

To attain the needed level of protection internationally, ways to span the differences between the continental *droit d'auteur* and neighboring rights systems and the Anglo-American copyright systems must be developed. An essential element of this effort will be to harmonize levels of protection by establishing standards that can be implemented through either system.

## **B. PATENT**

Development of the NII will depend upon, and stimulate innovation in, many fields of technology, especially computer software, computer hardware and telecommunications. An effectively functioning patent system that encourages and protects innovations in these fields of technology is, therefore, important for the overall success of the NII.

The primary goal of the patent system is to encourage innovation and commercialization of technological advances. To this end, the patent system offers an incentive to inventors to publicly disclose their inventions in exchange for the exclusive right to prevent others from making, using, offering for sale or selling the inventions throughout the United States or importing the inventions into the United States. The patent system serves as an important complement to the copyright system for computer and software innovations by providing protection for functional aspects of these innovations.

Unlike copyright protection which attaches automatically at the moment of fixation, an inventor must specifically request protection by filing a patent application and establish that the invention meets all of the statutory requirements of patentability. Rights are obtained by filing a patent application with the Patent and Trademark Office (PTO), and proceeding through an examination process.

To be patentable, an invention must be new,<sup>456</sup> useful<sup>457</sup> and nonobvious.<sup>458</sup> In addition, the inventor must fully describe and disclose the invention for which patent protection is sought in a patent application.<sup>459</sup> If the PTO determines that all the patentability requirements have been met for the invention for which patent protection is requested, a patent will be granted to the applicant.

Patent protection is available in the United States for inventions without differentiation as to the field of technology: "any new and useful process, machine, manufacture, or composition of matter" can be patented.<sup>460</sup> Despite this breadth, certain limits do exist on what can be patented. For example, a person cannot patent a process that consists exclusively of the steps one would follow to apply a mathematical principle to solve a mathematical problem.<sup>461</sup> This restriction is not statutory; instead, it

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<sup>456</sup> See discussion of 35 U.S.C. § 102 *infra* notes 463-64 and accompanying text.

<sup>457</sup> To be eligible for patent protection, an invention must be either a process, an article of manufacture, a composition or a machine. Discoveries, laws of nature, mathematical algorithms, methods of doing business and the like are not eligible for patent protection. See 35 U.S.C. § 101 (1988).

<sup>458</sup> See discussion of 35 U.S.C. § 103 *infra* note 465 and accompanying text.

<sup>459</sup> See 35 U.S.C. § 112 (1988).

<sup>460</sup> See 35 U.S.C. § 101 (1988). This language has been interpreted broadly by the Supreme Court in *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980), wherein the Court held:

The subject-matter provisions of the patent law have been cast in broad terms to fulfill the constitutional and statutory goal of promoting "the Progress of Science and the useful Arts" . . . . Congress employed broad general language in drafting [Section] 101 precisely because such inventions are often unforeseeable.

Judicial precedent does exist denying patentability under Section 101 for claims directed to laws of nature and methods of doing business. See *Parker v. Flook*, 437 U.S. 584, 589 (1978).

<sup>461</sup> See *Diamond v. Diebr*, 450 U.S. 175, 185 (1981) ("[e]xcluded from such patent protection are laws of nature, natural phenomena, and abstract ideas");

arises from judicial interpretation of the law governing patentable categories of invention, and is based on the notion that one cannot preempt use of laws of nature or mathematical truths. Similarly, one cannot patent an arrangement of information or a writing, as such things do not fall within one of the enumerated categories of inventions eligible to be patented.<sup>462</sup>

Once it is determined that an applicant has requested protection for subject matter that is eligible to be patented, the examination process shifts to evaluate the substantive merits of the invention. This evaluation is performed to determine if the invention is "novel" and "non-obvious." The PTO performs this evaluation by comparing the invention undergoing examination to the "prior art." Generally speaking, prior art includes information that is publicly available prior to the filing date of a patent application.<sup>463</sup> An invention satisfies the novelty

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*Diamond v. Chakrabarty*, *supra* note 460, at 309 ("new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that  $E=mc^2$ ; nor could Newton have patented the law of gravity. Such discoveries are 'manifestations of . . . nature, free to all men and reserved exclusively to none.'"); *Gottschalk v. Benson*, 409 U.S. 63, 72 (1973) ("the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself"); *In re Alappat*, 33 F.3d 1526, 1542 (Fed. Cir. 1994) (noting that the Supreme Court did not intend to make mathematical algorithms a fourth category of unpatentable subject matter along with *Diehr's* holding that laws of nature, natural phenomena and abstract ideas, but rather that some types of mathematical subject matter standing alone are only abstract ideas).

<sup>462</sup> See *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983) ("[w]here the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability").

<sup>463</sup> Section 102 of Title 35 defines the different categories of prior art to include patents issued prior to the applicant's filing date by the United States or by other countries, patents issued by the United States after but filed prior to the applicant's filing date, printed publications distributed in the United States or abroad, evidence of public use or public disclosure of the claimed invention in the United States more than one year before the applicant's filing date, and evidence of a sale or an offer to sell the claimed invention in the United States more than one year prior to applicant's filing date. These categories are defined in 35 U.S.C. § 102 (1988):

requirement if it differs in any material way from what is known in the "prior art."<sup>464</sup> An invention satisfies the nonobviousness requirement if a "person of ordinary skill in the art" would not have viewed the invention as having been obvious in view of the prior art at the time the invention was made.<sup>465</sup> Some flexibility is provided to patent

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A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or . . . .

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

<sup>464</sup> Novelty exists unless the prior art completely discloses the invention that is claimed by the patent applicant. For example, if a patent application is filed two years after an article is published in a technical journal which completely discloses the invention claimed in the patent application, the application will be rejected by the PTO on the grounds that the claimed invention lacks novelty over that printed publication through operation of Section 102(b).

<sup>465</sup> Section 103 sets forth the nonobviousness requirement, in pertinent part, as follows:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this

applicants in the United States regarding when they must seek protection to avoid losing patent rights due to prior public disclosure of the invention.<sup>466</sup>

An applicant must also satisfy a number of requirements that govern the contents and form of a patent application. A patent application consists of a specification and claims. The claims of a patent define the metes and bounds of the invention by specifically defining the features of an invention which are protected. Among other things, Section 112 requires that the inventor provide an adequate disclosure of the invention that the applicant has claimed.<sup>467</sup> A disclosure is adequate when it enables a person of ordinary skill to "practice" the invention as claimed without undue experimentation or effort.<sup>468</sup> Section 112 also

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title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103 (1988).

<sup>466</sup> Under U.S. law, an inventor may rely on a "grace period" to avoid the otherwise patent-defeating effect of an earlier public disclosure of his or her invention. For example, an inventor may be able to obtain a patent on an invention that was disclosed in a technical journal provided she can establish that she conceived of the invention prior to that disclosure. There is a statutory limit of one year imposed by Section 102(b) on the grace period. This grace period is not available in all countries. As a result, applicants must exercise care before disclosing their invention to avoid forfeiting patent rights in countries other than the United States.

<sup>467</sup> Every patent concludes with one or more claims that outline the boundaries of the rights granted by the Government to the patentee. Claims must be commensurate in scope with the disclosure of the applicant, and must be clear and understandable.

<sup>468</sup> The first paragraph of Section 112 states:

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, and shall set forth

requires that the inventor disclose the "best mode" of practicing the invention known to him. The requirements of Section 112 serve to ensure that the patent provides a high-quality, technically accurate disclosure of the invention.

Once issued, a patent grants its owner the exclusive right to prevent others from making, using, offering for sale, or selling the claimed invention in the United States, or importing the claimed invention into the United States.<sup>469</sup> A patent owner is given a term of protection that begins on the date the patent is granted and ends 20 years from the date the application leading to the patent was filed.<sup>470</sup> The patent owner must assert these rights against a party that performs any of the acts that would infringe the patent. The patent owner has the initial burden of proving that the accused party infringed one or more of the patent claims.<sup>471</sup> Patent infringement is established by demonstrating that the accused party has made, used, sold, imported or offered to sell a product that falls within the

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the best mode contemplated by the inventor of carrying out his invention.

<sup>469</sup> See 35 U.S.C. § 154(a)(1) (1988), as amended by Uruguay Round Agreements Act, Pub. L. 103-465, 1994 U.S.C.C.A.N. (108 Stat.) 4809, 4984 ("[e]very patent shall contain . . . a grant to the patentee . . . the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States, and, if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States, or importing into the United States, products made by that process, referring to the specification for the particulars thereof").

<sup>470</sup> The term of patents was changed as part of the Uruguay Round Agreements Act, Pub. L. 103-465, 1994 U.S.C.C.A.N. (108 Stat.) 4809, 4984. Under the former system, patent rights would begin on the date a patent was granted and would end 17 years later. As part of the transition to the new system, the term of patents that were pending on June 8, 1995, or which result from applications pending on that date, will begin on the date the patent was granted and will end on the date that is the later of 17 years from the date of grant or 20 years from the earliest effective filing date of the application leading to the patent.

<sup>471</sup> See 35 U.S.C. § 271 (1988).

scope of a product patent claim.<sup>472</sup> Similarly, if a patent has been granted on a process, the patent owner must show that the accused party engaged in activity that would infringe the process claims, or that the accused party made, used, sold, offered to sell or imported a product produced using the claimed process.<sup>473</sup> A patent owner's failure to promptly enforce its rights once an infringement is discovered can limit his or her remedies or may even preclude enforcement against that party.

A party accused of infringement can avoid liability by asserting that the patent does not cover the accused product or process.<sup>474</sup> The accused infringer can also assert that one or more of the patent claims is either invalid<sup>475</sup> or that the

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<sup>472</sup> See 35 U.S.C. § 271(a) (1988), as amended by Uruguay Round Agreements Act, Pub. L. 103-465, 1994 U.S.C.C.A.N. (108 Stat.) 4809, 4984 ("[e]xcept as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States, or imports into the United States any patented invention during the term of the patent therefor, infringes the patent").

<sup>473</sup> The United States allows the holder of a United States patent on a process to enforce its rights against a third party that uses a process patented in the United States outside the territorial boundaries of the United States and then attempts to import a product produced using that patented process. See 35 U.S.C. § 295 (1988).

<sup>474</sup> There are two forms of infringement, "literal" and infringement through operation of the "doctrine of equivalents." Literal infringement means that the accused product or process contains each and every element set forth in the patent claims. Infringement through the "doctrine of equivalents" refers to a situation where the accused product or process does not have each of the elements set forth in the claims but the accused product or process "performs substantially the same function in substantially the same way to obtain the same result as the patented invention." The latter form of infringement is intended to address situations where an accused infringer has made insubstantial changes to a product to avoid liability for infringement. See *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950).

<sup>475</sup> This is most often accomplished by submitting new prior art which was not considered by the PTO in the examination of the application. The accused infringer will typically argue that the new information anticipates or makes obvious the claimed invention. While the statute provides that all claims of a patent are presumed valid, the disclosure of new information that was not considered by the PTO can have significant repercussions when these claims are

patent as a whole is unenforceable.<sup>476</sup> Every claim in a patent, however, is presumed valid.<sup>477</sup> Thus, in district court, the party challenging patent validity must demonstrate through clear and convincing evidence that the patent fails to satisfy one or more of the statutory criteria of patentability (*e.g.*, novelty, utility, nonobviousness), or that the application is defective because it has an inadequate disclosure.<sup>478</sup>

## 1. PATENTABILITY DETERMINATIONS

The NII will have a tremendous impact on the flow of information. As new sources of information are made available and old sources are made more accessible, the accumulated body of knowledge available for use in patentability determinations will expand. This means that more information will be available to influence decisions on the patentability of an invention, whether in the context of

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considered by a court. The party may also show that the claims are defective in view of Section 112 because they are broader than what is actually supported by the disclosure.

<sup>476</sup> A party can also preclude the enforcement of a patent without specifically addressing the validity of the patent. This can occur, for example, if the patent owner engaged in “inequitable conduct” before the PTO (*e.g.*, the inventor withheld material prior art from the patent office or made other misrepresentations intended to mislead the PTO), or misused its patent rights (*e.g.*, in an antitrust context). In both instances, the patent will be unenforceable against any and all infringers, even if the patent satisfies all patentability requirements.

<sup>477</sup> *See* 35 U.S.C. § 282 (1988):

A patent shall be presumed valid. Each claim of a patent (whether independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

<sup>478</sup> A party can also challenge the validity of a patent in a reexamination proceeding before the Patent and Trademark Office. In such a proceeding, however, the basis for challenge is limited to novelty and obviousness in view of only certain types of prior art, namely, printed publications and patents.



the patent examination process or during challenges to patent validity through litigation in the Federal courts.<sup>479</sup> Thus, the most significant impact that the NII will have on the patent system will be in relation to issues that are affected by the degree of availability of "prior art."

Over the past twenty years, access to sources of information -- particularly patents and printed publications -- has been vastly improved through the development and use of on-line database services. These services document the existence and content of patents and printed publications, and in some instances, provide access to the complete text and electronic images of such documents. It is important to recognize, however, that the information that can be retrieved through these services invariably exists as an original, paper document disseminated through traditional publication channels (*e.g.*, technical journals or publications, domestic and foreign patent documents).

The NII will dramatically change the way information is prepared and disseminated. It will improve the number, diversity, accessibility and quality of traditional on-line services. It will also foster creation of new forms of "electronic publications" that are different in character from traditional paper-based publications. Examples of such electronic publications include electronic versions of traditional paper-based publications that supplement or reorganize presentation of the content of the paper-based publication; informally prepared documents such as a posting of technical or other information on a particular topic-driven forum; and formally designed and developed

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<sup>479</sup> Prior art plays a critical role in patentability determinations. It serves to define the state of the art at the time a patent application is filed (*e.g.*, it establishes the level of ordinary skill in the art). Specific items of prior art serve as the basis of denying patentability to a particularly claimed invention, either singularly in the context of novelty or through combination in the context of obviousness. Because of this, it is imperative that all sources of information that relate to an invention be integrated into patentability determinations.

electronic publications that are not printed on paper, but are disseminated exclusively through an electronic forum.

Electronic publications such as these will supplement the wealth of publicly accessible information that is used in patentability determinations. However, these new types of electronically disseminated documents are different in character from traditionally printed and indexed patents and publications, and as such, could raise questions when used as prior art in a patentability determination, either before the PTO or during litigation. For example, the information contained in electronically-disseminated documents may not be printed originally on paper, and as such, there may be no tangible evidence regarding the date the information was first publicly disclosed or as to the contents of the document as disclosed on that date. There are no uniform guidelines or industry standards presently that govern the memorialization of either the contents or the date of first public disclosure of such documents. A second problem is that the degree of distribution of or public accessibility to electronic documents is not presently measured and may prove unmeasurable. Limited availability of a document can render that document unusable as a source of information as prior art.<sup>480</sup> Both issues, however, are key factors in determining whether a document is in the prior art.

A second category of concerns relates to the technical accuracy of electronically disseminated documents. To be a usable and reliable prior art document, the contents of the document must be technically accurate and informative. The types of documents that are disseminated electronically today, however, vary tremendously as to their content and accuracy. Thus, while certain information could be posted on a forum, with a reliable documentation of the date of that disclosure and its contents, it would not be certain that

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<sup>480</sup> See *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986) (publicly catalogued doctoral dissertation in publicly accessible library properly considered prior art document).

the disclosure itself is technically accurate and usable as prior art. Informally created documents, such as postings on a forum, are not typically subjected to any form of peer review or content screening. The lack of quality control could therefore complicate evaluation of information contained in these electronic documents, which, in turn, could affect patentability, particularly in the context of litigation.

## 2. INFRINGEMENT DETERMINATIONS

As noted in other sections of this Report, some questions exist regarding whether or how copyright owners will be able to effectively enforce their rights in their works on the NII. The issues related to the enforcement of copyrights on the NII do not have an analogue with regard to patent protection. This is because each patent provides a precise definition of the nature of activities that will infringe the patent owner's rights. And while some have raised concerns over the ability of patent owners to prove infringement where the infringing activities were facilitated by or conducted on the NII, these concerns do not appear to be well founded.

Consider a patent claim covering a new data compression process used for communicating information over the NII. To infringe the patent owner's rights, one would have to perform each of the acts specifically outlined in the process claim. To prove infringement, the patent owner could rely on any evidence that the accused party used the process. This could be done by showing that the accused infringer developed and distributed a software program that, when used by a third party, would infringe the process claim (*e.g.*, the software would require the third party to follow the steps outlined in the process claim and thus lead to infringement of that claim). Alternatively, the patent owner could show that data was distributed over the NII in the compressed format, and then establish the source of the data. Considered fully, it does not appear to be an insurmountable problem for the patent owner to identify

infringing parties and establish a sufficient quantum of proof that the accused infringer performed a particular series of acts, which, once performed, infringed one or more patent claims.

### 3. PATENTABILITY OF SOFTWARE

Another issue considered with regard to its relationship to the NII is the eligibility of computer software for patent protection. Computer software-related inventions have enjoyed some degree of protection under the patent system since the beginning of the computer industry. In terms of distinguishing which aspects of software-related inventions could or could not be patented, the courts and the PTO have relied on a number of legal doctrines. Under one of these doctrines, computer program code *per se* has been held to be ineligible for patent protection because it is a writing that does not fall within one of the enumerated categories of invention. Another of these doctrines provides that processes, including those implemented in software, that are indistinguishable from the steps one would follow in applying a mathematical principle to solve a mathematical problem cannot be patented.<sup>481</sup> These two doctrines have served to exclude protection for software-related inventions independent of machines or processes as implemented on a computer.

A series of decisions rendered in 1994 by the Court of Appeals for the Federal Circuit has clarified the boundaries of patent-eligible subject matter for software-related

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<sup>481</sup> The courts developed a test -- the Freeman-Walter-Abele test -- to distinguish claims covering "mathematical algorithms" from those on products and processes that use or rely upon mathematical principles. See *In re Freeman*, 573 F.2d 1237 (CCPA 1978), as modified by *In re Walter*, 618 F.2d 758, 766-68 (CCPA 1980); *In re Abele*, 684 F.2d 902, 907 (CCPA 1982). See also *In re Meyer*, 688 F.2d 789, 796 (CCPA 1982). The Patent and Trademark Office has promulgated guidelines for interpreting and applying the two-part test for statutory subject matter for inventions involving mathematical algorithms. See 1106 Off. Gaz. Pat. Office 5 (Sept. 5, 1989) and 1122 Off. Gaz. Pat. Office 189 (Jan. 1, 1991).

inventions. In one decision, the Federal Circuit concluded that an "old" memory that was "reconfigured" through the storage thereon of a "data structure" (an ordered arrangement of information) constituted a patentable invention.<sup>482</sup> In other cases, both before and after this holding, the Federal Circuit concluded that a data structure, *per se*, and as incorporated into a process without any additional physical elements or steps in the process, did not create patentable subject matter.<sup>483</sup> The combined effect of the cases suggests that software can transform unpatentable objects into patentable ones and as such must be given weight in patentability determinations, but information *per se* and abstract ideas continue to be treated as non-statutory subject matter. The trend -- as far as can be ascertained -- is to provide a broader eligibility for software aspects of inventions than was available previously.

While there may be some degree of uncertainty relating to the precise boundaries of patent-eligibility for software, this alone does not suggest that this topic should or even could be resolved by the Working Group. Finer resolution of the boundaries of patent-eligibility for software could result in greater or more restricted protection for software. Whatever the result, the ramifications run far past those that must be considered in the context of the NII. Changes affecting patent eligibility for software-related technologies will affect more than simply the software innovation that will develop incident to development and use of the NII. And resolution of these boundaries of protection under the patent law for software will not directly affect the significant development efforts underway now related to the NII. Considered from a different perspective, development of the NII may lead to more software development, particularly related to

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<sup>482</sup> *In re Lowry*, 32 F.3d 1579 (Fed. Cir. 1994).

<sup>483</sup> *In re Trovato*, 42 F.3d 1376 (Fed. Cir. 1994); *In re Warmerdam*, 33 F.3d 1354 (Fed. Cir. 1994).

telecommunications and networking, but it will not present unique issues in terms of patent eligibility for software.

### **C. TRADEMARK**

A trademark is quite different from either a copyright or a patent. A trademark is any word, name, symbol or device, or any combination thereof, that serves to identify and distinguish the source of one party's goods or services from those of another party. A service mark is the same as a trademark, except that it identifies and distinguishes the source of services rather than goods. In this report, the terms "trademark" and "mark" are intended to refer to both types of marks.

The purpose of a trademark is twofold -- to identify the source of products or services and to distinguish the trademark owner's goods and services from those of others. As long as a trademark fulfills these functions, it remains valid. Trademark ownership rights in the United States arise through use of a mark. Continued use of a mark is necessary to maintain trademark rights. The owner of a trademark is entitled to the exclusive right to use the mark. This entitlement includes the ability to prevent the use, by unauthorized third parties, of a confusingly similar mark. Marks used by unrelated parties are confusingly similar if, by their use on the same, similar, or related goods or services, the relevant consumer population would think the goods or services come from the same source.

Unlike patent and copyright law, Federal trademark law coexists with state and common-law trademark rights. Therefore, registration at either the Federal or state level is not necessary to create or maintain ownership rights in a mark. For example, priority of trademark rights between owners of confusingly similar marks, regardless of whether