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AT&T v. Microsoft – A Violation of American Patent Law Principles and World Trade Organization Commitments

Robert E Counihan, University of Michigan
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Abstract

In AT&T v. Microsoft, the Federal Circuit created disincentives to trade that constitute quantitative restrictions against the exportation of software from the United States. The statute in question, 35 U.S.C. §271(f), creates patent infringement liability for the exportation of components of patented inventions. When the Federal Circuit applied §271(f) to software in AT&T, a special rule was created. This rule denies software manufacturers the loopholes that are available in other industries that allow alternative, non-infringing forms to be exported. These loopholes allow other industries to compete with foreign manufacturers. The elimination of any loophole causes a disincentive to trade amongst the software industry due to the threat of patent litigation. The result is a quantitative export restriction in violation of GATT and GATS obligations. This restriction cannot be reconciled within GATT or GATS exceptions; specifically it is not an interpretation of law that is necessary to achieve Congress’ goals.

The Supreme Court has granted certiorari to decide the case, however neither the lower courts, amicus briefs or secondary literature have discussed the WTO obligations this decision violates. Regardless of the Supreme Court’s decision, the Federal Circuit’s special rule creates a hypothetical with many issues currently unaddressed by trade law. For example, software can be considered both a good under GATT and a service under GATS. Additionally, the regulation of export depends on what is being regulated, a finished product or a component of a finished product that can be exported for alternative purposes. Finally, the measure is challengeable “as such” due to the precedent it creates, as well as when individual decisions impose a penalty that is itself a restriction of trade.
In 2006, the software industry generated approximately $189 billion in revenue worldwide, relying heavily on the ability to quickly move technology around the globe.\(^1\) The Federal Circuit\(^2\) decision in *AT&T v. Microsoft* addresses exportation of software under 35 U.S.C. §271(f);\(^3\) a statute that imposes damages for exportation of components of patented inventions.\(^4\) The Supreme Court has granted certiorari, but one aspect that has seen little discussion before a federal court, in amicus curiae briefs or in secondary literature, is the impact on international trade law.\(^5\) Trade law implications arise because the ability of American software manufacturers to export their software is substantially limited, if not prevented, due to the standing Federal Circuit decision. Consequently a quantitative export restriction\(^6\) may exist under World Trade Organization (WTO) agreements; specifically the General Agreement on Trade and Tariffs (GATT) and/or the General Agreement on Trade in Services (GATS).\(^7\)

Regardless of the Supreme Court’s decision the standing Federal Circuit decision presents a number of questions currently unaddressed in trade law:

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2 The Court of Appeals for the Federal Circuit has nationwide jurisdiction to hear appeals in specialized cases, such as those involving patent laws and cases decided by the Court of International Trade and the Court of Federal Claims. See U.S. Courts: United States Courts of Appeals http://www.uscourts.gov/courtsofappeals.html
5 The Supreme Court heard oral arguments on February 21\(^\text{st}\), 2007 and a decision is anticipated in late Spring or early Summer 2007. There was no trade discussion during oral arguments and only minimal discussion in amicus curiae briefs. See *Brief of Federacion Internationale des Conseils en Propriete Industrielle (FICPI), AT&T*, 127 S.Ct. 467 (No. 05-1056). Therefore, the Supreme Court’s decision is likely to rest on American patent law principles.
6 GATT Article XI:1 bans the use of “restrictions other than duties, taxes, or other charges.” This has been expressly held to include quantitative restrictions that may not be restrictive *per se*, but have a restrictive effect. See *Panel Report, Japan –Trade in Semi- Conductors*, L/6309 – 35S/116 at 109 (May 4, 1998) [hereinafter *Japan - Semi-Conductors*]. See discussion at III.B.
1) How should quantitative export restrictions be addressed?
2) Is software best characterized as a good or service for trade purposes?
3) Does a quantitative restriction exist if a remedy such as a royalty is available instead of injunction, thus the manufacturer is not necessarily prevented from exporting?
4) To what extent can domestic patent law affect activity in foreign jurisdictions when presumably within the Agreement on Trade-Related Intellectual Property Rights (TRIPS) requirements?8

This paper discusses the impact of the Federal Circuit’s decision; specifically that the trade of software will be inhibited due to patent concerns. These concerns are primarily derived from the presence of “patent thickets.”9 The resulting threat of infringement liability is enough to deter a substantial amount of trade due to the time and expense of trial. Ultimately, an injunction or overwhelming royalty in any individual case will prohibit trade by the infringing firm.

This paper discusses the proper application and interpretation of §271(f) with respect to patent, transnational and WTO law with a focus on addressing WTO concerns. Part I explains the impact of the Federal Circuit decision on global trade. Part II provides background on the legal rationales and implications of AT&T v. Microsoft. Part III analyzes how software fits in the intellectual property framework of the United States and other nations. Part IV walks through the situation as a WTO panel might to highlight potential issues that may implicate relevant WTO treaties. Part V discusses remedies available to the U.S. judiciary and Congress to force §271(f) back within the originally contemplated realm and WTO obligations.


9 Patent thickets exist when a number of patents owned by different inventors or firms cover similar technology. The result is that no individual patent owner can create a product that does not infringe another’s patent; in essence a technology anti-commons.
I. The Practical Effect is a Substantial Restriction on the Ability of American Software Manufacturers to Export Overseas

Before explaining the legal background of §271(f) and AT&T v. Microsoft, its relevance to global trade must be explained. The decision creates quantitative restrictions in two manners, as a disincentive to future exporters and by creating the ability for any individual decision to create restriction on trade. Finally, the Federal Circuit’s focus creates concerns for other industries that rely on exporting the functional nucleus of the patented invention.

A. Impact on the Software Industry

First, the practical effect of the Federal Circuit’s decision is a substantial restriction of the ability of U.S. manufacturers to export software and generates tremendous exposure for American software manufacturers. As long as software is characterized as a “component” of the patented invention, it cannot be safely exported due to the presence of significant patent thickets throughout the software industry. This effectively excludes American manufacturers from designing software in the U.S. and then exporting it overseas where the patented invention does not infringe on any local (foreign jurisdiction) patents; this is a disincentive to trade disallowed under Japan – Semi-Conductors.

The court has created a rule prejudicial to the American software industry. Recent precedent in software cases has characterized software as a component of the patented invention, as it represents the “functional nucleus” of the patented invention. Unlike mechanical components, software cannot be sent overseas in a non-infringing

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10 Petition for Writ of Certiorari, AT&T, 127 S.Ct. 467 (No. 05-1056).
11 See Japan – Semi-Conductors at 109-112.
12 Eolas Tech. Inc. v. Microsoft Corp, 399 F.3d 1325 (Fed. Cir. 2005).
manner, such as blueprints or templates.\textsuperscript{13} Therefore, the exceptions available to other industries are not present for software.\textsuperscript{14} Furthermore, in software, the prevalence of broad patents on early technologies has created patent thickets, making infringement nearly impossible to avoid. For example, Windows® runs millions of lines of code that could potentially infringe thousands of patents, many of which have little to do with the application utilized by Windows®. The end effect is a burden on the trade of software that does not comply with WTO obligations.

AT&T contends that the direct impact will be much less; arguing that the software industry will be able to export its code in alternative manners to avoid §271(f).\textsuperscript{15} For example, electronic transfer via the internet eliminates the physical disk that is shipped overseas, and, the software code technically never leaves the United States. Alternatively, golden masters could be shipped in forms that cannot be directly installed. However, these distinctions are dubious in light of the Federal Circuit’s stance that the medium of transfer is irrelevant, consequently as long as the standard for component remains “functional nucleus,” software trade will be restrained.\textsuperscript{16}

Second, a §271(f) claim alone can create substantial damages. In a predecessor case, \textit{Eolas}, heavily relied on by the Federal Circuit, a violation of §271(f) accounted for 64\% of the $520 million infringement decision.\textsuperscript{17} It is not stated what the claimed damages are in \textit{AT&T v. Microsoft}, but sales of Windows® in fiscal year 2006 totaled

\textsuperscript{13} This distinction is discussed fully at §II.C.1.
\textsuperscript{14} Courts have created specific paths for some industries to export information without creating §271(f) infringement. These methods include the ability to export blueprints and other design information. The general requirement is that component is considered supplied only when it can be “directly implemented” into the patented invention. \textit{Pellegrini}, 375 F.3d at 1117-8.
\textsuperscript{15} Brief in Opposition, \textit{AT&T}, 127 S.Ct. 467 (No. 05-1056).
\textsuperscript{16} \textit{AT&T}, 414 F.3d at 1370.
\textsuperscript{17} \textit{Id.} at 20.
approximately $13 billion.\textsuperscript{18} Therefore, a single §271(f) claim can be expected to be a substantial deterrent to trade. This allows an individual decision to become a quantitative restriction on trade.

**B. Impact on Other Industries**

Finally, this holding is not limited to software and could extend to a variety of other products, where the “component” embodies the functional nucleus of the patented invention.\textsuperscript{19} For example, biotechnology products are commonly shipped in a form that allows for easy replication; while not constituting the entire patented invention, they enable the creation of subsequent infringing biotech products, similar to Microsoft’s golden masters. Although instructions to grow and produce these products could be utilized, shipping the specific cell line or gene is more efficient and reliable, and constitutes the functional nucleus of the patented invention.\textsuperscript{20}

**II. Background, Precedent and Impact of AT&T v. Microsoft**

In *AT&T v. Microsoft*, AT&T sued Microsoft for patent infringement under §271(f) due to Microsoft’s exportation of Windows® that allegedly contains an infringing piece of software.\textsuperscript{21} The claim for infringement addresses a speech codec in the software that allows for the storage and transmission of recorded speech files.\textsuperscript{22} Microsoft defended itself, claiming:

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\textsuperscript{18} Microsoft. *Microsoft Annual Report*, (2006) http://www.microsoft.com/msft/reports/ar06/staticversion/10k_fr_dis.html. This figure represents revenues for all versions of the Windows operating systems for the year 2006. Data on foreign sales was not available.

\textsuperscript{19} Petition for Writ of Certiorari, *AT&T*, 127 S.Ct. 467 (No. 05-1056).

\textsuperscript{20} Brief of Amicus Curae BayhDole25, Inc. Supporting Respondent, 127 S.Ct. 467, *15 (No. 05-1056) (describing the similarities in the ability to export and replicate genetic information and software).


(a) that software is not a “component” within the meaning of §271(f), because it does not have the necessary physical and tangible characteristics of a component,
(b) its distribution and replication method did not “supply” the component under the framework of §271(f), and
(c) the ex ante impact of finding infringement will prevent American software manufacturers from domestically developing software and exporting it when American patents may cover the processes.  

The Federal Circuit majority agreed with AT&T by finding:

(a) software represents the functional nucleus of the patented invention,
(b) replication of master disks is the standard form of distribution and thus constitutes supply within §271(f), and
(c) the described impact to the software industry is exaggerated and best addressed by Congress.

A. Background of AT&T v. Microsoft

Microsoft appealed the Southern District of New York’s decision that it was “liable for infringement of AT&T’s U.S. patent under 35 U.S.C. §271(f) for copies of the Windows® operating system that had been replicated abroad for a master version sent from the United States”.  

The issue before the Southern District was a motion for partial summary judgment regarding infringement under §271(f).  

For purposes of the motion, Microsoft stipulated a judgment conceding that the speech codec infringes the patent and the patent is valid.  

The Federal Circuit upheld the decision of the district court. Its explanation of the law is examined fully below.  

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23 Petition for Writ of Certiorari, AT&T, 127 S.Ct. 467 (No. 05-1056).
24 AT&T, 414 F.3d at 1368.
26 Id. A stipulated judgment allows the court to set aside certain issues to isolate a single question. In this case, the patent law questions of validity and infringement have been conceded. Patent validity considers whether prior inventions exist such that the grant of a patent was improper because for example, another person is the true inventor, or the public had previous access to the invention. Patent infringement compares the allegedly infringing product with the patent in question to determine whether the product contains the features claimed in the patent.
27 See §II.C.
case is ripe for review because it presents an isolated issue regarding the attachment of damages for software exports allegedly in violation of §271(f).\textsuperscript{28} \textit{AT&T v. Microsoft} was granted certiorari by the Supreme Court on October 27, 2006.\textsuperscript{29}

The AT&T patent in question, U.S. Reissue Patent No. 32,580, “claims an apparatus comprising means for generating coded speech signals from audible voice sounds and for receiving those coded signals and converting them back into audible voice sounds.”\textsuperscript{30} The method “greatly enhanced the quality of the speech signal heard at the destination while decreasing the amount of data that needed to be transmitted.”\textsuperscript{31}

Microsoft exports software code via “Golden Master Disks” (golden masters) that contain all of the pertinent software code for the Windows\textregistered operating system.\textsuperscript{32}

Included in Windows\textregistered is a speech codec that allegedly infringes AT&T’s patent.\textsuperscript{33} Foreign Microsoft offices replicate the golden masters for distribution to foreign computer manufacturers. These individual manufacturers then replicate the distributor’s copy for installation on computers sold overseas.

B. 35 U.S.C. §271(f)

Section 271(f) creates liability for the exportation of components of patented inventions when the patented invention is assembled overseas and not returned to the United States. Section 271(f) was created because no liability under §271(a), the primary infringement provision, occurred in the United States.\textsuperscript{34} Section 271(a) requires “making,
using, selling, or offering to sell” the patented invention, as an entirety, in the U.S.\textsuperscript{35}

Section 271(f) states:

(f)(1) Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

(2) Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.\textsuperscript{36}

In summary, §271(f) seeks to prevent American manufacturers from avoiding the limits of §271(a) by exporting less than the entire patented invention. Where the exporter is sending some portion of the patented invention overseas, review under §271(f) is appropriate. §271(f) is an express Congressional response to the Supreme Court’s ruling in \textit{Deepsouth Packing}.\textsuperscript{37} The Supreme Court had limited the scope of §271(a) when it refused to endorse the view that the “substantial manufacture of the constituent parts of a machine constitutes direct infringement when we have so often held that a combination patent protects only against the operable assembly of the whole and not the manufacture of its part.”\textsuperscript{38}

\textsuperscript{35} \textit{Deepsouth Packing Co. v. Laitram Corp.}, 406 U.S. 518 (1972).
\textsuperscript{36} Most literature and \textit{AT&T v. Microsoft} only discuss §271(f)(1), even if they do not outright state this focus. Therefore, this paper will focus on 35 U.S.C. §271(f)(1) (2003).
\textsuperscript{37} 130 Cong. Rec. 28069 (Oct. 1, 1984) citing \textit{Deepsouth Packing}.
\textsuperscript{38} \textit{Deepsouth}, 406 U.S. at 528.
In the United States, infringement of a method patent for software requires the presence of hardware to run the infringing software.\textsuperscript{39} Therefore, the patented invention does not exist for patent law purposes until the software has been installed and performed on a computer. As only the creation, sale and export of the golden masters occurs in the United States, and the reach of §271(a) is limited to the borders of the United States, infringement liability is limited to construction of the software as a component under §271(f).\textsuperscript{40}

**C. The Decision of the Federal Circuit**

The Federal Circuit focused on the language of §271(f) which allowed the court to ignore historical and practical implications of its decision in finding Microsoft liable. This textualist approach is an appropriate method for statutory analysis, but it can cause a court to lose sight of a statute’s true purposes and reach an improper conclusion. The Federal Circuit needed to decide two questions to find Microsoft liable. First, is software a component within the meaning of §271(f)? Second, if software is a component, is the export and subsequent copying of golden masters equivalent to supply of components? Microsoft also raised a number of public policy concerns, although the Federal Circuit deemed these issues were best resolved by Congress.

**1. Software is a component**

First, the Federal Circuit reaffirmed that software can constitute a component.\textsuperscript{41}

In *Deepsouth*, the infringing product was a mechanical, shrimp deveining machine consisting of mechanical components. Software inherently blurs the line between

\textsuperscript{39} *In re Allapat*, 33 F.3d 1526, 1541-45 (Fed. Cir. 1994).

\textsuperscript{40} AT&T alleged that infringement occurred in other contexts under 35 U.S.C. §271(a), however, as per the stipulated judgment, the case on appeal is limited only to the golden masters and their use overseas under §271(f).

\textsuperscript{41} *Eolas*, 399 F.3d 1325
tangible and intangible; therefore it is not clear that software is a component in the same sense as a cutting instrument for shrimp in *Deepsouth*. The Federal Circuit avoided the tangibility distinction by focusing on function. It held that software can constitute a component in *Eolas*. This was found because “software code is much more than a prototype, mold, or detailed set of instructions,” and that software is the “functional nucleus of the patented invention,” and is therefore an “essential component.”

Prior to *Eolas*, the decision of *Enpat v. Microsoft* deemed an infringed method patent to not have any physical components. This followed the logic of *Standard Havens* and *Aerogroup*, which held that process and design patents could not have components because although they necessarily involved components, utilization of the process or design did not, in itself, involve any physical components. This decision hinged on component requiring a physical, tangible aspect. The Federal Circuit reversed this characterization in *Imagexpo* when it stated that “the functional nucleus of the finished computer product is driven by the code.” In doing so, the court effectively removed any requirement for a component to be physically present.

This interpretation is necessary as it is clear that the physical embodiment (the golden master disk) is not directly incorporated into the hardware overseas; instead

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42 *Eolas Tech. Inc. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir. 2005)
43 *Eolas*, at 1339. The court was distinguishing cases that characterized the general exceptions to the patented component requirement. See *Imagexpo, L.L.C. v. Microsoft Corp.*, 299 F.Supp. 2d 550, 553 (E.D.Va. 2003) and *Pellegrini v. Analog Devices, Inc.*, 375 F.3d 1113 (Fed. Cir. 2004).
44 *AT&T*, 414 F.3d at 1371 citing *Eolas*, 399 F.3d at 1399.
45 *Enpat*, 6 F.Supp. 2d 537.
48 *Imagexpo* 299 F.Supp. 2d at 553.
49 The court found the alleged infringer’s role in the export of components to be “active rather than passive.” This characterization allowed the conclusion that as an “active” participant, the alleged infringer knowingly and purposefully decided to infringe the patent in question.
copying of the disk must first occur and these copies are installed.  Additionally, the “functional nucleus” approach shifted the court’s focus to the role of the component rather than whether a substantial portion of the components were supplied.

Microsoft’s petition for certiorari and Rader’s dissent argue that software code is only a set of instructions that has no function without hardware. Similar to design information that instructed foreign manufactures how to make a component in *Pellegrini v. Analog Devices*, software code instructs hardware to perform the patented process. Therefore, as instructions have been held to be insufficient for liability because they are not the components themselves, software code should be similarly treated.

2. Copying of a master disk is supply of a component

Second, the Federal Circuit reasoned that the nature of software allows it to be supplied by direct copy. Therefore, this creates liability because copying is the normal form of supply and liability should not turn on “the medium used for export.” Judge Rader dissented because this creates a special rule for software. He would hold that the software actually incorporated into infringing patented inventions is not that which was exported and more akin to the design instructions exported in *Pellegrini*. This has been

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50 The requirement of a physical, tangible element being exported and implemented has been termed the “molecular conservation” requirement, and essentially argues that the molecules shipped must be the molecules implemented. *See* Brief of Amazon.com, Inc, Mentor Graphics Corp., and Wacom Tech. Corp. as *Amici Curiae* in Support of Petitioner, *AT&T*, 127 S.Ct. 467, *5-8* (No. 05-1056) and Brief of Shell Oil Co. as *Amicus Curiae* in Support of Petitioner, *AT&T*, 127 S.Ct. 467, *18-26* (No. 05-1056).
52 375 F.3d 1113, 1117 (holding that §271(f) “applies only where components of a patented invention are physically present in the United States and the either sold or exported.” Instructions were considered only an intangible form of the component and thus insufficient for liability.
53 Petition for Writ of Certiorari, *AT&T*, 127 S.Ct. 467 (No. 05-1056).
54 *AT&T*, 414 F.3d at 1370.
55 *Id.*
56 *Id.* at 1374.
57 *Id.* at 1375. As explained supra *Pellegrini* did not find liability where what was exported was not which was actually combined with other components to make the patented invention. Design information was not enough to constitute a component.
called the “molecular conservation” argument, as it requires that the actual molecules exported be incorporated into the infringing product.\textsuperscript{58}

Microsoft argues that because §271(f) demands physical, tangible components the golden master is insufficient to be supply. This stems from the reasoning of \textit{Pellegrini}, which found that a component was only supplied when it could be “directly implemented” into the patented invention.\textsuperscript{59} The court so held because §271(f) only applies when components are sold in “such a manner as to actively induce the combination of such components.”\textsuperscript{60} This required that the supplied component be exported in a form that allowed for immediate combination. To argue that direct implementation was not possible, Microsoft conceded that if individual disks were exported, then the supply requirement would be satisfied as the exported product would be that which is directly implemented into the patented invention.\textsuperscript{61} However, because the golden master is not itself installed on computers, there is no supply under §271(f).\textsuperscript{62} The golden master is merely a template to be copied into usable form.

\textbf{3. Public Policy Concerns}

Third, Microsoft highlighted a number of public policy issues that result from the practical effect of the decision.\textsuperscript{63} These arguments were dismissed by the court; who requested Congressional review in lieu of judicial activism.\textsuperscript{64} This was improper analysis

\textsuperscript{58} Brief of Amazon.com, Inc, Mentor Graphics Corp., and Wacom Tech. Corp. as \textit{Amici Curiae} in Support of Petitioner, \textit{AT&T}, 127 S.Ct. 467, *5-8 (No. 05-1056) and Brief of Shell Oil Co. as \textit{Amicus Curiae} in Support of Petitioner, \textit{AT&T}, 127 S.Ct. 467, *18-26 (No. 05-1056).
\textsuperscript{59} \textit{Pellegrini}, 375 F.3d at 1117-8.
\textsuperscript{60} \textit{Id.} at 1117.
\textsuperscript{61} Petition for Writ of Certiorari, \textit{AT&T}, 127 S.Ct. 467, *21-22 (No. 05-1056).
\textsuperscript{62} \textit{Id.}
\textsuperscript{63} Petition for Writ of Certiorari, \textit{AT&T}, 127 S.Ct. 467 (No. 05-1056).
\textsuperscript{64} \textit{AT&T}, 414 F.3d at 1372.
as the American software industry and public in general have substantial concerns regarding the future health of the software industry.

II. Intellectual Property, Software and Global Trade

A. Intellectual Property Forms of Software Protection

Software is protected by a variety of methods around the world. Much controversy has surrounded which system, patent or copyright, best protects software due to the unique interests of the software industry. Further, within patent law, the aspects of software that may be patented are unclear.

Specifically, there are concerns that patents take too long to issue, thus denying the patentee from exercising their patent before technology has advanced beyond the patent’s scope. On the other hand patents last too long, creating a “patent thicket” or “patent minefields” that desirable, ancillary technology will infringe. Copyright is timelier, as its protections arise at the time of publication. However, copyright provides weaker protection than a patent and only covers the expression of an idea. 35 U.S.C. §271(f) applies only to patents; therefore, this commentary focuses on patent issues.

In the U.S., software patents are only applied to the specific method or process that the software executes, not the actual code. For a process patent to be infringed, the process must be performed. In software, this generally requires a digital computer or other hardware. Software code alone is not patentable because it cannot perform a process and is considered to be only a “mathematical algorithm” or “law of nature;” it

68 In re Allapat, 33 F.3d 1526.
must be performed by hardware. Consequently, Microsoft attempted to construe code as mere instructions that guide hardware to perform a specific process; therefore the supply of this code guides the computer in the same way a blueprint or drawing guide foreign manufacture of mechanical parts. What software code ultimately constitutes is a primary issue in *AT&T v. Microsoft*, due to questions about whether the definition of “component” implies a physical and tangible requirement.

**B. Differing Patent Policies in the European Community and United States**

The United States, Japan and the European Community have granted approximately 84% of the patents worldwide, however they each treat software in a different manner, particularly differing between the EC and the U.S. This is problematic in *AT&T v. Microsoft*, as the United States has effectively extended its protection of AT&T’s software patent into the nations where Microsoft has shipped its golden master disk. This potentially creates concerns under the WTO TRIPS agreement, however TRIPS expressly excludes any principles of exhaustion.

In the United States, software protection is extended via method or process patents and through copyright. Patents cannot be extended to cover mathematical algorithms, but if the claimed subject matter causes a general purpose computer to function for a special purpose pursuant to the instructions of the program, a patent may be claimed.

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70 See Petition for Writ of Certiorari, *AT&T*, 127 S.Ct. 467 (No. 05-1056), *AT&T*, 414 F.3d 1366, *Eolas*, 399 F.3d 1325, and *Enpat, Inc. v. Microsoft Corp.*, 6 F.Supp. 2d 537 (E.D. Va. 1998). See also Brief of Amazon.com, Inc, Mentor Graphics Corp., and Wacom Tech. Corp. as *Amici Curiae* in Support of Petitioner, *AT&T*, 127 S.Ct. 467, *10-12* (No. 05-1056) (arguing that 3D computer models of mechanical devices (CAD/CAM instructions) that allow automatic generation of a mechanical part, have not been held infringing under §271(f), and this decision creates a arbitrary, special rule for software).


72 See *infra* at §IV.A.1.
granted. Furthermore, patentability was expanded to include business methods that produce a “a useful, concrete and tangible result.” This reflects a shift in focus for U.S. jurisprudence; it focuses on practical utility rather than a strict classification of an invention into the categories of §101.

The European Community expressly prohibits computer programs from patentable subject matter. However, a computer program is patentable if the program causes a technical effect beyond the normal physical interactions between the program and the computer. The ban has been criticized as being noncompliant with Article 27 of the TRIPS agreement, which requires that patents shall be available without discrimination as to field of technology. The EC has refused to modify its ban, going so far as to reject a 2002 directive that would have harmonized European software patenting practice. The directive would have allowed patents on computer-implemented inventions that make a technical contribution satisfying an inventive step requirement.

The primary difference between the European Community and the United States is the initial presumption. In the U.S. there is no longer any presumption of patent invalidity, whereas the EC presupposes invalidity. In reality patenting decisions in both nations have blurred the lines of patentability. Presumably, AT&T has a patentable invention in the EC, although it is unclear whether they have applied for, have or enforced this right. Ultimately, the limitations on the applicability of TRIPS due to an

73 Allapat, 33 F.3d 1526.
74 State St. Bank & Trust Co. v. Signature Financial Group, 149 F.3d 1368, 1375 (Fed. Cir. 1998).
75 Id. See also Allapat.
76 Park, 13 Int’l J.L. & Info. Tech at 347-8, n. 52-54.
77 Id.
78 Id. at 347-348.
79 TRIPS
81 Id. at 348-9 n. 58-59
82 Id.
expression ban on exhaustion principles prevents the extraterritorial imposition of patenting standards from being a primary concern compared to the limitation on trade 

*AT&T v. Microsoft* has created. However, differing standards may create illegal discrimination under GATT Art. XX.

**C. World Trade Organization Obligations and General Structure**


The purpose of the WTO is, among other aspects, to provide a forum for trade disputes and negotiation, to protect the WTO’s own trade agreements and to monitor national trade policies.  

The WTO addresses trade obligations primarily through the General Agreement on Trade and Tariffs (GATT) and General Agreement on Trade in Services (GATS) agreements. The Agreement on Trade-Related Intellectual Property Rights (TRIPS) addresses intellectual property and patent laws; although it expressly does not involve patent exhaustion doctrines, and is therefore not implicated here.  

The Dispute Settlement Understanding acts as a compulsory third party-adjudication system that each member accepts to submit all disputes arising from operation and violation of WTO agreements. A WTO panel acts as the court of first instance, and the Appellate Body acts as a court of last instance. Decisions are enforced

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84 *Id.*  
85 *See supra* at III.B.  
by the Dispute Settlement Body which can authorize retaliatory measures by the
victimized nation, generally in the form of trade sanctions.87

IV. WTO Concerns

The World Trade Organization (WTO) has an interest in this case for a variety of
reasons. First, the Federal Circuit’s decision potentially constitutes an export restriction
of a good and/or a service in a manner banned by the WTO’s GATT and GATS
agreements. Second, the extraterritorial application of U.S. patent law imposes U.S.
patenting standards on foreign nations that have differing standards for patentability of
software, such as the European Community (EC).

This section analyzes potential problems between the AT&T v. Microsoft decision
and various WTO agreements in the manner a WTO panel would address the issue. Part
A explains how the decision in AT&T v. Microsoft fits within the GATT, GATS and
TRIPS agreements. Parts B, C and D discuss implications under the GATT and GATS
agreements, respectively.

A. Is AT&T v. Microsoft best considered an IP issue under TRIPS, as a Good under
GATT or as a Service under GATS?

It must first be determined how Windows®, or software generally, is treated by
WTO law. The WTO has yet to determine whether software represents a good or a
service, although it contains aspects of each. As this case involves patent rights, there is
also a possible violation of TRIPS. Interestingly, as TRIPS expressly excludes
exhaustion principles, there does not appear to be any violation.88

87 Id.
88 See discussion infra at III.B. explaining the doctrine of patent rights exhaustion.
It must be noted that although this is an intellectual property law issue, it need not only be brought under TRIPS, if it has an effect on trade it can be brought under GATT or GATS. Application of GATT or GATS turns on the question of whether software is a good or service under the definitions of these treaties. Goods are governed by GATT and services are governed by GATS. The Appellate Body (AB) has clarified that a measure can create burdens under both agreements, and decisions must consider both aspects although never simultaneously.

1. The Inapplicability of TRIPS

TRIPS may apply in two manners. First, there may be concerns that the United States is imposing its patent law on other members. However, article six expressly states that the TRIPS agreement does not address exhaustion of intellectual property rights. Second, article 27(1) TRIPS states that “patents shall be available and patent rights enjoyable without discrimination as to … the field of technology.” The Federal Circuit decision has created a trade-restrictive rule for software; however this paper will focus on GATT and GATS due to similar discrimination in foreign patent systems.

Exhaustion concerns are implicated here where the United States software patent regime differs from the affected member Exhaustion states that rights extend only within pre-defined borders. In the United States, patent rights are domestically exhausted, that is

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89 For example, in US-§337, the WTO panel dealt with applicability of §337 of the United States Tariff Act of 1930 which prevented the importation of goods that infringed United States patents. Panel Report, United States – Section 337 of the Tariff Act of 1930, L/6439 – 36S/345 (Nov. 7, 1989) [hereinafter US - §337]. See also EC-Geographical Indicators where the WTO panel concurrently considered TRIPS and GATT objections that dealt with the same measure, facts and type of obligation. Panel Report, European Communities – Protection of Trademarks and Geographical Indicators for Agricultural Products and Foodstuffs, WT/DS174/R at §7.31(Mar 15, 2005) [hereinafter EC-Geographical Indicators].
90 EC-Bananas III.
92 EC-Bananas III. This demands that each treaty be assessed independently.
93 TRIPS Art. 6 (1994).
94 TRIPS Art. 27 (1994).
they do not extend into foreign lands. The European Union has regional exhaustion; setting the borders for exhaustion at the borders of the EU, instead of its individual members. For example, a good bought in New York or Germany can be subsequently sold in New Jersey or France, respectively, without violating intellectual property rights. However, neither good can be sold in Canada without such a violation. By not having an exhaustion principle, TRIPS allows each nation to develop its own principles, and effectively renders it inapplicable here.

Article 27(1) has been used by the Federal Circuit and numerous commentators to argue that patent laws should be applied equally to all technology areas. Arguably, the special rule for software here violates TRIPS by distinguishing software from other technology fields. However, because many patent systems, including the European Community, distinguish software from other technologies, and because the WTO has yet to address whether a special rule constitutes discrimination against a technology field; I will focus on quantitative restrictions arising from disincentives under GATT and GATS.

2. Windows® as a good or service

Using Windows® as an example for software generally, compact disks and computers containing the Windows® operating system are goods for WTO purposes, because they constitute the physical product that is shipped via methods typical of other goods. Therefore, at minimum the physical media represent goods for WTO purposes, and as the performance aspects of the software are the product sought, software should fit within any definition of goods.

Windows® also acts as service, because it provides the operating environment for hardware. Like all software it is the mechanism that allows the user to interact with computer hardware to perform a pre-defined set of tasks. Furthermore, applications such as Internet Explorer®, provide a service that allows a user to connect to the internet. Therefore, it is conceivable that software could be construed to be a service within GATS.

3. Effects of the Federal Circuit’s interpretation of software as a good

Federal Circuit precedent has classified software as a component of a patented invention. Patents cannot apply to services, only to goods, methods and processes. Therefore, presumably the Federal Circuit only considered software in the context of goods. However, if the WTO considers software to be a service also, it will not matter how software is characterized domestically, because the WTO defines and considers a measure under its own laws.

4. Electronic transfer of software

One alternative to shipping golden master disks would be to electronically transfer software code via the internet. There is an ongoing debate whether such transfer should be considered a good under GATT or a service under GATS. This paper focuses on transmission via physical media, however many of the characterizations are the same for electronic and physical transmission.

B. GATT Article XI:1 - §271(f) Creates a Quantitative Export Restriction on Software

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97 Eolas, 399 F.3d 1325.
GATT article XI:1 bans the use of quantitative export restrictions, and it must first be considered whether the decision as precedent creates disincentives to trade, or standing alone imposes restrictions, such that quantitative restriction on trade exists.99 Second, may a royalty be characterized as a permissible tariff or duty. Third, how does Art. XI:1 apply to exports

1. Application of XI:1

Art. XI:1 of the GATT restricts members from imposing quantitative restrictions on imports or exports. It reads:

No prohibitions or restrictions other than duties, taxes, or other charges, whether made effective through quotas, import or export licenses or other measures, shall be instituted or maintained by any contracting party … on the exportation or sale for export of any product destined for the territory of any other contracting party.100

An Article XI:1 violation requires (a) a measure attributable to the government, and (b) the existence of a quantitative restriction.101 If found a quantitative restriction is presumed discriminatory unless an exception can be proven under Article XX.102 This provision has been applied extensively to import restrictions, however it has had limited application to export restrictions.103 Therefore, much of this analysis relies on importation decisions.

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100 GATT Art. XI:1.
101 See generally Japan – Semi- Conductors.
102 Id. Article XX(d) allows a member nation to implement measures to “secure compliance with domestic laws or regulations that are otherwise GATT-consistent.”
a. The Measure and Effect are Directly Attributable to Government Action

The measure must, first, be attributable to the government of a WTO member-nation. The exportation and sale of Windows®, and other software, is clearly private. Furthermore the likely remedy, royalty damages, is entirely between the private parties. However, 35 U.S.C. §271(f) was created by Congress, and interpreted by federal courts. The effects on trade are caused by a government implemented and enforced legislation, therefore the measure is readily attributable to the U.S. government.

b. §271(f) may be Challenged “As Such” under the Requirements of Article XI:1

Prior to US-$301$ a regulatory measure was required to be mandatory, not discretionary, to be challengeable; essentially the relevant trade official must be bound to implement the measure in question.$^{104}$ US-$§301$ refocused the review by asking, “is it so implausible that the framers of the WTO Agreement … would have crafted some obligations which would render illegal even discretionary legislation?”$^{105}$ The panel focused on the purpose of the Dispute Settlement Understanding and the WTO; that is to create “security and predictability [in] the multilateral trading system.”$^{106}$ Therefore, the implementation of a measure that “as such” has a direct or indirect trade effect, such that it has a “chilling effect” on trade, is enough to create a WTO violation, regardless of the mandatory or discretionary nature of the measure.$^{107}$ The full impact of the decision has yet to be felt and the parties have agreed to a settlement that will allow continued

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$^{105}$ Id. at §7.53.

$^{106}$ Id. at §7.75 citing the Dispute Settlement Understanding, Article 3.2. See also Appellate Body Report United States-Sunset Review of Anti-Dumping Duties on Corrosion-Resistant Carbon Steel Flat Products from Japan, WT/DS244/AB/R at para. 82 (Dec. 15, 2003) [hereinafter US-Sunset Review].

$^{107}$ The panel further clarifies when stating that the possibility for a “determination of inconsistency creates a real risk or threat.” Id. at §7.96.
operation by Microsoft, pending the Supreme Court’s decision; therefore in this case actual trade impact is unlikely.\textsuperscript{108}

The WTO has clarified this distinction within Article XI:1 in ways relevant here. First, it has held that a restriction can have a restrictive effect, even if no express quantitative limit exists.\textsuperscript{109} Second, the requesting member “need not prove actual trade effects,” because “Article XI:1, like Articles I, II and III of the GATT 1994, protects competitive opportunities of imported products, not trade flows.”\textsuperscript{110} The focus on competitive opportunities and not actual trade effects indicates that a measure can be challenged “as such” under Article XI:1.\textsuperscript{111}

In this situation, the quantitative restriction arises in two manners. First, the \textit{AT&T} decision creates precedent that can create a disincentive to trade due to fears of patent infringement. Second, in each infringement decision the court has the discretion to award a minimal remedy that will have no impact on trade, or a remedy that enjoins (permanent injunction) or has a restrictive effect (high royalty rate).

\textbf{i. Decision as precedent}

The potential for further liability creates a disincentive to trade products that may potentially infringe a variety of patents. The WTO has determined that where a measure has created incentives to restrict imports, a violation exists.\textsuperscript{112} The \textit{AT&T} decision has

\begin{itemize}
  \item \textsuperscript{109} \textit{Argentina – Bovine Hides} at §11.17.
  \item \textsuperscript{110} \textit{Id.} at §11.20.
  \item \textsuperscript{111} The Appellate Body ruled in a similar fashion with respect to Article X:3. Appellate Body Report \textit{European Communities – Selected Customs Matters}, WT/DS315/AB/R (Nov. 13, 2006). Here, the United States challenged the use of European Community and National customs authorities created inconsistencies in violation of Article X:3. Although no individual law, or specific practice could be found in violation, the administration and operation of the system “as such” was found to be in violation of Article X:3. Similarly, here although it is not certain that a specific manufacturer will be unable to export the presence of disincentives and likely trade effects are sufficient to challenge §271(f) “as such.”
  \item \textsuperscript{112} \textit{Japan – Semi-Conductors} at 109-112.
\end{itemize}
applied §271(f) to create disincentives to export goods that similarly constitutes an export restriction within Article XI:1.

In the present situation, although §271(f) extends patent coverage only to components of patented inventions, the Federal Circuit’s interpretation limits the ability to sell software overseas that originates in the U.S. and contains code that infringes U.S. patents.\footnote{See Brief of Amicus Curae Business Software Alliance Supporting Petitioner, 127 S.Ct. 467, *7-17 (No. 05-1056) (arguing that the current decision will deny American software manufacturers from effectively designing and exporting software). See also Brief of Amicus Curae BayhDole25, Inc. Supporting Respondent, 127 S.Ct. 467, *15 (No. 05-1056) (describing the similarities in the ability to export and replicate genetic information and software).} The risk of damages or a permanent injunction creates a disincentive for software manufacturers to export their products. This quantitative restriction arises uniquely here because previous §271(f) decisions in other technology areas have allowed alternative forms of exportation without infringement.\footnote{See discussion supra at IV.C. These cases allowed design information such as a blueprint or mold to be exported, as long as it could not be directly implemented into the patented invention. \textit{Pellegrini}, 375 F.3d 1113.}

The presence of a disincentive minimizes the need to determine whether actual trade effects will be forthcoming in this decision. Prospectively, disincentives are created for other manufacturers that create significant concerns for other foreign nations, specifically those that do not grant patents on software or have other regulatory mechanisms differing from the exporting nation. A related example concerns developing nations who desire pharmaceuticals that have not been granted regulatory approval in developed nations but they deem the pharmaceutical safe.

\textbf{ii. The court’s discretion to award a trade-restrictive remedy}

In any given infringement finding the court has two primary remedies; royalty damages and/or a permanent injunction. A permanent injunction, on its face, creates a clear quantitative restriction preventing the export of any infringing products. Likewise,
a royalty damage can create a quantitative restriction where the infringing firm chooses to cease exportation rather than make royalty payments.

In July 2006, the Supreme Court struck down the presumption that a finding of patent infringement mandated the implementation of a permanent injunction.\textsuperscript{115} The Court held that an injunction should only be awarded when equity so requires.\textsuperscript{116} The impact of the decision is currently unknown, however much speculation is that injunctions will be less common, in favor of court-ordered royalties.\textsuperscript{117} A court does not have an obligation to impose a remedy that goes so far as to create a quantitative restriction. The royalty could be set such that the infringing firm chooses to pay the royalty rather than cease or limit its exportation of the infringing product.\textsuperscript{118}

It is unclear whether the decision in \textit{AT&T v. Microsoft} will have a trade restrictive burden on the exportation of Windows software. An undisclosed settlement was reached by the parties, prior to oral arguments before the Supreme Court.\textsuperscript{119} It is unclear whether this settlement will create an impact on trade or merely require Microsoft to pay AT&T a non-restrictive royalty.

2. Exceptions to the Application of Article XI:1

There are a variety of ways the U.S. could argue that Article XI:1 does not apply, although not all have been considered by WTO bodies. The first is a characterization of the remedy in \textit{AT&T v. Microsoft} as a tariff or duty because only royalties are at issue.


\textsuperscript{116} \textit{Id.} at 1839.


\textsuperscript{118} “A reasonable royalty is the royalty which a licensee would be willing to pay and still make a reasonable profit from use of the patented invention. [It] contemplates a hypothetical negotiation between the patentee and the infringer at a time before the infringement began.” 60 Am. Jur. 2d Patents §§956-958 (2007). Therefore the court has discretion to find a reasonable royalty that does not prevent an infringing firm from exporting as before litigation.

This path is dangerous as the measure could still be interpreted as an illegal subsidy. Second, the United States could dispute when WTO law becomes applicable to exports; e.g. whether regulation of a predecessor good constitutes a WTO violation if the traded good itself has no direct regulation. This however, directly conflicts with the Federal Circuit’s characterization of the situation, which binds the U.S. under WTO law. Ultimately, neither of these characterizations is persuasive to relieve the U.S. of GATT liability.

**a. Construction of a Royalty as a Tariff or Duty**

The United States could argue that the likely judicially imposed royalty is effectively a government mandated tariff on the export of Windows®.\(^{120}\) A royalty could be construed as a tariff because as an outcome of trial it is effectively a government-ordered payment to import or export. Under GATT, tariffs are not considered quantitative restrictions under Art. XI:1 and are presumed valid. However, AT&T does have the power to request a preliminary injunction during the trial and a permanent injunction subsequent to trial to force Microsoft to negotiate a license. Therefore *ex ante*, injunctions can operate directly as quantitative restrictions. Even in this situation, the threat of litigation and royalty damages create a “chilling effect” on trade

A royalty is not a tariff when it goes directly to a private entity but rather is a non-compliant subsidy.\(^{121}\) In *US-Offset Act*, the United States granted payments to domestic producers to offset expenditures created by anti-dumping and countervailing duties.\(^{122}\) The AB characterized these payments as subsidies that were inappropriate as responses to

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\(^{120}\) Royalties and injunctions are both possible outcomes. However, in light of *EBay v. MercExchange*, royalties are more likely. *See infra* at IV.B.1.


\(^{122}\) *Id.* at 12.
dumping by foreign states.\textsuperscript{123} By definition, a royalty allocates money between private parties with federal courts acting as an intermediary to determine that royalty rate.\textsuperscript{124}

Because payment by the infringer is sent directly to the patentee, a subsidy that is effectively a royalty exists within the framework created by \textit{US-Offset Act}.

b. \textbf{Software as a Component fits the Definition of a Good for Export Purposes}

An issue that has yet to reach a WTO panel asks when a product becomes defined as a good under Article XI:1. This problem is unique to export restrictions, because an import is defined at the time it enters the market. However, with exports it must be considered what the government is regulating; the good entering global trade or a predecessor. The issue is applicable as arguably patent laws and §271(f) only apply to patented inventions, not the exported components.

This issue has been addressed by NAFTA in the context of freshwater exports from Canada\textsuperscript{125} and has been addressed under WTO law by one commentator regarding OPEC oil restrictions.\textsuperscript{126} The basic question asks when water or oil becomes a good for the purposes of GATT.\textsuperscript{127} For example, is oil a regulated good at the production/pumping stage or when it becomes a usable good during the refining process?\textsuperscript{128} Stephen Broome argues that Art. XI:1 could be interpreted narrowly to distinguish between production and exportation, thus freeing OPEC restrictions on oil

\begin{flushleft}
\textsuperscript{123} \textit{Id.} at §§263-274.
\textsuperscript{125} See generally Robert J. Girouard, \textit{Water Export Restrictions: A Case Study of WTO Dispute Settlement Strategies and Outcomes}, 15 Geo. Int’l Envtl. L. Rev. 247 (2003) (arguing that NAFTA decisions follow the framework of WTO decisions, and many of the same considerations are found in both systems).
\textsuperscript{127} Girouard at 253, Broome at 413-414.
\textsuperscript{128} Broome at 414.
\end{flushleft}
production from possible violations of WTO obligations on exportation.\textsuperscript{129} In the OPEC context, the good has been changed between the production and exportation stage. In Canada, freshwater could be considered outside of WTO obligations when it sits in a lake. However, once it is pumped and bottled it becomes a tradable good. It is not clear at which point WTO obligations become effective. As this issue has yet to be addressed by the WTO it is unclear whether the distinction is relevant.

In the \textit{AT&T} situation, it could be argued that the component is the regulated good for GATT purposes. However, patent law only protects patented inventions; and as the component is not the patented invention, American law itself is arguably not regulating the component, but only patented inventions. However, a distinction between the component and the invention, similar to a pumping-refining distinction, is not possible here. In this situation, the finishing steps occur overseas, when the components are combined to create the patented invention. With oil and water, the pumping and refining steps occur in the exporting nation, thus the regulated resource can be used for other purposes. Therefore, one cannot separate regulation focused on the component in same manner that oil or water potentially could be.

Furthermore, the Federal Circuit’s characterization of the case is binding on the U.S. as a matter of international law. This prevents line-drawing between component and patented invention for two reasons. First, the Federal circuit has explicitly regulated the component, and not the invention alone. Second, the restrictive effect of the decision is a restriction on the availability of the patented invention and the component, bringing it within the scope of Article XI:1.

\textbf{C. GATT Article XX: Exceptions Do Not Provide Relief for the U.S.}

\textsuperscript{129} \textit{Id.}
Article XX defines general exceptions that allow inconsistencies with other GATT provisions. Article XX(d) is the most applicable exception to this situation. It considers whether measures inconsistent with other GATT provisions can be justified as enforcing compliance with otherwise GATT-consistent laws.\(^{130}\)

It states:

\((d)\) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph 4 of Article II and Article XVII, the protection of patents, trade marks and copyrights, and the prevention of deceptive practices.\(^{131}\)

WTO bodies require that the measure meet not only the stated exception but also, the chapeau of Article XX. The chapeau states:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:\(^{132}\)

The exceptions of Article XX(d) are not satisfied here because the current interpretation to secure Congress’ state aims. However, Congress’ vague intent places this in doubt. It is likely that the chapeau of Article XX is satisfied because software does not contain a compelling interest constituting discrimination when it is not expected. However, the WTO has yet to consider this issue within Article XX.

1. Application of Art. XX(d)

\(^{130}\) *US*- §337 at §5.22.  
\(^{131}\) GATT Art. XX(d).  
\(^{132}\) GATT Art. XX.
The Panel decision of *US - §337* applied Art. XX(d) to measures seeking to ensure compliance with the U.S. patent law.\textsuperscript{133} Three requirements are necessary to reach an Art. XX(d) exception.

- that the "laws or regulations" with which compliance is being secured are themselves "not inconsistent" with the General Agreement;
- that the measures are "necessary to secure compliance" with those laws or regulations;
- that the measures are "not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade".\textsuperscript{134}

**a. Is §271(f) itself consistent with GATT provisions?**

The first question considers whether the law or regulation itself complies with the GATT. If it is assumed, arguendo, that the Federal Circuit’s interpretation is one of many possibilities, some consistent and some inconsistent with the GATT, then 35 U.S.C. §271(f) can be considered “not inconsistent.” For example, prior to *Eolas*, American manufacturers were prevented only from exporting physical, tangible components. This allowed for export of design information and molds, which did not create restrictive effects; instead manufacturers could export information that allowed foreign subsidiaries and others to make goods not protected in the foreign jurisdiction.

The extension of the definition of component to the “functional nucleus” makes §271(f) inconsistent. When it is applied to software, manufacturers are unable to avail themselves of the exceptions provided to other industries. This has effectively eliminated the distinction between the component and the patented invention with respect to

\textsuperscript{133} *US-§337*. The decision dealt solely with a trade restriction requiring that imported goods meet the substance of U.S. patent laws. The case did not deal with the substance of U.S. patent law and whether it is, in and of itself, consistent with GATT.

\textsuperscript{134} *Id.* at §5.22.
software, creating the quantitative restriction in question. Therefore, only this interpretation is inconsistent, although the law itself is arguably consistent.

b. Is this application of §271(f) necessary to achieve the goals of Congress?

It must be determined whether this application of the law is “necessary to secure compliance.” The AB has characterized a “necessary measure…[as] located significantly closer to the pole of ‘indispensable’ than to the opposite pole of ‘making a contribution to.’” To determine the necessity of a measure, a balancing of factors analysis should be used. These factors include: the contribution made by the compliance measure to the enforcement of the law or regulation at issue, the importance of the common interests or values protected by that law or regulation, and the accompanying impact of the law or regulation on imports or exports.

The stated Congressional intent in drafting §271(f) was to create a “legislative solution to close a loophole in patent law” that was identified in *Deepsouth*. The crucial question is how Congress intended a statute addressing a mechanical combination patent to apply to software and other arguably intangible goods. The Congressional Record is nonexistent outside of a stated desire to close the loophole; therefore jurisprudence has been hesitant to unduly expand §271(f). That is, until *Imagexpo, Eolas* and *AT&T*. Prior decisions have refused to apply §271(f) to offers to sell components for foreign assembly because “offer to sell” is not expressly stated in §271(f), required

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135 US - §337 at §5.22.
137 Id. at 164.
140 *Rotec Indus., Inc. v. Mitsubishi Corp.*, 215 F.3d 1246, 1257-58 (Fed. Cir. 2000)
manufacture of components to occur in the United States, \(^{141}\) and refused to apply it to
design patents because designs do not contain components. \(^{142}\) In one decision, the court
expressly refused to apply §271(f) “in a situation not discussed in *Deepsouth*.”\(^{143}\)
Therefore, it is unclear how far §271(f) should be extended to situations that are not
expressly within the *Deepsouth* situation.

Congressional intent was not to create liability for the situation found in *AT&T* for
three reasons. First, Congress could not have anticipated the application of §271(f) to
software because neither software patents nor the supply efficiencies of today existed in
1984. Second, Congress spoke to how it protects process patents that are exercised
overseas when it created §271(g). Third, the language of §271(c) indicates that a higher
threshold is to be applied to §271(f), then functional nucleus. Their focus is on the
products and results of processes. Consequently, article XX(d) cannot be satisfied as
Congress did not desire to prohibit this sort of activity.

**i. Congress did not write §271(f) with software in mind.**

The patent at issue in *Deepsouth Packing* was a combination patent for a
machine. \(^{144}\) The controversy considered the manufacture of mechanical parts in the
United States that required only assembly abroad. The Court refused to find liability,
because precedent held that combination patents protect “only against the operable
assembly of the whole,” and the operable assembly never existed in the U.S.\(^{145}\) Congress

(holding that components manufactured in France, shipped to and stored in the United States, and then sold
and shipped to Canada did not constitute supply from the U.S.).

\(^{142}\) Aerogroup, 955 F.Supp. 220 (as discussed *supra*, holding that an exported form of a component that
could not be immediately implemented into the patented invention was not a component within §271(f)).

\(^{143}\) *Windsurfing*, 668 F.Supp. at 820.

\(^{144}\) *Deepsouth*, 406 U.S. 518.

\(^{145}\) *Deepsouth*, 406 U.S. at 528 (explaining that infringement of combination patents requires the fully
assembled machine).
created §271(f) expressly to close this loophole and to make liable an alleged infringer who has substantially manufactured the components of a combination patent and exported them for assembly. The Federal Circuit has unduly stretched this intent.

First, Congress did not anticipate the application of §271(f) to software because process patents that incorporated a computer were not validated until 1981.\textsuperscript{146} The Supreme Court decision that year, \textit{Diamond v. Diehr}, is credited as being a breakthrough for software patents, although at the time it was not clear what the decision’s full implications would be as it purported to allow only patenting where an otherwise patentable invention was the subject of the patent and happened to use a mathematical algorithm.\textsuperscript{147} It was not until the early 1990s that software patents such as the one in question began to be issued.\textsuperscript{148} In 1980, Congress adopted the guidance of the National Commission on New Technological Uses of Copyrighted Works (CONTU), which expressly placed software within the confines of copyright protection.\textsuperscript{149} In 1984 §271(f), software patents were not legal or protected under the Patent Act. Therefore, the court’s holding that software constituted the “essential component” of the patented invention was incomprehensible in 1984.\textsuperscript{150}

Second, the efficiencies for export that are currently present didn’t exist in 1984. Although statutes are written with future technology in mind, products that revolutionized the computer industry into the current goliath, such as optical disk drives (1988), the internet (roughly 1989), and Windows ‘95\textsuperscript{®} (1995) could not have been contemplated in

\begin{footnotes}
\item[146] \textit{Diamond}, 450 U.S. 175.
\item[147] Id. at 1055.
\item[148] \textit{Allapat} created the test asking whether a computer was converted from general to special purpose due to the presence of the software. Further examination is found in part 2, \textit{infra}. 33 F.3d 1526.
\item[150] See \textit{AT&T}, 414 F.3d 1366 and \textit{Imagexpo} 299 F.Supp. 2d 550.
\end{footnotes}
1984. The primary mode of transport for software was on 5¼” floppy disks. Therefore, in 1984, it was not anticipated that software could be mass replicated in foreign markets as Microsoft has done with its golden masters.

ii. Congress expressly addressed how to handle process patents in §271(g)

Section 271(g) shows how Congress addresses infringement of process patents. The Enpat court used this section to determine that Congress had expressly spoken to infringement of process and method claims.\textsuperscript{151} The Enpat court rationalized that this necessarily precluded application of §271(f) to process claims. Section 271(g) creates liability for the importation of the products of a process that is performed overseas, but infringes a U.S. process patent. It states:

\begin{quote}
(g) Whoever without authority imports into the United States or offers to sell, sells, or uses within the United States a product which is made by a process patented in the United States shall be liable as an infringer, if the importation, offer to sell, sale, or use of the product occurs during the term of such process patent. In an action for infringement of a process patent, no remedy may be granted for infringement on account of the noncommercial use or retail sale of a product unless there is no adequate remedy under this title for infringement on account of the importation or other use, offer to sell, or sale of that product. A product which is made by a patented process will, for purposes of this title, not be considered to be so made after—

(1) it is materially changed by subsequent processes; or
(2) it becomes a trivial and nonessential component of another product.
\end{quote}

\textit{Enpat} noted that if Congress “intended to prohibit U.S. companies from exporting products which allow foreign companies to make unauthorized use of patented methods, it could have done so in clear, unambiguous language like that found in §271(g).”\textsuperscript{152}

Section 271(f) does not have sweeping language, but is limited to the “combination into a

\textsuperscript{151}Enpat, 6 F.Supp. 2d 537.
\textsuperscript{152}Id. at 539
finished product, apparatus, or invention abroad.”¹⁵³ This narrow construction further read a physical nature requirement into §271(f).

In §271(g), Congress focused on the results of claimed processes and their effects on the U.S. market.¹⁵⁴ This is necessary because U.S. jurisdiction cannot reach to any activity except for the importation of the resulting product into U.S. markets. This creates liability on the importer that is beyond the mere sale or use of the patented invention domestically. This power stems from the effects doctrine of international jurisdiction which holds that jurisdiction can be found based on an impact in a domestic market.¹⁵⁵ Similarly, other nations have the power to regulate the results of patented process. If the U.S. wishes to induce its own liability it must do so with clear intent, because “ambiguous statutes [are construed] to avoid unreasonable interference with the sovereign authority of other nations.”¹⁵⁶

iii. 35 U.S.C. §271(c)’s lower threshold

Congress has regulated the sale for use in the U.S. of components of patented inventions in 35 U.S.C. §271(c). Congress spoke clearly to the definition of component in this section, requiring that it constitute a “material part of the invention.”¹⁵⁷ This standard is a lower threshold than §271(f)’s “all or substantial portion of the patented invention.” It has been interpreted as components “only adapted to be used in a patented combination.”¹⁵⁸ A “functional nucleus” or “essential component” is better described as a “material part,” that can only be used in the patented product. In fact, this provision has

¹⁵³ Id.
been held to allow relief from liability if there is a non-infringing use. This has not been addressed in §271(f), nor should it need to be. Unlike, a “material part;” components that constitute all or a substantial portion of a patented invention will have no possible non-infringing use. This provides some indication that §271(f) was not intended, nor has it ever been considered, to operate at as low of a threshold as §271(c).

Section 271(c) expressly limits itself to domestic supply and shipping in the United States. Congress had the opportunity to incorporate the concerns of §271(f) into §271(c), however it did not do so. Therefore, the difference in language in the two provisions indicates that Congress desired these provisions to have different thresholds for infringement. The Federal Circuit’s jurisprudence since Enpat has eliminated this distinction.

c. Lacking a Clear Intent to Restrict Software Trade, was this Interpretation Necessary to Secure Stated Goals?

Given that Congress has expressed no clear intent to restrict the software trade, the United States can still prove that the elimination of software exports is necessary to secure those goals stated. The standard to prove that the measure is necessary is that “no alternative measure consistent with the WTO agreement is reasonably available at present.” Any alternative must “guarantee the level of enforcement sought” because each member has the right to determine their desired level of enforcement.

Alternative interpretations of §271(f) are possible, as discussed infra at V. For example, if only the final copies were considered components by requiring a physical,
tangible component; then their production overseas would be acceptable under U.S. patent law, and little trade effect would be felt. A second alternative would be to refocus on the language of “substantial portion.” The standard could be that all essential components must be supplied, instead of only one even if it is the functional nucleus. These alternatives would both find liability in *Deepsouth* where all of the components were supplied. However, as Congress did not express a desired level of enforcement, it is unclear whether these alternatives reach it. If these interpretations are considered insufficient, then the current interpretation must be necessary. Arguably, Article XX(d) has not been satisfied due to other reasonable interpretations of §271(f).

2. **Chapeau of Article XX**

If a measure is found to be within one of the exceptions of Article XX, then it must also satisfy the chapeau. “[T]he purpose and object of the introductory clauses of Article XX is generally the prevention of abuse of the exceptions of [what was later to become] Article [XX].” The chapeau “prohibits such application of a measure at issue (otherwise falling within the scope of Article XX(g)) as would constitute:

(a) "arbitrary discrimination" (between countries where the same conditions prevail);
(b) "unjustifiable discrimination" (with the same qualifier); or
(c) "disguised restriction" on international trade.”

The United States’ measure may fail due to differences in its intellectual property laws and those of other nations. As discussed *supra*, the United States protects software

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163 The final copy being the copy installed or sold to the consumer.
164 See III.C.2 for further discussion
166 Id. at 23.
in a different manner than its trading partners.\textsuperscript{167} Therefore the imposition and application of its patent laws in foreign settings could be viewed as unjustifiable discrimination against those nations that have chosen to not grant patents on software.\textsuperscript{168}

Discrimination against patent regimes is addressed in TRIPS, which allows each nation to choose its own patent laws.\textsuperscript{169} The mere fact that the United States has a different patenting regime is not enough to find a violation of the chapeau of Article XX. However, where those laws prevent the exportation of products that are legal in foreign states, there are discrimination concerns. The topic of domestically prohibited products has faced little commentary and no WTO analysis, but is an important consideration. A common example relates to pharmaceutical products that have not gained regulatory approval in the manufacturer’s nation, but other states may be willing to accept the risks of the products. The question then is how the manufacturer can get the product to the desiring nation if it is unable to produce or export the product in its home state.

One difference is that there is a right to health respected by the United Nations and other international organizations, whereas there is no equivalent right to software. Therefore, software may not possess a compelling enough interest to find a violation of the Article XX chapeau.

\textbf{D. Application of GATS to §271(f) and AT&T v. Microsoft}

GATS operates as an independent agreement from GATT and differs in a number of respects. Most pertinently, services are categorized on schedules where nations bind themselves to specific tariffs or duties. These schedules do not exist under the GATT

\textsuperscript{167} \textit{See} III.B. \textit{supra}
\textsuperscript{168} \textit{US-Gasoline} (AB) at para. 24-26.
\textsuperscript{169} \textit{See} TRIPS.
agreement. Beyond that, substantive application of GATS follows much of the same analysis as GATT.

1. Characterization of Software under GATS

To apply the GATS agreement, the allegedly regulated service must first be defined to determine where it fits in a nation’s schedule. Typically, GATS focuses on services that can be performed by a person, such as consulting or accounting services. However, in the software field this has been expanded to include “Value-Added Telecommunication Services”, such as “On-line information and database retrieval”. These services can be performed by a person, software can create the operating environment to allow for these services, or software can perform the service itself. This is not necessarily the only schedule that software fits within, but for purposes of this paper it is clear that software at least fits here, and the elimination of trade of these services is beyond the levels allowed. Therefore, under this framework, the Federal Circuit’s decision has created a violation of article XVI(2)(c) that cannot be rectified as an exception under article XIV(c).

2. Art. XVI(2)(c) Market Access

In US-Gambling, the appellate body considered an alleged total prohibition of gambling services provided via websites which violated stated schedules. To address situations where a member alleges impairment, two factors must first be met.

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170 Unlike GATT obligations, GATS openly contemplates quantitative restrictions and tariffs. Nations are forced to define categories of services and state the relevant restrictions that they choose to place on each of these categories. This is done in that nation’s “schedule.”
171 Wunsch-Vincent at 84-92.
172 For example, Microsoft Internet Explorer® enables a person to access the internet. Microsoft Outlook® automatically downloads email from internet servers. Each of these are services that constitute on-line data retrieval or information processing.
First … a "nexus" must exist between the responding Member and the "measure", such that the "measure" – whether an act or omission – must be "attributable" to that Member. Secondly, the "measure" must be the source of the alleged impairment, which is in turn the effect resulting from the existence or operation of the "measure". 174

Unlike *US-Gambling*, there is only one statute in question, as opposed to a variety of federal regulation. 175 There is a clear connection between this statute, the Federal Circuit’s application and the likely effects, therefore the initial test will be readily satisfied.

Article XVI describes the specific obligations for Members when they have created specific market access commitments in its schedule. The first paragraph binds the Member to accord treatment that is “no less favorable than its schedule” to all other Members. The second and sub-paragraphs define specific measures a Member is not to adopt, to accord with its market access commitments. The first four deal with quantitative restrictions, but sub-paragraph c is most applicable to this situation. 176 It reads:

2. In sectors where market-access commitments are undertaken, the measures which a Member shall not maintain or adopt either on the basis of a regional subdivision or on the basis of its entire territory, unless otherwise specified in its Schedule, are defined as:

(c) limitations on the total number of service operations or on the total quantity of service output expressed in terms of designated numerical units in the form of quotas or the requirement of an economic needs test 177

174 *Id.* at 121.

175 *Id.* at 124-127.


177 GATS XIV 2:c.
As discussed *supra* at IV.B.1, the measure restricts the shipment of software. This creates impermissible limitations beyond that which the relevant schedules allow.\(^{178}\)

There is no requirement for numerical limits, only the effect is necessary.\(^{179}\) Therefore, at least a *prima facie* case against the United States should be found. It should be noted that *US-Gambling* focused more heavily on evidence of effects than similar GATT decisions, therefore it is unclear whether there is a higher burden to show effects for a GATS claim.

### 3. Art. XIV General Exceptions

Article XIV is the functional equivalent of Article XX of GATT.\(^{180}\) It defines exceptions that allow a Member to violate its obligations to other members. Similar to Article XX, a measure must satisfy the specific section and also the chapeau of Article XIV.\(^{181}\) Here, the measure is in relation to a specific law, and the analysis is much the same as above.\(^{182}\) Article XIV reads:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where like conditions prevail, or a disguised restriction on trade in services, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any Member of measures:

(c) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement including those related to …\(^{183}\)

In the interests of brevity, the similarities between articles XIV GATS and XX GATT do not warrant an independent discussion of how they will affect this

\(^{178}\) *US-Gambling* at 140-145.

\(^{179}\) *Id.* at 222 and 247-248.

\(^{180}\) *Id.* at 291.

\(^{181}\) *Id.* at 291-292.

\(^{182}\) See §IV.C.

\(^{183}\) GATS Art. XIV (c).
specific case. As the good or service is the same product being shipped overseas, there is no reason to believe that the effect, justification or application of the laws will be different. Therefore, as stated at III.B. *supra*, the United States will be hard pressed to show an exception to its GATS obligations.

**V. Remedies through Alternative Interpretation or Drafting of §271(f)**

An anomaly in United States jurisprudence is the differing reach of intellectual property regimes. Patent and copyright law have consistently required an act of infringement within the United States, unless a contrary Congressional intent is indicated; whereas, trademark law has been applied to infringement occurring anywhere on the globe. In 35 U.S.C. §271(f) Congress has expressly expanded its reach beyond domestic borders to foreign activity. The Federal Circuit has unduly expanded this reach by applying §271(f) to activity beyond that which was contemplated by Congress. This, in turn, has created an improper quantitative restraint on trade. The question remains then what alternative forms of statutory construction exist and how will they impact trade concerns.

The various themes and concerns stated above can be addressed in a variety of manners to alleviate the trade burdens created under *AT&T v. Microsoft*. This section combines the analysis mechanisms above to propose four potential solutions that in part, or together, can guide future jurisprudence. First, §271(f) could be limited to the *Deepsouth* decision, by focusing on mechanical inventions and combination patents, or by requiring that “all essential components be supplied.” Second, §271(f) could be rejected in favor of §271(a), which imposes liability for offers to sell patented inventions.

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and §271(c), which imposes liability for sale of components for use in the U.S. Third, foreign judicial forums could be respected to accord proper patent enforcement. Finally, software could be given special rules independent of the rest of patent law.

**A. Proper interpretation of Deepsouth demands a rule seeking “all essential components.”**

The Supreme Court’s decision in Deepsouth must guide our interpretation of §271(f), as expressly required by Congress. Deepsouth is a situation where substantially all of the patented invention was manufactured in the United States. This was then shipped overseas in unassembled form; expressly to avoid the scope of §271(a).

The Deepsouth situation doesn’t apply to software; at least in the AT&T situation. In some respects, a process patent protecting software (as in AT&T) can be viewed as a combination patent bringing together hardware and software components. Microsoft has not provided all of the components, or even substantially all of them, as it provides none of the necessary hardware. The software component may be necessary for infringement, and may provide function, but §271(f) does not place a necessity requirement on exportation. Instead it requires “all or a substantial portion.” Where, as here, a substantial portion of the components are lacking (the hardware), how can “all or a substantial portion” of the components be present? The presence of one, necessary, but not exclusively necessary component cannot be sufficient. The “essential component” or “functional nucleus” test of the Federal Circuit does not adequately answer this question.

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186 Deepsouth, 406 U.S. at 524, fn. 5 – Deepsouth admitted in a letter to a Brazilian customer that everything could be assembled in the United States except for two components that needed to be added in Brazil to avoid an infringing sale.
Instead “all or a substantial portion” is best interpreted as the supply of “all essential components.”

An “all essential components” test is most appropriate because the current Federal Circuit interpretation is very similar to the requirement found in §271(c); which finds liability when a “component constituting a material part of the invention” is sold or offered to be sold in the U.S. 187 This standard has been interpreted to include components “only adapted to be used in a patented combination.” 188 A “functional nucleus” or “essential component” is better described as a “material part” that can only be used in the patented product. Notably, this is a substantially lower threshold than “all or a substantial portion of,” that is found in §271(f). In other words, when one has “all or a substantial portion of” a patented invention they have much more than what can only be used in a patented combination, such as a “material part”, “functional nucleus” or “essential component.” This indicates that the current §271(f) interpretation reaches activity beyond what Congress intended. 189 Had Congress wished to create such a low threshold for infringement in §271(f) it would have expressly done so, instead of implementing a distinctly higher bar.

A rule requiring “all essential components” fits within the purview of Deepsouth and the WTO. The court’s analysis would be directed toward whether the patented invention has been essentially “made, used or sold” in the U.S., and then exported. Components alone are not patented; therefore their exportation alone should not be equivalent to infringement. This also alleviates the burden on software manufacturers and will create WTO compliance because regulation reaches only to the exports of

187 35 U.S.C. §271(c)
189 Further explanation of Congress’ rationale may be found in §IV.C.1.b. supra.
substantially all of the patented invention, not individual components. Under the proposed interpretation, software should be able to be shipped as long as the exporter does not also provide the necessary hardware and any other essential components to perform the patented software process.

This interpretation will specifically fit within Article XX(d) GATT and Article XIV(c) GATS exceptions. The law will be explicitly looking for situations where the domestic company is exporting “all essential components” of the patented invention; in other words the patented invention itself. This is within the allowable range of otherwise GATT and/or GATS compliant laws as the United States will only be slightly expanding its patent reach beyond current levels; to those patented inventions sent overseas with a few non-essential components not included.

B. Elimination of 35 U.S.C. §271(f)

Congress has changed §271(a) such that it now addresses the situation found in Deepsouth and is more amenable to the interests of fairness and the American public then §271(f). Furthermore, the presence of §271(c) prevents concerns about exploitation of any hole domestically, and foreign relief should be sought in that jurisdiction.

In 1994 Congress re-drafted §271(a) to bring it within the requirements of Article 27 of TRIPS.\textsuperscript{190} This amendment added the language “offers to sell,” to create infringement liability when a party “makes, uses, sells or offers to sell” a patented invention.\textsuperscript{191} If this clause existed in 1974, the activity of Deepsouth Packing would have been considered infringing. As discussed supra, Deepsouth was selling the patented invention in an unassembled form. The Court refused to find a “sale” of the patented invention.

\textsuperscript{190} 140 Cong. Rec. 20034-38 (Aug. 5, 1994).
\textsuperscript{191} 35 U.S.C. §271(a)
invention, because the sale question was dependent on whether Deepsouth actually manufactured or made the patented invention in the United States.\textsuperscript{192} This is consistent with other patent law precedent which places the point of sale at the place of contracting and performance.\textsuperscript{193} Regardless of whether Deepsouth Packing ever actually manufactured or shipped the full patented invention from the United States, they undoubtedly made an offer to sell the full invention from the U.S.\textsuperscript{194} Therefore, as the offer to sell was made in the U.S. liability would be found under the modern §271(a).

A hole in §271(a) is the ability to offer to sell components of a patented invention, instead of the invention itself. This is not problematic domestically, as Congress has expressly regulated the ability to sell or offer to sell components that are a “material part of the invention” in 35 U.S.C. §271(c).\textsuperscript{195} This section makes no mention of the exportation of components.

Elimination of §271(f) in favor of §271(a) and (c) allows for software to be exported, except where it is sold in conjunction with the hardware, either together or in related transactions. Analysis under §271(a) is more effective because it clarifies the focus of the court. The court is not required to determine what constitutes a component, or if a substantial portion has been exported. Instead, the court can focus on what the exporting party knew or attempted to do. The result is an understanding of the law that

\textsuperscript{192} \textit{Deepsouth}, 406 U.S. at 527. The Supreme Court provides little further insight, but the implication seems to be that sale requires the actual sale of the patented invention, and here the Court views the sale as components to be shipped overseas.

\textsuperscript{193} \textit{MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp.}, 420 F.3d 1369, 1377 (Fed. Cir. 2005).

\textsuperscript{194} In \textit{Deepsouth}, the Supreme Court refused to find liability because there was no evidence that Deepsouth actually manufactured the full invention or shipped the full invention from the United States. It was undoubted that they made an offer to sell it from the U.S., as Deepsouth even admitted that it structured its transaction in such a way to skirt the limits of §271(a). \textit{Deepsouth}, 406 U.S. at 524, fn. 5.

\textsuperscript{195} 35 U.S.C. 271(c) (2004).
more closely follows Congress’ intent in creating §271(f). For other situations, relief is best sought in foreign jurisdictions; see infra.

C. Respect for Alternative Forums

Every court is empowered to dismiss a case on the jurisdictional grounds of forum non conveniens. This doctrine allows dismissal when it would best be tried elsewhere. In any §271(f) situation the bulk of infringement activity has occurred in the foreign jurisdiction; the patented invention, by definition is never “made, used or sold” in the U.S. Therefore, the infringement activity occurred and damages are accrued in the foreign state, and are best addressed in that jurisdiction.

Forum non conveniens requires an alternative forum be available that offers a remedy. The presence of the WTO’s TRIPS agreement has increased the effectiveness of patent protection and enforcement globally, therefore most forums where infringement occurs will have a patent remedy similar to the U.S. One concern is infringement in Europe, where software patents are not as strongly protected, however a potential difference in law is not enough to deny forum non conveniens when otherwise appropriate.

Finally, the interests of the parties in a typical §271(f) action will weigh toward dismissal. First, alleged infringers are protected from a double jeopardy situation, because liability could be found domestically under §271(f) and also in the foreign forum under local patent law. Although, most nations recognize foreign judgments, it depends

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196 *Gulf Oil Corp. v. Gilbert*, 330 U.S. 502 (1947) (holding that merely because the foreign forum may reach a different outcome, that is not grounds to deny a forum non conveniens motion).
197 *Id.*
on the domestic laws of that nation.\textsuperscript{198} Second, the patentee is burdened by being forced to file for patent protection in a foreign state. However the U.S. has an interest in encouraging its citizens to protect themselves against foreign, as well as, domestic infringers, by filing patents abroad.

**D. Alternative Rules for Software**

Intellectual property protection for software could be carved out of the protections offered for all other industries, essentially a \textit{sui generis} approach to software protection. The two primary concerns are whether this can be done under current intellectual property treaties and how this protection would be structured. Much literature has been written on this subject; therefore this section will only highlight a few of the main arguments.\textsuperscript{199}

**1. Does transnational law allow software to be protected under an independent IP regime?**

The WTO’s TRIPS agreement is the treaty most relevant to creating a niche for software protection.\textsuperscript{200} TRIPS has two provisions that have been generally construed to concern software. First, Article 10 states that “\textit{[c]omputer programs, whether in source or object code shall be protected as literary works under the Berne Convention (1971).}”\textsuperscript{201} In the United States and the European Union, literary works are protected under copyright law.\textsuperscript{202} Second, Article 27 provides that “patents shall be available for

\textsuperscript{198} There is no international treaty governing foreign judgments, although many nations have their own. For example, in the United States the Uniform Foreign Money-Judgments Recognition Act covers foreign judgments.


\textsuperscript{200} See TRIPS.

\textsuperscript{201} \textit{Id.} at Art. X.

\textsuperscript{202} Toeniskoetter at 66-67.
any inventions, whether products or processes, in all fields of technology.”

This provision has been debated. One reading is that this requires that full patent protection be available for software. Alternatively, this could be read, like Article 10, to mean that such protection must be made available, but is not the exclusive means for protection.

Therefore, alternative means are acceptable. The EU has considered doing so for software and does provide *sui generis* protection for databases. The WTO has not spoken to whether *sui generis* protection for specific industries is allowable.

**2. What structure should this protection take?**

*Sui generis* protection for software should incorporate features of current patent and copyright law. Three considerations are most commonly discussed; shorter patent life, fair use standards and automatic granting of rights.

A fundamental need is a shorter patent life for software to alleviate patent thickets and to reflect rapid innovations in the field. Long patent terms only serve to slow the pace of innovation. Unlike other industries, a software development is rarely relevant, from a business perspective, for the full 17 year patent life.

Second, fair use standards for interoperability and decompilation should be utilized. A fair use standard would allow reverse engineering, in limited form, such as the experimental use exception in U.S. patent law. This standard will allow for the

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203 TRIPS, art. 27
204 Park at 347-348.
205 Toeniskoetter at 66-69.
207 Toeniskoetter at 77-78.
208 In American patent law a patent lasts 17 years.
209 Lemley at 29-30.
current industry practice of “plug-ins” and software compatible to the patented invention. These related products are often essential to the popularity of a product and to relieve problems, known as “bugs,” that are present in almost all software. A new exception is necessary because experimental use is not applicable here, since these latter innovations are intended for commercial, not research, purposes. Unlike other industries, software has a tradition of open use platforms that allow any innovator to add on or adapt current programs. This is likely due to the low cost of market entry to create these modifications.

Finally, one commentator suggested incorporating the automatic grant of copyright to a new software patent. This practice eliminates the current patent application review process that takes a substantial amount of time; often technology has moved beyond the patented invention before the patent issues. While this modification would address timeliness concerns; it would also dilute the effectiveness of protection and increase the number of patents in a specific field, thus increasing the possibility of patent thickets that are a primary concern and barrier to trade.

210 Lemley at 29-30.
211 Toeniskoetter at 79.