TRIPS Non-Discrimination Principle: Are *Alice* and *Bilski* Really the End of NPEs?

Stefania Fusco[†]

ABSTRACT

The Supreme Court's Bilski, and even more so, Alice decision have substantially reduced the level of patent protection provided to software and business methods in the U.S.. Nevertheless, article 27(1) TRIPS establishes that WTO countries must provide protection to any inventions, whether products or processes, without discrimination based on the field of technology. Is the U.S. currently in violation of its TRIPS obligations?

Although there is no clear understanding among WTO countries on whether article 27(1) TRIPS covers software and business methods, the U.S. has consistently interpreted this provision as requiring these subject matters to be protected. This happened particularly in the context of the review of other countries' IP laws when they became members of the WTO. Thus, it appears unlikely that the U.S. will be able to argue otherwise in future international negotiations or a possible WTO challenge on §101 of the U.S. patent code - as interpreted by the Alice and Bilski decision. More importantly, this result exposes the U.S. to opposing strategies by other WTO countries that diminish its ability to promote TRIPS compliance in a significant way.

The relevance of the conformity of the Alice and Bilski decision to article 27(1) TRIPS goes beyond the appropriate level of protection that must be provided to software and business methods to avoid a violation of international obligations on patentable subject matter; much more is at stake. Indeed, NPE activity in the U.S. is very much dependent on the availability of enforceable software and business methods patents. The issuance of the Alice and Bilski

[†] Senior Lecturer in Law, Notre Dame Law School. I am thankful to Mark A. Lemley, Ted Sichelman, Josh Surnoff and [others] for their invaluable comments. I am also thankful to Christa Garcia and K. Adam Pretty for excellent research assistance. Finally, thank you to participants to the Symposium.

decision appears to have seriously harmed the operation of these companies. However, the international perspective provided in this article raises the question of whether these two decisions indeed represent the last word on the eligibility of processes to receive patent protection or whether there will be additional interventions of the Supreme Court restoring protection on software and business methods to a more intermediate level.

Finally, in recent years there has been substantial discussion on patent reform to curtail NPE activity. However, the aftermath produced by the Alice and Bilski decision seems to have reduced the urgency for a legislative intervention in this area. This article highlights that this conclusion might be premature and that, if it is indeed established that the activity of NPEs harms innovation, patent reform might still be necessary to effectively limit the activity of these companies.

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INTRODUCTION

Is software patent-eligible in the U.S.? What about business methods? After the issuance of the Supreme Court's *Bilski* and, even more so, *Alice* decision these have become recurrent questions among different actors in our patent system.[1] The Supreme Court has clearly stated that these two subject matters fall within the scope of patent protection.[2] Yet, over the last few months District Courts and the Federal Circuit have been invalidating an unprecedented number of software and business methods patents under §101 of the U.S. patent

[1] *See e.g.* ADD (?) Business Methods (and Software) are Still Patentable! available at http://www.ipwatchdog.com/2012/08/28/business-methods-and-software-are-still-patentable/id=27658/; Software and Business Methods: Patent Eligible? available at http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=93f3af08-7dcf-437a-9026-00e0eb4ef0ea; Are Software and Business Methods Still Patentable After the Bilski Decisions? available at http://www.bitlaw.com/software-patent/bilski-and-software-patents.html; *see* also Richard H. Stern, *Alice v CLS Bank: US Business Method and Software Patents Marching towards Oblivion?* (2014), available at http://docs.law.gwu.edu/facweb/claw/Alice-EIPR.pdf;

[2] Bilski v. Kappos, 130 S.Ct. 3218 (2010).

code.[3] At the same time, the PTO has been rejecting one application after another in this area.[4]

Thus, technically, software and business methods *are* patent eligible in the U.S., but in practice the level of protection that they now enjoy is much lower than it used to be and, possibly, lower than what is provided to inventions in other fields.[5] At first, this result does not appear to be problematic. After all, both the *Alice* and *Bilski* decision are very much the expression of a well-functioning common law system in which the Supreme Court has recalibrated the protection given in this area after a few years of experimentation by the lower court, the Federal Circuit. However, when the international perspective and, in particular, the U.S. obligations under the TRIPS agreement is added to the mix, the change brought about the *Alice* and *Bilski* decision in recent years becomes source of concern.

The TRIPS agreement defines patentable subject matter in Article 27(1). It expressly says that that WTO countries must provide protection to *any inventions, whether products or processes, without discrimination based on the*

[3] *See e.g.* Hard Times for Software Patents ("Months after the Supreme Court ruled on whether—and when—computer programs can qualify for intellectual-property protection, software patents have been dropping like flies") available at http://blogs.wsj.com/law/2014/09/22/hard-times-for-software-patents/; Where Do We Stand One Year After Alice? ("At the USPTO the number of rejections under 35 USC §101 skyrocketed since Alice. The number of business method patents allowed by the USPTO dropped significantly. Patent prosecutors are learning new claim drafting techniques to avoid Alice's impact. The secondary market for software and business method patents dried up in the past year as buyers avoid the risks of ineligibility under §101."), available at http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice; Courts Nix More Software Patents, available at http://www.wsj.com/articles/federal-courts-reject-more-software-patents-after-supreme-court-ruling-1411343300; Patent Case Trends and the Business of Litigation, available at https://lexmachina.com/patent-case-trends-business-litigation/; Patent Invalidations and USPTO Practice After Alice, available at http://www.bilskiblog.com/blog/2015/01/alicestorm.html; Tracking #AliceStorm: Spring Showers Continue to Rain Patent Destruction, available at http://www.bilskiblog.com/blog/2015/05/alicestorm-update.html.

[4] *See* The Ramifications of Alice: A Conversation with Mark Lemley, available at http://www.ipwatchdog.com/2014/09/04/the-ramifications-of-alice-a-conversation-with-mark-lemley/id=51023/.

[5] *See e.g.* John R Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987 (2003) (noting that within two years of the *State Street* decision the number of business method patents issued by the USPTO more than doubled).

field of technology.[6] This very broad provision on what falls within the scope of patent law is considered to be one of the main achievements of the TRIPS agreement.[7] Its purpose was to make clear, in particular, that pharmaceuticals and *processes* could not be excluded from patent protection.[8] Indeed, before the enactment of TRIPS a number of countries did not consider these subject matters to be covered by the patent system.[9] In particular, no country provided protection to business methods in 1994.[10] Software, on the other hand, was protected in the U.S..[11] Nevertheless, no clear understanding was formed at that time on whether WTO countries were *specifically* required to consider inventions in these two fields – which generally constitute *new processes* - patent eligible.[12]

Thus, the issuance of the *Alice* and *Bilski* decision makes two issues to become very important for the U.S.: whether software and business methods should be considered inventions *in fields of technology* as provided by TRIPS and, if so, whether the current reduced protection in this area constitute a forbidden *discriminatory result*. In other words, is the U.S. at this point in violation of its TRIPS obligations on patentable subject matter?

But the significance of this discussion is not limited to the question of the appropriate level of protection that inventions in the fields under consideration should receive to avoid violating TRIPS. Much more is at stake as the availability of enforceable software and business methods patents have great relevance for the operation of Non-Practicing Entities (NPEs).[13] Indeed, by limiting protection on software and business methods, the *Alice* and *Bilski* decision seem to have produced a negative impact on the activity of these companies. In particular, after the issuance of *Alice* in June 2014, a significant drop in filing of new patent cases

[6] *See* General Agreement on Tariffs and Trade-Multilateral Trade Negotiations (the Uruguay Round): Agreement on Trade-Related Aspects of Intellectual Rights, Dec. 15, 1993, 33 I.L.M. 81 (1994) (hereinafter TRIP) at art. 27, para. 1.

[7] *See* DANIEL C.K. CHOW AND EDWARD LEE, INTERNATIONAL INTELLECTUAL PROPERTY: PROBLEMS, CASES, AND MATERIALS, 314 2ND ED. (2012) (noting that "This broad starting point for patentable subject matter effectively prohibits the practice of some countries that had excluded pharmaceuticals, chemical and processes from patents.").

[8] *Id.*

[9] *Id.*

[10] *Id.*

[11] See *infra* Part I.

[12] Chow & Lee *supra* note 7.

[13] *See* John R. Allison et al., *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. PA. L. REV. 1, 3 (2009) (showing that NPEs hold the most litigated patents which disproportionately cover software inventions); *see* also Patent Freedom, NPE Exposure By Industry, (2014), *available at* https://www.patentfreedom.com/about-npes/industry/.

has been reported.[14] This result has been largely attributed to a reduced NPE operation.[15] Although, recent data indicate that the filing of new patent cases is picking–up again,[16] it is impossible to say if this trend is going to persist or this is just a temporary recovery followed by additional adjustments of the patent litigation level reflecting the new rules of the game. Moreover, litigation is only one aspect on NPE activity and not necessarily the most relevant one.[17] Generally, NPEs' goal is to collect royalty payments from the companies that they target, not to litigate the cases - litigation becomes necessary only when the target company refuses to pay.[18] Indeed, one possibility could be that the reported increase in patent litigation for the first six month of 2015 is the result of more defendants resisting NPE attacks because of the higher uncertainty on the validity of software and business methods currently present. If this turns out to be the case, it is uncertain if the NPEs will be able to sustain the current patent

[14] *See* September 2014 New Patent Case Filings Down 40% From September 2013 *available at* https://lexmachina.com/september-2014-new-patent-case-filings-40-september-2013/.

[15] NPE Suits in the US Down Significantly in 2014 and Figures Make it Clear That SMEs Are Very Much a Secondary Target, available at http://www.iam-media.com/Blog/Detail.aspx?g=4e39b550-4688-436b-9ffb-bbdc495f62b1;

[16] US Patent Litigation is on the Way Up Again, but Plaintiff Numbers Are Close to Record Low, available at http://www.iam-media.com/blog/detail.aspx?g=c7bff508-68eb-4bdc-be2e-eabac532b117.

[17] *See* Ahmed J. Davis & Karolina Jesien, *The Balance of Power in Patent Law: Moving Towards Effectiveness in Addressing Patent Troll Concerns*, 22 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 835, 836 (2012) ("A typical business model for an NPE is to acquire patents that apply broadly across a particular industry. . . , identify potential infringers, threaten litigation, and then either collect license fees from those entities or bring lawsuits against those that refuse to license. Litigating through trial is usually the last resort. An NPE's real objective in bringing suit is to pressure defendants into early settlements.") (footnote omitted); Stefania Fusco, *Markets and Patent Enforcement: A Comparative Investigation of Non-Practicing Entities in the US and EU*, 20 MICH. TELECOMM. & TECH. L. REV. 439, 452 (2014) (citing telephone interview with Raymond Hegarty, Head of European Operations, Intellectual Venture (May 24, 2012) - noting that the licensing part of NPEs' activity is more substantial than the litigation one); see also David Segal, *How a Typical Patent Battle Took an Unexpected Turn*, N.Y. TIMES, July 13, 2013, at BU5, *available* at http://www.nytimes.com/2013/07/14/business/how-a-typical-patent-battle-took-an-unexpected-turn.html?pagewanted=all&_r=0.

[18] Colleen V. Chien, *Startups and Patent Trolls* (Santa Clara Univ. Sch. of Law Legal Studies Research Paper Series Working Paper No. 09-12, 2012), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2146251, (noting that, in general, NPEs do not have to go that far to sue true small companies); J.P. Mello, *Legal Update, Technology Licensing and Patent Trolls*, 12 B.U. J. SCI. & TECH. L. 388 (2006).

litigation level for a long time. Thus, the question of whether the *Alice* and *Bilski* decision really represent the end of NPEs remain critical together with the issue of what would happen if these two decisions are subject to a WTO challenge against the U.S. for violating Article 27(1) TRIPS.

Finally, over the past year significant debate has revolved around the need for additional patent reform to control NPE activity.[19] The impact of the *Alice* and *Bilski* decision on the operation of these companies seems to have reduced the urgency for a legislative intervention in this area.[20] However, the possibility of a TRIPS violation on patentable subject matter, raises the issue of what would be "the price" that the U.S. will have to pay internationally to maintain the *status quo*, the present level of protection on software and business methods, and limit NPE activity in this way.

Part I of this paper presents the necessary background to address the aforementioned issues. In particular, it provides a complete overview of how patent protection on software and business methods has developed in the U.S. It analyzes the most recent Supreme Court's decisions in this area and explain the current eligibility test to identify protectable processes. It also illustrates the relevance of software and business methods patent for NPE activity. Part II is instead dedicated to the obligations that under TRIPS WTO countries have on patentable subject matter. Specifically, it discusses Article 27(1) TRIPS and the interpretation that the U.S. has consistently provided of this provision in the context of the review of other countries IP laws. Finally, it considers the possible implications for the U.S. brought about the *Alice* and *Bislki* decision in the context of international negotiations and disputes. The conclusion considers the possibility that the Supreme Court will recalibrate the patent-eligibility test for processes and bring protection for software and business methods to a more intermediate level.

[19] David O. Taylor, *Legislative Response to Patent Assertion Entities*, 23 TEX. INTELL. PROP. L.J. 313 (2015).

[20] The Innovation Act is Pulled, but Uncertainty Lingers and That's Bad for Business, ("The longer it takes for legislation to get a vote, however, the more time legislator and the patent community as a whole have to determine what impact ongoing changes introduced by the America Invents Act and recent court decisions such as the Supreme Court's *Alice* judgement, are having. Pro-reform advocates would argue that these are separate from the litigation reforms that the Innovation Act targets, but they have clearly undermined patent assertion rights") *available* at http://www.iam-media.com/blog/Detail.aspx?g=699df410-1d06-4bfd-8798-a5eca46493e9.

I. THE PATENTABILITY OF SOFTWARE AND BUSINESS METHODS IN THE UNITED STATES

Patent protection of software and business methods has always been subject of controversy.[21] This is because of the particular high risk in these cases that protection is provided to mathematical formula and abstract ideas rather than inventions that are *applications* of mathematical formula and abstract ideas.[22] And, thus, the particular high risk of using the patent system in a way that hinders innovation rather than promotes it.[23] As discussed in the next subparts, over the years several patent-eligibility tests have been tried to curtail this risk,

[21] *See e.g.*, Rochelle Cooper Dreyfuss, *Are Business Method Patents Bad For Business?*, 16 SANTA CLARA COMPUTER & HIGH TECH. L.J. 263 (2000); Leo J. Raskind, *The State Street Bank Decision: The Bad Business of Unlimited Patent Protection for Methods of Doing Business*, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 61 (1999); Malla Pollack, *The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History*, 28 RUTGERS COMPUTER & TECH. L.J. 61, 70 (2002); Peter S. Menell, *The Property Rights Movement's Embrace of Intellectual Property: True Love or Doomed Relationship?*, 34 ECOLOGY L.Q. 713 (2007) (arguing that the unification of decision making in a single body has the effect of creating a strong pro-patent bias in the interpretation of patent law); Michael J. Meurer, *Business Method Patents and Patent Floods*, 8 WASH. U. J. L. & POL'Y 309 (2002) (describing the flood of business method patents in the aftermath of the *State Street* decision, and arguing that this flood imposes numerous costs on the patent system); Arti Rai, *Addressing the Patent Gold Rush: The Role of Deference to PTO Patent Denials*, 2 WASH. U. J. L. & POL'Y 199 (2000) (highlighting the rise in business method patent filings, and arguing that the Federal Circuit should grant more deference to the PTO when reviewing application decisions); John R. Allison & Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 BERKELEY TECH. L.J. 729, 736-38 (2006) (discussing the PTO's Second Pair of Eyes Review to improve the quality of business methods patents); Robert E. Thomas, *Debugging Software Patents: Increasing Innovation and Reducing Uncertainty in the Judicial Reform of Software Patent Law*, 25 SANTA CLARA COMPUTER & HIGH TECH. L.J. 191 (2008); for a contrary view on business methods patents *see* Allison & Tiller, *The Business Method Patent Myth*, *supra* note 5 (noting that most of the criticisms toward business methods patents are incorrect).

[22] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289 (2012) (quoting Diamond v. Diehr, 101 S.Ct. 1048 (1981) "laws of nature, natural phenomena, and abstract ideas" are not patentable subject matter under § 101 of the Patent Act … *an application* of a law of nature ... to a known structure or process may [deserve] patent protection [emphasis added]); *see* also Alice Corp. v. CLS Bank International, 134 S.Ct. 2347 (2014).

[23] Mayo v. Prometheus, 132 S. Ct. 1289, 1293 (2012) ("And monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.").

but, unfortunately, none of them seem to have been able to produce the desired result, the correct balance of what should be protected and what should, instead, be left into the public domain.

I.1 Are Software and Business Methods Patent Eligible Subject Matters?

The definition of patentable subject matter under U.S. patent law is very broad. As delineated in §101 of the patent code, it encompasses "… *any* new and useful process, machine, manufacture, or composition of matter, or *any* new and useful improvement thereof …"[24] However, the exact scope of this provision is delimited by three judicially created exceptions: *laws of nature*, *natural phenomena* and *abstract ideas*.[25] Subject matters falling within these three exceptions are not protected under our system because they constitute the building blocks of knowledge that should be accessible to anyone to produce new inventions.[26] In fact, the idea is that granting exclusionary rights on items within the scope of these exceptions hinders innovation rather than promotes it, and thus, is contrary to the very reason for the existence of our patent system. Together, §101 and the aforementioned exceptions provide, or should provide, the necessary guidance to identify protectable inventions in the U.S.. Nevertheless, in recent years, this task has become increasingly more difficult, particularly, in relation to the protection of software and business methods, causing a great deal of uncertainty to pervade our system.

Software and business methods truly became patentable only recently. In the U.S., it was during the 1970s and early 1980s that courts began to deal with the issue of the eligibility of software to receive patent protection.[27] In particular, the U.S. Supreme Court provided the standard for the patentability of software in a famous trilogy of cases, *Benson*[28], *Flook*[29] and *Diehr*[30], which were decided in

[24] 35 U.S.C. § 101 (2012).

[25] *See* Diamond v. Diehr, 101 S.Ct. 1048, 1056 (1981) ("This Court has undoubtedly recognized limits to § 101 and every discovery is not embraced within the statutory terms. Excluded from such patent protection are laws of nature, natural phenomena, and abstract ideas."); *see* also Bilski v. Kappos, 30 S.Ct. 3218, (2010); Diamond v. Chakrabarty, 100 S.Ct. 2204, (1980).

[26] For a discussion of potential rationales behind these exceptions, *see generally* Wesley D. Markham, *How to Explain the "Implicit Exceptions" to Patent-Eligible Subject Matter*, 16 VAND. J. ENT. & TECH. L. 353 (2014).

[27] *See infra* notes 28-30and accompanying text.

[28] Gottschalk v. Benson, 409 U.S. 63 (1972).

[29] Parker v. Flook, 437 U.S. 584 (1978).

[30] Diamond v. Diehr, 450 U.S. 175 (1981).

1972, 1978 and 1981 respectively.[31] Subsequently, at the end of the 1990s, business methods became patentable as well,[32] but, this time, without the intervention of the Supreme Court.

To be sure, even before then the USPTO had sporadically issued patents on these subject matters, but those grants were either unnoticed or questioned in terms of their validity.[33] On the other hand, during the 80s software, at that point an independent product marketed and sold separately from hardware, was generally considered an article deserving protection in its own right.[34] Moreover, since software was used to automatize business methods in various fields, such as banking, insurance, finance and, ultimately, e-commerce, the idea that new ways of conducting business could also be protected with a patent became progressively more mainstream and, ultimately, completely accepted by the Federal Circuit.[35]

Nevertheless, many people expressed disappointment when, in 1998, the *State Street* decision sanctioned the patentability of business methods and facilitated the protection of software even more.[36] The Supreme Court rejected *certiorari* in this case[37] and allowed the Federal Circuit's "*useful, concrete and tangible result*" test to become the standard for determining the patentability of processes.[38] However, criticisms did not stop there. On the contrary, they kept growing, together with the tremendous number of software and business method patents that the PTO issued in the years following *State Street*.[39] The accusations

[31] Kristen Osenga, *Ants, Elephant Guns, and Statutory Subject Matter*, 39 Ariz. St. L.J. 1087, 1093-1095 (2007).

[32] *See* State Street Bank v. Signature Financial Group, 149 F.3d 1368 (Fed. Cir. 1998).

[33] *See e.g.*, U.S. Patent No. 5,193,056 (issued Mar. 9, 1993) ("Data Processing System for Hub and Spoke Financial Services Configuration").

[34] Adam Mossoff, *A Brief History of Software Patents (and Why They're Valid)*, ("For the purpose of understanding the evolution of software patents, the importance of the PC Revolution is that computer programs now became *separate products* that consumers could purchase, install and use on their PCs (either an "IBM Compatible or a Mac) … The significance of a computer program becoming a separate product is that the *value* in software … was the *function* …) *available* at http://cpip.gmu.edu/wp-content/uploads/2013/08/A-Brief-History-of-Software-Patents-Adam-Mossoff.pdf.

[35] *See e.g.*, AT&T Corp. v. Excel Communications, Inc., 50 U.S.P.Q.2d 1447 (Fed. Cir. 1999).

[36] See *supra* Raskind, Meurer, and Rai note 21.

[37] State Street Bank & Trust Co. v. Signature Financial Group, Inc., 525 U.S. 1093 (1999) (cert. denied).

[38] State Street Bank, 149 F.3d at 1374-75.

[39] *See* DEBORAH BOUCHOUX, INTELLECTUAL PROPERTY: THE LAW OF TRADEMARKS, COPYRIGHTS, PATENTS AND TRADE SECRETS, 417 (2009) (noting that in the four years after the State Street decision, approximately 8,700 applications were filed claiming

were primarily directed to the quality of business method patents and, specifically, to the lack of novelty of their inventions.[40] In the end, as the dust settled and the PTO implemented new measures to issue better patents in this area,[41] people began accepting them and, in general, did not question anymore that software was patent eligible. However, the concomitant increase in the level of activity of Non-Practicing Entities (NPEs) soon caused the situation to change once again.

Generally speaking NPEs, also known as "patent trolls" or Patent Assertion Entities (PAEs), are subjects whose main activity is to enforce patents.[42] The panorama of companies or individual patent owners encompassed by the NPE acronym is vast. It includes universities and other research institutions, but also companies whose exclusive purpose is to extract value from other (practicing) companies threatening them with patent infringement suits.[43] The debate surrounding NPE activity is very contentious.[44] Many see them as damaging actors within the patent system, responsible for its detriment, and

protection for business methods, a fourteen-fold increase); Allison & Tiller *supra* note 21 at 987 (noting that within two years of the State Street decision the number of business method patents issued by the USPTO more than doubled).

[40] *See e.g.,* Alan L. Durham, *"Useful Arts" in the Information Age*, BYU L. REV. 1419 (1999) (arguing that allowing patent protection for business methods extends protection beyond the "technological arts," making patent protection too broad); John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139 (1999) (arguing that patent protection should be limited to inventions developed in science and engineering, as the allowance of business method patents broadens the scope of patent protection to almost any conceivable process).

[41] Allison & Tiller *supra* note 21 at 995 (noting that in 2000 the USPTO announced the adoption of new measures to review business method patents and help increase their quality).

[42] *See* Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 368 (2010) ("… nonpracticing entities (NPEs)—namely, firms that do not commercialize their patented inventions and perform little to no R & D … tend to exploit litigation and licensing market defects to extract unwarranted rents from commercializers …"); Stijepko Tokic, *The Role of Consumers in Deterring Settlement Agreements Based on Invalid Patents: The Case of Non-Practicing Entities*, 2012 STAN. TECH. L. REV. 3 (2012) ("The term NPE refers to individuals or entities that simply hold patents they do not practice and, as such, do not make or sell any real product or service."); *see* also BOUCHOUX, INTELLECTUAL PROPERTY, *supra* note 15 at 418-19.

[43] *See* Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013).

[44] For a broad overview of the arguments surrounding non-practicing entities, *see generally* DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT 3-6 (2009).

consequently our economy, because they seem to impose a tax on innovation.[45] Moreover, among those who oppose NPE activity, some support the adoption of patent reform to significantly curtail the operation of these companies in our system.[46] Others, on the other hand, consider NPEs to not be problematic at all.[47]

[45] *See e.g.*, David G. Barker, *Troll or No Troll? Policing Patent Usage With an Open Post-Grant Review*, 2005 DUKE L. & TECH. REV. No. 9, ¶ 7, (quoting witness testimony which describes NPE's as "bottom feeders" that buy patents from bankrupt companies for the sole purpose of using them in infringement lawsuits); Gerard N. Magliococca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809 (2007) (describing the costs imposed by patent trolls and offering remedies to limit their impact on innovation); James Bessen, Jennifer Ford & Michael J. Meurer, *The Private and Social Costs of Patent Trolls*, REGULATION, Winter 2011-2012 at 26, 34-35 (asserting that NPE's create large amounts of costly litigation, and reduce innovation); James E. Bessen & Michael J. Meurer, *The Direct Costs From NPE Disputes*, 99 CORNELL L. REV. 387, 422 (2014) (estimating that the direct costs of NPE patent assertions was $29 billion in 2011); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2009 (2007) (noting that NPE's account for a substantial amount of all lawsuits among technology companies); Robert P. Merges, The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform, 24 BERKELEY TECH. L.J. 1583, 1600 (2009) ("The analogy to spurious personal injury settlements or nuisance suits brings home the key point: The market for patents unconnected to innovation is not a market that the legal system ought to encourage or even tolerate."); Ashley Chuang, Note, *Fixing Failures of Software Patent Protection: Deterring Patent Trolling by Appliying Industry-Specific Patentability Standards*, 16 S. CAL. INTERDISC. L.J. 215, 232 (2006) ("Although the patent troll negotiates settlements and licensing fees for itself, its activity limits and impairs public access to inventions by clogging the legal system, deterring resources from innovation, imposing additional costs within a target company's operations, and obligating end users to a hidden tax on technology products."); James Bessen, *The Evidence Is In: Patent Trolls Do Hurt Innovation*, HARV. BUS. REV. (Nov. 2014), *available* at https://hbr.org/2014/07/the-evidence-is-in-patent-trolls-do-hurt-innovation (describing numerous empirical studies which indicate that NPE's impose costs upon innovators) .

[46] ADD.

[47] *See e.g.*, Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457 (2012) (asserting that the conventional negative impression of NPE's is based on anecdotal, rather than actual evidence); Sannu K. Shrestha, *Trolls or Market Makers? An Emprical Analysis of Nonpracticing Entities*, 110 COLUM. L. REV. 115, 150 (2011) (providing empirical evidence that many NPE hold high value patents, and do not engage in as much frivolous litigation as asserted by many critics); Steve Rubin, *Defending the Patent Troll: Why These Allegedly Nefarious Companies Are Actually Beneficial to Innovation*, 11 J. PRIVATE EQUITY 60, 60-63 (2007) (arguing that NPE's are beneficial because they support a marketplace for patents); Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 1024 (2005) ("[T]rolls are serving a function as intermediaries that specialize in litigation to exploit the value of patents that cannot be exploited effectively by those that have originally obtained them. That is not in

They point to the fact that they use patents in the exact way in which the law provides that they be used and that there is no conclusive evidence indicating that their activity harms innovation.[48]

For the purpose of the discussion on the patentability of software and business methods, NPEs are relevant because recent studies have indicated that the enforcement activity of these entities tends to be based on patents on these subject matters.[49] The reason for this result is that, generally, software and business method patents are characterized by overly broad scope[50] and validity issues that are more difficult to determine *ad priori* compared to patents in other fields and, therefore, present higher unpredictability of litigation outcomes.[51] This factor favors the activity of certain NPEs because, typically, a target company faced with an NPE attack concerning the infringement of a patent for which there is substantial uncertainty in relation to the possible result of a related litigation, prefers to pay the NPE to make it go away rather than face it in court.[52] Therefore, criticisms towards software and business methods patents began to re-emerge. In particular, it has been noted that not only NPEs improperly exploit weaknesses in the patent system, but also use patents of alleged questionable quality.[53]

and of itself a bad thing."); Elizabeth Pesses, Note, *Patent and Contribution: Bringing the Quid Pro Quo into eBay v. MercExchange*, 11 YALE J.L. & TECH. 309, 328 (2009) ("Nonetheless, patent trolls may actually play an important role in the patent system. For example, many small inventors do not have the financial resources to enforce their patents, and these patents are constantly infringed by larger companies.").

[48] *See generally*, James F. McDonough III, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L. J. 189 (2006).

[49] *See supra* note 13.

[50] Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CALIF. L. REV. 1, 5 (2001) (noting that broad software patent scope is not beneficial for innovation).

[51] Mello *supra* note 18 at 392.

[52] *See* Davis & Jesien *supra* note 17, at 837-38.

[53] *See* e.g. Magliocca *supra* note 45; David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 188-90 (2009) (identifying software and business methods as causing the "high volume of bad patents" to keep growing); John R. Allison and Ronald J. Mann, *The Disputed Quality of Software Patents*, 85 WASH. U. L. REV. 297 (2007) showing that the data "undermine the strongest criticisms about the low quality of software patents" and citing, Patent Quality Improvement: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the H. Comm. on the Judiciary, 109th Cong. 18 (2005) (statement of Richard J. Lutton, Jr., Chief Patent Counsel, Apple) ("The current patent system has given rise to too many low quality patents being issued, and a growing pattern of assertions of weak patents that threaten to damage productive companies and

In 2008 the Federal Circuit, perceiving this additional level of criticism brought about by the NPE activity and expecting an imminent Supreme Court's intervention in this area, issued *In re Bilski*[54] and overturned *State Street*. The invention in this case was a new method for edging the consumption risk derived from selling a commodity at a fixed price which the Federal Circuit considered to be an abstract idea outside the scope of protection of §101.[55] Contextually, the court announced that the *State Street*'s *concrete and tangible result* test was inadequate and that, from that moment on, the test for determining the patentability of processes was the *machine-or-transformation* test.[56] However, this time the Supreme Court granted *certiorari* and, in so doing, rejected the Federal Circuit's new test as the sole test to be used in these cases.[57] Specifically, it provided that the *machine-or-transformation* test is a useful tool to identify inventions that can be protected under our system, but there can be instances in which other tests can be used.[58] The Supreme Court did not provide any guidance on what these other tests might be and, in particular, did not address the fundamental issue, in the context of the patentability of software, of whether adding a general purpose computer to the patent claims transforms an abstract idea into a patent eligible invention. The result has been patent-eligibility chaos.[59] And, in fact, since *Bilski*, the Supreme Court has decided three other

stifle innovation); Carl Shapiro, *Patent System Reform: Economic Analysis and Critique*, 19 BERKELEY TECH L.J. 1017, 1018 (2004) (discussing criticism of the quality of computer software and Internet business methods patents).

[54] In re Bilski, 545 F.3d 943 (Fed. Cir. 2008) (en banc).

[55] *Id*. at 964.

[56] *Id.* at 960 (To be sure, a process tied to a particular machine, or transforming or reducing a particular article into a different state or thing, will generally produce a "concrete" and "tangible" result as those terms were used in our prior decisions. But while looking for "a useful, concrete and tangible result" may in many instances provide useful indications of whether a claim is drawn to a fundamental principle or a practical application of such a principle, *that inquiry is insufficient* to determine whether a claim is patent-eligible under § 101" [emphasis added]).

[57] Bilski v. Kappos, 130 S.Ct. 3218 (2010).

[58] *Id.* at 3228.

[59] The Supreme Court's *Bilki* decision caused significant uncertainty about patent-eligibility and, in particular, the status of business method patents as demonstrated by subsequent decisions going in opposite directions; *see e.g.* Joshua D. Sarnoff, *Patent-Eligible Inventions After Bilski: History and Theory*, 63 HASTINGS L.J. 53, 55 (2011) ("Legal line drawing is difficult. But it is even more difficult without a theory of why the lines are being drawn, what they are supposed to fence in and out, and whether categorical exclusions are preferable to case-by-case rejections. This is the current state of uncertainty in the United States in regard to eligible subject matter under section 101 of the Patent Act")*;* Brian J. Love, *Why Patentable Subject Matter Matters for Software*, 81 GEO. WASH. L. REV. ARGUENDO 1, 3 (2012), *available* at http://www.gwlr.org/wp-

cases on patentable subject matter two of which directly speak to the patentability of processes; they are: *Mayo Collaborative Services v. Prometheus Laboratories*[60] and *Alice Corp. v. CLS Bank International*.[61]

In *Mayo* the invention was a new process for treating patients with autoimmune diseases by using thiopurine drugs. Specifically, it consisted of a series of three steps that guided doctors to determine the drug dose for each patient by providing the relationship between the concentration in the blood of thiopurine metabolites and the possible beneficial or harmful effect determined by the administration of the drug. The Court began by explaining that said relationship is a law of nature, ineligible for patent protection.[62] Then, it asked if in this case the claimed process transformed the law of nature into a patent-eligible invention - a patent-eligible *application* of the law of nature under consideration as required by §101 of the patent statute.[63] The Court concluded that the steps present in the claims constitute "well-known, routine, conventional activity"[64] and, consequently, "did not add *enough* [to produce that result]."[65] More precisely, the claimed process did not have an *inventive concept*; it did not do anything more than informing doctors of the relevant (patent-ineligible) law and instructing them to use it when threating certain patients.[66]

Finally, on June 19, 2014 the Supreme Court issued the *Alice* decision, once again, on the patentability of processes. The invention in this case was a business method; specifically, a scheme to mitigate settlement risk in financial transactions by using a computer system as a third-party intermediary. The patent included process claims, system claims and media claims. The Court expressly referred to the two-steps test in *Mayo* and concluded that Alice's method was an abstract idea.[67] Moreover, it underlined that, also in this case, no *inventive concept* was present in the claims that could render said abstract idea a patentable invention; thus, Alice's method failed the *Mayo* two-steps test.[68] In fact, it simply instructed practitioners to implement the well-known concept of intermediary settlement on a general purpose computer that did nothing more than generic

content/uploads/2012/09/Love_Arguendo_81_1.pdf (discussing inconsistent Federal Circuit's software and business methods decisions after *Bilski*).

[60] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S.Ct. 1289 (2012).

[61] Alice Corp. v. CLS Bank International, 134 S.Ct. 2347 (2014).

[62] 132 S.Ct. 1289, 1295 (2012).

[63] *Id.*

[64] *Id.* at 1299.

[65] *Id.* at 1298.

[66] *Id.* at 1295.

[67] 134 S.Ct. 2347, 2356 (2014).

[68] *Id.* at 2358.

computer functions.[69] Finally, the Court determined that the system and media claims failed the test too. In this way, the *Alice* decision achieved two important results. First, it made clear that, going forward, the *Mayo* two-steps test is *the* test to be used for determining patent eligibility. Second, it removed substantial uncertainty that to transform an abstract idea into a patent eligible invention something more than a conventional series of steps or a general purpose computer is necessary; new steps or a computer performing new functions must be present in the claims together with the abstract idea.

With these last three decisions on patentable subject matter the Supreme Court has substantially undermined the validity of software and business method patents. As described in the next subsection, the impact of *Alice* has been particularly acute in the context of software. In theory, both software and business methods continue to be patent-eligible, but, in practice, protecting them in the U.S. has become significantly more difficult.

I.2 The Alice's Aftermath

The *Alice* decision appears to have produced particularly harsh results for the patentability software. Indeed, after its issuance, the PTO has rejected patent applications for software inventions in cases in which no §101 concern was present before.[70] On the other hand, in the second half of 2014 District Courts have invalidated under §101 more than twice the number of patents that they had invalidated during the entire previous year.[71] And, the Federal Circuit has been strictly applying the *Mayo* two-steps test to find numerous software patent claims ineligible.[72]

Moreover, in October 2014 Lex Machina[73] reported a 40% decrease in the number of new patent cases compared to September 2013.[74] The filing of new cases increased in subsequent months and the latest data ultimately indicate that patent litigation in 2014 was 18% lower than in 2013.[75] As it has been noted, a number of reasons, including the introduction of new Patent Trial and Appeal

[69] *Id.* at 2360.

[70] See *supra* note 4.

[71] See *supra* note 3, Patent Case Trends and the Business of Litigation.

[72] See *supra* note 4 and 3.

[73] Lex Machina, Inc. is company that research and develops data on IP litigation. The company started as a project at Stanford University and was launched in 2010 as a startup. Lex Machina provides information for free to federal courts, academics, students, and select non-profits. It also provides risk advisory services to clients such as law firms or corporate general councils; *see* https://lexmachina.com/.

[74] See *supra* note 14.

[75] See *supra* note 3, Patent Case Trends and the Business of Litigation.

Board (PTAB) reviews and the Supreme Court's *Highmark*[76] decision on attorney fees, might have contributed to the significant drop in the number of new patent cases in 2014.[77] Nevertheless, it is possible to say that the aforementioned invalidations certainly constituted a powerful element in the decision of software patents holders not to enforce their rights.[78] And although the data for the first half of 2015 indicate that the filing of new patent cases is picking-up again, it is impossible to say if this trend is going to persist or there'll be additional adjustments of the patent litigation level reflecting the new rules of the game.[79] But, as previously mentioned,[80] litigation is only one aspect of the NPE activity and, in many cases, not even the most relevant one.[81] Often, the NPEs' objective when they target a company is to collect royalty payments, not to litigate the cases.[82] Litigation is perused as the last resort when, notwithstanding the high costs and the uncertainty involved, the target company refuses to pay.[83] Indeed, one possibility could be that the reported increase in patent litigation for the first six month of 2015 is the result of more defendants resisting NPE because of the fact that the validity of certain software and business methods patents is currently highly questioned. Thus, the important issue at this point becomes if the *Alice*'s aftermath and the conflicting results previously produced by *Bilski*,[84] the limited protection that is now provided in the U.S. to software and business methods, is consistent with the WTO countries' obligations on patentable subject matter.

II. ALICE AND THE TRIPS AGREEMENT

The TRIPS agreement defines patentable subject matter in Article 27(1).[85] Under this provision, WTO countries must provide patent protection to

[76] 134 S.Ct. 1744 (2014).

[77] See *supra* note 3, Patent Case Trends and the Business of Litigation75.

[78] See *supra* note 14, New Patent Case Filings Down 40% From September 2013 ("Stanford Law Professor Mark Lemley, a patent litigator at Durie Tangri and a founder of Lex Machina, said that he thought more patentees were deciding not to file suit after Alice: 'In the last two months, we've seen over a dozen decisions invalidating software and business method patents on the basis of Alice. That's a pretty strong deterrent to software plaintiffs whose patent isn't directed to specific new computer technology.'").

[79] See *supra* note 16.

[80] See *supra* at page 103.

[81] See *supra* note 17.

[82] Chien *supra* note 18.

[83] *Id.*

[84] See *supra* note 59.

[85] Article 27(1) TRIPS: "Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, *in all fields of*

any inventions *without discrimination based on the field of technology*.[86] Are the outcomes produced by the *Alice* and *Bilski* decision, described in the previous part, a form of forbidden *discrimination* as provided in Article 27(1)? In other words, are WTO countries allowed to exclude or provide limited patent protection to software and business methods compared to other kinds of subject matters? The next subparts address these issues.

II.1 Are Countries Required to Provide Protection to Software and Business Methods Under TRIPS?

One of the most significant achievements of the TRIPS Agreement is consider to be a very broad definition of patentable subject matter.[87] Thus, in its relevant part, Article 27(1) TRIPS establishes that patents "shall be available for *any inventions*, whether products or processes, *in all fields of technology*."[88] Moreover, patents shall be available "*without discrimination as to* the place of invention, *the field of technology* and whether products are imported or locally produced."[89] Unfortunately, though, WTO countries are divided on the exact meaning of this provision[90] and major controversies have emerged under different patent systems on whether genetically engineered organisms, isolated DNA sequences, business methods, and computer software are patent eligible.[91]

In particular, for the purpose of the discussion of the *Alice* and *Bilski* decision, the critical question is whether business methods and software are inventions *in fields of technology* and, thus, are inventions that, under Article 27(1), cannot be excluded from patent protection.[92] To be sure, the TRIPS agreement expressly provides for specific exclusions in Article 27(2) and (3).[93]

technology, provided that they are new, involve an inventive step and are capable of industrial application. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, *patents shall be available* and patent rights enjoyable *without discrimination as to* the place of invention, *the field of technology* and whether products are imported or locally produced [emphasis added]."

[86] *Id.*

[87] Chow & Lee *supra* note 7.

[88] See *supra* note 85.

[89] *Id.*

[90] *See* Chow & Lee *supra* note 7 at 315, 335-6; *see* also Rajnish Kumar Rai & Srinath Jagannathan, *Do Business Method Patents Encourage Innovation?* 2012 B.C. INTELL. PROP. & TECH. F. 1, 5 (2012).

[91] Chow & Lee at 315.

[92] *Id.* at (?).

[93] The TRIPS expressly provides that certain inventions can be excluded from patent protection. Specifically, Article 27(2) TRIPS provides that WTO countries can exclude

The fact that both software and business methods are not covered by these two provisions, suggests that contrivances in these areas should be patent eligible *unless* they fall outside the scope of Article 27(1) TRIPS, because they do not constitute inventions *in fields of technology*.

A significant factor in this context appears to be the time in which TRIPS was signed.[94] Specifically, the fact that many countries, including the U.S., did not recognize patents on business methods at the time TRIPS was concluded. This suggests that TRIPS does not contemplate protection for this subject matter.[95] The history on this point is quite persuasive, however, as I will explain in the next subpart, subsequent interpretations of Article 27(1) TRIPS provided by the U.S., seem to have the potential of producing an entirely different result for our country.[96]

As for software, although it is true that also in this context many countries did not provide patent protection to these inventions when TRIPS was created, this was not the case of the U.S.. At the time the TRIPS agreement was signed, the U.S. had already recognized that software could be patented as the *Diehr* decision was issued in 1981.[97] Moreover, it has been noted that in the context of software, as opposed to business methods, we are clearly operating within *a field of technology* as required by TRIPS.[98]

Past Interpretations of Article 27(1) TRIPS

The question of whether software and business methods inventions are part of a *field of technology* and, thus, fall within the scope of Article 27(1) TRIPS, is an open one. However, in the past, the U.S. has interpreted this provision as requiring countries to extend protection to these subject matters. This happened in particular in the context of the review of other countries' IP law at the time they became WTO members.[99]

inventions to protect public order or morality, "including to protect human, animal or plant life or health or to avoid serious prejudice to the environment"; whereas, Article 27(3) gives the possibility to exclude medical, therapeutic, surgical methods, plants and animals other than microorganisms.

[94] Chow & Lee *supra* note 7 at (?).

[95] *Id.*

[96] See *supra* page 119.

[97] Diamond v. Diehr *supra* note 30.

[98] Chow & Lee *supra* note 7 at (?).

[99] *See* Chow & Lee *supra* note 7 at 54-55, discussing the TRIPS Council's review procedure of WTO members' IP laws ("Under TRIPS Article 63(2), each [WTO] member is to notify the [TRIPS] Council of all of its laws and regulations implementing TRIPS … These notifications serve as the basis for a detailed scrutiny of the implementing legislation of all member states …The review procedure under the TRIPS

Thus, when Egypt became a WTO member on June 30, 1995, Japan, Switzerland and the United States presented questions about Egypt's IP law. In particular, the United States asked: "Please, explain whether an invention within the categories specified below may be patented under Egyptian Law if it is novel, involves an inventive step, and is industrially applicable [...] (c) *process inventions that facilitate the conduct of business*."[100]

Similarly, when Cyprus became part of the WTO on July 30, 1995, Canada, the European Communities[101] and their member States, Japan and the U.S. presented questions about its IP law. The United States asked: "Section 5(2)(c) of the Patent Law of 1998 states that *methods of doing business and computer programs* shall not be regarded as inventions. Please explain the reasoning behind these exceptions based on the field of technology, given that the standards for patentability in the law are those called for in Article 27(1) of the TRIPS Agreement i.e. that an invention be novel, involve an inventive step, and be industrially applicable."[102]

Moreover, when Jordan became a WTO member on April 11, 2000, questions were presented about its IP law by Canada, Japan, Switzerland and the U.S. which asked: "Article 4(B) contains an exclusion for "*mathematical methods.*" Jordan previously explained that this applies to only purely mathematical subject matter. Furthermore, there is no exclusion for "*computer related inventions*." Please, confirm that the exclusion for "mathematical methods" refers only to purely mathematical subject matter and not to "*business methods*" or "*computer related inventions.*"[103]

Finally, China became a WTO member on December 11, 2001. Australia, the European Communities and their member States, Japan and the U.S. presented questions about its IP law. The U.S. asked: "Please, inform us as to whether or not *process inventions that facilitate the conduct of business* are eligible to be patented if they are otherwise novel, involve an inventive step and

Council serves several purposes … [including providing] an opportunity for other members to raise concerns about a country's IP law that might be resolved through discussion, clarification, or, in some cases, through the country's revision of its own law.")

[100] *WTO Review of Legislation*, Responses from Egypt to the questions posed by Japan, Switzerland and the United States (June 12, 2001), IP/C/W/278 – United States question 18.

[101] Cyprus became a member of the E.U. on May 1, 2004.

[102] *WTO Review of Legislation*, Responses from Cyprus to the questions posed by Canada, the European Communities and their member States, Japan and the United States (June 23, 2000), IP/C/W/180 - United States question 73.

[103] *WTO Review of Legislation*, Responses from Jordan to the questions posed by Canada, Japan, Switzerland and the United States, (April 11, 2001), IP/C/W/250 - United States question 15.

are industrially applicable."[104] Moreover, in the context of the transitional review mechanism under § 18 of China's Protocol on Accession the U.S. also asked: "Has China granted any patents for *business methods*? If so how many? How many enforcement actions have involved such *business method* patents since their issuance?"[105]

The questions reported above, clearly indicate that, up until now, the U.S. has consistently interpreted of Article 27(1) TRIPS as requiring WTO countries to provide protection to both software and business methods. They also indicate that the countries subject to the review of legislation process by the TRIPS Council and receiving questions about their IP law generally appeared to agree with that interpretation. Indeed, in all but one of the examined cases the countries provided clear assurance to the U.S. that under their patent system software and business methods were protected. Only Cyprus replied that its law complied "with 27.1 of the TRIPS Agreement as 'methods of doing business' and 'computer programs' have not yet been defined as patentable inventions."[106]

This result is even more significant if we consider that, in the context of the WTO dispute settlement system, a number of reports refer to Article 31 of the Vienna Convention to interpret TRIPS provisions.[107] Article 31, specifically, provides that "a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms in their context and in light of its object and purpose."[108] Moreover, it also provides that there shall be taken into account "any *subsequent practice* in the application of the treaty which establishes the agreement of the parties regarding its interpretation."[109] If we consider that a very convincing argument could be made that the review of other countries' laws after they have become members of the WTO constitutes a "*subsequent practice* in the application of the treaty" as defined in the Vienna Convention, it becomes obvious the viewpoint on patentable subject matter that the U.S. might now be bound to maintain at the international level. Indeed, at this point it would seem very difficult for the U.S. to convincingly argue in future WTO negotiations and disputes that Article 27(1) TRIPS does not impose protection for software and business methods.

[104] *WTO Review of Legislation* - Responses from China to the questions posed by Australia, the European Communities and their member States, Japan and the United States (September 10, 2002), IP/C/W/374 - United States question 142.

[105] *WTO Transitional Review Mechanism of China* – Communication from the United States Addendum (November 2, 2005), IP/C/W/453/Add.1 question 3.

[106] See *supra* note 102.

[107] CITE.

[108] CITE.

[109] CITE.

As for the specific issue of *Alice* and *Bilski* being in conflict with Article 27(1) TRIPS, it is important to underline that, technically, these two decisions do not entirely exclude software and business methods from patent eligibility – both software and business methods continue to be patent eligible in the U.S..[110] Nevertheless, considering the results that these two decisions have produced,[111] the question becomes if the level of protection currently provided *is enough, particularly, when compared to other subject matters*? In other words, under TRIPS is it sufficient for the Supreme Court *to say* that software and business methods are patent eligible or something more is necessary? The next part addresses the issue of whether a WTO inquiry on patentable subject matter and the prohibition of discriminating based on the field of technology would consider the *practical* effect of the *Alice* and *Bilski* decision on the protection of software and business methods compared to other inventions.

II.2 *De Facto* Discrimination?

Up until now no WTO decision has addressed the issue of the level of protection that countries must provide in patent law. The TRIPS Agreement provides minimum standards of protection, but it is not always easy to determine where exactly to draw the line between what must be protected and what instead should be left into the public domain. For example, in the context of *Alice* and *Bilski*, no definition or WTO decision is available to help identifying at the domestic level patent-eligible processes. Article 27(1) TRIPS expressly says that processes must be protected, but what specifically constitute a patent-eligible process is not provided. Indeed, the only relevant indication in this context is the limitation present in Article 27(1) that no discrimination based on the field of technology is allowed.[112] Consequently, under TRIPS, it first necessary to address whether the adopted eligibility test puts inventions in certain fields at any disadvantage compare to inventions in other fields – this would be the case, for instance, of a test that creates a particularly high eligibility bar in one field, but not others. The U.S. Supreme Court's *Mayo* two-steps test seems to have achieved precisely this result.

As explained in Part I, the *Alice* decision has substantially reduced access to patent protection to software; *Bilski*, on the other hand, had already limited the availability of patents on business methods.[113] Consequently, an argument could be made that these two decisions and, particularly, the *Mayo* two-steps test, produce discriminatory results by imposing a very high bar for the patentability

[110] See *supra*
[111] See *supra*
[112] CITE.
[113] See supra

of inventions in the fields of software and business methods. Indeed, although the *Mayo* two-steps test does not expressly distinguish among inventions in different fields, in other words it is neutral on its face, *in practice* it has limited access to patent protection to certain inventions only. Is this *de facto* discrimination consistent with the obligation of WTO countries under Article 27(1) TRIPS?

To answer this question additional WTO decisions on this point would be necessary. However, it is possible to say that should the conformity of the *Alice* and *Bilsky* decisions to TRIPS be questioned by another countries, a WTO panel would not only consider that the *Mayo* two-steps test is neutral on its face, but would take in consideration its practical effects too.

This result emerges, for instance, from the 1999 dispute settlement proceeding that the European Community initiated against the U.S..[114] The case regarded §110(5) of the U.S. Copyright Act of 1976[115] and its consistency with Article 13 TRIPS requiring limitations and exceptions in copyright law to be confined to *certain special cases*.[116] The U.S. contended that the exemptions included in the questioned provision – the home-style exemption and the business exemption - were in conformity with TRIPS because detailed, technical information – the specific size limits and types of equipment that could be used, the precise square footage of the relevant establishments etc. - to identify with great accuracy potential beneficiaries was provided. Consequently, the U.S. also argued that §110(5) covered only cases which were both *certain* and *special* as required by TRIPS. However, the WTO appellate body disagreed in part with the U.S analysis. First, it conceded that both the home-style exemption and the business exemption indeed concerned only "*certain* cases" because of the detailed description of the intended beneficiaries. Then, it considered the *data on the application* of the exemptions which showed that in the context of the business exemption 70% of the eating and drinking establishments and 45% of the retail establishments in the U.S. would fit that description and, thus, were all potential covered by the provision under consideration; clearly, the business exemption involved the majority of the cases - not just *special* ones- and violated the second prong of Article 13 TRIPS.

It is important to underline that the WTO appellate body reached its conclusion in the §110(5) case by considering the *practical impact* of the examined provision - the practical operation of §110(5) which, on its face, appeared in conformity with TRIPS. When the outcome of this case is translated

[114] CITE.

[115] As amended by the Fairness in Music Licensing Act of 1998.

[116] Article 13 TRIPS: "Members shall confine limitations or exceptions to exclusive rights to *certain special cases* which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right holder [emphasis added]."

into the context of a possible §101 challenge, it becomes evident that a WTO panel would not only consider that, technically, the *Mayo* two-steps test operates in all the fields of technology, but it would also investigate whether *in practice* the *Alice'* standard determines absence or reduced protection mainly for software and business methods. Specifically, data from before and after *Alice* in terms of software and business methods patent application submitted, patent issued and enforcement actions would be analyzed. Moreover, comparisons with other fields of technology would be made; thus, the relevance of *Alice* and *Bilski* aftermath. The remaining issue to discuss is the possible implication of this result for the U.S. in the context of international negotiations and disputes in IP law.

Possible Implications

Will the U.S. be subject to a WTO dispute for violating of Article 27(1) TRIPS? This is very hard to predict. Supposedly, *some* differences in the level of protection provided to inventions in different fields should be acceptable under TRIPS. After all, one size does not fit all and some flexibility due to the different characteristics of the technologies involved should be allowed. But without further indication on this point from WTO decisions, it is unclear how to determine when countries are crossing the line and engaging in prohibited discrimination. Thus, the difficulty in anticipating if other WTO countries will initiate a challenge against the U.S. for violating its obligations on patentable subject matter.

However, a different result can easily be envisioned. Specifically, it is quite possible that the issue of the conformity of §101, as delineated in the *Alice* and *Bilski* aftermath, will be the subject of opposing strategies similar to the one adopted by Brazil in 2000. In that case, the U.S. had filed a petition with the WTO Dispute Settlement Body challenging the validity of the working requirement included in Article 68 of the Brazilian Industrial Property Law. Specifically, Article 27(1) TRIPS provides that protection must be given to inventions without discrimination as to whether the "products are imported or locally produced;" the U.S. interpreted this provision as making working requirements illegal and argued that Brazil was in violation of its obligations. Brazil responded to the U.S. attack by pointing out that § 204 of the U.S. patent code on certain U.S. government-funded inventions developed by small businesses appears to function as a working requirement too. In other words, Brazil reacted by presenting exactly the same type of argument that the U.S. had used against Brazil; ultimately, the two countries settled the issue informally.[117]

[117] The US Ambassador wrote to the Representative of the Brazilian Government through the TRIP Council: "I am pleased to report that my government will agree to terminate the WTO panel proceeding without prejudice concerning the interpretation of Article 68 ... While we had real concerns regarding the potential use of Article 68 ... we

Therefore, it seems clear that with the *Alice and Bilski* decisions the U.S. has substantially increased its exposure to these kind of game plans independently from the merit of possible challenges. This result is very significant if we consider that since the enactment of TRIPS, the U.S. has made ample use of the WTO dispute settlement system to promote TRIPS compliance – specifically, the U.S. has filed a challenge in 74% of the TRIPS matters. Indeed, the effectiveness of the U.S.' effort to address current or future violation of TRIPS by other countries via WTO dispute settlement system appears at this point significantly compromised particularly when it comes to patentable subject matter.

CONCLUSION

The issue of whether Article 27(1) TRIPS creates an obligation upon WTO countries to provide patent protection to software and business methods is still open. However, in the past the U.S. has consistently interpreted Article 27(1) TRIPS as requiring countries to protect inventions in these fields.

However, the recent Supreme Court's *Alice* and *Bilski* decisions have substantially reduced the level of patent protection provided to software and business methods in the U.S.. Currently, our country seems to provide less protection than countries such as the EU which, at least in theory, have always proclaimed to be against patenting inventions in these areas. At this point, there is not enough information to conclude that these decisions constitute a violation of the U.S. obligations under TRIPS and, thus, provide an opportunity for other countries to initiate a WTO dispute. Nevertheless, it is possible to say that, because of the aforementioned U.S. interpretations of Article 27(1) TRIPS, the *Alice* and *Bilski* decisions unquestionably expose our country to strategies that severely undermine its ability to promote TRIPS compliance. The 2000 WTO dispute with Brazil, aside from its merit, represents a good example of what our country should expect in in future international negotiations and cases, particularly, in the context of patentable subject matter.

Consequently, the possibility emerges that the *Alice* and *Bilski* decision do not represent the last word in this area and that the Supreme Court will once again reconsider the protection of software and business methods in the near future. In particular, one tenable option would be for the Supreme Court to attempt restoring protection to a more intermediate level in between the one produced by the *State Street*'s "useful, concrete and tangible result" test and the one currently produced by the *Mayo*'s "two-steps" test.

note that this provision has never been used ... In addition, we would expect Brazil not to proceed with further dispute settlement action regarding section 204 and 209 of the US patent law."

Finally, as I explained in the paper NPE activity in the U.S. is very much dependent on the availability of enforceable patents on software and business methods. Thus, the reduced protection in these fields provided by the *Alice* and *Bilski* decision caused many commentators to consider their issuance as a dead sentence for NPEs. Nevertheless, the international perspective presented in this article suggests that reaching this conclusion might be premature. In particular, it highlights that, if it is indeed established that the activity of these companies harms innovation, patent reform might still be necessary to effectively curtail the operation of these companies.