PATENT=MONOPOLY – A LEGAL FICTION

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Executive Summary

A patent right is an exclusionary right. With it, the patent holder can exclude third parties from making, using, selling, etc. products or processes protected by his patent. In the past, this right has also been referred to as a 'monopoly right' and this has lead to considerable confusion about the scope of patent rights and the role of the patent system in a modern economy. This paper seeks to provide some clarity on this issue and highlight the distinction between the exclusionary right granted by patent law and the notion of monopoly in economic regulation.

Society allocates exclusionary rights to patent holders for a simple, compelling reason: to incentivise innovation. Innovation is a costly business. It requires considerable upfront investments in activities that may not yield any fruits. And innovation is risky. As soon as an innovative technology appears, anyone can copy it, and compete for a trivial cost with the inventor.

Obviously, no inventor is ready to invest large sums of money absent a prospect of reasonable recoupment. Patent rights seek precisely to solve this "underinvestment" market failure. In exchange for the disclosure of his invention, the inventor receives the right to be the first to place the invention on the market, and to limit third parties' ability to use his technology. This system is of critical importance in many sectors (for instance, in the high-tech, pharmaceutical and biotech sectors, where investments are high and the costs of replication are low).

In spite of the above, a patent of itself comes nowhere close to a monopoly. From a legal perspective, a patent simply offers a market opportunity for the patentee to commercialise successfully a product implementing the patented technology. A patent is however not any guarantee at all that the patented technology will gain such massive, traction on the market, as to hold a monopoly (for instance, because there may be no market for the patented technology). Put simply, patents reward invention, not commercialisation.

Similarly, a patent is not a monopoly in the economic sense. First, because in the real life, the possession of a patent does not unravel into the "single supplier" setting typical of most monopolies. Second because the vast majority of products which are based on a patent cannot be marketed at a monopoly price, for the existence of substitutes on the market allows buyers to choose amongst different products.

All in all, this casts doubts on the fallacious, emerging equation that (i) patents are akin to monopolies; (ii) that holders' patent-protection strategies are abusive; and (iii) that such strategies warrant scrutiny under the antitrust rules.

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Introduction

In computer sciences, infectious malwares just run on a few lines of code. The same applies to legal sciences. Contemporary evolutions at the boundaries of patent and competition law are symptomatic of this. Like a computer virus which replicates by copying itself into other files, a flawed legal doctrine is making way through the judiciary and (scholarly) opinion. This idea – we call this the "*patent=monopoly theorem*" – is that a patent is akin to a monopoly. In turn, just by virtue of their intellectual property right ("IPR"), patent holders would be allegedly dominant, and enjoy significant market power.

The patent=monopoly theorem takes root in several unfortunate views expressed by prominent authorities. The European Union ("EU") judiciary has for instance affirmed that: "*a medicine is protected by a patent which confers a temporary monopoly on its holder*".[1] Likewise, administrative agencies have voiced concern about "*the surge in the strategic use of patents that confer market power to their holders*".[2] Lastly, some influential academics have claimed that "*the patent system is designed to create market power*".[3]

Why should we care? Just as computer malware, legal viruses have dire consequences. The patent=monopoly theorem is a case in point, for it threatens the entire architecture of the Intellectual Property ("IP") system, and in particular the incentivisation mechanism at the heart of it. The assimilation of patents to monopolies indeed triggers the applicability of the competition rules on "*abuse of dominance*" (in the EU, Article 102 TFEU and in the US, Section II of the Sherman Act). And whilst in modern EU competition law, "*dominance*" is quasi-*per se* lawful, with the patent=monopoly proxy, agencies and courts are one step closer to a finding of infringement, having solely to prove "*abuse*" to apply Article 102 TFEU. Abuse cases become a lot simpler. With the proliferation of IP in the economy, it cannot be excluded that agencies and courts will be increasingly scrutinizing patent holders' conduct as possible abuses.

Such investigations undeniably represent high costs for all IP stakeholders. But the real concern lurks elsewhere. Given the open-ended *scope* and the loose *evidentiary* requirements of the concept of abuse, many legitimate patent strategies may be declared abusive, and

[1] *See* ECJ, C-468/06 to C‑478/06, *Sot. Lélos kai Sia EE and Others v GlaxoSmithKline AEVE*, [2008] ECR I-7139, § 64.
[2] *See* J. Almunia, Speech at *Industrial policy and Competition policy: Quo vadis Europa?*, New Frontiers of Antitrust 2012 – Revue Concurrences Paris, 10 February 2012.
[3] *See* Professor Tim Wu, Columbia University, *Oversight of Innovation Catalysts*, 2012 OECD Competition Committee Hearings on the Digital Economy.

subject to *ex post* remedies. Step by step, on a case by case basis, agencies and courts may thus be unwittingly brought by plaintiffs to "*reverse engineer*" the patent system, by ordering compulsory licensing on patent holders, shrinking the duration of patent protection, setting the terms of licensing talks, and abolishing patent holders' judicial remedies, including the right to infringement proceedings, injunctive relief, and damages.[4] Incrementally, such orders risk undermining the primary incentivisation function of patent law (and give an excessive importance to the dissemination function of patent law, which is only ancillary).[5]

With this background, the purpose of this paper is to remind the reader that the patent=monopoly theorem is false, plain false. Neither in intellectual property law (I), nor in antitrust law (II) can a patent be construed as an economic monopoly.

I. The Intellectual Property Perspective

This section discusses whether patents can be seen as monopolies from the perspective of patent law. To keep things clear, some basic concepts of patent law must be explained from the outset. A patent right is not a positive right that allows the right holder to do certain things.[6] It is an exclusionary right.[7] It allows the right holder to exclude others from performing certain activities. In particular it allows the right holder to preclude others from making, using, selling, stocking, etc. products or processes which are protected by the patent.[8] In and of itself, the mere possession of a patent thus cannot possibly convey a monopoly because the grant of the right does as such not provide any positive right to the holder of the

[4] The risk of resetting the IP matrix with *ex post* competition remedies is not entirely hypothetical. Current complaints of abuse before the EU agencies concern the entire patent system, from top to bottom: registration strategies, licensing practices, litigation tactics and enforcement policies. Moreover, those complaints target sectors of the economy where patents are critical (*e.g.*, pharmaceuticals, information and communication technologies, etc.).

[5] The disclosure/dissemination function is only ancillary to the incentivisation function. *See* A. Devlin, "The Misunderstood Function of Disclosure in Patent Law" (2010) *Harvard Journal of Law and Technology*, Vol. 23, p. 401.

[6] As an object of property, however, it is a positive right, which means that is an asset in itself, which can be transferred, licensed etc. See e.g., Art. 28(2) TRIPs: "2. Patent owners shall also have the right to assign, or transfer by succession, the patent and to conclude licensing contracts."

[7] The mere fact that one has a patent on for instance stem cell technology does not in and of itself the right holder to practice this technology and exercise the rights in practice, as there might be regulatory limitations or even prohibitions to perform any activities relating to stem cells. To the extent that such limitations and prohibitions would not be there, the right holder can exercise the patent rights.

[8] According to the statutory definition, a patent shall confer on its owner the following exclusive rights: (a) where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product; (b) where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process. The above definition stems from Art. 28 TRIPs Agreement, but is largely identical to national statutory provisions in the EU member states.

patent right, *i.e.*, it is not a license to perform certain activities. Moreover, the possession of a patent does not necessarily imply that there is a "*market*" for the patented goods or of the technology itself.[9]

This section is structured as follows. First, it discusses the rationale underpinning the patent system (1). Second, it shows that the flawed equation of a patent with a monopoly stems from historical considerations, originally alien to IP law (2). Third, it gives a number of concrete IP-law reasons why patents cannot be akin to a monopoly (3).

1. Understanding the Rationale of the Patent System

As a patent is an exclusionary right, it cannot be ruled out that a patent gives rise to a monopoly over a specific market. It is occasionally argued that this mere risk makes patents a bad thing, and in turn justifies their abolition.

This reasoning ignores that monopolies are not necessarily bad, and not even illegal. But more importantly, this argument fails to understand the rationale of having the patent system in the first place. Why is a patent as an exclusionary right tolerated? A proper understanding of the underlying rationale of the patent system requires some insight in the economics of innovation.

1.1. *Patents and the Underinvestment Issue*. Innovation is, amongst others, about developing new technology. And technology is often very expensive to produce. Meanwhile, however, absent protective measures, technology can be reproduced and used by a multitude of parties at virtually no cost.[10] Moreover, the fact that one party uses the technology does not make it less available to another third party. That allows a potentially unlimited number of

[9] It is not impossible that regulatory provisions prevent a right holder from actively working with the patented technology. A good example is the pharmaceutical market. There are many patents granted in this area which will never be used in practice, as in the absence of the grant of a market authorisation by the competent regulatory authorities, no product covered by the patent can enter the market, thus making the patent virtually useless. It is very difficult to argue in such case that the patent granted constitutes a monopoly.

[10] A good example is a medicinal product: the investment cost for developing and obtaining market authorisation for a medicinal product is very high indeed. The cost of reproduction of that technology by producing for instance the pills, is extremely low. In the absence of any mechanism of protecting that initial investment in creating the technology, there are no incentives to make that investment in the first place, as that initial cost will not be recouped if third parties can freely enter the market by "copying" the technology developed and paid for by the initial innovator.

third parties or competitors to use or "*copy*" the technology, at a trivial cost.[11] In short, when technology is created, a massive "*free rider*" issue arises.

With this background, one might be deterred from developing technology in the first place. The risk is indeed substantial that the investment incurred to create the information will never be recouped. Moreover, third parties that practice the technology do not have to incur the initial investment cost. This allows them to offer the products or services covered by the technology at a much lower price. In this game, the initial technology developer is the loser. All in all, this is likely to lead to "*underinvestment*" in the development of new technology.

Of course, the obvious remedy for the inventor is to keep its technology secret. However, that is not always possible. First because in many cases, the technology is embodied in the product. One thus needs only to examine the product carefully so as to duplicate the technology. Second because innovators who want to keep technology secret have to live a life of peril and fear that it will become public at some point.[12] Third because a policy of secrecy may be incompatible with the business strategy of an innovator. Fourth because a policy of secrecy disincentives the sharing and transfer of technology, one of the most important driving forces behind innovation.[13]

In addition to this, any innovator who wants to sell his technology (or attract investors) faces an existential problem. In order to obtain a reasonable price (or investment), he must disclose the technology, as no one is obviously ready to give money for the unknown. But as soon as his technology is disclosed, access becomes very difficult to restrict (even by contractual arrangement). The technology may spill towards third parties, and become widely available in the public domain. This has a negative influence on the valuation of the technology.

The patent system is designed precisely to address the "*underinvestment*" market failure created by the specific nature of technology, and the risks of "*free riding*" by third parties. In exchange for the disclosure of his invention, the inventor receives the right to be the first to place the invention on the market, and to limit third parties ability to use his technology. This protects the inventor from the effects mentioned above, and gives him the opportunity to

[11] This is based on the influential work of K.J. Arrow, "Economic Welfare and the Allocation of Resources for Invention," in, *The Rate and Direction of Inventive Activity: Economic and Social Factors*, National Bureau of Economic Research ed., 1962, (609) 619-620.

[12] *See* M. Lemley, "A new balance between IP and antitrust", *13 Southwestern Journal of Law & Trade in the Americas*, 2007, (237) at 239

[13] *See* P. Lee, "Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer", *100 California Law Review*, 2012, (1503) at 1510-1515.

recoup his investment. This system is of critical importance in the high-tech, pharmaceutical and biotech sectors for instance, where investments are very high, whilst the cost of copying is often very low.

Of course, a patent right holder may in certain cases be able to raise prices/limit output. But this does not stem from the patent system. A patent holder's ability to set supra competitive prices is, in the first place, determined by the attractiveness of his technology. A patent holder that would charge high prices for an unattractive technology would price himself out of the market.

Moreover, the market power that may be possibly enjoyed by a patent holder is limited by a number of statutory limitations (including limitations in scope, effect and duration). Those limitations seek generally to encourage '*competition by substitution*' between '*follow on innovators*' and '*pioneer innovators*'.[14]

1.2. <u>*Patents and Markets.*</u> That leads us to another feature of the patent system. As such, a patent only gives right to a "*theoretical*" exclusionary right. As long as no products or processes covered by the patent reach the market place, the exclusionary right ascribed to the patent remains ineffective.

Many reasons explain why a patented technology may never "*make it to the market*". For instance, an inventor may realise after the filing that there is no market for a patented product. Or there may no longer be any sufficient funding to develop a commercial product.

All too often, one forgets that the award of a patent marks only the starting point in the development of a product. Far from being monopolies, patents grant nothing more than a market opportunity for the patentee to be an able inventor and to commercialise and successfully market a product implementing his technology (provided it has some value).[15] Patents reward invention, not commercialisation.[16]

Once one understands the underlying rationale of the patent system, one can actually see that having a patent system makes sense. The patent system helps in disseminating technology, incentives technological development and innovation and facilitates technology transfer.

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[14] *See* S.D. Anderman, "Patents and competition law: some features of the new interface", in, Ghidini, G., Arezzo, E. (eds), *Biotechnology and Software Patent Law: A Comparative Review on New Developments*, Edward Elgar Publishing, 2011, (105), at 107.

[15] *See* R. Fieldman, "Patent and Antitrust. Differing Shades of Meaning", *13 VIRGINIA JOURNAL OF LAW &TECHNOLOGY*, 2008, (1) at 11.

[16] *See* P. Lee, "Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer", *100 California Law Review*, 2012, (1503) at 1515.

1.3. *Patents and Patentability Requirements.* The award of a patent is subject to stringent requirements. A patent can only be granted after a demanding examination process which seeks to determine whether the invention (i) is new; (ii) constitutes an inventive step over existing technology; (iii) is industrially applicable; and (iv) can be practiced by a skilled person in the field on the basis of the disclosed patent specification and without undue burden or the need to apply inventive skill. Independent administrative authorities, called patent offices, are in charge of the assessment of patent applications.

This process distinguishes patents from other IPRs. No other IPR is so thoroughly examined and evaluated as a patent. In our view, the patent examination system incorporates a comprehensive and satisfactory system of checks and balances which ensures that the patent granted is commensurate with the disclosure made in the patent application.[17] And if topical issues arise in relation to the award of "*weak*" patents, they should be addressed within the patent system, under the existing procedural and substantive rules.

2. Reasons behind the Confusion of Patent with Monopoly

Various reasons specific to the history of IP protection explain the frequent confusion between a patent and a monopoly. First, several pieces of legislation adopted well before the XXth century have equated patent to monopolies. At that time, patents were different from the rights over intangible assets that we know today. Patent rights were "*privileges*" granted to natural persons. Typically, a patent entrusted someone with the right to be the sole to trade certain goods or services.[18] This exclusive right was akin to a monopoly.

The UK Statute of Monopolies of 1623 is a good illustration of this.[19] Under that Statute, most monopolies were held illegal. But the Statute explicitly provided for exceptions, amongst which patent rights. In other words, the Statute treated patents as monopolies, but tolerated them by virtue of a specific legal provision. Patents were simply a "*legal*" form of monopoly.

Since that time, the idea that patents were akin to monopolies has been sticky, and has spilled over IPRs. For instance, the US antitrust case-law has often referred to monopolies when

[17] *See* S.J.R. Bostyn, *Enabling Biotechnological Inventions in Europe and the United States. A study of the patentability of proteins and DNA sequences with special emphasis on the disclosure requirement,* Eposcript Series, nr. 4, EPO, München, 2001, passim.

[18] For a historical overview of the patent system, *see* S.J.R. Bostyn, *Enabling Biotechnological Inventions in Europe and the United States. A study of the patentability of proteins and DNA sequences with special emphasis on the disclosure requirement,* Eposcript Series, nr. 4, EPO, München, 2001,, 7-22 and the references there.

[19] 1623, Statute of Monopolies, 21 Jam. 1, ch. 3, § 5 (Eng.).

discussing patents.[20] In the late XIXth and early XXth centuries, the US courts regularly held that patents were out of reach of antitrust law, despite their monopolistic nature.[21] This approach was reversed in the 1930s and 1940s, when the US Supreme Court held that antitrust law applies if a patent holder goes beyond the reasonable boundaries of his right (the so-called "*patent misuse*" doctrine).[22] With the enactment of an amended Patent Act in 1952,[23] patent rights became stronger, which led in the 1960s and 1970s to a revival of antitrust remedies as a means to limit patent rights.[24] But the 1982 judgment of the Court of Appeals for the Federal Circuit in *A.G. v Nortron Corp.* again remanded this position by holding:

> "*It is but an obfuscation to refer to a patent as 'the patent monopoly' or to describe a patent as 'the patent monopoly' or to describe a patent as an 'exception to the general rule against monopolies'*".[25]

All in all, the fact that decades of case-law discuss patents in relation to monopolies is key to explain the enduring traction of the patent=monopoly theorem. Surely, the EU courts have been less prompt to categorise patents as monopolies. Yet, a good deal of the literature on this subject remains influenced by the US case-law.

3. *Practical Reasons why Patents hardly ever lead to a Monopoly.*

A number of basic practical considerations additionally explain why most patents never lead to a monopoly in the conventional sense.[26] *Firstly*, a number of patented technologies just never lead to a commercial product. For instance, some worthless patents never make it to

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[20] *See* e.g., Bement v. National Harrow Co. 186 U.S. 70, at 91 (1902): "[t]he very object of these laws is monopoly"; Continental Paper Bag Co. v. Eastern Paper Bag Co. 210 U.S. 405, at 423 (1908): "The patent law is the execution of a policy having its first expression in the Constitution . . .. It is worthy of note that all that has been deemed necessary for that purpose, through the experience of years, has been to provide for an exclusive right to inventors to make, use and vend their inventions. In other words, the language of complete monopoly has been employed." For more details, *see* G.S. Rich, "Are Letters Patent Grants of Monopoly"?, *15 WESTERN NEW ENGLAND LAW REVIEW*, 1993, (239) at 249.

[21] *See* e.g., Henry v A.B. Dick Co., 224 U.S. 1 (1912).

[22] Especially tying practices came under fire. It was held that misuse of a patent was prima facie evidence of an antitrust violation, even absent any proof of market power or any other anticompetitive effect. See e.g., Mercoid Corp. v. Mid-Continent Inv. Co., 320 U.S. 661 (1944) (Mercoid I); Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27 (1931).

[23] Which apart from circumscribing the concept of patent misuse, also introduced a higher threshold for inventive step (or nonobviousness as it is called in the US)

[24] *See* Lemley 2007, at 252.

[25] Schenck v. Norton Corp. 713 F.2d 782, 218 U.S. P.O. 698 (CAFC 1983).

[26] For a definition of monopoly under antitrust law, see Section 2.

market, like the "*Dining Table Having Integral Dishwasher*" issued by the US Patent Office.[27]

Secondly, patents with commercial applications generally give rise to limited markets in the early days of implementation. And this limits the patent holder's pricing power: to grow the market for the patented product/technology, the patent holder must make sure he keeps prices/fees at a reasonable level. The literature on innovation policy is replete with cases where patents filed for by universities lead to such a situation.[28]

Thirdly, as will be seen in section II, even if there is a market for a specific product which is based on a patent, the patent owner will in the large majority of cases not be able to charge monopolistic prices and reduce output at will due to the existence of substitutes. If there are substitute products on the market, a potential buyer can chose which product to buy, and he will go for the cheapest product, or for the product which he believes the most responsive to his needs. That is not only the case for smaller inventors, but also for large companies.[29]

Fourthly, even if (i) the patented technology makes into a product; and (ii) the product is successful on the market (possibly ending up with a monopoly position), this is not the end of the story. Patent law still seeks simultaneously to encourage R&D dissemination, incremental innovation and follow-on competition by entitling the patent holder to make money through the transfer of his technology to third parties.

II. The Antitrust Perspective

In the antitrust case-law and literature, judges and scholars occasionally assimilate patents to monopolies. This is unfortunately incorrect (1). In the same sense, the argument floats that dominant patent holders' strategies would be presumably suspicious under the antitrust rules. Again, this is wrong. Under Article 102 TFEU, patent holders' strategies are quasi-*per se* lawful (2).

1. In Competition Economics, a Patent is not Akin to a Monopoly

[27] *See* M. Risch, "Reinventing Usefulness" (2010) *Brigham Young University Law Review*, 1195, 1207.
[28] For a detailed insight in this, *see* P. Lee, "Interface: The Push and Pull of Patents", *77 Fordham Law Review*, 2009, 2225-2235.
[29] E.g., having a patent for a product which acts as a painkiller will not allow the pharmaceutical company to gain all profits of the patents as such product will be in competition with substitute painkillers already on the market.

In the economic literature, there are two main definitions of a monopoly. A first definition centers on market structure (1.1). A second definition focuses on (price) performance (1.2). Under none of those definitions, a patent is akin to a monopoly.

1.1. *The Structural Definition of an Economic Monopoly*. According to HYLTON "*a monopolist is the single supplier of a good*".[30] He adds that a monopoly means the "*absence of competition from other firms*". And he takes the graphic example of Aeroflot, the airline of the former Soviet Union.

HYLTON's definition has etymologic roots. In ancient Greek, the word monopoly means a unique ("*monos*", μόνος) seller ("*polein*", πωλεῖν). In contemporary antitrust law, the "*single supplier*" definition was popularized by the Harvard school in the 1950s. It is now the definition used by the OECD in its Glossary of Industrial Economics terms.[31]

Under this definition, the invalidity of the patent=monopoly theorem shines to the eye. In real life markets, the possession of a patent does not unravel into a "*single supplier*" setting. On the contrary, a patent holder often has rivals in the market for the patented good. Take the leading handset suppliers Apple, Samsung, Sony, HTC and Motorola. Each owns a gaggle of patents. Yet all those firms are market rivals. They compete to supply handsets to fungible customers. More generally, taken literally, the patent=monopoly theorem leads to the utterly absurd result that there are as many monopolies in the economy as patents. In 2011, approximately 1,000,000 patents were granted across the globe.[32] This would mean that 1,000,000 monopolies would have been created worldwide. This clearly, cannot be true.

In reality, the sole area where a patent holder is a single supplier is on the market for his own proprietary technology. But even if a patent holder is the sole supplier of his technology, this comes nowhere close to what economists label a monopoly. This is because patented technologies may, and often do have, substitutes. Several patented technologies can for instance compete with one another for a given industrial application.[33] Take the case of Lipitor (Pfizer) and Zocor (Merck), two pharmaceutical drugs for heart disease and

[30] *See* K. Hylton, *Antitrust Law – Economic Theory & Common Law Evolution*, Cambridge University Press, 2003, p.1.
[31] *See* http://www.oecd.org/regreform/sectors/2376087.pdf at 134: "*Monopoly is a situation where there is a single seller in the market*".
[32] *See* http://www.wipo.int/export/sites/www/ipstats/en/wipi/pdf/941_2012_section_a.pdf at §A.1.2.
[33] For instance, if someone has an invention for a chemical molecule which is used in a pharmaceutical product which is a painkiller, that alone does not mean that he has a monopoly in the painkiller market, as there will be many substitute products that have the same effect, but which are based on a different chemical molecule. In other words, the patent holder has no monopoly in the product market.

cholesterol reduction. Both are covered by distinct patents. Yet, they fulfill a similar therapeutic usage, and are thus seen as competing alternatives by doctors and prescribing authorities alike. Patent lawyers generally call such competing patents "*non infringing substitutes*" (for more examples, see box 1 below).

BOX 1 – CONCRETE EXAMPLES OF "NON INFRINGING SUBSTITUTE PATENTS"

#1. Pantoprozale is a proton pump inhibitor, used for the treatment of amongst others dyspepsia, peptic ulcer disease (PUD) and gastroesophageal reflux disease (GORD/GERD). It was patented by Nycomed. Esomeprazole is equally a proton pump inhibitor, used for the treatment of amongst others dyspepsia, peptic ulcer disease (PUD) and gastroesophageal reflux disease (GORD/GERD) was patented by Astrazeneca. None of the patents constitutes a monopoly. In fact, the patents, or more precisely the commercial products covered by the patents, are in competition with each other.

#2. Venlafaxine has been patented in 1983 and is owned (or at least licensed) by Wyeth. Duloxetine has been patented in 1986 and is owned by Eli Lilly. Both are antidepressants. They belong to the category of serotonin–norepinephrine reuptake inhibitors (SNRIs). Citalopram and paroxetine are equally antidepressants, both belonging to the family of selective serotonin reuptake inhibitors (SSRIs). Citalopram has been patented around 1976. Paroxetine has been patented around 1973. All four products compete with one another. Interestingly, there is not only competition between products within one category, but also competition between categories, as both families, i.e., SNRIs and SSRIs treat similar or even identical medical conditions.

#3. Apple and Samsung both hold a number of patents which protect technical features of the operation of touch screens on smartphones. None of the patents constitutes a monopoly over the operation of touch screens on smartphones, and in fact, both companies are currently engaged in a fierce battle over their respective patent rights, for the very reason that none of their patents constitutes a monopoly over that particular field of technology.

#4. A fourth and final example is windscreen wipers. There are many different types of systems and blades, and there are hundreds of patents on those various systems and blades. None of those patents constitute a monopoly, but the systems operate in competition with each other. Once again, patents do not constitute a monopoly in this field of technology.

But this is not all. Patents also may, and often do have, unpatented substitutes. For instance, Nespresso's patented coffee pods and machines face competition from a number of unpatented capsules (*e.g.*, Sarah Lee, Ethical Coffee, Capsul'in, Capsul'o, Cap Mundo).

Finally, in economic theory, a monopoly implies a certain degree of durability. In this context, if patent holders are monopolists, they are monopolists with feet of clay. This is

because patents often trigger the proliferation of substitutes, well before patent expiry. Economic books are replete with stories documenting that the grant of a patent paves the way to the introduction of substitute technologies. EDISON's patent over light bulbs in 1886 precipitated a surge of patents filings for incandescent lamps, and the introduction of novel types of competing, non-infringing electric lamps.[34] Similarly, WATT's 1769 patent over high pressure steam technology inspired TREVITHICK to "*design around*" WATT's technology, and invent a new high pressure steam engine.[35] Those stories have been corroborated by larger scale studies. MANSFIELD shows for instance that 60% of patented inventions gave rise to alternative inventions in the four following years.[36]

1.2. The Performance-based Definition of an Economic Monopoly. The leading US scholars AREEDA and HOVENKAMP consider that an "*an economic monopoly is the power to obtain a price persistently in excess of the competitive level*".[37] Economists often summarize this by saying that monopoly is a firm that has significant market power, or "*power over price*".

The patent=monopoly theorem neither holds true under this second definition. In real life, patented technologies are not necessarily pricy. Some patented technologies are valuable, others are not. The price range for the licensing of patents can oscillate between 0 and the monopoly level, depending on the value of the particular technology at hand. "*Worthless*" patented technologies attract marginal licensing fees.[38] Patents over valuable technology yield lucrative licensing revenue.

In the press, examples of patented technologies which are expensive to practice abound. The headline-grabbing rant about "*patent trolls*"[39], which allegedly rein in innovation by "*holding-up*" and ransoming technology implementers, is an illustration of this. But examples of

[34] *See* R. Katznelson and J. Howells, "Inventing-around Edison's incandescent lamp patent: evidence of patents' role in stimulating downstream development", mimeo 2012.
[35] *See* G. Selgin and J. Turner, "Strong Steam, Weak Patents or the Myth of Watt's Innovation-Blocking Monopoly Exploded" *Journal of Law and Economics*, Vol. 54, November 2011
[36] *See* M. Kremer, "Patent buyouts: A mechanism for encouraging innovation" (1998) *Quarterly Journal of Economics* 113(4): 1137-1167..
[37] *See* P. Areeda and H. Hovenkamp, "Antitrust Law: an Analysis of Antitrust Principles and their Application" ¶501 (2002).
[38] *See* Kimberly A. Moore, "Worthless Patents", (2005) 20 *Berkeley Technology Law Journal*, 1521, 1526.
[39] Certain companies have developed a business model of buying patent portfolio's and threaten any third party remotely in the same area of technology of the patent protected technology with patent infringement claims, hoping that such third parties will agree with a settlement payment. These companies are often called "patent trolls" or "non-practising entities (NPE's), as they do not practice the technology protected by the patent, but merely use the patent as an asset to cash in high licensing revenues. Research is on-going to devise solutions to these patent trolls.

patented technologies said to be cheap are not uncommon either: the patents developed in the context of the World Wide Web Consortium ("W3C") are, for instance, licensed for free.[40] In reality, it is extremely complex to say whether a patent entitles its holder to obtain a price persistently in excess of the competitive level, and to date, those courts and agencies who have been faced with the issue have often renounced to take a definitive stance on the issue. The bottom line is thus: the patent=monopoly theorem does not necessarily hold sway.

In fact, patents are like tangible goods or services. Their price is influenced by a whole host of factors. In addition to the conventional constraints bearing on any firm (downward slopping demand curve, threat of entry, buyer power, etc.) the following parameters specifically constrain the pricing power of patent holders:

- Existence of technology substitutes: as seen previously, the pricing power of a patent holder is mitigated by the existence of patented and non-patented substitutes. Such substitutes can arise from other firms attempts to reverse engineer, or "*design around*" patented technologies (*e.g.*, coffee pads and capsules);
- Pressure of technological complements*:* the pricing freedom of a patent holder is constrained by the existence of complementary patented technologies, necessary to manufacture a fully functional product (*e.g.* in the smartphone market, the firm that holds patents over chipsets must take account of the fees charged by holders of complementary patents over digital screens, cameras, etc.);
- Presence of countervailing technologies: a patent holder's pricing power will be limited if his licensee owns patents over technologies that he too wants to practice. In this case, he will need to conclude a "*cross-licensing*" agreement. And no royalty will be charged. In complex industries, cross-licensing is pervasive (*e.g.*, computers, semiconductors and electronics);
- Other factors: a wide array of additional IP-specific factors limits the pricing power of patent holders. For instance, in standard setting organizations (*e.g.* the ISO, ETSI, CENELEC), patent holder must contractually commit to grant RF ("*royalty-free*") or FRAND ("*Fair, Reasonable and Non-Discriminatory*") licenses. This brings a limit on patent holders' ability to charge supra competitive licensing rates.

1.3. <u>*Conclusion*</u>. At this juncture, it has been recalled that the patent=monopoly theorem is false. In reality, whilst patent protection may assist in granting market power, this is contingent on a large number of factors. And unlike in other areas, the economic literature is consensual on the fact that patent rights do not grant monopoly power *per se*. [41] AREEDA and HOVENKAMP best summarize this:

> "*a trademark, copyright, or patent excludes others from duplicating the covered name, work, product (etc.) but does not typically exclude rivals* <u>*from the market*</u>*. Accordingly,*

[40] *See* http://www.w3.org/2004/02/05-patentsummary.html. Many proprietary standards are royalty-free as well. Examples of royalty-free standards include DisplayPort, VGA, VP8, and Matroska.
[41] *See* M. Lemley, "A Cautious Defense of Intellectual Oligopoly with Fringe Competition", 5 *Review of Law and Economics*, 2009, (1025) at 1030.

market power cannot be inferred, even presumptively, from the possession of intellectual property".[42]

If patented products or technologies are successful in the market and end up providing some market power on the patent holder, this is generally not due to the patent right but to other circumstances such as lead time advantage in bringing the product on the market, successful marketing, better cost-management etc.

2. In Competition Law, Patent Holder Strategies are Quasi-Per Se Lawful

EU law seeks to protect the incentivisation function of the patent system. Contrary to the adverse signals sent by enforcers' sporadic anti-patent diatribes, the EU case-law has elaborated a doctrine of judicial deference vis-à-vis the patent system. This appears clearly in the assessment of "*dominance*", where patents just play a marginal evidentiary role (2.1). But even more strikingly, it is in relation to the notion of "*abuse*" that a wall of legal constructions shield patents from antitrust interference (2.2).

2.1. *Patents are not Key to establish Dominance.* The EU case-law makes clear that patents only play an anecdotal role in the assessment of dominance. In some decisions, patents are relevant. For instance, the Commission has found patents to raise barriers to entry in *Intel* and *IBM*.[43] In other decisions, however, patent neutrality has prevailed. In *Microsoft*, for instance, the patents held by the dominant firm played no role in the analysis.

In reality, market shares and other structural factors are king in the assessment. Patents are just one among the many complementary factors scrutinized by agencies and courts. And dominance can perfectly be found with or without patents.

Of course, patents occasionally play a critical role in dominance analysis. For instance, in *AstraZeneca*, the Commission noted that "*A factor of considerable importance in determining dominance in this case relates to AZ's technology in the form of intellectual property and other rights derived from pharmaceutical law*".[44] But the Commission cautiously confined its findings to the pharmaceutical sector, noting that "*intellectual property rights, in the form of patents and trademarks are relatively more important in the pharmaceutical industry than in*

[42] *See* Areeda and Hovemkamp, *supra* §518.
[43] *See* Commission Decision, 13 May 2009, COMP/C-3/37.990, Intel , OJ C 227 of 22 September 2009, at §856; Commission Decision, 13 December 2011, COMP/39.692, *IBM Maintenance* OJ C18 of 21 January 2012, at §30; Commission Decision of 22 December 1987, IV/30.787 and 31.488, *Eurofix-Bauco v. Hilti*, OJ L 65 of 11 March 1988, at §71.
[44] *See* Commission Decision of 26 July 2000, COMP/M.1806, *AstraZeneca/Novartis*, OJ L 110, 2004, at §517.

other sectors".[45] The specificities of the case were also important. The Commission noted that the firm under investigation had built a "*patent protection*" that was "*exceptionally strong*" through various tactics, including a clever combination of trademarks, copyright protection and design protection.[46] Patents were thus not the sole and whole source of market dominance.

The best pronouncement to date on the role of patents in dominance analysis is in reality from the ECJ. In *Magill*, the Court observed that "*so far as dominant position is concerned, it is to be remembered at the outset that mere ownership of an intellectual property right cannot confer such a position*".[47] Again – but this time from a legal perspective – patent ≠ dominance.

2.2. Patent Strategies are only Exceptionally Abusive. It is perhaps in relation to the notion of "*abuse*" that EU law has elevated the highest limitations to competition enforcement against patents. *Firstly*, the EU competition rules cannot call into question the "*existence*" of a patent.[48] For instance, Article 102 TFEU provides no legal basis to discuss the "*strength*" or "*weakness*" of a patent. Validity assessments are for patent offices and courts only, under the patent rules. Competition law can just apply to the "*exercise*" of patent rights.

Secondly, not all patent strategies fall within the remit of EU competition law. As long as the dominant firm acts within the "*specific subject matter*" (or seeks to maintain the "*essential function*") of the patent, its conduct is presumably lawful.

In *Centrafarm v Sterling Drug*, the ECJ has defined the "*specific subject matter*" of patents as the:

> "*exclusive right to use an invention with a view to manufacturing industrial products and putting them into circulation for the first time, either directly or by the grant of licences to third parties, as well as the right to oppose infringements*".[49]

This leaves only a marginal subset of patent strategies subject to potential antitrust exposure.

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[45] *Idem*, §518 (quote taken from an OECD report).
[46] *Idem*, §519.
[47] *See* CJ, Joined Cases C-241/91 and C-242/91, *Radio Telefi s Eireann and Independent Television Publications Ltd v Commission* [1995] ECR 743, at §46. *See*, similarly, ECJ, Case 78/70, *Deutsche Grammophon Gesellschaft mbH v Metro-SB-Grossmärketete GmbH & Co* [1971] ECR 487, at §16: "*a manufacturer of sound recordings who holds a right related to copyright does not occupy a dominant position within the meaning of article 86 of the Treaty merely by exercising his exclusive right to distribute the protected articles*".
[48] *See* ECJ, Cases 56 & 58/64 *Consten and Grundig* [1966] ECR 299; ECJ, Case 24/67, *Parke Davis* [1968] ECR 55; ECJ, 238/87, *AB Volvo v Erik Veng Ltd* [1988] ECR 6211 at §§8-9.
[49] *See* ECJ, Case 15/74 *Centrafarm BV and Adriaan de Peijper v Sterling Drug Inc* [1974] ECR-1147 at §9.

Thirdly, antitrust enforcement is only warranted in "*exceptional circumstances*".[50] And such exceptions are to be interpreted strictly, to accord with the old maxim that "*exceptions need to be interpreted restrictively, not expansively*", and with other general principles of EU law such as that rules on property fall within the regulatory jurisdiction of the Member States, not of the EU.[51]

In line with this, the case-law pins down the conditions under which exceptional circumstances are present. For instance, in relation to dominant firms' refusals to license IPRs, four demanding requirements must be met to find exceptional circumstances (*i.e.* that the refusal: (i) concerns a product or service "*indispensable*" for carrying on a particular business; (ii) prevents the emergence of a "*new product*" for which there is potential consumer demand; (iii) is unjustified; and (iv) is such as to exclude any competition on a secondary market)..[52] Similarly, in relation to IPR enforcement strategies (*e.g.* filing for injunctions or for damages), two demanding cumulative criteria must be fulfilled to find abuse (*i.e.* that the enforcement action (i) serves to harass the opposite party; and (ii) that it is conceived in the framework of a plan whose goal is to eliminate competition).[53]

In practice, those legal safeguards have served their purpose, *i.e.* insulating patent holders from antitrust exposure. To date, anti-patent antitrust enforcement has remained epiphenomenal. Even in the area of refusals to license – where the Article 102 TFEU case-law on IPRs is the most developed – there is not one case of compulsory licensing involving patents. All the cases concern other types of IPRs – *i.e.* copyrights, designs, database protection, etc.[54] This again, brings empirical confirmation that antitrust law follows a doctrine of restraint towards patents.

2.3. <u>*Conclusion*</u>. In reality, the main concerns of "*anti-patent*" competition policy arise outside of the enforcement arena, in the context of "*policy*" statements. Risks of an "*anti-patent*" competition policy should thus not be overrated. Antitrust enforcement remains a rare

[50] *See* GC, Case T-198/98, *Micro Leader Business v Commission*, ECR [1999] II-3989, §56.
[51] *See* Article 345 TFEU which declares that "*The Treaties shall in no way prejudice the rules in Member States governing the system of property ownership*"; *See* also Article 17 of the European Charter of Fundamental Rights.
[52] *See* ECJ, Case C-241/91 P and C-242/91, *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v Commission* (Magill), ECR [1995] 743; CJEU, Case C-418/01, *IMS Health, GmbH & Co. OHG v NDC Health GmbH & Co. KG*, ECR [2004] I-5039; GC, Case T-167/08, *Microsoft v Commission*, not yet published.
[53] *See* GC, Case T-111/96, *ITT Promedia NV v Commission*, ECR [1998] II-2937, §55 and following; GC, Case T-119/09, *Protégé International Ltd v European Commission*, not yet published.
[54] *See* e.g. Ariel Ezrachi and Mariateresa Maggiolino, "European Competition Law, Compulsory Licensing, and Innovation", *Journal of Competition Law & Economics*, Vol. 8, No. 3, September 2012, pp. 595-614 at p.605.

occurrence, which only happens at a particular point in the life of a market: where the conduct of a successful firm raises concerns of abuse of dominance. In practice, the overwhelming majority of abuse of dominance investigations does not involve any IPRs at all.[55] Even then, if a dominant firm leverages its patent power to exploit or exclude rivals, the rewards enjoyed from its IPRs are so central to the incentivisation function of the patent system that antitrust liability is only exceptionally in theory – and almost never in practice – triggered.

This notwithstanding, antitrust agencies may express suspicion at IP in the context of general declarations, non-binding legal instruments (such as guidelines, communications and notices) or through other channels (public speeches, policy reports, etc.). The impact of this "*soft law*" anti-patent approach is not to be understated, for it may have a practical effect on industries, standards organisations, courts and non-EU agencies.

Conclusion

The term "*monopoly*" used in competition law stands miles away from the meaning of the word used in the context of IPRs. The assertions made by those who claim that patents equal monopolies are misguided. They are the joint result of historical ignorance and terminological confusion. Moreover, the patent=monopoly theorem also possibly serves a hidden bureaucratic agenda, that of limiting patent protection through the backdoor, by using *ex post* antitrust remedies to alter the protective – and innovation-incentivising – patent statutes adopted *ex ante* by elected democratic organs.

Of course, this does not mean that there is no space for antitrust enforcement in markets exhibiting patented goods/technologies. For instance, some "*strategic*" patenting practices are increasingly scrutinized, possibly for good reason. Those strategies come under exotic labels, such as "*ever-greening*", "*patent privateering actions*", "*trolls*", "*thickets*".[56] As the Vice-President of the European Commission recently said:

> "*a healthy system for the protection of intellectual property creates incentives for researchers and inventors granting them exclusive rights – within certain limits – for the commercial exploitation of their findings. But the system can be abused, which can be particularly harmful for the economy. This is why we want to prevent the trend we can observe in certain industries toward the strategic use of patents as a means to block competition*".[57]

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[55] *See* M. Lemley, "A new balance between IP and antitrust", *13 Southwestern Journal of Law & Trade in the Americas*, 2007, (237)at 249.

[56] *See* EC Pharmaceutical Inquiry, Final report 8 July 2009, can be found at http://ec.europa.eu/competition/sectors/pharmaceuticals/inquiry/.

[57] Antitrust enforcement: Challenges old and new 19th International Competition Law Forum, St. Gallen 8 June 2012.

The fact that strategic patent practices exist however does not imply that the entire patent system is bad, and that its core incentivisation mechanism is broken. Competition is very valuable, but innovation is probably equally, if not more, valuable. There is abundant evidence that in certain sectors, absence of IP protection will hamper innovation, whilst the presence of IP protection will not generally lead to a monopoly. That should normally be sufficiently attractive a deal to defend IP protection. No one will deny that IP rights bring costs with them. But it is not a sound policy to do away with IP rights or at least regulate even more their use because of these potential negative effects. Courts and regulators must avoid throwing out the baby with the bathwater.

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