has not been a serious issue in the United States and other countries that have some form of grace period.[459]

*317 C. Description Requirement

1. Enablement and Written Description

Adoption of the SPLT will bring only minor changes to the U.S. description requirement, except for the removal of the best mode requirement, because SPLT Articles 10 and 11 modified the language of the EPC to reflect U.S. practice.[460] However, the most recent SPLT draft is confusing and should be revised to address the distinction between the enablement and written description requirements.

The draft treaty requires disclosure of the enablement in the specification[461] and in the written description as part of the claims.[462] Both requirements address the same policy considerations regarding the relationship between the scope of claims and the scope of disclosure in the specification and, thus, seem redundant.[463] Further, by providing the enabling requirement as part of a written description requirement, the most recent SPLT draft ignored the policy consideration regarding the entitlement of priority. Consideration of entitlement of priority is traditionally addressed by the written description requirement for patentability and is a distinct policy consideration from the enablement requirement. In light of this distinct underlying policy, the SPLT should provide the written description requirement as part of the requirements for amendments.[464]

Over the years, the U.S. courts developed case law to distinguish the enablement requirement from the written description requirement in terms of the different policy considerations underlying the two requirements.[465] The policy underlying the enablement requirement is to ensure that inventors provide sufficient information about the claimed invention to enable a skilled person to make use of the invention without undue experimentation.[466] The enablement requirement is potentially at issue for every claim in every patent because every patent must make the invention sufficiently available to the public as the bargain for the exclusive ***318** right.[467] In contrast, the policy underlying the written description requirement is to guard against the inventor overreaching by insisting that the invention be recounted in such detail that a determination can be made as to whether or not future claims are encompassed within the original creation.[468] The written description is at issue only in limited circumstances where the entitlement of priority is at issue regarding amendment, continuation or divisional applications, or an interference proceeding.[469]

Obviously the confusion under the SPLT between the enablement and written description requirements is exported from the United States because it was the U.S. delegate that insisted on including Article 11(3)(b).[470] In the United States, this confusion originates from the difficulty of statutory interpretation because both requirements rely on the same sentence in the first paragraph of § 112.[471] Ignoring its own precedent to distinguish the two requirements with respect to their distinct underlying policies,[472] in Regent of The University of California v. Ely Lilly, the U.S Court of Appeals for the Federal Circuit expanded the use of the written description requirement to original claims that have nothing to do with the entitlement of priority.[473] Some Federal Circuit judges criticize this expansion as making the written description and enablement requirements indistinguishable,[474] even though the judges who decided the Ely Lilly case tried to distinguish the expanded written description from the enablement requirement.[475] An academic commentator argues that the distinction between the written description requirement and the enablement requirement is artificial and that the former should be subsumed in the latter as done by European countries.[476] Thus, if the expanded written description is viewed as nothing more than an additional requirement for the enablement requirement, ***319** while ignoring the distinct underlying policies and expanding the applicability to original claims, it is not necessary for the SPTL to provide a separate subsection for the requirement.

Moreover, adding language to Article 11 can be viewed as endorsing the current European practice of relying on the claim description requirement, rather than the scope of disclosure, for rejecting overly broad claims.[477] This doctrine parallels the undue breadth doctrine under U.S. case law.[478] Yet, U.S. courts apply the undue breadth doctrine for failure to meet the description requirement for the specification under § 112, P 1 instead of the description requirement for claims under § 112, P 2. Japan also follows the U.S. model and rejects overly broad claims under the description requirement for the specification.[479]

The European practice of relying on the claim description requirement developed because EPO case law does not allow a rejection of overly broad claims, if the disclosure describes at least one method of carrying out the invention under the description requirement for the specification, Article 83.[480] To address concerns regarding overly broad claims, the EPO developed two lines of case law to reject such claims under Article 83. One line adopted the U.S. concept of undue experimentation[481] and another line adopted a new concept of a claim description requirement that is fully supported by the disclosure, Article 84.[482] These two concepts are redundant in that they address the same concern.[483]

As the current U.S. case law indicates, redundant requirements introduce unnecessary complexity into the patent system.[484] Thus, the SPLT should remove ***320** one of these concepts so that patent offices and courts will be able to concentrate their efforts on the refinement of the enablement requirement.[485] Between the two concepts, the SPLT should remove the new concept associated with the claim description requirements under Article 11. This is because EPC Article 84, which corresponds to SPLT Article 11, is viewed as a formality requirement and is excluded as a reason for revocation.[486] The problem of overly broad claims is a substantive law issue and the necessity of revoking and invalidating overly broad claims is clear from both U.S. and European experiences.[487] In short, SPLT Article 11(b) should be removed[488] and Article (1)(a)

must apply to circumstances where the claim definiteness requirement applies under 35 U.S.C § 112 P 2.[489]

In contrast, if the written description requirement is viewed in the context of the entitlement of priority, it is distinct from the enablement requirement and parallels the provisions in the EPC and JPL for the entitlement of priority, namely the benefit of the original filing date or priority date for amended claims,[490] the benefit of an earlier application for a claim of priority under the Paris Convention,[491] and the benefit of an earlier application for divisional applications.[492] These provisions govern the entitlement of priority resulting from additional new matter to claims as well as to specifications. In contrast, U.S. practice applies the § 112 written description requirement only to the priority entitlement resulting from an addition of new matter to claims.[493] The priority entitlement resulting from an addition of new ***321** matter to specifications is dealt with by a different provision, 35 U.S.C. § 132.[494] The only provision in the SPLT that relates to a requirement for the entitlement of priority is Article 7(3),[495] which corresponds to EPC Article 123 and JPL Article 17bis. If SPLT Article 7(3) is interpreted as parallel to the EPC and JPL, Article 7(3) is applicable to both amendments to claims and the specification, in contrast with U.S. practice. Thus, if it is necessary in the SPLT draft to reflect U.S. case law regarding the written description requirement, the language of Article 11(3) should be included in Article 7(3).

2. Best Mode

The impact of removing the best mode requirement is minimal because there is no compelling reason to maintain the requirement. Such removal even benefits U.S. inventors by preventing unnecessary delay in preparing applications and reducing the risk of invalidity.

The best mode requirement aims to prevent inventors from concealing preferred embodiments.[496] Although the requirement functions to ensure a fair game between applicants and the patent office,[497] the public does not necessarily benefit from the disclosure. Under the current case law, the best mode is determined subjectively by the inventor's state of mind as of the filing date;[498] thus, the mode believed to be the best mode might be the worst mode if examined objectively in the view of one skilled in the art. Since there is no requirement to update the best mode once an application is filed,[499] any better mode developed after the application would not be disclosed. Inventors are allowed to bury the best mode with other modes[500] or employers can conceal information on the best mode from inventors so that they can keep secret the best mode developed by others.[501] The goal of best mode, disclosing the best preferred embodiment, is well served in other countries without a separate requirement because applicants have enough incentive to ***322** disclose the best mode to ensure that such mode is included in the literal claim scope and is protected.[502]

In addition to the weak justification, the best-mode requirement has many serious flaws. First, it introduces a significant delay in filing an application because inventors must update the best mode whenever better modes are developed prior to the filing.[503] This delay may prove fatal under a first-to-file system. Second, the best mode requirement introduces uncertainty in the validity of patents because the USPTO cannot examine the requirement during prosecution. Third, it is impossible for a competitor to assess the validity of a patent with respect to the best mode requirement without the discovery procedure in litigation.[504] Case law is unclear concerning the relationship between the preferred mode and the claimed subject matter.[505]

The application of the best mode requirement might also create a problem in claiming priority under the Paris Convention because a foreign applicant who intends to pursue patent rights in the U.S. must, before filing a priority application in her country, predict what must be disclosed to comply with the best mode requirement.[506] Thus, a removal of the best mode requirement will simplify the U.S. patent system and remove uncertainty in the validity of U.S. patents.

D. Claim Interpretation and the Doctrine of Equivalents

1. Fundamental Rules

Adoption of the SPLT will not result in any substantial change in the current U.S. practice of claim interpretation because SPLT Article 11(4) and accompanying Regulations simply restate U.S. case law.[507] The rules for claim interpretation fairly reflect the best rule adopted by all three jurisdictions. Although the SPLT expressly excludes issues relating to infringement proceedings,[508] the most recent draft added a new provision to guarantee protection beyond the language of a claim ***323** to include equivalents within the scope of patent protection.[509] This provision for protection by equivalents was originally included in the SPLT draft but was removed from the draft presented at the sixth session to limit the scope of negotiations.[510] The SPC delegations have not reached agreement on whether the SPLT will cover issues relating to the scope of protection

conferred by patents.

The United States has not made its position clear regarding whether the SPLT should cover issues relating to patent scope. Nevertheless, the USPTO sought public comments on these issues, assuming the issues will be included in future negotiations.[511] Particularly, the USPTO identified two different approaches used in drafting claims to define the subject matter inventors regard as their invention, the peripheral claim drafting approach and the central claim approach.[512]

The true essence of the peripheral claim drafting approach requires courts to determine the patent scope solely by relying on the language of the claims and prohibits any expansion of protection beyond the scope defined by the claim language. The role of the specification and other documents are limited in interpreting claims. The United States system is considered to be a paradigm for the peripheral claiming approach.[513]

In contrast, the true essence of the central claiming approach gives little significance to the language of the claims and allows courts to freely interpret the claim scope by taking into account the specification, other parts of the patent document, and the general knowledge of one skilled in the art. The claim drafting practice in pre-1981 Germany was a paradigm for the central claiming approach.[514] Under a three-part theory, German courts viewed claims only as a starting point and freely expanded patent protection on the basis of a general inventive idea.[515]

***324** However, U.S. courts allow an application of the doctrine of equivalents and extend protection beyond the literal meaning of the claims.[516] Thus, the United States does not strictly follow the peripheral claiming approach if one takes into account the doctrine of equivalents. True paradigms of the peripheral claiming approach were Japan, prior to a 1998 Japanese Supreme Court Decision,[517] and the United Kingdom, prior to joining the EPC. Neither system permitted an application of the doctrine of equivalents to find infringement. However, even under these systems, courts developed doctrines to expansively interpret the language of claims to maintain equity between patentees and accused infringers.[518] Although the U.K. and Japanese courts developed the doctrines under the scheme of literal infringement, the effect of the doctrines is the same as the doctrine of equivalents.

Therefore, whether a patent system follows the peripheral claiming approach or the central claiming approach is irrelevant. The more important issue is the extent of protection provided by all infringement doctrines in a particular system. Regardless of the classification of doctrines that expand the protection beyond the literal meaning of the claims, it is important to harmonize the extent of protection in different countries, particularly in major markets for U.S. patent owners.

Even if the SPLT limits the scope of negotiations to issues relating to patent granting procedures, it is necessary to address issues relating to the scope of patent protection because such issues are intertwined with claim-drafting techniques and prosecution strategies. If no expansion beyond the literal scope is allowed, applicants may want to claim all possible variations that competitors may adopt and maintain a divisional or continuation application pending throughout the patent term in order to cover competitor embodiments within the literal scope by amending claims. Drafters of the EPC were also keenly aware of this necessity and included EPC rules addressing the scope conferred by a European patent grant; although, the scope of the EPC is limited to substantive patent law issues for a granting procedure like the SPLT.[519]

The most recent draft properly reintroduced a provision for protection by equivalents because the availability of such protection affects the literal scope of claims the patent system should protect for accomplishing patent policy. For example, in an unpredictable art such as biotechnology, if protection beyond the literal scope is available, applicants can draft specific and narrow claims to cover only embodiments tested and disclosed in the specification, so as to avoid a rejection for lack of enablement. Courts can find infringement on variations of such ***325** claims under the doctrine of equivalents or any other doctrine to provide proper protection. However, if protection beyond the literal scope is not available at all or is very limited, applicants should be allowed to claim a broad scope covering possible variations even if these variations have not been tested. Otherwise, the policy for rewarding inventors in proportion to the contribution to the public through disclosure of the invention[520] is undermined. Inventions in unpredictable arts constantly receive lesser protection if a strict enablement requirement is imposed and if no protection is given beyond the literal claim scope; although, many such inventions are pioneer inventions, which contribute greatly to the state of the art. Thus, to give proper protection to inventions in the unpredictable arts, the SPLT properly provides general protection beyond the literal scope in light of the enablement requirement and other patentability conditions.

The SPLT also introduced for the first time a new provision endorsing the practice of using statements made during prosecution to restrict the scope of protection.[521] This practice is known to the U.S. patent community as prosecution history

estoppel.[522] However, excessive use against the patentee of communications made with the patent office during prosecution to limit the language of the claims and the scope may undermine well-established practices under a first-to-file model. The new provision endorsing prosecution history estoppel may encourage excessive use and, thus, should also include a statement that prohibits doctrine abuse.

A first-to-file priority rule necessarily urges applicants to rush to file an application with the patent office as soon as an invention is complete.[523] Therefore, the system presumes applicants will investigate the prior art and commercial value of the invention after filing an application and perfect the claims when a request for examination is filed.[524] A significant number of applications are withdrawn from prosecution because they fail to file a request for examination during the statutory period.[525] Further, many applications were originally prepared by inventors and in-house patent prosecution specialists, and the claims are later refined by patent attorneys ***326** when a request for examination is filed.[526] A first-to-file system presumes imperfect claims in the original application and, thus, guarantees applicants the right to amend claims without any disadvantage even if the original claims are imperfect. This practice makes it possible to disclose inventions early while limiting prosecution cost and administrative costs at patent offices.[527] This practice also helps small inventors by enabling them to file an application by themselves, thereby reducing the costs of patent procurement.

The excessive use against the patentee of communications made during the prosecution to limit the scope of protection, such as the new rule of prosecution history estoppel adopted by the Federal Circuit en banc in the Festo decision, undermines the practice of other countries following the first-to-file priority rule.[528] Under Festo, any amendment narrowing the literal scope gives rise to a presumption of an estoppel bar and completely prevents a claim of the doctrine of equivalents.[529] The Supreme Court modified this new rule and gave patentees an opportunity for rebuttal.[530] However, patentees still bear the burden to overcome the presumption by showing that the particular equivalent at issue is not reasonably viewed as surrendered during the prosecution.[531] When an amendment is voluntarily made, a reason for amendment is often unclear, making it difficult for a patentee to show a circumstance for overcoming the presumption unless the equivalent claimed by the patentee was not unforeseeable at the time of application.[532] This practice discourages acceptance of amendments proposed by a patent office. It also encourages narrow and specific claim drafting and multiple applications to avoid the presumption, which will significantly increase the administrative burden at patent offices and prosecution costs for applicants.[533] This practice also requires small inventors to file an application with perfect claims, making it difficult for them to file applications themselves. To avoid these consequences, it is important ***327** that the SPLT include a statement prohibiting excessive use of prosecution history estoppel, which may interfere with a patent applicants' right of amendment.

2. Special Rules

In contrast to the fundamental rules, claim interpretation rules for special types of claims are significantly different from the current U.S. practice.[534] In light of underlying policies, most of these SPLT rules do not reflect the best practice but simply adopted the European/Japanese rules, which are adopted by a majority of Paris Union members.

i) Mean-Plus-Function Claims

Rule 12(4)(a) and (b) provide a rule for interpreting means-plus-function claims, and adoption of the rule will require the United States to repeal § 112, P 6.[535] This repeal will serve U.S. patent applicants and patent owners well by eliminating the confusion associated with a distinction in interpretation between means-plus-function claims and other regular claims required by the special rule set forth in § 112, P 6.[536] U.S. courts interpret § 112, P 6 to apply only to means or step-plus function claims and require a determination as to whether an element is in means or step-plus-function format.[537] However, significant confusion results from the determination because it is often unclear whether the element was drafted in such a format.[538] This is particularly true in step-plus-function claims.[539]

The special claim interpretation rule in § 112, P 6 is not necessary if the claim definiteness requirement is properly applied to indefinite claims in means-plus-function format.[540] U.S. courts often emphasize the unclear literal scope or overly broad scope of means-plus-function claims.[541] The language of § 112, P 6 was introduced to remedy this concern. The literal scope may be unclear in undeveloped areas of technology where knowledge in the field is scarce and where one skilled in ***328** the art would not know the scope.[542] If this is the case, a patent office should reject the claim for lack of definiteness by relying on § 112, P 2. At the same time, in a fully mature technological field, one skilled in the art can ascertain both equivalents that perform the recited function and the functional limitations. If the subject matter is in a well-established technological area, there is no reason to discriminate between means-plus-function claims and regular claims. Thus, without the special rule under § 112, P 6, the scope is clear. Other countries, including Japan and EPC countries, have adopted this reasoning;

therefore, Japanese and European applicants are allowed to use means-plus-function claims only if one skilled in the art reasonably would understand what structures are included to perform the recited function.[543]

In contrast, some U.S. means-plus-function claims are indefinite because the special rule under § 112, P 6 prevents unclear and indefinite claims from being rejected under § 112, P 2. Section 112, P 6 makes clear that the functional term in a means-plus-function claim covers at least one embodiment in the specification; thus, the USPTO is unable to reject means-plus-function claims for lack of definiteness even if what constitutes equivalents is unclear to one skilled in the art.

In short, the rule provided in Rule 12(4)(a) and (b), widely used in other countries, is better than the special rule under § 112,P 6. U.S. judges struggle to handle means-plus-function claims and are required to do so under § 112, P 6 of the statute.[544] A repeal of § 112, P 6 will reduce the administrative burden at the USTPO and improve the certainty of the literal scope of means-plus-function claims.

ii) Product-By-Process Claims

Rule 12(4)(c) provides a claim interpretation rule for product-by-process claims.[545] Although this rule is in line with the claim interpretation principles adopted by the USPTO in examining product-by-process claims as a product claim, U.S. case law is unclear as to whether courts interpret product-by-process claims in the same way as the USPTO. This is because of a conflict between two Federal ***329** Circuit panel decisions, Scripps[546] and Atlantic Thermoplastic,[547] which concern the scope of product-by-process claims.

Adoption of the SPLT will require the United States to follow the Scripps claim interpretation rule and extend patent protection to any product that has the characteristics of the product resulting from the process recited in a product-by-process claim. This expansive claim interpretation rule will encourage the use of product-by-process claims. However, the use of product-by-process claims should be discouraged because such claims have serious problems with the definitional and notice function of claims; furthermore, the U.S. Supreme Court has emphasized the significance of these claim functions.[548] Accordingly, the SPLT should prohibit the use of product-by-process claims or include a rule that product-by-process claims should be interpreted to cover only the product resulting from the recited process.

Product-by-process claims cannot satisfactorily define the subject matter, thereby posing a serious problem for patent offices when examining such claims. These types of claims are difficult or sometimes even impossible to examine because they lack a description of structure. Since patent offices do not have facilities to conduct an experiment and manufacture the product, patent offices have no basis to examine the product in terms of its physical characteristics. Recognizing this problem, U.S. courts introduced a lesser burden for the USPTO to prove prima-facie obviousness.[549] The USPTO can meet the burden if it cites a product that reasonably appears to be either identical to or only slightly different from a product recited in a product-by-process claim.[550]

Product-by-process claims have little value to applicants. They are difficult to issue because such claims are more likely to be rejected on grounds of anticipation and obviousness. Furthermore, the claims have more difficulty meeting the disclosure requirements than true product claims, which are defined by physical characteristics. First, a product-by-process claim must meet the same standard of novelty and non-obviousness applicable to a true product claim. Such novelty and non-obviousness should not depend on the method by which the product is made.[551] Novelty and non-obviousness are difficult to argue in a product-by-process claim because an applicant must distinguish the physical characteristics of ***330** the recited product from the prior art.[552] However, a true product-by-process claim does not recite any physical characteristics.

A product-by-process claim must also meet the same description requirement standard applicable to a true product claim. It is very likely that product-by-process claims will fail to meet the enablement requirement under SPLT Article 10[553] if they are interpreted according to Rule 12(4)(c), and protection is extended to cover any product resulting from the process recited in the claim. This broad coverage indicates that a product-by-process claim is considered a de facto genus claim of species, i.e. these claims are directed to products resulting from different processes. Under recent U.S. case law, on which SPLT Article 10 is based, a product-by-process claim arguably fails enablement, particularly if the product relates to a highly unpredictable technology.[554]

It is also very likely that product-by-process claims will fail to meet the written description requirement under Article 11.[555] Recent U.S. case law has made it very difficult to overcome a rejection under the written description requirement if the structure or physical characteristics are unknown and not disclosed in the specification. In the Ely Lilly case, the Federal

Circuit required the patentee to disclose a precise definition of a DNA sequence if the patentee wanted to protect the sequence.[556] A description of a method of producing the DNA sequence was considered an insufficient description.[557] Unless the specification discloses physical characteristics of the product, a true product-by-process claim very likely violates the written description requirement under SPLT Article 11(3)(b) for failure to disclose precise physical characteristics.[558]

Despite the higher hurdle to obtain patents, U.S. applicants prefer to use product-by-process claims because they believe that U.S. courts follow the rule of extending protection to products not resulting from the process recited in the claim. This rule is adopted in the most recent SPLT draft.[559] Otherwise, product-by- ***331** process claims would serve no purpose because the coverage of a patent on a process claim must extend to a product resulting from the process.[560]

However, it is unclear whether U.S. courts follow the rule adopted in the most recent SPLT draft because of the conflicting views adopted by two panel decisions of the Federal Circuit relating to the literal scope of product-by process claims. The Scripps court adopted the same view as SPLT Rule 12(4)(c) and held that a product-by-process claim should not be limited to products made by the process recited in the product-by-process claims.[561] The court nevertheless remanded the case for infringement examination under the reverse doctrine of equivalents. In contrast, the Atlantic Thermoplastics court reviewed the Supreme Court cases and held that product-by-process claims extend only to the end product made by the process recited in the product-by-process claims.[562] This claim interpretation, which views product-by-process claims as a process claim, obviously conflicts with the rule in the SPLT. The majority of U.S. lower court decisions have traditionally adopted the view of Atlantic Thermoplastic.[563] However, these conflicting panel decisions introduced serious confusion into claim interpretation of product-by-process claims.[564]

A review of the two Federal Circuit panel decisions reveals several problems that may result from the expansive claim interpretation rule in the SPLT. In a dissenting opinion, from the denial of a rehearing of Atlantic Thermoplastic en banc, Judge Newman, author of the Scripps opinion, emphasized the difference between the claims in Scripps and the claims in Atlantic Thermoplastic.[565] She viewed the Scripps product as being a true product-by-process claim that directs to a new and non-obvious product independent from the process recited in the claim; whereas, she viewed the Atlantic Thermoplastic product as being new and non-obvious only with respect to the process of making the product.

However, contrary to Judge Newman's belief, the Scripps product is not completely new and non-obvious. Scientists had invented a process of concentrating human factor VIII:C in plasma before the Scripps invention was made.[566] It is ***332** also arguable that Scripps merely invented a new less expensive process, rather than a completely new product; thus, the patentability of the Scripps product depended on the process of making the product.[567] The Scripps human factor is distinguishable from the old concentrated human factor only concerning purity and activity, but such distinguishable characteristics were not recited in the claim because Scripps used a product-by-process claim. In short, Judge Newman's distinction is not valid.

If Judge Newman's view is correct, the Scripps court adopted exactly the same approach as in the SPLT Rule. Remanding the case to the district court, the court suggested applying the reverse doctrine of equivalents at the trial. The doctrine prevents a product-by-process claim from covering a product that resulted from a different process if such product had characteristics that were substantially different from the product resulting from the process recited in the claim.[568] This practice presents a serious problem for the public because the public does not know whether a product resulting from a different process violates a product-by-process claim unless the public uses the patented process and then compares the new and old products. In short, a product-by-process claim has a serious flaw with respect to the notice function.

In addition, many product-by-process claims are adopted only for convenience and very little justification remains for allowing inventors to use product-by-process claims. In particular, the U.S. Supreme Court established the all-elements rule by holding that each element in a patent claim is deemed material to defining the scope of the patented invention, forbidding lower courts from using the doctrine of equivalents to effectively eliminate any element in its entirely.[569] This rule should also apply to claim interpretation.[570] The expansive claim interpretation rule in the SPLT clearly conflicts with this all-elements rule by ignoring process limitations recited in the claim.

In short, product-by-process claims only introduce confusion in determining patentability and validity, while giving the same protection as process claims. Product-by-process claims fail to accomplish their public notice function. Such claims have little value to applicants and patent offices. Thus, the current Rule 12(4)(c) should be replaced with a clear prohibition of such claims or alternatively provide a restrictive claim interpretation rule to cover only products resulting from the process recited in the claim.

***333** 3. Use-of-Product Claims

Rule 12(4)(d) provides a claim interpretation rule for a claim directed to use-of-product.[571] In principle, a product claim covers the product recited in the claim regardless of the use.[572] However, Rule 12(4)(d) provides an exception to this rule when a product claim recites a use limitation. In those circumstances the claim should be construed to cover the product only for the recited use. In other words, Rule 12(4)(d) requires patent offices to recognize functional features in a product claim as elements to distinguish the prior art.

This practice makes it possible for patent applicants to obtain a patent on a claim that directs to a new use of an old product. Because U.S. current practice recognizes an inherent but unknown use of an old product and rejects a new use claim as being anticipated by the old product, adoption of the SPLT will require the United States to change the practice of interpreting a limitation of use and find patentable novel uses of product claims.[573] However, the U.S. practice is better than the SPLT practice, and Rule 12(4)(d) should be removed.

Use-of-product claims undermine the policy of limiting a patent term because such claims enable patent applicants to obtain separate patents on the same product. Pioneer drug manufacturers may try to patent second and further uses of a patented product to extend the patent term of a product.[574] Even if a use-of-product claim is construed restrictively to cover a product only for the recited use, such a claim interpretation rule introduces serious confusion with the literal scope because suppliers of an old product may be subjected to liability for indirect infringement once a patent is granted for a new use, even though there is no way of knowing how purchasers will ultimately use the product.[575] Patentees also encounter difficulties in enforcing a use-of-product claim because it is difficult to determine how the product is used.[576] Although patentees can rely on indirect infringement doctrines, competitors can readily avoid liability by taking measures to prohibit purchasers from using the product for the patented use.[577] Further, use-of-product claims introduce unnecessary complexity in the patent system with new medical usage of a ***334** product.[578] Due to these concerns, U.S. courts reject use-of-product claims for anticipation and obviousness and only allow a process claim to cover the use.[579]

However, Rule 12(4)(d) might not be necessary because use-of-product claims would not survive the novelty determination under the SPLT. According to guidelines under Rule 14, a claim that is directed to a new use of an old product cannot distinguish the old product if a patent office introduces evidence to show the new use is inherent in the old product disclosed in a primary prior art reference.[580] Such claims survive a determination of novelty that focuses on the technical effect under the EPC and other countries that follow the European approach because the technical effect underlying the use recited in the claim is viewed as a technical feature that distinguishes the old product in which the new use was inherent but was not made available to the public.[581] However, the SPLT's novelty assessment does not mention a technical effect and more closely parallels the U.S. approach that focuses on physical characteristics when examining a product claim.[582] This means that Rule 12(4)(d) addresses a claim interpretation rule for a use-of-product claim unnecessarily, and it should be removed because such claims will be rejected for lack of novelty.

E. Conditions of Patentability

1. Patent Eligible Subject Matter

The most recent draft of the SPLT includes in the definition of patentable subject matter products and processes "in all fields of technology."[583] WIPO's International Bureau adopted the European Community's proposal to include this terminology to parallel WTO-TRIPS Article 27(1).[584] The U.S. Delegation supported ***335** the broad definition of patentable subject matter in the draft presented at the sixth session.[585] Inclusion of the language "all fields of technology" will not require the United States to change its current practice because a requirement to protect subject matter that is in a technology field is in line with the scope of patent eligible subject matter endorsed by the U.S. Supreme Court.

The scope of patentable subject matter in the United States appears to be very broad because the patent statute simply defines "inventions" to include discoveries[586] and categories of invention.[587] U.S. case law also suggests a very broad scope of patentable subject matter because the Federal Circuit test for patentable subject matter focuses only on whether the invention produces a "useful, concrete and tangible result."[588] However, this test may be overly broad and inconsistent with the Supreme Court's interpretation of "invention" and with the CCPA's interpretation of "useful arts" unless the test is interpreted to limit patent eligibility to subject matter (1) that results from the application of the laws of nature and (2) that is

within a technological art. This narrower scope would be in line with patent eligible subject matter in other countries, such as Japan and the EPC countries.

The "useful, concrete and tangible result" test represents the Federal Circuit's attempt to clarify the test, stated by the Supreme Court in Diehr,[589] as to whether the claim is directed to a mathematical formula in the abstract. However, the test is overly broad because it is inconsistent with the scope for a patent eligible "invention" carefully defined by the Supreme Court in cases involving issues of patent eligibility. In Benson[590] and Diehr,[591] the Court cited Funk Bros[592] and defined patent eligible subject matter as resulting "from the application of the law of nature to produce a new and useful end."[593] The Federal Circuit restated the test in State Street Bank[594] and In re Alappat,[595] but the court failed to include the important ***336** requirement of "resulting from the application of the law of nature."[596] Thus, to be consistent with Supreme Court precedent, the "useful, concrete and tangible result" test should mean resulting "from the application of the law of nature."

The requirement of "application of the law of nature" is a central element in defining patent eligible subject matter because it is the key to distinguishing "technological art" from other arts. One old but well-accepted definition for the term "technology" is "the principles, processes, and nomenclatures of the more conspicuous arts, particularly those which involve application of science."[597] One can substitute the "law of nature" for the term "science" because the task of science is to discover the law of nature. Thus, the Supreme Court's definition implicitly incorporates the "technological art" requirement.

The "application of a law of nature" requirement also supports the underlying policy of the patent system to distinguish the technological art from other arts. CCPA, a predecessor court to the Federal Circuit, interpreted the copyright and patent clause[598] to support the requirement that patent eligible subject matter be in a "technological art." In Bergy, Judge Rich, who authored State Street Bank, limited the scope of patent eligible subject matter by interpreting the term "useful art" in the Constitution to correspond to "technological art."[599] This view is fully supported by Supreme Court precedent that required the application of a law of nature to the exclusion of non-technological art that has nothing to do with the promotion of progress in the useful arts. Accordingly, in light of the Federal Circuit's own precedent and the Supreme Court precedent, the SPLT's requirement that patentable subject matter include all fields of technology is perfectly in line with the American definition of patentable subject matter.[600]

Coincidentally, the definition used in Funk Bros., Benson, and Diehr is consistent with the definition used by many other countries. For example, although the European Patent Convention (EPC) does not provide a concrete definition of patent eligible subject matter,[601] it limits the exclusion of patent eligibility to inventions falling within excluded categories.[602] Thus, the results from application of discoveries, ***337** scientific theories, etc. should meet the patent eligibility requirement. To distinguish the excluded categories from those that are patent eligible, the EPO requires subject matter to have a "technical character."[603] This requirement that the inventions apply a law of nature or be a technological art follows the long-standing German practice that requires technical character in claimed subject matter.[604] A close review of German case law reveals that the application of a law of nature is used to distinguish whether the subject matter has a technical character and is patent eligible.[605]

Further, the application of a law of nature and the technological art requirements are also in line with those for patent eligible subject matter under the Japanese Patent Law. Japanese Patent Law defines an invention that has patent eligible subject matter as "an advanced technological idea utilizing a law of nature."[606] This statutory definition includes two important elements: (1) the claimed subject matter must relate to a technological art and (2) the claimed subject matter must result from an application or utilization of a law of nature, instead of from the law itself.[607] This is why the Japanese delegation proposed to add these requirements in the SPLT draft.[608]

A controversy currently surrounds the patent eligibility of computer software and business methods. Different determinations regarding the patent eligibility of these types of inventions do not come from the application of the "technological art" or "law of nature" limitations but, instead, are the result of the inconsistent application of such limitations. In Europe, for example, the EPO applies the limitation by requiring a "technological contribution."[609] The European Commission also endorsed this requirement.[610] The EPO's analysis can be seen in its examination ***338** of the presence of a technological contribution in Pension Benefit System Partnership,[611] where it dissected the claims into old and new elements and then ignored the old elements as general teaching on the use of data-processing means. The test led to a conclusion of lack of eligibility when the remaining elements were found to be of an administrative, actuarial, or financial character.

The U.S. Supreme Court expressly rejected the dissection of claims into old and new elements in the Diehr case.[612] The Diehr Court correctly pointed out[613] that the question of patent eligibility should not be confused with the question of novelty, which

is obviously what the EPO did. Although the requirement of technological character or technology field was proper, it was improperly applied by not analyzing the claimed invention as a whole. This improper application of the requirement of "technical character" leads to exclusion of innovations in new fields of endeavor,[614] such as computer implemented business methods that apply a law of nature through utilization of hardware resources.[615]

Further, the EPO's patent eligibility analysis adheres to the view of defining subject matter in terms of a technical problem by requiring a technical effect that results from a solution of the technical problem.[616] The EPO uniformly adopts this view for determining novelty[617] and inventive step.[618] However, no article or rule in the SPLT endorses focusing on a technical problem.

The current SPLT draft limits eligible subject matter to all technology fields, i.e. relating to a technological art or application of a law of nature, which moves the current definition more in line with the U.S. definition of patentable subject matter as established by Supreme Court and Federal Circuit precedent. Under this definition, computer software and business methods implemented by software are patent eligible inventions because they result from the application of a law of nature by ***339** utilizing hardware resources of computers.[619] However, such a business method, when independent from computer implementation, should be excluded from patentable subject matter because it falls into the category of an abstract idea, or it does not relate to a technical art.[620] Japan follows the same definition and reaches the same result.[621] It is, therefore, not worthwhile for the U.S. Delegation to delay negotiations by insisting on the removal of the language "all fields of technology."

2. Utility

Since the most recent SPLT draft provides three options for the definition of utility,[622] changes resulting from the adoption of the SPLT will depend on which option is selected.[623] Among the three options, WIPO's International Bureau should select the first option, which gives the broadest definition of utility because it reflects the best practice among those adopted by the USPTO, JPO, and EPO. Adoption of the first option will not lead to any significant change in current U.S. practice.

Policy considerations underlying industrial applicability and utility are substantially the same in different jurisdictions. Europe and Japan use the industrial applicability requirement to exclude medical methods from patentability and secure the freedom for medical practitioners to provide the best treatments to their patients.[624] However, this exception introduces unnecessary complexity resulting from the difficulty in defining medical methods.[625] It also introduces further complexity ***340** by allowing the patentability of second and subsequent medical use of an old product.[626] These countries also provide immunity from infringement liability for the acts of a pharmacist preparing a patented medicine in accordance with a medical prescription and acts concerning the medicine so prepared.[627]

In contrast, the United States does not exclude medical methods for lack of utility.[628] However, it provides immunity for a medical practitioner's performance of a medical activity using patented medical methods.[629] Although the immunity issue relates to infringement instead of examination, the United States shares the same concern over the freedom of medical practitioners to engage in their profession. This approach is better than European and Japanese approach in protecting the examination process from the complexity resulting from the difficulty in defining excepted medical methods.

Further, other countries maintain the concept of beneficial utility and exclude immoral inventions, the publication or exploitation of which would be contrary to public order.[630] The concept of beneficial utility to invalidate immoral or illegal inventions exists in the United States, but U.S. courts substantially limit its applicability.[631]

Finally, the US patent system requires specific utility, which prevents inventors from obtaining a patent prematurely and requires the invention be reduced to practice to identify its usefulness.[632] The specification must describe the invention use sufficiently to the degree that one skilled in the art would believe the use, without any reasonable doubt, meets the enablement requirement.[633] In contrast, European and Japanese patent systems require that the invention "can be made;" thus, the possible use of an invention is sufficient enough to meet their industrial applicable requirement.[634] This requirement appears lower than the utility requirement ***341** under U.S. law, but the EPO and JPO require the description of a specific use of the invention of unpredictable art in the specification to meet their enablement requirement.[635] Thus, there is no significant difference in the degree of description required for meeting the requirements regarding the use of the invention under 35 U.S.C. and the EPC and JPL, except for a very limited special area of technology.[636]

In short, the first option reflects the best practice among the three options. If the first option is selected, the broadest

definition does not require patent offices to exclude medical methods, thereby avoiding the complexity issue resulting from the definition difficulty, which the EPO and JPO currently suffer. Even if the third option, which restates the USPTO's interpretation of U.S. case law, is not selected, the first option should be interpreted to require a specific utility reflecting the EPO and JPL enablement requirements, which are consistent with U.S. case law. Therefore, the impact from the adoption of the SPLT should be minimal.

3. Novelty

Adoption of the most recent SPLT draft will not require any significant change in U.S. practice regarding anticipation.[637] In determining whether an element is implicitly disclosed in a primary prior-art reference, SPLT Regulations include the term "inherently disclosed"[638] and adopt the U.S. case law "inherency" test.[639] The EPO's view on the scope of a primary prior-art reference also includes implicit teaching.[640] However, the EPO distinguishes its test for finding an implicit teaching or implicit element from the U.S. inherency test.[641]

Despite express endorsement in the SPLT Regulations and Guidelines, the inherency doctrine should be restrictively applied because the doctrine is redundant ***342** with non-obviousness or inventive step requirements. The inherency doctrine was developed to expand the rejection for lack of novelty when patent statutes did not have a separate requirement of non-obviousness or inventive step.[642] Introduction of a separate requirement for non-obviousness or inventive step eliminated the need to expand the novelty requirement.[643] A review of inherency cases reveals that any inherent feature or result could be examined under the non-obviousness standard.

The application of the inherency doctrine, instead of the non-obviousness or inventive step requirement, enables patent offices to escape the burden of showing prima facie obviousness. It also prevents applicants from taking advantage of a variety of doctrines designed to guard against the use of hindsight in determining non-obviousness.[644] For example, the doctrine of analogous art[645] is not applicable under the novelty standard, which allows patent offices to cite any unrelated technology to reject claims.[646] A patent office does not need to show a motivation or suggestion under the inherency doctrine.[647] To guarantee applicants the advantage of safe-guard doctrines to prevent hindsight, patent offices should apply the inherency doctrine restrictively.

4. Inventive Step/Non-obviousness

Adoption of the most recent SPLT draft will not bring a significant change in U.S. practice regarding non-obviousness.[648] Rule 15(4) restates a suggestion or motivation test uniformly adopted by U.S. courts to prevent patent office examiners from using hindsight.[649] The EPO and JPO both adopted a suggestion/motivation test similar to that used by the USPTO.[650] However, information in the prior art that gives rise to a motivation is interpreted differently among patent offices.[651] ***343** Thus, the most recent draft lists factors that patent offices should consider in finding a motivation or suggestion.[652]

The factors in the SPLT guidelines closely parallels those listed in the JPO guidelines.[653] However, this list should not be read to mean that mere relevance of fields of the art, problems to be solved, or functions and characteristics of the art justifies finding a motivation without pointing out a particular portion of the prior art that provided the motivation or suggestion. Otherwise, examiners will use hindsight to reach a conclusion of obviousness. To avoid such hindsight, in determining non-obviousness of a highly sophisticated technology, the Federal Circuit rejected arguments made by the USPTO that relied mostly on the high level of general knowledge for finding a suggestion and motivation to combine references.[654] The court emphasized the safeguard function of the suggestion-to-combine requirement and has required the USPTO to identify the principle known to one skilled in the art that suggests the claimed combination.[655]

The Guidelines under Rule 15 (1)[656] restate the four-step factual inquiry that the U.S. Supreme Court adopted for setting a platform for non-obviousness determination under §103.[657] Since Guideline (1) does not require identifying the most relevant prior art or determination of a problem to be solved by the invention, the inventive step/non-obviousness assessment in the SPLT Guidelines is clearly different from the problem-solution approach that the EPO adopts.[658]

The SPLT Guidelines should be read to prohibit or at least discourage European countries and others from using the problem-solution approach because of a serious flaw relating to the steps for objectively determining the problem the invention ***344** is designed to solve.[659] According to EPO practice, examiners identify the most relevant prior art and compare the claimed subject matter and that of the most relevant prior art to determine the problem objectively.[660] This step is susceptible to hindsight because it requires examiners to look at the invention before addressing the obviousness

assessment.[661] European examiners are supposed to ignore the solution disclosed in the invention when they define the problem of the invention. However, they often define the problem in terms of the solution because it is difficult to ignore the solution once they see it.[662]

The danger of using hindsight in the problem-solution approach is well represented in a Federal Circuit case, Monarch Knitting.[663] The Federal Circuit rejected the district court's analysis, which was obviously influenced by arguments advanced by the European parties, holding that the court defined the problem in terms of the solution set forth by the invention and, thus, used hindsight. The problem-solution approach can lead to a patent grant on a new use of an old product because its examination focuses on the problem the invention was designed to solve.[664] The problem-solution approach can also lead to an improper application of the technical-character test, which results in exclusion of computer implemented business methods.[665]

The Guidelines under Rule 15, (2) lists factors and secondary considerations that U.S. courts have established as objective indicia for rebutting the patent office's ***345** prima facie case of obviousness.[666] The EPO and JPO also use these factors to examine inventive step but tend to give less attention to commercial success than that given by the USPTO and the Federal Circuit. This may be because of the lack of competency of these patent offices in assessing evidence of commercial success. In addition, patent offices outside the U.S. often express serious concern over the risk of misuse of the commercial-success factor and emphasize that the examiner should confirm that the commercial success results from the technical features of the invention.[667] However, the use of commercial success is more precise and accurately reflects technical merit under the nexus requirement used by the Federal Circuit.[668] Other offices may need refinement of the rules to examine the risk-minimizing factors, as has been done by the Federal Circuit.

Secondary considerations are particularly significant in some types of inventions such as combination inventions.[669] Since all technical considerations to show prima facie obviousness are negative tests, commercial success, a positive test, is important to balance the positions of applicants and the patent office in disputing non-obviousness. The use of commercial success is economically sound, although some commentators criticize the extensive use of commercial success from an economic perspective.[670] Since evidence of commercial success is available only concerning inventions that are on the market, the use of commercial success encourages the introduction of products into the market and secures reimbursement of investments associated with the commercialization of the invention. Accordingly, other countries should adopt the U.S. practice and should give more weight to commercial success.

F. Other Issues

One major problem in the most recent SPLT draft is that it does not define who is an inventor.[671] Inventorship is one of the most important concepts of patent ***346** law because the determination of ownership starts from inventorship.[672] Different definitions of inventorship lead to different ownership of the same invention in different countries, and this results in serious confusion. However, the definition of inventorship is not clear from U.S. case law, although the U.S. has a rich history of inventorship disputes through its interference proceedings.[673] Since other countries allow employers to file an application, and inventorship disputes are rare, it is very unlikely that these countries have a clear definition of inventor. Therefore, to harmonize standards as to who is originally entitled to a patent, the SPLT should include a definition of inventor.

Although the SPLT's scope is limited to the patent-granting process, the SPLT should also cover issues relating to limitations on the scope of exclusive rights as it closely relates to conditions of patentability. TRIPS allows member states to provide limited exceptions to the exclusive right as long as such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner.[674] These exceptions reflect immunity from infringement claims given by other countries. One example is immunity for private exploitation of a patented invention.[675] Another example is immunity for exploitation of a patented invention for the purpose of experiments.[676]

Although courts in the United States developed a common law "experimental-use exemption," recent case law indicates that the scope of the exception is so narrow that it is almost non-existent except for §271(e).[677] The SPLT should include an article or rule dealing with these exceptions because they closely relate to the scope of patent eligible subject matter and specific utility. Particularly, the availability of an experimental-use exception affects the determination of whether a patent should be awarded to some subject matters in basic science, such as biotechnology. Such subject matter is traditionally excluded from patentability for lack of patent eligibility or lack of specific utility because public researchers can still engage in further developments under the experimental-use exception, even if a patent is granted on the basic innovation. The freedom for

researchers in public research ***347** institutions to engage in research and development in basic science is essential for the promotion of science and the useful arts.[678] Patents should not create any obstacles to hinder their efforts to further developments. The Federal Circuit created such obstacles by refusing to give immunity from patent enforcement to the activity of a university professor attempting to design around the claimed invention.[679]

The scope of immunity available under the experimental-use exception in other countries is broader than that of United States.[680] In Germany, trials and tests conducted to find new technical features for further developments are allowed, regardless of the reason for performing the tests or trials.[681] The Supreme Court of Japan interprets the experimental-use exemption broadly to give immunity not only to tests for further developments but also to clinical trials that are conducted to obtain data for a government market.[682] Without any discussion of immunity, it will be difficult to attain harmonization for patentable subject matter and specific utility.

IV. Proposal for Maintaining First-To-Invent Exception for Domestic Inventors

The first-to-file system with a generous one-year grace period proposed in the SPLT will bring simplicity to the U.S. system and remove pitfalls for inventors who believe that the United States follows a true first-to-invent system that grants a patent to the first-to-conceive instead of the first-to-reduce the invention to practice through an application or testing.[683] A worldwide grace period will save thousands of U.S. inventor rights that are lost every year outside the United States because of pre-filing disclosure.[684] Since many SPLT provisions are based on U.S. practice, ***348** the SPLT gives the United States an opportunity to export its patent-owner friendly jurisprudence to the major markets for U.S. patent owners, such as Europe and Japan. In addition, the SPLT will make it possible for patent offices to recognize the results of examinations done by other offices and remove redundant prior-art searches and examinations, which will significantly reduce costs for patent procurement in multiple countries.

Some U.S. inventors may not be convinced of these benefits and may still resist adopting a system that will require abandonment of the long established practice of granting patents to the first-to-invent. A substantial number of responses from the public, particularly from individual inventors and small entities, indicate a strong sentiment to retain the first-to-invent system and objection to the first-to-file system, which is believed to place small inventors at a significant disadvantage in the race to the patent office.[685] Past experiences at the USPTO indicate that objections from these inventors prove to be powerful and may be a substantial obstacle to the implementation of the responsibilities of the U.S. under the SPLT.[686]

Further, a legal commentator comparing the pros and cons of harmonization versus diversity of patent systems identifies reflection of local preferences as a benefit of diversity.[687] The desire to reflect local preferences is particularly keen for small inventors whose interest is solely dedicated to the domestic market. Unlike the United States, other countries traditionally have a separate second-tier patent protection regime, generally known as utility model or petty patent, to accommodate small inventors.[688] This idea of a second-tier patent protection regime is particularly popular in Europe where the European Commission took the initiative of harmonizing the different regimes.[689] However, a second-tier regime has very little appeal to the U.S. patent community because legal commentators cannot ***349** find enough justification for additional protection for second-rate innovations.[690] Instead of creating a separate regime, the United States instituted an option to incorporate within the system measures to address the local need. For example, the small entity system allows small inventors who qualify under certain conditions[691] a fifty percent discount on regular official fees.[692] Furthermore, the newly introduced early publication system allows inventors who do not file a foreign application to request nondisclosure of their application.[693]

Therefore, in the event the USPTO is unable to convince small inventors of the benefits of the first-to-file system, the United States should be allowed to expand the current exception to early publication for domestic inventors to include first-to-invent priority. Under this exception, only applicants who do not wish to file an application outside the United States will be allowed to take advantage of the first-to-invent exception and can establish an earlier invention date under the § 102(g) priority rule. This exception facilitates the U.S. shift to the first-to-file system without delay and enables small inventors who are interested in markets outside the United States to take advantage of the world-wide grace period while giving small inventors, interested in only the U.S. market, an option to take advantage of the first-to-invent system. Further, the impact of this exception on the current practice is very marginal because it is very unlikely that the commercial value of an invention exclusive to the U.S. market will justify the high cost of interference proceedings and record keeping necessary to establish priority.[694]

The only negative side of this exception is that U.S. trade partners may still criticize the U.S. for following the first-to-invent system. However, the U.S. can argue that this exception should be allowed because it does not conflict with the goal of the SPLT. Since the SPLT aims to facilitate mutual recognition of examination results among participating patent offices, allowing applicants that file only in the United States to use the first-to-invent system will have no effect on this goal. Eventually, inventors will realize that the first-to-file system serves them better than the first-to-invent. The U.S. can then eliminate the exception completely.

Conclusion

The resumed international effort for harmonization under the SPLT gives the United States an opportunity to review its current system and learn from other countries. A review of the most recent SPLT draft and a comparison of the draft ***350** with the current U.S. patent practice reveal a relatively minor impact resulting from adoption of the SPLT. Concerning practices under the SPLT that are different from current U.S. practice, some reflect a compromise with European/Japanese practices, even if the U.S. practice is better than such practices. Others reflect the best practices among the three jurisdictions, and, thus, the U.S. should adopt them. If the draft is revised to reflect only the best practices, the impact will be marginal.

Execution of the SPLT will necessitate modification of the first-to-invent system to comply with the first-to-file principle, but the changes will remove the complexity inherent in the present system and will require only marginal changes in current U.S. practice. In contrast, the benefits resulting from the worldwide grace period and the expansive collaboration among patent offices substantially outweigh any disadvantages caused by the necessary changes.

Although for simplicity and the effective use of administrative resources, it is preferable to eliminate the first-to-invent principle completely, maintaining a limited exception might be necessary for the United States to avoid unnecessary delay in engaging in the negotiations. If the exception is limited to applicants who file applications only domestically, the impact on U.S. partners is marginal. This is particularly with respect to the goal of the SPLT, which is mutual recognition of examination results. By experiencing the hardships inherent in the U.S. first-to-invent priority rule for establishing an early invention through actual reduction to practice, first-to-invent advocates will realize the ineffectiveness of keeping this useless exception. However, if there is in fact a compelling policy reason to retain the first-to-invent system to reflect local preferences, the first-to-invent priority rule will survive.

Footnotes

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[1] E.g., Hon. Q. Todd Dickinson, The Long-Term International View of Patents and Trademark, Int'l Intell. Prop. Law & Pol'y, 14-1, 14-2 (2000).

[2] Bruce Lehman, Intellectual Property Under The Clinton Administration, 27 Geo. Wash. J. Int'l L. & Econ. 395 (1993); Sean T. Carnathan, Patent Priority Disputes--A Proposed Re-Definition of "First-to-Invent", 49 Ala. L. Rev. 755 (1998);Peter A. Jackman, Essay: Adoption of a First-to-File Patent System: A Proposal, 26 U. Balt. L. Rev. 67 (1997); Vito J. DeBari, International Harmonization of Patent Law: A Proposed Solution to the United States' First-To-File Debate, 16 Fordham Int'l L.J. 687 (1993).

[3] Robert M. Sherewood, Why A Uniform Intellectual Property System Makes Sense for the World, in Global Dimensions of Intellectual Property Rights in Science and Technology 68 (1993); Kate H. Murashige, Symposium: Intellectual Property: Article: Harmonization of Patent Laws, 16 Hous. J. Int'l L. 591(1994); Robert W. Pritchard, Article: The Future is Now -The Case for Patent Harmonization, 20 N.C.J. Int'l L. & Com. Reg. 291 (1995); Gerald J. Mossinghof & Vivian Ku, Article: World Patent System Circa 20XX, A.D., 38 IDEA 529, 535 (1998).

[4] The last negotiation in which the United States participated to mandate the first-to-file principle was held in the Diplomatic Conference in The Hague, June 1991. The proceedings of the Diplomatic Conference is published in World Intellectual Property Organization, Records of the Diplomatic Conference for the Conclusion of a Treaty Supplementing the Paris Convention as far as Patents are Concerned (1991).

[5] Over the period between 1985 and 1999, the number of applications has increased seven times. Although the increase in number of applications by domestic applicants remained the same, the number of foreign applicants increased six times. For a discussion on increased applications, see Setsuko Asami, A View Toward the Global Patent - Mutual Exploitation of Examination Results, 27 AIPPI J. 12, 13-15 (2002).

[6] The USPTO hires more patent examiners with electrical engineering backgrounds and MBA's to deal with new types of technologies. See George Leopold, Examiners sought as patent filings hit 1,000 per day--U.S. looking for 500 good engineers, in Electronics Engineering Times, Oct. 29, 2001 Monday,at 11;Michael Bednarek, The Outlook for Patents in the Financial Services Industry, Electronic Banking Law & Com. Rep., 8 (Mar. 2002).

[7] The Bayh-Dole Act of 1980, 35 U.S.C. §§ 200-211, 301-307 (1994).

[8] Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization [hereinafter WTO Agreement], Annex 1C, Legal Instruments - Results of the Uruguay Round vol. 31, 33 I.L.M. 81 (1994) [hereinafter TRIPS Agreement].

[9] The number of applications by foreign applicants shot up after the enactment of the TRIPS Agreement. See Asami, supra note 5, at 14.

[10] Del Jones, Skilled Examiners Leave; Patent quality in peril, research, idea protection may falter, some warn, as tech upstarts lure away workers, USA Today, Sept. 11, 2000, at 5B.

[11] See generally Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 122 S. Ct. 1831, (2002), 62 U.S.P.Q.2d (BNA) 1705. For a discussion of this change, see infra Part III.D starting at note 506.

[12] USPTO patent application statistics, at http://www.uspto.gov.

[13] The European Patent Office was created under the "Convention on the Grant of European Patents," Oct. 5 1973, art. 4, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 2, 13 I.L.M. 270, 277 [hereinafter European Patent Convention]. EPO patent application statistics, at http://www.european-patent-office.org.

[14] JPO patent application statistics, at http:// www.jpo.go.jp/homee.htm.

[15] Michio Ichikawa, Towards a Global Patent System: JPO's View, Presentation at 2001 CASRIP High Technology Summit Conference (July 21, 2001) (transcript available at http:// www.law.washington.edu/Casrip/Symposium/Number7/Pub7Contents.html).

[16] Draft Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 6th Session, Sept. 24, 2001, art. 8(2), art. 2, [hereinafter WIPO Draft Substantive Patent Law Treaty (6th Session)]. (note that Article 2 explains the limited scope of SPLT, see World Intellectual Property Organization, Standing Committee on the Law of Patents, 6th Session, Oct. 3, 2001, note 2.01, available at http:// www.wipo.org/scp/en/documents/session_6/index.htm.

[17] John F. Duffy, Harmony and Diversity in Global Patent Law, 17 Berkeley Tech. L.J. 685 (2002).

[18] Id. at 703.

[19] Id. at 693.

[20] Toshiko Takenaka, Harmonizing the Japanese Patent System with Its U.S. Counterpart Through Judge-Made Law: Interaction Between Japanese and U.S. Case Law Developments, 7 Pac. Rim L. & Pol'y J. 249 (1998).

[21] European Patent Convention, supra note 13, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090), 13 I.L.M. 270.

[22] Tokkyo Ho [Japanese patent law], Law No. 121 of 1959.

[23] Paris Convention for the Protection of Industrial Property, July 14, 1967, 25 Stat. 1372, 828 U.N.T.S. 305 [hereinafter Paris Convention].

[24] Feidrich-Karl Beier, One Hundred Years of International Cooperation - the Role of the Paris Convention in the Past, Present and Future, 15 I.I.C. 1, 5 (1984).

[25] Id.

[26] Paris Convention, supra note 23, art. II-III, 25 Stat. at 1375, 828 U.N.T.S. at 313.

[27] Paris Convention, supra note 23, art. IV, 25 Stat. at 1375, 828 U.N.T.S. at 313.

[28] Joseph Straus, Grace Period and the European and International Patent Law: Analysis of Key Legal and Socio-Economic Aspects 6 (2001).

[29] Beier, supra note 24, at 14.

[30] Straus, supra note 28, at 6.

[31] Paris Convention, supra note 23, art. XIX, 25 Stat. at 1379, 828 U.N.T.S. at 357.

[32] Gerald J. Mossinghof & Vivian S. Ku, Article: World Patent System Circa 20XX, A.D., 38 IDEA 529, 535 (1998).

[33] Patent Cooperation Treaty, June 19, 1970, 28 U.S.T. 7645, 1160 U.N.T.S. 231.

[34] Id., art. 33 (1), 28 U.S.T. at 7679, 1160 U.N.T.S. at 248.

[35] Straus, supra note 28, at 6.

[36] AIPPI is a group of IP owners and IP lawyers. The group was developed for promoting IP protection. General information about the group is available at http://www.aippi.org/.

[37] Straus, supra note 28, at 7.

[38] Straus, supra note 28, at 7.

[39] Straus, supra note 28, at 12; Harold Wegner, Patent Harmonization 25 (1993).

[40] Straus, supra note 28, at 13.

[41] Kevin Cuenot, Note: Perilous Potholes in the Path Toward Patent Law Harmonization, 11 J. Law. & Pub. Pol'y 101, 112 (1999).

[42] Advisory Commission on Patent Law Reform, A Report to the Secretary of Commerce, at 43-50 (1992), reproduced in Paul Goldstein, International Intellectual Property Law: Cases and Materials 313 (2001).

[43] S. 2605, 102nd Cong. § 1140 (1992); H.R. 4978, 102nd Cong. (1992).

[44] Kim Taylor, Note: Patent Harmonization Treaty Negotiations on Hold: The "First To File" Debate Continues, 20 J. Contemp. L. 521 (1994).

[45] Remarks of Bruce A. Lehman, Assistant Secretary of Commerce and Commissioner of Patents and Trademarks, 46 Pat. Trademark & Copyright J. 392 (Aug. 26, 1993).

[46] Ulrich Joos & Rainer Moufang, GATT or WIPO? New Ways in the International Protection of Intellectual Property 21 (Friedrich-Karl Beier & Gerhard Schricker eds., 1989).

[47] SeeTRIPS Agreement, supra note 8.

[48] For a general discussion of the significance of the TRIPS Agreement, see Joseph Straus, Implication of the TRIPS Agreement in the Field of Patent Law, in From GATT to TRIPS - The Agreement on Trade-Related Aspects of Intellectual Property Rights 170 (Friedrich-Karl Beier & Gerhard Schricker eds.,1996); Sam Ricketson, The Future of the Traditional Intellectual Property Conventions in the Brave New World of Trade-Related Intellectual Property Rights, 26 I.I.C. 872 (1995).

[49] Ricketson, supra note 48, at 889.

[50] TRIPS Agreement, supra note 8, art. 27 para. 1, 33 I.L.M at 93-94.

[51] Toshiko Takenaka, Recent Developments on the WIPO Patent Harmonization Consultative, 2-2 CASRIP Newsletter 9 (Winter 1998).

[52] See, e.g., Study on the Interface Between the SPTL, the PLT and the PCT, at 2, World Intellectual Property Organization, Standing Committee on the Law of Patents, 6th Session (Sept. 24, 2001), available at http:// www.wipo.org/scp/en/documents/session_6/doc/scp6_5.doc [hereinafter WIPO Interface Study].

[53] Under the principle of independence of patents under the Paris Convention, inventors must obtain a patent in each country in which

they seek protection. This requires filing of multiple applications to different patent offices. The PCT enables inventors to obtain the effect of applications in plural patent offices by filing one international application with a member patent office, which is appointed as a receiving office. This option of filing a single application to obtain effects in multiple patent offices is called the PCT Route. See Richard Schwaab, Chapter 26: Rights and procedures under the Patent Cooperation Treaty, in Irving Kayton, Patent Practice (6th ed. 1995).

[54] In contrast to the PCT Route, inventors may choose to file applications separately with different offices by taking advantage of the priority right system under Paris Convention Article 4. This option of filing separate applications is called the Paris Route. PCT international applications are more expensive than regular national applications because of additional costs resulting from coordination among patent offices and administration at WIPO. If the number of countries an inventor wishes to seek protection is small, filing separate applications is less expensive than filing an international application.

[55] Patent Law Treaty, June 2, 2000, 39 I.L.M. 1047 (2000).

[56] Goldstein, supra note 42, at 313.

[57] Goldstein, supra note 42, at 317.

[58] Uruguay Round Agreements Act, Pub. L. No. 103-465, 108 Stat. 4809 (1994) [hereinafter URAA]. URAA was the implementing legislation of TRIPS Agreement.

[59] Id. at § 532(b). For a general discussion, see Donald S. Chisum, Chisum on Patents § 11.02 [1][g].

[60] Goldstein, supra note 42, at 318.

[61] 35 U.S.C. § 111(b)(2), and (b)(8) (2000).

[62] American Inventors Protection Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501 (1999) (The text of the American Inventors Protection Act of 1999 is contained in Title IV of S. 1948, the Intellectual Property and Communications Omnibus Reform Act of 1999).

[63] Id. at 1501 A-555-557. For a general discussion, see Chisum, supra note 59, § 16.03 [4].

[64] Goldstein, supra note 42, at 321.

[65] 35 U.S.C. § 273 (b)(1) (2000).

[66] 35 U.S.C. § 273 (a)(3) (2000).

[67] 35 U.S.C. § 273 (a)(1) (2000); Chisum, supra note 59, § 16.03 [4].

[68] TRIPS Agreement, supra note 8, art. 27, para. 1, 33 I.L.M. at 93-94. This prohibits member states from discriminating inventions with respect to the place of invention. This provision was included to eliminate the US discriminative practice regarding the establishment of the invention date in foreign countries.

[69] 35 U.S.C. § 104 (1988); Harold C. Wegner, TRIPS Boomerang - Obligations for Domestic Reform, 29 Vand. J. Transnat'l L. 535, 543 (1996).

[70] See, e.g., Harold Wegner, The One in Ten Thousand Chance for Foreign Usage of the American First Inventor System, 76 J. Pat. & Trademark Off. Soc'y 175 (1994).

[71] 35 U.S.C. § 104(a)(1) (2000). Congress passed the 1994 Uruguay Round Agreements and amended Section 104 to allow evidence in WTO member countries to show the priority. With respect to NAFTA countries, the 1993 North American Free Trade Agreement Implementation Act made it possible to establish the priority based on evidence in these countries.

[72] David L. Marcus, Is the Submarine Patent Torpedoed?: Ford Motor Co. v. Lemelson and the Revival of Continuation Application Laches, 70 Temp. L. Rev. 521, 525 (1997); Samuel C. Miller III, Undue Delay in Prosecution of Patent Applications, 74 J. Pat. & Trademark Off. Soc'y 729 (1992).

[73] The Patent Act of 1861 set the term of seventeen-years from the date of issuance. An Act in Addition to "An Act to promote the Progress of the useful Arts," [sic] 12 Stat. 246, § 1(b) (1861). For the historical developments on the term of US patents, see Chisum, supra note 59, § 16.04[1].

[74] For a good example of this type of submarine patent abuse practice as adopted by Mr. Lemelson, see, e.g., M. Scott Carey,Article: I Intellectual Property: B. Patent: 3. Defenses: A) Doctrine of Laches: Ford Motor Co. v. Lemelson, 13 Berkeley Tech. L.J. 219 (1998).

[75] 35 U.S.C. § 154(a)(2) (2000).

[76] European Patent Convention, supra note 13, art. 93, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 32-33, 13 I.L.M. 270, 293; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 64.

[77] John Duffy et al., Symposium: Early Patent Publication: A Boon or Bane? A Discussion on the Legal and Economic Effects of Publishing Patent Applications after Eighteen Months of Filing, 16 Cardozo Arts & Ent. L.J. 601, 606-07(1998); Paul A. Ragusa, Note: Eighteen Months to Publication: Should the United States Join Europe and Japan by Promptly Publishing Patent Applications?, 26 Geo. Wash. J. Int'l L. & Econ. 143 (1992).

[78] American Inventors Protection Act, supra note 62, § 4501-08. For a general discussion see Chisum, supra note 59, § 11.02 [4][e].

[79] 35 U.S.C. § 122(b) (2000).

[80] Duffy et al., supra note 77, at 606.

[81] 35 U.S.C. § 154(d) (2000).

[82] Hon. Q. Todd Dickinson, The Long-Term International view of Patents and Trademarks, 4 Int'l Intell. Prop. L. & Pol'y 14-1, 14-2 (2000).

[83] The second Bush administration was elected in November 2000 and did not take office until January 2001. Since US delegations have always been interested in harmonization, they became active with anticipation of the administration change by late 2000.

[84] Report, World Intellectual Property Organization, Standing Committee on the Law of Patents, 4th Session, at 4 (Dec.7, 2000),

available at http:// www.wipo.org/scp/en/documents/session_4/index.htm.

[85] Setsuko Asami, A View Toward the Global Patent-Mutual Exploitation of Examination Results, 2002 AIPPI J. 12, 16 (2002).

[86] Draft Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 5th Session, Apr. 4, 2001, available at http://www.wipo.org/scp/en/documents/session_5/index.htm.

[87] Id.

[88] Requests for Comments on the International Effort to Harmonize the Substantive Requirements of Patent Laws, 66 Fed. Reg. 15,409, 15,410 (Mar. 19, 2001).

[89] Draft Report, World Intellectual Property Organization, Standing Committee on the Law of Patents, 6th Session, Nov. 28, 2001, at 3, available at http://www.wipo.org/scp/en/documents/session_6/index.htm [hereinafter WIPO Draft Report (6th Session)].

[90] WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16.

[91] WIPO Draft Report (6th Session), supra note 89, at 3.

[92] Id.

[93] WIPO Draft Substantive Patent Law Treaty (7th Session).

[94] Two more revised drafts were posted by WIPO Int'l Bureau since the submission of this article. Draft Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 8th Session, Nov. 25 to 29, 2002, available at http:// www.wipo.int/documents/en/document/scp_ce/index_8.htm; Draft Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 9th Session, May 12 to 16, 2003, available at http:// www.wipo.int/news/en/index.html?wipo_content_frame=/news/en/conferences.html [hereinafter WIPO Draft Substantive Patent Law Treaty (9th Session)].

[95] Paris Convention, supra note 23.

[96] TRIPS Agreement, supra note 8.

[97] For a discussion of the treaty draft, see discussions associated with supra note 39.

[98] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93.

[99] For an example of the above, see Article 5- application and Article 6- unity of invention.

[100] This requirement prevents applicants from amending claims and specifications to include subject matter, which extends beyond the content of the application as of the priority date. This requirement is parallel to the written description requirement under § 112 para. 1, European Patent Convention, supra note 13, art. 123(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 35, 13 I.L.M. 270, 299 and Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 17bis.

[101] Such provisions include Article 7, Observation, Amendments or Correction of Applications; Article 10, Enabling Disclosure; and Article 11, Claims. WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93.

[102] Patent Cooperation Treaty, supra note 33.

[103] Patent Law Treaty, supra note 55.

[104] For a general discussion on the relationship between SPLT, PCT and PLT, see WIPO Interface Study, supra note 52.

[105] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, at 9.

[106] Patent Law Treaty, supra note 55, art. 6, 39 I.L.M. at 1052.

[107] WIPO Interface Study, supra note 52, at 2.

[108] Patent Cooperation Treaty, supra note 33, arts. 27(5), 33(5); Patent Law Treaty, supra note 55, art. 2(2), 39 I.L.M. at 1050.

[109] WIPO Interface Study, supra note 52, at 6.

[110] European Patent Convention, supra note 13, art. 93, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090), 13 I.L.M. 270.

[111] A good example is the Patent Cooperation Treaty (PCT). The procedure under the PCT closely parallels the procedure at the European Patent Office.

[112] See, e.g., Sven J.R. Bostyn, International Harmonization of the Patent System, AIPPI J., Nov. 2002, at 384.

[113] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8.

[114] European Patent Convention, supra note 13, art. 54(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090), 18, 13 I.L.M. 271, 286.

[115] Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29(1).

[116] 1991 PLT Basic Proposal included the first-to-file priority provision in Article 4(4). Wegner supra at 39. The priority provision is reserved in the most recent draft. WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 4(1). Obviously, the definitions of the prior art were adopted based on the first-to-file principle. For a general discussion of the first-to-file v. first-to-invent debates, see Heinze Bardehle, A New Approach to Worldwide Harmonization of Patent Law, 81 J. Pat. & Trademark Off. Soc'y 303 (1999); David W. Okey, Constitutionality of a Multi-National Patent System (Part I), 81 J. Pat. & Trademark Off. Soc'y 657 (1999); Okey, "Constitutionality of a Multi-National Patent System (Part II), 81 J. Pat. & Trademark Off. Soc'y 927 (1999).

[117] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(1).

[118] Adelman et al., Cases and Materials on Patent Law 313 (1998).

[119] 35 U.S.C. § 102(a) (2000) provides the invention was known or used "...before the invention thereof by the applicant for patent" (emphasis added).

[120] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(1).

[121] 35 U.S.C. § 102(a) (2000) limits the scope of the prior art to inventions by others.

[122] 35 U.S.C. § 102(b) (2000).

[123] Id. The term "by others" in § 102(a) is removed from § 102(b).

[124] Id. The invention was patented or described in a printed publication "... more than one year prior to the date of the application for patent in the United States" (emphasis added).

[125] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9.

[126] For a general discussion see Chisum, supra note 59, § 6.03.

[127] Id. at § 6.04.

[128] Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts, 153 F.2d 516, 68 U.S.P.Q. (BNA) 54 (2d Cir. 1946). This bar does not apply to third party activity. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. (BNA) 303 (Fed. Cir. 1983).

[129] Pennock v. Dialogue, 27 U.S. 1, 18 (1829).

[130] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(1).

[131] European Patent Convention, supra note 13, art. 54, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29(1).

[132] 35 U.S.C. § 102(a), (b) (2000).

[133] Robbins Co. v. Lawrence Mfg. Co., 482 F.2d 426, 178 U.S.P.Q. (BNA) 577 (9th Cir. 1973).

[134] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, at 16.

[135] Draft Regulations and Practice Guidelines under the Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 7th Session, Mar. 6, 2002, available at http://www.wipo.org/scp/en/documents/session_7/index.htm, [hereinafter WIPO Draft Regulations and Guidelines (7th Session)], rule 8(1).

[136] European Patent Convention, supra note 13, art. 54, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29.

[137] Elizabeth v. Pavement Co., 97 U.S. 126, 129 (1878).

[138] Egbert v. Lippmann, 104 U.S. 333, 336 (1881).

[139] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(2).

[140] Adelman, supra note 118, at 313.

[141] Id. at 322.

[142] European Patent Convention, supra note 13, art. 60(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 20, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 39.

[143] European Patent Convention, supra note 13, art. 60(1), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 20, 13 I.L.M. 270, 287; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 33.

[144] European Patent Convention, supra note 13, art. 54(3), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 287; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29bis.

[145] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(2).

[146] WIPO Draft Regulations and Guidelines (7th Session), supra note 135, rule 9(1) and (2).

[147] 35 U.S.C. § 102(e) (2000); Alexander Milburn Co. v. Davis-Bournonville Co., 270 U.S. 390, 391 (1926).

[148] European Patent Convention, supra note 13, art. 54, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29bis.

[149] For a general discussion of the definitive patent-defeating right under the US patent system, see Adelman, supra note 118, at 824.

[150] Regarding § 102(e), see In re Hilmer, 359 F.2d 859, 863 (C.C.P.A. 1966); regarding § 102(g), see In re Hilmer, 424 F.2d 1108, 1112 (Fed. Cir. 1970).

[151] Adelman, supra note 118, at 824.

[152] European Patent Convention, supra note 13, art. 54(3), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29bis. For a general discussion of the effect of prior right, see generally Richard Wiezoreck, Convention Applications as Patent-Defeating Prior Rights, 6 I.I.C. 135 (1975).

[153] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 9(3). This requirement is incorporated into Article 8(2) in WIPO Draft Substantive Patent Law Treaty (9th Session) supra note 94.

154 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(2).

155 European Patent Convention, supra note 13, art. 54(3), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 19bis. However, see infra note 426, the JPO uses a relaxed identity rule that falls between the novelty and inventive step standard for determining novelty under Article 29bis.

156 Hazeltine Research, Inc. v. Brenner, 382 U.S. 252, 147 U.S.P.Q. (BNA) 429 (1965).

157 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, at 14. US delegates requested to change Rule 9 so that Article 8(2), "prior art," should apply to both novelty and inventive step/non-obviousness. See also, WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, at 21.

158 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 9(1)(c).

159 Id. at rule 9(4).

160 Without an exception, an inventor's own application will prevent him from obtaining a patent on his new but obvious improvements.

161 35 U.S.C. § 102(e) (2000). With respect to non-obviousness determination, the invention disclosed in the early application is excluded from the prior art if the invention and the claims under the examination were owned by the same person or subject to an obligation of assignment to the same person at the time that the invention was made under 35 U.S.C. § 103(g) (2000).

162 Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29bis.

163 Gerald Paterson, The European Patent System 388 (2001).

164 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9.

165 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9, alternative A. Alternative A was adopted in the Eighth and Ninth Session Drafts. WIPO Draft Substantive Patent Law Treaty (8th Session) supra note 94, art. 9; WIPO Draft Substantive Patent Law Treaty (9th Session) supra note 94, art. 9.

166 Id. at art. 9, alternative B.

167 Straus, supra note 28, at 3.

168 European Patent Convention, supra note 13, art. 54, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29. This principle is already discussed in the previous section.

169 35 U.S.C. § 102(a) (2000).

170 Pennock, 27 U.S. at 23.

[171] European Patent Convention, supra note 13, art. 55, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 30.

[172] European Patent Convention, supra note 13, art. 55(1)(a), (1)(b), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286.

[173] Paris Convention, supra note 23, art. 11, 25 Stat. at 1372, 828 U.N.T.S. at 339.

[174] A publication without the inventor's consent is considered to constitute evident abuse. However, what constitutes an evident abuse should be further clarified by EPO case law. For a general discussion regarding what act gives rise to an evident abuse, see Romauld Singer et al., The European Patent Convention 174 (Rev. Eng. ed. 1995).

[175] Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 30(2).

[176] Id. at art. 30(3).

[177] Id. at art. 30(1).

[178] European Patent Convention, supra note 13, art. 55, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 30(4). Applicants also need to submit document(s) showing that an invention is the same invention disclosed prior to the filing date and can fall within one of categories for taking advantage of the grace period. Under the EPC, such document(s) must be filed at the filing date, but, under the JPL, such document(s) can be filed within 30 days from the filing date.

[179] European Patent Convention, supra note 13, art. 55, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 30(4).

[180] 35 U.S.C. § 102(b) (2000).

[181] 35 U.S.C. § 102(a) (2000). (§ 102(a) does not apply to disclosures by inventors and their licensors).

[182] 35 U.S.C. § 102(b) (2000).

[183] An option of the six-month grace period term was included in the Eighth and Ninth Session Drafts. WIPO Draft Substantive Patent Law Treaty (8th Session), supra note 94, art. 9; WIPO Draft Substantive Patent Law Treaty (9th Session), supra note 94, art. 9.

[184] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9.

[185] Id. art. 9, alternative A (1)(ii). This category includes disclosures by a patent office regarding the information contained in (a) another application filed by the inventor and should not have been made available to the public by the Office, or (b) an application filed without the knowledge or consent of the inventor by a third party which obtained the information directly or indirectly from the inventor.

[186] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9, alternatives A, B.

187 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, at 16.

188 An applicant who is the second-to-file and disclose an invention during the grace period cannot obtain a patent under the first-to-file principle under the European Patent Convention, supra note 13, art. 83, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 27, 13 I.L.M. 270, 291; and Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 39. An applicant who is the first-to-file but failed to file an application prior to the disclosure by the second-to-file during the grace period cannot obtain a patent for lack of novelty under the European Patent Convention, supra note 13, art. 54, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286 and Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29. The first-to-file can obtain a patent only if he files an application prior to the disclosure by another inventor.

189 35 U.S.C. § 102 (g) (2000).

190 For more discussion on the role of the filing date in a priority contest, see infra note 348.

191 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9, alternative A(4).

192 WIPO Draft Report (6th Session), supra note 89, at 23.

193 Straus, supra note 28, at 58.

194 The Eighth and Ninth Session Drafts provides this right in Article 9(5). WIPO Draft Substantive Patent Law Treaty (8th Session), supra note 94, art. 9; WIPO Draft Substantive Patent Law Treaty (9th Session), supra note 94, art. 9.

195 Chisum, supra note 59, § 7.01; In re Barker, 559 F.2d 588, 194 U.S.P.Q. (BNA) 470 (C.C.P.A. 1977).

196 European Patent Convention, supra note 13, art. 84.

197 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(3)(b).

198 The term “possession” reflects US case law. E.g., Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 19 U.S.P.Q.2d (BNA) 1111 (Fed. Cir. 1991).

199 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 10.

200 European Patent Convention, supra note 13, art. 83, 84, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 27-28, 13 I.L.M. 270, 291.

201 Id., art. 83.

202 TRIPS Agreement, supra note 8.

203 35 U.S.C. § 112, para. 1 (2000) (“The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same....”).

[204] Gould v. Hellwarth, 472 F.2d 1383, 1387, 176 U.S.P.Q. (BNA) 489, 491 (C.C.P.A. 1973).

[205] In re Gardner, 427 F.2d 786, 788, 166 U.S.P.Q. (BNA) 138, 139 (C.C.P.A. 1970).

[206] In re Wright, 999 F.2d 1557, 27 U.S.P.Q.2d (BNA) 1510 (Fed. Cir. 1993). For a general discussion of the concept of undue breadth, see Chisum, supra note 59, § 7.03[7].

[207] In re Fisher, 427 F.2d 833, 839, 166 U.S.P.Q. (BNA) 18, 24 (C.C.P.A. 1970).

[208] U.S. Patent and Trademark Office, Manual of Patent Examining Procedure, § 2173.04 (8th ed. Aug. 2001).

[209] In re Wright, 999 F.2d 1557, 1562, 27 U.S.P.Q.2d (BNA) 1510, 1512 (Fed. Cir. 1993). For a general discussion of the concept of undue breadth, see Chisum, supra note 59, § 7.03[4].

[210] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 10.

[211] In re Wands, 858 F.2d 731, 737, 8 U.S.P.Q.2d (BNA) 1404, 1409 (Fed. Cir. 1988).

[212] T0639/95, Biopolimers/MIT, Decision of Technical Board of Appeals, Jan. 21, 1998, at 4; Japanese Patent Office Examination Guidelines part VII, ch. 2, 1.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartVII-2.pdf [hereinafter JPO Examination Guidelines].

[213] WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16, art. 11(3).

[214] The Japanese delegation pointed out two approaches for rejecting unreasonably broad claims: (1) a requirement for claims being supported by the specification and (2) a requirement for specifications to enable one skilled in the art to practice the invention. WIPO Draft Report (6th Session), supra note 89, at 28.

[215] Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-4, 19 U.S.P.Q.2d (BNA) 1111, 1117 (Fed. Cir. 1991). However, over objections from the US delegations, the term "possession" was removed from the Eighth and Ninth Session Drafts. WIPO Draft Substantive Patent Law Treaty (8th Session), supra note 94, art. 11(3); WIPO Draft Substantive Patent Law Treaty (9th Session), supra note 94, art. 11(3). Instead, the term "subject matter which he (the applicant) recognized and described" is inserted Rule 12. WIPO Draft Regulations Under The Substantive Patent Law Treaty, Nov. 25-29, 2002 (8th Session) available at http://www.wipo.int/documents/en/document/scp_ce/index_ 8.htm [hereinafter WIPO Draft Regulations (8th Session)]; WIPO Draft Regulations Under The Substantive Patent Law Treaty (9th Session) available at http://www.wipo.int/news/en/index.html?wipo_content_frame=/ news/en/conferences.html [hereinafter WIPO Draft Regulations (9th Session)]. This term "recognized and described" appears to parallel to the written description standard in the recent Federal Circuit case law. Regent of the Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 1568, 43 U.S.P.Q.2d (BNA) 1398, 1406 (Fed. Cir. 1997); Enzo Biochem, Inc. v. Gen-Probe, Inc., 296 F.3d 1316, 1329, 63 U.S.P.Q.2d (BNA) 1609, 1616 (Fed. Cir. 2002) (The disclosure must allow one skilled in the art to visualize or recognize the identity of the subject matter purportedly described.).

[216] Id.

[217] 35 U.S.C. § 112 para. 1 (2000).

[218] TRIPS Agreement, supra note 8, art. 29, para. 1, 33 I.L.M at 94.

[219] Chemcast Corp. v. Arco Indus. Corp., 913 F.2d 923, 928, 16 U.S.P.Q.2d (BNA) 1033, 1037 (Fed. Cir. 1990).

[220] WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16, art. 11.

[221] European Patent Convention, supra note 13, art. 84, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 28, 13 I.L.M. 270, 291.

[222] Id.

[223] The U.S. delegate is trying to use the exact term used in 35 U.S.C. § 112, para. 2. WIPO Draft Report (6th Session), supra note 89, at 27-28.

[224] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 2.

[225] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 10, 12.

[226] Draft Report, World Intellectual Property Organization, Standing Committee on the Law of Patents, 5th Session, Sept. 27, 2001, at 21, available at http://www.wipo.org/scp/en/documents/session_5/index.htm.

[227] WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16, at 26-27.

[228] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(4).

[229] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(4)(a).

[230] European Patent Convention, supra note 13, art. 69(1), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 23, 13 I.L.M. 270, 288; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 70(1), (2).

[231] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(4)(a).

[232] European Patent Convention, supra note 13, art. 69(1), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 23, 13 I.L.M. 270, 288; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 70(1), (2).

[233] Schering Corp. v. Amgen, Inc., 222 F.3d 1347, 1353, 55 U.S.P.Q.2d (BNA) 1650, 1654-55 (Fed. Cir. 2000).

[234] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(4)(a).

[235] Notes, World Intellectual Property Organization, Standing Committee on the Law Patents, 7th Session, Mar. 18, 2002, at 33, available at http:// www.wipo.org/scp/en/documents/session_7/index.htm.

[236] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(4)(b).

[237] European Patent Convention, supra note 13, art. 69(1), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 23, 13 I.L.M. 270, 288.

[238] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(1)(b). Rules for claim interpretation under Article 11(4) has been moved to Rule 13 in the Eighth and Ninth Session Draft Regulations. WIPO Draft Regulations (8th Session), supra note 215, rule 13(1)(b); WIPO Draft Regulations (9th Session), supra note 215, rule 13(1)(b).

[239] Tsubakimoto Seiko v. THK K.K., 1360 Hanrei Jiho 32 (Sup. Ct., 1998). An English translation by the author is published by the Supreme Court; see Toshiko Takenaka, The Supreme Court Affirmed the Presence of the Doctrine of Equivalents Under Japanese Patent System, CASRIP Newsletter, Winter 1998, at 1.

[240] 35 U.S.C. § 112, para. 6 (2000).

[241] Autogiro Co. of Am. v. United States, 384 F.2d 391, 397, 155 U.S.P.Q. (BNA) 697, 702 (Ct. Cl. 1967).

[242] Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 28, 40, 41 U.S.P.Q.2d (BNA) 1865, 1870-71, 1876 (1997).

[243] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12.

[244] Kimberly Moore et al., Patent Litigation and Strategy 206-13 (1999).

[245] CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1153, 42 U.S.P.Q.2d (BNA) 1577, 1582 (Fed. Cir. 1997); Chisum, supra note 59, § 18.03 [2][b][ii].

[246] Cybor Corp. v. FAS Tech., Inc., 138 F.3d 1448, 1458, 46 U.S.P.Q.2d (BNA) 1169, 1176 (Fed. Cir. 1998).

[247] Chisum, supra note 59, at § 18.03 [3].

[248] Desper Prods., Inc. v. Qsound Labs, Inc., 157 F.3d 1325, 1336-38, 48 U.S.P.Q.2d (BNA) 1088, 1096-97 (Fed. Cir. 1998).

[249] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(2)(b). The language is slightly modified to simplify and clarify the provision in the Ninth Draft Regulations. WIPO Draft Regulations (9th Session) supra note 215, rule 13(2)(b).

[250] Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1476-77, 45 U.S.P.Q.2d (BNA) 1498, 1501 (Fed. Cir. 1998).

[251] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(4)(b).

[252] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(5).

[253] Hilton Davis Chem. Co. v. Warner-Jenkinson Co., Inc., 62 F.3d 1512, 1518-19, 35 U.S.P.Q.2d (BNA) 1641, 1645-46 (Fed. Cir. 1995), en banc, rev'd and remanded for further proceedings consistent with this opinion, 520 U.S. 17, 41 U.S.P.Q.2d (BNA) 1865 (1997). The Ninth Session Draft Regulations adopted the insubstantial difference test, which more closely reflects the test adopted in the Hilton Davis opinion. WIPO Draft Regulations (9th Session), supra note 215, rule 13(5)(i). It also added a new test to prevent a finding of equivalence if a person skilled in the art had no reason to assume that the equivalent element had been excluded from the claimed invention. WIPO Draft Regulations (9th Session), supra note 215, rule 13(5)(ii). This new test parallels the test used by European countries. E.g., Catnic Components Ltd. and Another v. Hill and Smith Ltd., [1981] FSR 60, [1982] RPC

183 (H.L. 1980).

254 Toshiko Takenaka, Case Comment: The Judgment of Supreme Court of Japan, Feb. 24, 1998 (in Japanese), Feb. 24, 1998, Hanrei Jiho No. 1688 (1999).

255 Warner-Jenkinson, 520 U.S. at 19, 41 U.S.P.Q.2d at 1867; Tsubakimoto Seiko v. THK K.K., 1360 Hanrei Jiho 32 (Sup. Ct. 1998). The Ninth Draft also adopts the time of infringement. WIPO Draft Regulations (9th Session) supra note 215, rule 13(5).

256 Judgment of the Federal Supreme Court (Bundesgerichtshof), Apr. 29, 1986, 18 I.I.C. 795 (1987).

257 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(6).

258 These rules are renumbered as Rule 13(4)(a), (b) and (c) in the Ninth Session Draft Regulations. WIPO Draft Regulations (9th Session) supra note 215, rule 13(4).

259 Id. at rule 12. For simplification, the Eighth and Ninth Draft Regulations removed Rule 12(4)(b) and retained Rule 12(4)(a) as Rule 13(4)(a). WIPO Draft Regulations (8th Session), supra note 215, rule 13(4)(a); WIPO Draft Regulations (9th Session), supra note 215, rule 13(4)(a).

260 T292/85 GENENTECH I/Polypeptide Expression, 1989 Official Journal of EPO 275, 282 (1989); JPO Examination Guidelines, supra note 212, at part 1, ch. 1, § 2.2.2.1 (6), available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf.

261 In re Donaldson, 16 F.3d 1189, 1193, 29 U.S.P.Q.2d (BNA) 1845, 1848 (Fed. Cir. 1994).

262 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12.

263 T150/82 IFF/Claim Categories, 1984 Official Journal of EPO 309, 312 (1984); JPO Examination Guidelines, supra note 212, at part 1, ch. 1, § 2.2.2.1 (7), available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf.

264 In re Pilkington, 411 F.2d 1345, 1348, 162 U.S.P.Q. (BNA) 145, 147 (C.C.P.A. 1969).

265 Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1580-81, 18 U.S.P.Q.2d (BNA) 1001, 1013-14 (Fed. Cir. 1991).

266 Atlantic Thermoplastics Co. v. Faytex Corp., 970 F.2d 834, 846-47, 23 U.S.P.Q.2d (BNA) 1481, 1490-91 (Fed. Cir. 1992).

267 Trs. of Columbia Univ. v. Roche Diagnostics Gmbh, 126 F. Supp. 2d 16, 31-32, 57 U.S.P.Q.2d (BNA) 1825, 1837-38 (D. Mass. 2000).

268 Atlantic Thermoplastics Co., 970 F.2d at 846, 23 U.S.P.Q.2d at 1491.

269 In re Alappat, 33 F.3d 1526, 1539-41, 31 U.S.P.Q.2d (BNA) 1545, 1553-54 (Fed. Cir. 1994); Donaldson, 16 F.3d at 1194-96, 29 U.S.P.Q.2d at 1849-50.

270 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(1), 12(2).

[271] G2/88 MOBIL OIL/Friction Reducing Additive, 1990 Official Journal of EPO 93, 98-99 (1990); JPO Examination Guidelines, supra note 212, part II, ch. 2, § 1.5.2 (2), available at http://www.jpo.go.jp/infoe/Guidelines/PartII-2.pdf.

[272] Atlas Powder Co. v. Ireco, Inc., 190 F.3d 1342, 1346, 51 U.S.P.Q.2d (BNA) 1943, 1945-46 (Fed. Cir. 1999). For a general discussion of patentability of new use claims under U.S. case law, see Chisum, supra note 59, at § 1.03 [8][a], Robert Merges, Patent Law and Policy 489 (1992).

[273] In re Dillon, 919 F.2d 688, 692-94, 16 U.S.P.Q.2d (BNA) 1897, 1900-02 (Fed. Cir. 1990).

[274] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(1)(a).

[275] Id. at art. 12(1).

[276] The controversy over the definition of subject matter is so serious that the definition is completely removed from the Eighth Session Draft Treaty. WIPO Draft Substantive Patent Law Treaty (8th Session), supra note 94, art. 12(1). The definition in the seventh session reappeared in the Ninth Session Treaty Draft although the delegations agreed to postpone the discussion on eligible subject matter. WIPO Draft Substantive Patent Law Treaty (9th Session), supra note 94, art. 12(1).

[277] TRIPS Agreement, supra note 8, art. 25, 33 I.L.M at 93.

[278] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(1)(a).

[279] European delegates objected to the current draft and requested to insert the term “in any field of activity” to be consistent with TRIPS Agreement, supra note 8, art. 27, para. 1, 33 I.L.M. at 93-94; Draft Report (6th Session), supra note 89, at 30.

[280] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(1)(b).

[281] European Patent Convention, art. 52(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090), 18, 13 I.L.M. 271, 285. Not only European delegates but also many other delegates requested to list computer software and business methods as being exempt from patent eligible subject matter. WIPO Draft Report (6th Session), supra note 89, at 31.

[282] Alappat, 33 F.3d at 1541-45, 31 U.S.P.Q.2d at 1555-58.

[283] For more detailed discussion, see infra Part III.E.1.

[284] European Patent Convention, Oct. 5, 1973, art. 52(2)(c), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090), 18, 13 I.L.M. 271, 285.

[285] Guidelines for Substantive Examination, European Patent Office, part C, ch. IV, §§ 2.1-2.2, available at http://www.european-patent-office.org/legal/gui_lines/e/index.htm [hereinafter EPO Examination Guidelines]. This requirement comes from case law doctrines from EPC member states. For example, regarding German case law, see Wolfgang Bernhardt & Rudolf Krasser, Lehrbuch des Patentrechts 89 (1986).

[286] Implementing Regulations to Convention on the Grant of European Patents, European Patent Office, part III, ch. II, § 29(1), available at http://www.european-patent-office.org/legal/epc/e/contents.html.

[287] Gerald Paterson, The European Patent System 414 (2d ed. 2001).

[288] The Patentability of Computer-Implemented Inventions, Commission of the European Communities, Oct. 19, 2000, available at http:// europa.eu.int/comm/internal_market/en/indprop/soften.pdf.

[289] Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 2(1).

[290] JPO Examination Guidelines, supra note 212, part VII, ch. 1, § 2.2.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartVII-1.pdf. (An information processing by software constitutes patent eligible subject matter if it concretely utilizes hardware resources.).

[291] Law for Revising Part of Patent Law, Law No. 24 of 2003. Toshiko Takenaka, JPO's New Bill to Revise Patent and Trademark Law Will Prepare Japan for Network Society, CASRIP Newsletter, Winter 2002, at 7.

[292] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12.

[293] WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16, art. 12.

[294] WIPO Draft Report (6th Session), supra note 89, at 30.
Draft Regulations and Practice Guidelines under the Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 6th Session, Sept. 24, 2001, available at http:// www.wipo.org/scp/en/documents/session_6/index.htm, [hereinafter WIPO Draft Regulations and Practice Guidelines (6th Session)], rule 13.

[295] John R. Thomas, The Patenting of the Liberal Professions, 40 B.C. L. Rev. 1139 (1999).

[296] Department of Commerce, Patent and Trademark Office, "Guidelines for Examination of Patent Application under the 35 U.S.C. § 112, para. 1 'Written Description' Requirement" 66 Fed. Reg. 1099, 1099-1104 (Jan. 5, 2001).

[297] WIPO Draft Report (6th Session), supra note 89, at 31-32.

[298] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(4).

[299] The Ninth Session Draft Treaty added the term "economic" between the terms "commercial" and "activities." WIPO Draft Substantive Patent Law Treaty (8th Session), supra note 94, art. 9; WIPO Draft Substantive Patent Law Treaty (9th Session), supra note 94, art. 12(4) alternative A.

[300] European Patent Convention, supra note 13, art. 57, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286. The Ninth Session Treaty Draft includes a note that the second option is modeled after PCT, supra note 33, art. 33(4).

[301] European Patent Convention, supra note 13, art. 52(4), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 285; EPO Examination Guidelines, supra note 285, part C, ch. 4, § 4.2.

[302] Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29.

303 JPO Examination Guidelines, supra note 212, part II, ch. 1 § 2.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartII-1.pdf.

304 Utility Examination Guidelines, 66 Fed. Reg. 1092 (2001).

305 Brenner v. Manson, 383 U.S. 519, 534-35, 148 U.S.P.Q. (BNA) 689, 695-96 (1966).

306 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(5). At the Eighth Session, delegations decided to postpone the discussion on this catchall provision. WIPO Draft Substantive Patent Law Treaty (9th Session), supra note 94, art. 12(5).

307 WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16, art. 12(2).

308 However, only with respect to the unpublished prior art that corresponds to the prior art under the SPLT Article 8(2) does the JPO use a slightly relaxed standard. JPO Examination Guidelines, supra note 212, part II, ch. 3, 2.4, available at http://www.jpo.go.jp/infoe/Guidelines/PartII-3.pdf.

309 European Patent Convention, supra note 13, art. 54, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286.

310 The US statute provides for novelty requirements under § 101 and § 102.

311 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 14.

312 Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 3 U.S.P.Q.2d (BNA) 1766 (Fed. Cir. 1987). The Ninth Session Draft Regulations provides this rule in Rule 14(1)(b). WIPO Draft Regulations (9th Session), supra note 215, rule 14.

313 Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 227 U.S.P.Q. (BNA) 773 (Fed. Cir. 1985). The Ninth Session Draft Regulations provides this rule in Rule 14(1)(a). WIPO Draft Regulations (9th Session), supra note 215, rule 14.

314 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 14. From the Eighth Session, WIPO International Bureau started to prepare practice guidelines separate from the draft regulations. Practice Guidelines Under the Substantive Patent Law Treaty, World Intellectual Property Organization, Standing Committee on the Law of Patents, 8th Session, Nov. 25 to 29, 2002, available at http://www.wipo.int/news/en/index.html?wipo_content_ frame=/news/en/conferences.html [hereinafter WIPO Practice Guidelines (8th Session)].

315 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 14(2)(a). WIPO Practice Guidelines (8th Session), supra note 314, guidelines under art. 12(2) and rule 14.

316 Id. at guidelines under rule 14, G3.04, at 33.

317 Cont'l Can Co. v. Monsanto Co., 948 F.2d 1264, 1268-69, 20 U.S.P.Q.2d (BNA) 1746, 1749 (Fed. Cir. 1991).

318 Titanium Metals Corp., 778 F.2d at 781, 227 U.S.P.Q.2d at 776.

319 WIPO Draft Regulations and Practice Guidelines, supra note 135, rule 14, G3.02 and G3.03. WIPO Practice Guidelines (8th Session), supra note 314, guidelines under art. 12(2) and rule 14.

[320] Chisum, supra note 59 § 3.02[2]; EPO Examination Guidelines, supra note 285, part C, ch. IV, § 7.4; Nobuhiro Nakayama, Chukai Tokkyo Ho [Annotated Patent Law] 258 (2d ed., 2000).

[321] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, art. 14(1)(ii), (2)(a), (2)(b).

[322] 35 U.S.C. § 102 (2000); European Patent Convention, supra note 13, art. 54(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 29.

[323] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 7.3.

[324] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(3).

[325] European Patent Convention, supra note 13, art. 56, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286.

[326] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 93, rule 15.

[327] Id. at 35-37; WIPO Practice Guidelines (8th Session), supra note 314, guidelines under art. 12(3) and rule 15.

[328] Donald S. Chisum, Elements of United States Patent Law 38 (2000) [hereinafter Elements of U.S. Patent Law]; For a combination of teachings in more than one prior art reference, see Chisum, supra note 59, § 5.04[1].

[329] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 15(4).

[330] Newell Cos. v. Kenney Mfg., 864 F.2d 757, 776-77, 9 U.S.P.Q.2d (BNA) 1417, 1426 (Fed. Cir. 1988).

[331] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 93, guidelines under rule 15, G4.02.

[332] Id. (guidelines under rule 15, G4.01).

[333] Graham v. John Deere Co., 383 U.S. 1, 148 U.S.P.Q. (BNA) 459 (1966).

[334] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, guidelines under rule 15, G4.04.

[335] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 9.5. For a general discussion of the problem solution approach, see generally George S. Szabo, The Problem and Solution Approach in the European Patent Office, 26 I.I.C. 457(1995).

[336] Many commentators compare first-to-invent and first-to-file with a presumption that they are very different, for example, see Stephanie Gore, “Eureka! But I filed too late... “: The Harm/Benefit Dichotomy of a First-to-File Patent System, 1993 U. Chi. L. Sch. Roundtable 293 (1993).

[337] See, e.g., George E. Frost, The 1967 Patent Law Debate - First-to-Invent vs. First-to-File, 7 Duke L.J. 923 (1967); Vito J. DeBari, International Harmonization of Patent Law: A Solution To The United States’ First-To-File Debate, 16 Fordham Intell. Prop.

Media & Ent. L.J. 687 (1993).

338 Id.

339 Bates v. Coe, 98 U.S. 31 (1878); Credle v. Bond, 25 F.3d 1566, 1570, 30 U.S.P.Q.2d (BNA) 1911, 1914 (Fed. Cir. 1994).

340 37 C.F.R. § 1.131 (2001). Further, an inventor can eliminate a prior art reference by showing that the reference is his own work under 37 C.F.R. § 1.132 (2001) (actually is a disclosure of applicant's own work not that of another).

341 Gould v. Schawlow, 363 F.2d 908, 150 U.S.P.Q. (BNA) 634 (C.C.P.A. 1996) (The inventor of this case failed to establish his diligence due to a lack of corroborative evidence to support his activity).

342 Toshiko Takenaka, Rethinking the United States First-to-Invent Principle from a Comparative Law Perspective: A Proposal to Restructure § 102 Novelty and Priority, 39 Hous. L. Rev. 621 (2002).

343 Adelman, supra note 118, at 206. However, these provisions serve a philosophically different role in the first-to-invent system from the first-to-file system as their functions are keyed with the patent-defeating activity, thus removing the priority.

344 35 U.S.C. § 102(b) (2000).

345 Id.

346 Pennock, 27 U.S. 1.

347 An Act in addition to "An act to promote the progress of the useful arts" [sic]. 5 Stat. 353, 353-55 (1839), reprinted in Chisum, supra note 59, at Appendix 13.

348 35 U.S.C. § 102(g) (2000).

349 Chisum, supra note 59, § 10.03[1][c][iii].

350 Bosies v. Benedict, 27 F.3d 539, 30 U.S.P.Q.2d (BNA) 1862 (Fed. Cir. 1994).

351 Id.at 543, 30 U.S.P.Q.2d at 1864.

352 Price v. Symsek, 988 F.2d 1187, 1190-91, 26 U.S.P.Q.2d (BNA) 1031, 1033 (Fed. Cir. 1993).

353 See generally Hahn v. Wong, 892 F.2d 1028, 13 U.S.P.Q.2d (BNA) 1313 (Fed. Cir. 1989).

354 See generally Edwards v. Strazzabosco, 58 U.S.P.Q.2d (BNA) 1836 (Pat. & Trademark Office Bd. App. 2001) (A panel of the trial section at the USPTO Board noted a 75 percent success rate for senior parties over junior parties.); Gerald J. Mossinghoff, The U.S. First-To-Invent System Has Provided No Advantage to Small Entities, 84 J. Pat. & Trademark Off. Soc'y 425 (2002) (During the period between 1983 and 2000, of the total of 2,858 interference cases, 1917 were favorable to the first-to-file inventors.). However, see Charles L. Gholz, A Critique of Recent Opinions in Patent Interferences, 84 J. Pat. & Trademark Off. Soc'y 163, 181

(2002) (The author points out a conflict between the assessment of the Edwards panel and the last interference statistics published by the USPTO).

355 Only a very small portion of applicants, less than 0.1 percent, engages the priority contest in interference proceeding. Mossinghoff, supra, note 354, at 427. Charles R. B. Macedo, First-To-File: Is American Adoption of the International Standard in Patent Law Worth the Price?, 18 AIPLA Q.J. 193 (1990).

356 Ned L. Conley, First-To-Invent: A Superior System for the United States, 22 St. Mary's L.J. 779 (1991).

357 Mossinghoff, supra note 354, at 425 (The data provided by USPTO confirms that the current first-to-invent system does not favor small entities.); Mark A. Lemley & Colleen V. Chien, Are the U.S. Priority Rules Really Necessary? (July 20, 2002) (unpublished draft submitted for address at 2002 CASRIP High Technology Summit Conference, on file with Texas Intellectual Property Law Journal) (The authors' data empirically indicates that the interference proceedings are more often used by large entities.).

358 As of 1992, the average legal cost of an interference that goes to final hearing has been estimated at $100,000. Macedo, supra note 355, at 219. According to a survey conducted by American Intellectual Property Law Association (AIPLA) in 2001, the median of the estimated cost inclusive in a two party interference is $200,000. AIPLA, Report of Economic Survey 2001 90 (2001).

359 First-to-invent advocates focus solely on the cost of application but pay no attention to the cost of reducing the invention to practice, which is necessary for establishing the priority under the US first-to-invent system. For example, see Conley, supra note 356, at 783.

360 35 U.S.C. § 102(g)(2) (2000).

361 Id. See also, for a general discussion of the priority rule, Chisum, supra note 59, § 10.03[1].

362 Chisum, supra note 59, § 10.08[1].

363 See generally Hazeltine Corp. v. United States, 820 F.2d 1190, 2 U.S.P.Q.2d (BNA) 1744 (Fed. Cir. 1987).

364 See generally Scott v. Finney, 34 F.3d 1058, 32 U.S.P.Q.2d (BNA) 1115 (Fed. Cir. 1994).

365 Conley, supra note 356, at 783.

366 35 U.S.C. § 102(g)(2) (2000); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. (BNA) 81 (Fed. Cir. 1986); Chisum, supra note 59, § 10.03[1].

367 35 U.S.C. § 102(g)(2) (2000).

368 35 U.S.C. § 102(g)(2) (2000); Gould v. Schawlow, 363 F.2d 908, 150 U.S.P.Q. (BNA) 634 (C.C.P.A. 1966).

369 35 U.S.C. § 102(g)(2) (2000); Lutzker v. Plet, 843 F.2d 1364, 6 U.S.P.Q.2d (BNA) 1370 (Fed. Cir. 1988); see, e.g., Chisum, supra note 59, § 10.07[4][b] (stating "poverty or illness are rarely sustained as excusing the entire period of inactivity").

370 See generally Griffith v. Kanamaru, 231 U.S.P.Q. (BNA) 892 (Bd. Pat. App. & Int'f 1986).

[371] Toshiko Takenaka, Rethinking the United States First-to-Invent Principle from a Comparative Law Perspective: A Proposal to Restructure § 102 Novelty and Priority, 39 Hous. L. Rev. 621 (2002).

[372] SPLT Article 8(1) defines the prior art as all information that has been made available to the public anywhere in the world in any form. WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(1). SPLT Regulation Rule 8 explains any form that includes oral communication, display, and use of the invention. WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 8.

[373] 35 U.S.C. § 102(a), (b) (2000).

[374] To address this concern, Japanese patent law was revised to remove geographical restriction on non-documentary prior art in Article 29, § 1, and made foreign public use and knowledge as the prior art for rejecting an application regarding both novelty and inventive step. Law to Revise Part of Patent Law and Other Industrial Property Laws, Law No. 41 of 1999 (Japan).

[375] U.S. Const. art I., § 8, cl. 8.

[376] Margo A. Bagley, Patently Unconstitutional: The Geographical Limitation on Prior Art in a Small World, 87 Minn. L. Rev. 697 (2003).

[377] Id. at 725.

[378] TRIPS Agreement, supra note 8, art. 27, 33 I.L.M. at 93-94.

[379] William LaMarca, Reevaluating the Geographical Limitation of 35 U.S.C. 102(b); Policies Considered, 22 Dayton L. Rev. 25 (1996).

[380] The prior art under the SPLT, Article 8(1) at 16, includes only information that has been made available to the public. WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8.

[381] Elizabeth, 97 U.S. at 134.

[382] Egbert, 104 U.S. at 336.

[383] Tone Brothers, Inc. v. Sysco Corp., 28 F.3d 1192, 1198, 31 U.S.P.Q.2d (BNA) 1321, 1324 (Fed. Cir. 1994). For a general discussion on the underlying policies, see Chisum, supra note 59, § 6.02.

[384] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8.

[385] Id. at art. 9.

[386] See generally Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 181 U.S.P.Q. (BNA) 673 (1974).

[387] A secret commercial use of an invention does not give rise to the prior art under either the EPC or JPL. Like the SPLT Article 8,

information must have been made publicly available for constituting the prior art. European Patent Convention, supra note 13, art. 54(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286; Patent law, Law No. 121 of 1959, art. 29(1) (Japan).

388 The Supreme Court criticized the Federal Circuit's "totality of circumstances" approach applied to decide whether an act falls within the "statutory public use" or "on sale" as being unnecessary, vague, and uncertain. See Pfaff v. Wells Electronics, Inc., 525 U.S. 55, 66, 48 U.S.P.Q.2d (BNA) 1641, 1646 (1998).

389 See generally UMC Elecs. Co. v. United States, 816 F.2d 647, 2 U.S.P.Q.2d (BNA) 1465 (Fed. Cir. 1987).

390 See generally Egbert, 104 U.S. 333.

391 35 U.S.C. § 102 (b) (2000). The statute simply lists "public use" and "on sale" in parallel as activities preventing inventors from obtaining a patent.

392 W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. (BNA) 303 (Fed. Cir. 1983).

393 35 U.S.C. § 102 (b) (2000). The statute does not include any restriction(s) regarding the actor who engages in the listed activities.

394 C. Douglas Thomas, Article: Notes Secret Prior Art - Get Your Priorities Straight!, 9 Harv. J.L. & Tech. 147 (1996).

395 See generally Elizabeth, 97 U.S. 126.

396 35 U.S.C. § 102(b) (2000); Chisum, supra note 59, § 6.02[7].

397 Pfaff, 525 U.S. at 64, 48 U.S.P.Q.2d at 1645 (1998) (citing Elizabeth v. Am. Nicholson Pavement Co., 97 U.S. 126 (1877), the Court explained the right of inventors to conduct extensive testing without losing his right to obtain a patent for his invention--even if such testing is conducted publicly).

398 For a good example see the Lough case. Lough v. Brunswick Corp., 86 F.3d 1113, 39 U.S.P.Q.2d (BNA) 1100 (Fed. Cir. 1996). Although the doctrine is often invoked by inventors, US courts rarely sustain the doctrine. Chisum, supra note 59, § 6.02[7].

399 Chisum, supra note 59, § 6.03.

400 Id. at § 6.03[1][c][ii].

401 United States courts have never found abandonment during the grace period. See, e.g., CTS Corp. v. Piher Int'l Corp., 527 F.2d 95, 188 U.S.P.Q. (BNA) 419 (7th Cir. 1975). For a general discussion, see Chisum, supra note 59, § 6.03[1][c][i].

402 Chisum, supra note 59, § 19.05[3].

403 Chisum, supra note 59, § 6.04[1].

404 For a general discussion of § 102(d) and the Paris Convention, see Donald S. Chisum, Foreign Activity: Its Effect on Patentability Under United States Law, 11 I.I.C. 26 (1980).

405 35 U.S.C. § 102(d) (2000).

406 TRIPS Agreement, supra note 8, art. 27, para. 1, 33 I.L.M. at 93-94.

407 Hilmer, 424 F.2d 1108, 165 U.S.P.Q. (BNA) 255.

408 Chisum, supra note 59, § 14.05[3].

409 See supra note 339 for a discussion of USPTO's examination practice.

410 37 C.F.R. § 1.131 (2001). Further, an inventor can eliminate a prior art reference by showing that the reference is his own work under 37 C.F.R. § 1.132 (2001).

411 Many legal commentators points out the problems caused by the application of Hilmer doctrine. See Elements of U.S. Patent Law, supra note 328, at 104; Harold Wegner, TRIPS Boomerang - Obligations for Domestic Reform, 29 Vand. J. Transnat'l L. 535 (1996); Kevin L. Leffel, Comment, Hilmer Doctrine and Patent System Harmonization: What Does A Foreign Inventor Have At Stake?, 26 Akron L. Rev. 355 (1992).

412 Elements of U.S. Patent Law, supra note 328, at 104.

413 The Hilmer doctrine is also extensively criticized for violating the priority right provision under the Paris Convention Article 4, as well as the non-discrimination policy provision as to the place of invention under TRIPS Agreement, art. 27, para. 1. TRIPS Agreement, supra note 8, art. 27, para. 1, 33 I.L.M. at 93-94.

414 See generally In re Deckler, 977 F.2d 1449, 24 U.S.P.Q.2d (BNA) 1448 (Fed. Cir. 1992); Kate H. Murashige, The Hilmer Doctrine, Self Collision, Novelty and the Definition of Prior Art, 26 J. Marshall L. Rev. 549 (1993).

415 See Charles E. Van Horn, Effects of GATT and NAFTA on PTO Practice, 77 J. Pat. & Trademark Off. Soc'y 231, 234 (1995).

416 Elements of U.S. Patent Law, supra note 328, at 104.

417 In re Hilmer, 359 F.2d 859, 877, 149 U.S.P.Q (BNA) 480, 495 (C.C.P.A. 1966). The practical potential effect of pushing back the date of the unpublished, secret disclosure ultimately will have an effect as prior art references in the form of U.S. patents by the full one-year priority period of § 119.

418 35 U.S.C. § 122(b)(1) (2000).

419 35 U.S.C. § 102(e)(1) (2000).

420 TRIPS Agreement, supra note 8, art. 27, 33 I.L.M. at 93-94.

421 The author conducted database search and found that only 44 cases have cited Hilmer over the past four decades. The Federal Circuit has not cited Hilmer since the Deckler decision.

422 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(2).

423 Chisum, supra note 59, § 9.01.

424 Singer, supra note 176, at 211.

425 Toshiko Takenaka, Doctrine of Equivalents after Hilton Davis: A Comparative Law Analysis, 22 Rutgers Computer & Tech. L.J. 479 (1996).

426 Toshiko Takenaka, The Substantial Identity Rule under the Japanese Novelty Standard, 9 UCLA Pac. Basin L.J. 220, 228-29 (1991).

427 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rules 12, 12(5).

428 The six month option was introduced in the Eighth Session Draft Treaty. WIPO Draft Substantive Patent Law Treaty (8th Session), supra note 94, art. 9.

429 Typical examples are biotechnological inventions and computer software. For a general discussion, see Charles R. McManis, Patent Law and Policy Symposium: Re-Engineering Patent Law: The Challenge of New Technologies: Introduction, 2 Wash. U. J.L. & Pol'y 1 (2000); Arti Rai, Addressing the Patent Gold Rush: The Role of Deference to PTO Patent Denials, 2 Wash. U. J.L. & Pol'y 199 (2000); Dennis S. Karjala, The Relative Roles of Patent and Copyright in the Protection of Computer Programs, 17 J. Marshall J. Computer & Info. L. 41 (1998).

430 McManis, supra note 429.

431 The Bayh-Dole Act of 1980, Pub. L. No. 96-517, 94 Stat. 3015 (codified as amended at 35 U.S.C. §§ 200-211, 301-307 (1994)).

432 See generally Rebecca S. Eisenberg, Symposium on Regulating Medial Innovation: Public Research and Private Development: Patents and Technology Transfer in Government-Sponsored Research, 82 Va. L. Rev. 1663 (1996).

433 These institutions were permitted to claim the ownership of publicly funded research results after the enactment of the Bayh-Dole Act in 1980.

434 Straus, supra note 28, at 51.

435 According to the survey conducted by AIPPI Japan Group, 87 percent of 177 national and regional patent systems provide for some type of grace period systems. Report: A Grace Period for Patents, AIPPI Japan Group, 1 (Dec. 2000).

436 Id. at 2.

437 Id. at 3.

438 Id. at 4.

[439] Id. at 4.

[440] Id. at 26.

[441] Report: A Grace Period for Patents, AIPPI Japan Group at 33.

[442] See generally Joseph Straus, The Grace Period in Patent Law: A Look at Europe, 7 Int'l Intell. Prop. L. & Pol'y 27-1 (2001).

[443] Albrecht Hüni, Comments on the Introduction of an International Period of Grace, 16 IIC 580, 582 (1985).

[444] Straus, supra note 442, at 27-2.

[445] Straus, supra note 442, at 4-5.

[446] The Bayh-Dole Act of 1980, supra note 431.

[447] Interview with Gerald Barnett, Director, Software Venture Group, Univ. of Wash. Office of Technology Transfer and Intellectual Property, in Seattle, WA (Apr. 2001).

[448] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9(1)(i).

[449] Id. at art. 9(1)(ii)-(iii).

[450] For a comparison between Article 9 and 35 U.S.C., see supra Part I.B.

[451] 37 C.F.R. § 1.131 (2001). For a general discussion of Rule 131 practice, see supra note 340.

[452] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(1).

[453] Inventor applications are rejected under SPLT Article 8(2), and third party applications are rejected under SPLT Article 8(1).

[454] For a discussion of the priority, see supra Part III.A.1.

[455] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 8(2).

[456] 35 U.S. C. § 273 (2001).

[457] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9(5).

458 For a discussion of grace period under EPC and JPL, see discussions associated with supra notes 171-79.

459 Straus, supra note 28, at 91.

460 For a discussion of description requirement compared with US practice, see supra Part II.C.

461 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 10(1).

462 Id. at art. 11(3)(b).

463 WIPO Draft Report (6th Session), supra note 89, at 28. To clarify the relationship between the requirements under Article 10 and 11, WIPO International Bureau conducted a comparative study of the relationship between the claims to the disclosure and published a result of their study. Requirements Concerning The Relationship of The Claims to The Disclosure, World Intellectual Property Organization, Standing Committee on the Law of Patents, 7th Session, May 6 to 10, 2002, available at http://www.wipo.org/scp/en/documents/session_7/index.htm [hereinafter WIPO Claims-Disclosure Study (7th Session)].

464 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 7(3).

465 See generally In re Barker, 559 F.2d 588, 194 U.S.P.Q. (BNA) 470 (C.C.P.A. 1977).

466 Scripps Clinic & Research Found., 927 F.2d at 1571, 18 U.S.P.Q.2d at 1006.

467 Adelman, supra note 118, at 567.

468 Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1560; 19 U.S.P.Q.2d (BNA) 1111, 1114 (Fed. Cir. 1991).

469 Adelman, supra note 118, at 567.

470 WIPO Draft Report (6th Session), supra note 89, at 29.

471 Barker, 559 F.2d at 591, 194 U.S.P.Q. at 472.

472 Enzo Biochem, Inc. v. Gen-Probe, Inc., 296 F.3d 1316, 1324, 63 U.S.P.Q.2d (BNA) 1609, 1612 (Fed. Cir. 2002).

473 Regent of the Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 43 U.S.P.Q.2d (BNA) 1398 (Fed. Cir. 1997). For a criticism against this confusion, see Janice Mueller, The Evolving Application of the Written Description Requirement to Biotechnology inventions, 13 Berkeley Tech. L.J. 615 (1988); Harris Pitllich, The Mutation on the Description Requirement Gene, 80 J. Pat. & Trademark Off. Soc'y 209 (1998).

474 Enzo Biochem, Inc. v. Gen-Probe, Inc., 42 Fed. Appx. 439, 446-47, 63 U.S.P.Q.2d (BNA) 1618, 1624 (Fed. Cir. 2002) (Rader, J., dissenting).

475 Id. at 440-41, 63 U.S.P.Q.2d (BNA) at 1619-20 (Lourie, J., concurring).

[476] Mark Janis, On Courts Herding Cats: Contending with the "Written Description" Requirement (and Other Unruly Patent Disclosure Doctrines), 2 Wash. U. J.L. & Pol'y 55, 107 (2000).

[477] WIPO Claims-Disclosure Relationship Study (7th Session), supra note 463, Part II, note 6. See, e.g., T770/90, PHILIPS/Image Enhancement Circuit, European Patent Office Report 438 (1992).

[478] In re Wright, 999 F.2d 1557, 27 U.S.P.Q.2d (BNA) 1510 (Fed. Cir. 1993). For a discussion of the undue breadth doctrine, see supra note 206.

[479] WIPO Claims-Disclosure Relationship Study (7th Session), supra note 463, Part II, note 21. JPO, Practices in Examination and Appeals under 1994 Revised Patent Law in Japan (1994); JPO Draft Revised Examination Guidelines for Industrially Applicable Inventions (2001).

[480] See, e.g., T281/86, 1989 Official Journal of EPO 202.

[481] See, e.g., T787/89, BRITISH PETROLEUM/Diamond Identification, European Patent Office Report 387 (1991).

[482] T770/90, PHILIPS/Image Enhancement Circuit, European Patent Office Report 438 (1992). For a general discussion of EPC Article 84 and overly broad claims, see Singer, supra note 176, at 369.

[483] WIPO Int'l Bureau admits that the application violates both the enablement requirement under EPC art. 73 and support requirement under art. 74, where a claim is unreasonably broad in contrast to the disclosure. WIPO Claims-Disclosure Relationship Study (7th Session), supra note 463, Part II, note 15.

[484] WIPO Int'l Bureau also concluded that the enablement and support requirements are redundant if they applied to an overly broad claim. WIPO Claims-Disclosure Relationship Study (7th Session), supra note 463, Part II, note 15.

[485] Janis, supra note 476, at 107 (2000).

[486] European Patent Convention, supra note 13, art. 100, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 35, 13 I.L.M. 270, 294.

[487] Sir Nicholas Pumfrey, Patent Protection of Broad Claims (Apr. 20, 2001) (unpublished manuscript on file at the Texas Intellectual Property Law Journal).

[488] The Eighth and Ninth Session Draft Treaty moved Article 11(b) to Draft Regulations. WIPO Draft Regulations (8th Session), supra note 215, rule 12; WIPO Draft Regulations (9th Session), supra note 215, rule 12. The term "possession" was replaced with the term "recognized and described."

[489] WIPO Int'l Bureau lists three examples that violate a requirement regarding claims in the context of disclosure. Among the three, only two examples appear to violate 35 U.S.C. § 112, P 2: a claim is indefinite because an essential element for the function or operation of the invention is missing from the claim; or (2) the claim is inconsistent with the disclosure. 35 U.S.C. § 112, P 1 applies to the third example, the scope of a claim covers an area, which is not recognized by the inventor, for example, mere speculation. WIPO Claims-Disclosure Relationship Study, (7th Session), supra note 464, Part III, note 40.

[490] European Patent Convention, supra note 13, art. 123, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 44, 13 I.L.M. 270, 299; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 17bis(3).

[491] European Patent Convention, supra note 13, art. 87, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 28-29, 13 I.L.M. 270, 291; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 17bis(3).

[492] European Patent Convention, supra note 13, art. 76, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 25, 13 I.L.M. 270, 289; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 17bis(3).

[493] See generally In re Ruschig, 379 F.2d 990, 154 U.S.P.Q. (BNA) 118 (C.C.P.A. 1967). Chisum, supra note 59, § 7.04[1][e].

[494] In re Rasmussen, 650 F.2d 1212, 1214-15, 211 U.S.P.Q. (BNA) 323, 326 (CCPA 1981); WIPO Claims-Disclosure Relationship Study, supra note 464, Part II, note 28.

[495] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 7(3).

[496] In re Gay, 309 F.2d 769, 772, 135 U.S.P.Q. (BNA) 311, 313 (C.C.P.A. 1962).

[497] Amgen, Inc. v. Chugai Pharm'al Co., 927 F.2d 1200, 1209-10, 18 U.S.P.Q.2d (BNA) 1033, 1038 (Fed. Cir. 1991).

[498] Chemcast Corp. v. Arco Industrs. Corp., 913 F.2d 923, 926, 16 U.S.P.Q.2d (BNA) 1033, 1037 (Fed. Cir. 1990).

[499] Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1535, 3 U.S.P.Q.2d (BNA) 1737, 1745 (Fed. Cir. 1987).

[500] Randomex, Inc. v. Scopus Corp., 849 F.2d 585, 592, 7 U.S.P.Q.2d (BNA) 1050, 1055 (Fed. Cir. 1988).

[501] Glaxo, Inc. v. Novopharm Ltd., 52 F.3d 1043, 1049, 34 U.S.P.Q.2d (BNA) 1565, 1570 (Fed. Cir. 1995).

[502] Testu Tanabe & Harold Wegner, Japanese Patent Law, Section 422 (1979), reprinted in Adelman, supra note 118, at 629.

[503] Chisum, supra note 59, § 7.05[2].

[504] Id.

[505] Id. at § 7.05[1][e]. Prof. Chisum found this problem is more acute when the alleged undisclosed mode is not a preferred embodiment of the claimed product or process but rather preferred methods of making or using a claimed subject matter or preferred apparatus and applications of the claimed process etc. E.g., Chemcast Corp. v. Arco Indus. Corp., 913 F.2d 923, 16 U.S.P.Q.2d (BNA) 1033 (Fed. Cir. 1990).

[506] Elements of U.S. Patent Law, supra note 328, at 183.

[507] See supra Part II.D

[508] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 2.

[509] Id. at Article 11(4), at 22. Further explanation of equivalents are included in Rule 12(5), see WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(5).

[510] The provision for scope of protection is not included in the SPLT second draft. WIPO Draft Substantive Patent Law Treaty (6th Session), supra note 16, at 27.

[511] Department of Commerce, Patent and Trademark Office, Requests for Comments on the International effort to Harmonize the Substantive Requirements of Patent Laws, 66 Fed. Reg. 15,409, 15,410 (Mar. 19, 2001).

[512] For a general discussion of claim drafting approaches, see Toshiko Takenaka, Interpreting Patent Claims: The United States, Germany and Japan, 17 I.I.C. Studies 27 (1995).

[513] Id. at 3.

[514] Takenaka, supra note 490, at 26.

[515] For a general discussion of German law claim interpretation, see Jochen Pagenberg, New Trends in Patent Claim Interpretation: Goodbye to the General Inventive Idea, 19 I.I.C. 788 (1988); Sijip, Scope of Protection Afforded by a European Patent, 10 I.I.C. 433 (1979); Winkler, The Scope of Patent Protection, Past, Present and Future, 10 I.I.C. 296 (1979).

[516] See generally Warner-Jenkinson, 520 U.S. 17, 41 U.S.P.Q.2d 1865.

[517] Tubakimoto Seiko v. T.H.K., 1630 Hanrei Jiho 32 (Sup. Ct., 1998).

[518] For the United Kingdom, see J. A. Kemp, Patent Claim Drafting and Interpretation 1 (1983). For Japan, see Takenaka, supra note 490, at 39.

[519] European Patent Convention, supra note 13, art. 69, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 23, 13 I.L.M. 270, 288.

[520] Chisum, supra note 59, § 18.04[2][a][i].

[521] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule12(6).

[522] For a general discussion of prosecution history estoppel, see Chisum, supra note 59, § 18.05.

[523] This aspect of insufficient time and information for preparing an application is viewed as one disadvantage of the first-to-file system. See Conley, supra note 356, at 788.

[524] The disadvantage of insufficient information is remedied by a system to require an applicant to file a request of examination. Patent Offices in the first-to-file countries including the EPO and JPO examine applications only when an applicant filed a request of examination. See, European Patent Convention, supra note 13, art. 94, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 33, 13 I.L.M. 270, 288; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 48ter.

[525] Such statutory period is six months from the publication of search report under the EPC and three years from the filing date under JPL. See, European Patent Convention, supra note 13, art. 94(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 33, 13 I.L.M. 270, 288; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 48ter(1).

[526] For a general discussion of Japanese companies' patent procurement strategies, see Hitachi Seisakusho, Hitachi no Chiteki Shoyuken Kanri (Hitachi Intellectual Property Management) 116-149 (1995).

[527] This is the purpose for introducing a system for a request of examination. See Kousaku Yoshifuji, Tokkyoho Gaisetsu [Outlines of Patent Law] 293 (8th ed. 1988).

[528] Festo Corp., 122 S.Ct. 1831, 62 U.S.P.Q.2d (BNA) 1705 (2002).

[529] Id. at 1842, 62 U.S.P.Q.2d at 1713.

[530] Id.

[531] Id.

[532] The circumstances for overcoming the presumption include: (1) "[t]he equivalents may have been unforeseeable at the time of application..."; (2) "...the rational underlying the amendment may bear no more than a tangential relation to the equivalent in question..."; and (3) "...there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question." Id. at 1842, 62 U.S.P.Q.2d at 1714.

[533] Festo Corp., 234 F.3d at 592, 56 U.S.P.Q.2d at 1891 (Plager J., concurring).

[534] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(4).

[535] For a discussion of difference between the SPLT Rule and 35 U.S.C. § 112, para. 6, see supra Part II.D.2.

[536] Toshiko Takenaka, What Japan Should Learn from U.S. Experiences: Test of Equivalences, Means-Plus-Function Claims and Product-By-Process Claims, CASRIP Newsletter 7, 10 (Winter 2002).

[537] Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308, 1318, 50 U.S.P.Q.2d (BNA) 1161, 1166 (Fed. Cir. 1999).

[538] Takenaka, supra note 514, at 12.

[539] See generally Seal-Flex, Inc. v. Athletic Track & Court Constr., 172 F.3d 836, 50 U.S.P.Q.2d (BNA) 1225 (Fed. Cir. 1999).

[540] 35 U.S.C. § 112, para. 2 (2000).

[541] Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1, 11 (1946).

[542] JPO Examination Guidelines, supra note 212, part I, ch. I, 2.2.2.1(6), available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf.

[543] GENENTECH/Polypeptide, supra note 260, 1989 Official Journal of EPO 275; JPO Examination Guidelines, supra note 212, part I, ch. I, 2.2.2.1(6), available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf.

[544] Judge Randall Rader, Remarks at the Seminar of Claim Interpretation under U.S. Patent Law (Nov.19, 2001) (transcript available in the Institute of Intellectual Property, Tokyo, Japan).

[545] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(4)(c).

[546] Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 18 U.S.P.Q.2d (BNA) 1001 (Fed. Cir. 1991).

[547] Atlantic Thermoplastics Co. v. Faytex Corp., 970 F.2d 834, 23 U.S.P.Q.2d (BNA) 1481 (Fed. Cir. 1992).

[548] Warner-Jenkinson, 520 U.S. at 29, 41 U.S.P.Q.2d at 1871.

[549] In re Brown, 459 F.2d 531, 535-36, 173 U.S.P.Q. (BNA) 685, 688 (C.C.P.A. 1972).

[550] Id.

[551] See generally In re Pilkington, 411 F.2d 1345, 162 U.S.P.Q. (BNA) 145 (C.C.P.A. 1969).

[552] See generally In re Stephens, 345 F.2d 1020, 1023, 145 U.S.P.Q. (BNA) 656, 658 (C.C.P.A. 1965).

[553] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 10(1).

[554] Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362, 1376, 52 U.S.P.Q.2d (BNA) 1129, 1141 (Fed. Cir. 1999).

[555] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(3)(b).

[556] Univ. of Cal. v. Eli Lily, 119 F.3d 1559, 1567, 43 U.S.P.Q.2d (BNA) 1398, 1405 (Fed. Cir. 1998).

[557] Id.

[558] However, see also In re Deuel, 51 F.3d 1552, 1559-60, 34 U.S.P.Q.2d (BNA) 1210, 1216 (Fed. Cir. 1995) (endorsing the use of product-by-process claims when the product has already prepared by the process recited in the claim.).

[559] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 11(3)(b).

[560] As far as the U.S. is concerned, at one time, claims, including product-by-process, brought additional protection because the U.S. patent statute did not extend protection of a process to its end-product. However, enactment of the 1988 Process Patent Amendment Act extended protection to the end-product. This Act was part of the Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1992 (2002) (codified at 35 U.S.C. § 295 (2000)).

561 Scripps Clinic & Research Found., 927 F.2d at 1583, 18 U.S.P.Q.2d at 1016.

562 Atlantic Thermoplastics, 970 F.2d at 846, 23 U.S.P.Q.2d at 1490.

563 Chisum, supra note 59, § 8.05[1]; Adelman et al., Patent Law Prospective § 2.6[10] (2d ed. 1991).

564 See generally Trs. of Columbia Univ., 126 F. Supp. 2d 16, 57 U.S.P.Q.2d 1825.

565 Atlantic Themoplastics, 974 F.2d at 1281, 23 U.S.P.Q.2d at 1802-04.

566 Scripps Clinic & Research Found., 927 F.2d at 1569, 18 U.S.P.Q.2d at 1004.

567 Id.at 1580, 18 U.S.P.Q.2d at 1014.

568 Id.at 1581, 18 U.S.P.Q.2d at 1014.

569 Warner-Jenkinson, 520 U.S. at 29, 41 U.S.P.Q.2d at 1871.

570 For a discussion of the application of the all elements rule in claim interpretation, see Chisum, supra note 59, § 18.03 [4][a].

571 WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 12(4)(d).

572 See Robert Merges, Patent Law and Policy 489 (1992).

573 For a comparison of SPLT and U.S. current practice with respect to the use of product claims, see supra note 270.

574 For problems associated with a new use of old product, see Sir Robin Jacobs, Novelty of Use Claims, 27 I.I.C. 170 (1996); Gerald Paterson, The Novelty of Use Claims, 27 I.I.C. 179 (1996).

575 In re Thuau, 135 F.2d 344, 347, 57 U.S.P.Q. (BNA) 324, 325 (C.C.P.A. 1943).

576 Id.

577 Robert Merges, Patent Law and Policy 491-92 (1992).

578 EPC recently adopted a revision to clarify the patentability of further medical use of an old product. Revisions available at http://www.ladas.com/BULLETINS/2002/0202Bulletin/EuropeanPatentConvRevision.html; 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 285; Regarding all complex issues associated with the patentability of claims directed to medical uses of a product, see Gerald Paterson, the European Patent System 518 (2d ed., 2001). Although the US does not face this difficulty, to prevent applicants from patenting on medical methods, the US needs to apply immunity on medical methods under 35 U.S.C. § 287(c) (2000).

[579] In re Shetty, 566 F.2d 81, 84, 195 U.S.P.Q. (BNA) 753, 756 (C.C.P.A. 1977).

[580] Patent offices can introduce evidence to show an inherent element, such as a new use in an old product. WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, guidelines under rule 14, G3.04(iii).

[581] MOBIL OIL/Friction Reducing Additive, supra note 271, at 109. In this case, the EPO Enlarged Board clearly distinguished "made available to the public" from "inherent." However, the SPLT Guidelines use the term "inherent" to explain what is made available to the public by a primary prior art reference.

[582] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, guidelines under rule 14, G3.01.

[583] WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 12(1).

[584] WIPO Draft Report (6th Session), supra note 89, at 30-31.

[585] Id. at 30.

[586] 35 U.S.C. § 100(a) (2000).

[587] 35 U.S.C. § 101 (2000).

[588] Alappat, 33 F.3d at 1544, 31 U.S.P.Q.2d at 1557.

[589] See, e.g., Diamond v. Diehr, 450 U.S. 175, 209 U.S.P.Q. (BNA) 1 (1981).

[590] Gottschalk v. Benson, 409 U.S. 63, 67, 175 U.S.P.Q. (BNA) 673, 675 (1972).

[591] Diamond v. Diehr, 450 U.S. 175, 188, 76 U.S.P.Q. (BNA) 1, 8-9 (1981).

[592] Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130, 76 U.S.P.Q. (BNA) 280, 281 (1948).

[593] Id. at 130, 76 U.S.P.Q. at 281.

[594] State St. Bank & Trust Co. v. Signature Fin. Group, 149 F.3d 1368, 1373, 47 U.S.P.Q.2d (BNA) 1596, 1600-01 (Fed. Cir. 1998).

[595] Alappat, 33 F.3d at 1541-42, 31 U.S.P.Q.2d at 1555-56.

[596] Funk Bros., 333 U.S. at 130, 76 U.S.P.Q. at 281.

[597] John R. Thomas, The Patenting of the Liberal Professions, 40 B.C. L. Rev. 1139, 1167 (1999) (citation omitted).

[598] U.S. Const. art. I, § 8, cl. 8.

[599] In re Bergy, 596 F.2d 952, 958-59, 201 U.S.P.Q. (BNA) 352, 359 (C.C.P.A. 1979) ("[T]he constitutionally-stated [sic] purpose of granting patent rights to inventors for their discoveries is the promotion of progress in the 'useful Arts,' [sic] rather than in science.... [T]he present day equivalent of the term 'useful arts' employed by the Founding Fathers is 'technological arts.'").

[600] Chisum, supra note 59, § 1.01.

[601] European Patent Convention, supra note 13, art. 52(2), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 285.

[602] Id. at art. 52(3).

[603] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 2.2; EPO Decision T 0935/97, Computer Program Product II/ IBM. For a general discussion, see Singer, supra note 328, at 113.

[604] Friedrich-Kerl Beier, Future Problems of Patent Law 421 (1972).

[605] See, e.g., Judgment of the Federal Supreme Court of Germany, Gewerblicher Rechtschutz und Urheberrecht, 1969 (672) (Mar. 27, 1969) (subject matter that controls natural forces to produce a desired result is patentable.); Judgment of the Federal Patent Court of Germany, Entscheidungen des Budespatentgerichts, 6 (145) (Jan. 15, 1965) (Technical means the effect of harnessed natural forces and controlled utilization of natural phenomena.).

[606] Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 2(2).

[607] For more explanation of "statutory invention" under the JPL, see JPO Examination Guidelines, supra note 212, part VII, ch. 2.2, available at http://www.jpo.go.jp/infoe/Guidelines/PartVII-1.pdf.

[608] WIPO Draft Report (6th Session), supra note 89, at 31.

[609] T 0931/95 Pension Benefit System Partnership/Improved Pension Benefits System, 2001 Official Journal of EPO 441, 454-55 (2001).

[610] Proposal for a Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions, 2002 O.J. (C 151 E) 129; Stefan Schohe, What's Happening in Europe: Business Patent Value, Presented at CASRIP Representing Technology Startup Seminar (Jan. 16, 2001).

[611] Pension Benefit System Partnership/Improved Pension Benefits System, supra note 609, at 454-55.

[612] Diamond v. Diehr, 450 U.S. 175, 188, 209 U.S.P.Q. (BNA) 1, 9 (1981).

[613] Id.

[614] The US delegation criticized the unnecessarily limited scope of patentable subject matter resulting from the EPO's application of

technical character requirement. WIPO Draft Report (6th Session), supra note 89, at 31.

615 T 0931/95 Pension Benefit System Partnership/Improved Pension Benefits System, supra note 609, at 449.

616 As a result, EPO analysis ignores elements that do not relate to a technical character and, thus, are unable to produce a technical effect in determining the patent eligible subject matter.

617 EPO Examination Guidelines, supra note 285, part C, ch. IV, § 9.5.

618 For determining the novelty of use of known product claims, EPO focuses a technical effect that is newly discovered by the inventor. See MOBIL OIL/Friction Reducing Additive, supra note 581, at 105.

619 See, e.g., AT & T Corp. v. Excel Communs. Inc., 172 F.3d 1352, 1356-58, 50 U.S.P.Q.2d (BNA) 1447, 1450-51 (Fed. Cir. 1999).

620 Although, in an unpublished opinion not serving as precedent, the USPTO Board of Patent Appeals and Interference rejected claims directing a method of evaluating intangible asset of interest for lack of patent eligible subject matter. Ex parte Bowman, 61 U.S.P.Q.2d (BNA) 1669 (Bd. Pat. App. & Int. 2001).

621 JPO Examination Guidelines, supra note 212, part 4, ch. 1, 2.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf. The JPO also published policies concerning business method patents, available at http:// www.jpo.go.jp/infoe/tt1211-055.htm.

622 WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 89, art. 12.

623 For a discussion of the three options, see supra Part III.E.2.

624 European Patent Convention, supra note 13, art. 52(4), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 285; Japanse patent law, Law No. 121 of 1959, art. 29(1); JPO Examination Guidelines, supra note 212, part II, ch. 1, 2.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf. However, at the November 2000 Munich conference, a revision of EPC is adopted to move the prohibition on the grant of patent for medical methods from the category of lack of industrial applicability to the category of exceptions to the patentability. This revision will come into effect when all EPC members ratify the revision or after two years from its ratification by at least 15 members. Ladas & Parry, European Patent Law - Revision available at: http:// www.ladas.com/BULLETINS/2002/0202Bulletin/EuropeanPatentConvRevision.html.

625 To clarify the scope, the EPO and JPL Examination Guidelines include a lengthy explanation of what constitutes a medical method. EPO Examination Guidelines, supra note 285, part C, ch. IV, § 4.2; JPO Examination Guidelines, supra note 212, part II, ch. 1, 2.1, available at http:// www.jpo.go.jp/infoe/Guidelines/PartII-1.pdf.

626 European Patent Convention, supra note 13, art. 54(3), 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 19, 13 I.L.M. 270, 286. For a general discussion, Gerald Paterson, The European Patent System 518 (2d ed. 2001).

627 Community Patent Convention of Dec. 15, 1975, am. Dec. 15 1989, art. 27(c), 1989 O.J. (L. 401) 10; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 69(3).

628 For a general discussion of patent eligibility with respect to medical methods, see Chisum, supra note 59, § 1.03[3].

629 35 U.S.C. § 287(c) (2000).

[630] European Patent Convention, supra note 13, art. 53, 1978 Gr. Brit. T.S. No. 20 (Cmnd. 7090) 18, 13 I.L.M. 270, 286; Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 32.

[631] Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364, 1366-67, 51 U.S.P.Q.2d (BNA) 1700, 1703 (Fed. Cir. 1999).

[632] Brenner v. Manson, 383 U.S. 519, 534, 148 U.S.P.Q. (BNA) 689, 695 (1966).

[633] In re Brana, 51 F.3d 1560, 1564, 34 U.S.P.Q.2d (BNA) 1436, 1439-40 (Fed. Cir. 1995).

[634] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 4.1; JPO Examination Guidelines, supra note 212, part II, ch. 1, 2.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartI-1.pdf.

[635] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 4.6; JPO Examination Guidelines, supra note 212, part VII, ch. 1, 1.3.1, available at http://www.jpo.go.jp/infoe/Guidelines/PartVII-1.pdf.

[636] The USPTO had examination results different from those of EPO and JPO regarding the utility of nucleic acid molecule-related inventions, which utility is inferred based on homology search. See Trilateral Project B3b Mutual Understanding in Search and Examination Comparative Study on Biotechnology Patent Practices (Theme: Nucleic acid molecule-related inventions whose functions are inferred based on homology search), The Trilateral Cooperation, at http://www.european-patent-office.org/tws/sr-3-b3b_bio_search.htm.

[637] For a comparison of SPLT and current US practice with respect to the novelty, see supra Part II.E.3.

[638] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 14(2).

[639] Cont'l Can Co. v. Monsanto Co., 948 F.2d 1264, 1268-69, 20 U.S.P.Q.2d (BNA) 1746, 1749 (Fed. Cir. 1991) (citations omitted).

[640] T290/86 BLENDAX/Cleaning Plaque, 1992 Official Journal of EPO 414, 423-25 (1992). For a general discussion of the interpretation of teaching in prior art, see Singer, supra note 176, at 149.

[641] MOBIL OIL/Friction Reducing Additive, supra note 581, at 111, § 10.1.

[642] See generally Toshiko Takenaka, The Substantial Identity Rule Under the Japanese Novelty Standard, 9 UCLA Pac. Basin L.J. 220 (1991).

[643] Id.

[644] For a general discussion of hindsight, see Chisum, supra note 59, § 5.03[2][c].

[645] Wang Laboratories, Inc. v. Toshiba Corp., 993 F.2d 858, 26 U.S.P.Q.2d (BNA) 1767 (Fed. Cir. 1993). For a general discussion of the doctrine of analogous art, see Chisum, supra note 59, § 5.03[1].

[646] Chisum, supra note 59, § 3.02[3].

[647] In re Gal, 980 F.2d 717, 720, 25 U.S.P.Q.2d (BNA) 1076, 1079 (Fed. Cir. 1992). For a general discussion of suggestion test, see Chisum, supra note 59, § 5.04[1][e].

[648] For a comparison between SPTL and current US practice with respect to non-obviousness, see supra Part II.E.4.

[649] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, rule 15(4).

[650] Singer, supra note 176, at 181; JPO Examination Guidelines, supra note 212, part II, ch. 2, 2.5(1), available at http://www.jpo.go.jp/infoe/Guidelines/PartII-2.pdf.

[651] The Japanese delegation requests more of an explanation regarding motivation to combine prior art references and proposed to list factors to be considered for finding such motivation. WIPO Draft Report (6th Session), supra note 89, at 34.

[652] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, guidelines under rule 15.

[653] JPO Examination Guidelines, supra note 212, part II, ch. 2, 2.5(2), available at http://www.jpo.go.jp/infoe/Guidelines/PartII-2.pdf.

[654] 1453 (Fed. Cir. 1998).

[655] Id.at 1357, 47 U.S.P.Q.2d 1453 at 1457-58.

[656] WIPO Draft Regulations and Practice Guidelines (6th Session), supra note 294, guidelines under rule 15.

[657] Graham v. John Deere Co., 383 U.S. 1, 148 U.S.P.Q. (BNA) 459 (1966).

[658] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 9.5.

[659] The EPO is keenly aware of the problem, thus the EPO Examination Guidelines, supra note 285, part C, ch. IV, § 9.5 provides:
In the second stage one establishes in an objective way the technical problem to be solved. To do this, one studies the application (or the patent), the closest prior art, and the difference in terms of features (either structural or functional) between the invention and the closest prior art and then formulates the technical problem.

[660] The EPO Examination Guidelines, supra note 285, part C., ch. IV, § 9.5 provides:
In the problem and solution approach there are three main stages:
(1) determining the closest prior art,
(2) establishing the technical problem to be solved, and
(3) considering whether or not the claimed invention, starting from the closest prior art and the technical problem, would have been obvious to the skilled person.

[661] For a general discussion of the problem solution approach, see George S. Szabo, The Problem and Solution Approach in the European Patent Office, 26 I.I.C. (1995).

[662] G. Knesch, Assessing Inventive Step in Examination and Opposition Proceedings, 1994 EPI Information 95, 95, Mar. 1994.

[663] Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, 139 F.3d 877, 45 U.S.P.Q.2d (BNA) 1977 (Fed. Cir. 1998).

[664] MOBIL OIL/Friction Reducing Additive, supra note 271.

[665] See supra note 616.

[666] WIPO Draft Regulations and Practice Guidelines (7th Session), supra note 135, guidelines under rule 15 G4.04.

[667] EPO Examination Guidelines, supra note 285, part C, ch. IV, § 9.9.

[668] Rochelle Cooper Dreyfuss, The Federal Circuit: A Case Study in Specialized Courts, 64 N.Y.U. L. Rev. 1 (1998).

[669] Chisum, supra note 59, § 5.04. For a discussion of the non-obviousness assessment of combination inventions, see Alan P. Klein, Comment: Is the Federal Circuit Adopting the Supreme Court's Obviousness Standard for Inventions Combining Old Elements?, 71 J. Pat. & Trademark Off. Soc'y 460 (1989); Robert W. Harris, Prospects for Supreme Court Review of the Federal Circuit Standards for Obviousness of Inventions Combining Old Elements, 68 J. Pat. & Trademark Off. Soc'y 66 (1986).

[670] Robert Merges, Commercial Success and Patent Standards: Economic Perspectives on Innovation, 76 Cal. L. Rev. 803 (1988).

[671] The SPLT merely defines an inventor as "any person who, at or before the filing date of the application, had the right to the patent." WIPO Draft Substantive Patent Law Treaty (7th Session), supra note 93, art. 9(2).

[672] Univ. Patents, Inc. v. Kligman, 762 F. Supp. 1212, 1218, 20 U.S.P.Q.2d (BNA) 1401, 1405 (E.D. Pa. 1991); Chisum, supra note 59, § 22.02.

[673] Chisum, supra note 59, § 2.04.

[674] TRIPS Agreement, supra note 8, art. 30, 33 I.L.M. at 95.

[675] See, e.g., Community Patent Convention, supra note 627, art. 27(a); Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 68.

[676] See, e.g., Community Patent Convention, supra note 627, art. 27(b); Tokkyo Ho [Japanese patent law], Law No. 121 of 1959, art. 69(1). For a general discussion of the experimental use exception under the patent systems in European countries, see David Gilat, Experimental Use and Patents 1 (1995).

[677] Janice Mueller, No "Dilettante Affair": Rethinking the Experimental Use Exception to Patent Infringement for Biomedical Research Tools, 76 Wash. L. Rev. 1, 22 (2001).

[678] Suzanne T. Michel, Comment: The Experimental Use Exception to Infringement Applied to Federally Funded Inventions, 7 High Tech. L.J. 369, 391-93 (1992).

[679] See generally Embrex, Inc. v. Serv. Eng'g Corp., 216 F.3d 1343, 55 U.S.P.Q.2d (BNA) 1161 (Fed. Cir. 2000); Madey v. Duke Univ., 307 F.3d 1351, 64 U.S.P.Q.2d (BNA) 1737 (Fed. Cir. 2002).

680 David L. Parker, Symposium: Intellectual Property: Article: Patent Infringement Exemptions for Life Science Research, 16 Hous. J. Int'l L. 615 (1994); William Cornish, Experimental Use of Patented Inventions in European Community States, 29 I.I.C. 735 (1998).

681 Klinische Versuche (Clinical Trial) I, 1997 WL 1104814 (BGH, 1997), Klinische Versuche (Clinical Trial) II, 1998 WL 1043174 (BGH, 1998) (Judgment of the Supreme Court of Germany GRUR 1996) Andries van der Merwe, Experimental Use and Submission of Data for Regulatory Approval, 31 I.I.C. 380 (2000).

682 Judgment of the Japanese Supreme Court (Saiko Saibansho), Apr. 16, 1999, translation available at http:// www.law.washington.edu/casrip/newsletter/newsv5i4jp3.htm. For a general discussion of experimental use exception under Japanese patent law, see Jennifer A. Johnson, Note, The Experimental Use Exception in Japan: A Model for U.S. Patent Law?, 12 Pac. Rim L. & Pol'y J. 499 (2003).

683 For a general discussion of a proposal to simplify the U.S. patent system, see Toshiko Takenaka, Rethinking the United States First-to-Invent Principle from a Comparative Law Perspective: A Proposal to Restructure § 102 Novelty and Priority, 39 Hous. L. Rev. 621 (2002).

684 See supranote 458.

685 Public Comments Submitted in Response to Department of Commerce, Patent and Trademark Office, Requests for Comments on the International effort to Harmonize the Substantive Requirements of Patent Laws, 66 Fed. Reg. 15, 409 (Mar. 19, 2001). Similar objections submitted in response to the invitation of the Advisory Commission on Patent Law Reform in 1992. See Goldstein, supra note 42, at 314.

686 Due to strong objections from small inventors, the USPTO failed to fulfill some commitments under the USPTO and JPO Commissioner Agreements. See Toshiko Takenaka, Impact of 1999 Patent Reforms: A Comparative Law Perspective, 7-1 CASRIP Newsletter 2 (Winter 2000), available at http:// www.law.washington.edu/Casrip/newsletter/newsv7i1us1.pdf.

687 Duffy, supra note 17.

688 The German utility model system was developed to save minor improvements developed by industry, which improvements were rejected by the German Patent Office for lack of inventive step. Japan and other Asian countries followed the German example to adopt a utility model system particularly aiming for protection of inventions made by domestic industry. See generally Christopher Heath, Utility Models in East and West, Chiteki Zaisanken Ho No Gendaiteki Kadai (Current Topics of Intellectual Property Laws), 47 (1998).

689 Proposal for a European Parliament and Council Directive Approximating the Legal Arrangements for the Protection of Inventions by Utility Model, COM (97) 691 final, available at http:// europa.eu.int/comm/internal_market/en/indprop/soften.pdf.

690 See Mark Janis, Second Tier Patent Protection, 40 Harv. Int'l L.J. 151 (1999); J.H. Reichman, Industrial Designs and Utility Models Under the European Communities' Proposed Initiatives: A Critical Appraisal, 2 Int'l Intell. Prop. L. & Pol'y Ch. 48 (1996).

691 37 C.F.R. § 1.9 (1998).

692 37 C.F.R. § 1.16-.17 (1998).

693 35 U.S.C. § 122 (b)(2)(B)(2001).

[694] See supra note 355.