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A Regulatory Theory of IP: Implications for Competition Law

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Introduction

1. Introduction: The conceptualization of IP as a "property right"

The analysis of intellectual property as a "property right" has been an important feature of the modern debate over the establishment of legal protection of information[1]. The need to institute a property rights system in order to enhance inventiveness has always been a contentious issue in the organization of economic activity. For some, the patent system is a "huge mistake" as invention arises mainly "from a philosophical instinct of contrivance" and creativity.[2] Others argued that "by offering the prospect of reward for certain types of invention (intellectual property rights) do not, indeed, appreciably stimulate inventive activity, which is, for the most part, spontaneous, but they do direct it into channels of general usefulness".[3] For others, finally, intellectual property rights is a "trivial cost" to society as "an exclusive privilege is absolutely necessary in order that what is sown may be reaped", because an inventor "who has no hope that he shall reap will not take the trouble to sow".[4]

The debate over the establishment of intellectual property rights and the quest of a necessary justification for their institution prefigures the paradox inherent in a system where social benefits via technological progress are achieved by means of private rewards[5]. The essence and main objective of intellectual property rights is to direct private interest towards the achievement of the community goal of greater innovation and increasing economic welfare. This utilitarian explanation of intellectual property is usually opposed to the "natural law" approach, which emphasizes the existence of moral rights, intrinsically attached to the personality of the inventor[6]. Each person should have a property right in his own ideas, independently of any thought about the incentive effects or the consideration of its economic costs and benefits.

Utilitarianism remains, however, the dominant explanation for intellectual property (IP) rights. Three theories embrace the utilitarian approach.

The "reward" theory is the most traditional justification for establishing a property rights protection for ideas and is relevant to any type of IP. According to this theory, the inventors should be rewarded for the risks and the investment of time and effort they have made in order to develop a useful to society invention. The reward takes the form of a property right protecting the inventors from free riders. In the absence of this exclusive right, free riders would be able to use the invention without making the investment of time, effort, skill or money required to actually invent it.[7] Indeed, if a firm could not recover the costs of invention because of free riding, then we could expect a suboptimal level of innovation.[8] The assumption is that during the

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[1] For a survey see, S. N.S. Cheung, Property Rights and Invention, 8 *Res. L. & Econ*. 5, 6 (1986).
[2] F.W. Taussig, *Inventors and Money-Makers* (1930), quoted in N.S. Cheung, Property Rights and Invention, above n 1, 7.
[3] A.C. Pigou *The Economics of Welfare* (1960) at 183-185 quoted in N.S. Cheung, Property Rights and Invention, above n 1, 7
[4] J. Bentham, The Works of Jeremy Bentham, ed. J. Bowring 71 (1843) quoted in N.S. Cheung, Property Rights and Invention, above n 1, 6.
[5] R P Merges & J F Duffy *Patent Law and Policy: Cases and Materials* (Lexis Nexis, 2002), 2.
[6] M. Fisher, Classical Economics and Philosophy of the Patent System (2005) *I.P.Q.* 1, 6.
[7] B. Sherman & L. Bently *The Making of Modern Intellectual Property Law* (Cambridge Univ. Press, 1999), 15-24 consider that the shift from occupancy to mental labor as the source of property right provided the first form of justification for instituting property rights on ideas.
[8] K. W. Dam, The Economic Underpinnings of Patent Law, (1994) 23 *J. Legal Stud*. 247.

existence of the exclusive right the inventors should be in a position to recover their investments on research and development.

The incentive theory goes further. The objective of granting IP rights is not only to compensate the inventor but also, by providing a "spectacular prize", to give incentives to other potential inventors to make the necessary efforts to innovate.[9] The process of innovation can be compared to a lottery in which the extent of the investments in a new technology "is motivated by the longshot hope of a very large reward".[10] The objective of the exclusive right will be to provide a prospect of a large reward, not a mere recoupment of fixed costs.

Most recently, granting IP rights, in particular patents, has been justified by their conceptualization as market instruments: patents are used as "an exchange currency to access a specific third-party technology, which can only be traded against other IP rights"[11], or as a means to attract private investment. This is particularly significant in new technologies such as biotechnology, where firm's average size is relatively small and broad IP rights may help these firms to attract venture capital.[12] If one follows this theory, intellectual property rights, in particular patents are an instrument to attract private investment and therefore they should be granted, irrespective of the value of the invention itself, which is an issue that will be decided by the capital markets. This broad foundation of IP rights will, however, increase the risk of anticommons, which may ultimately affect innovation.[13]

Most legal systems adopt the utilitarian view of IP rights and base their assessment both on the reward and the incentives thesis. However, this is just one aspect of regulating innovation. Public authorities should also strike a balance between the need for invention and creation, on the one hand, and the need for diffusion and access, on the other. Keith Maskus explains that

> "in setting rules governing IPRs, societies must strike a balance between the needs of inventors to control exploitation of their new information and the needs of users, including consumers and potential competitors working on follow on inventions and innovations. Stated another way, the system should find an appropriate balance between **creating** and **disseminating** intellectual property […] In this context, the system should (1) allow market based incentives for creation, (2) try to minimize the costs of innovative activity, and (3) provide for timely disclosure of innovation or creation and reasonable fair use with economic and social goals in mind.[14]"

The issue is to create an optimal for society balance between the necessary reward or incentives of the inventor and the need to disseminate innovation. This is the dilemma that mainly explains tensions between antitrust and intellectual property. Innovation serves as the common objective of competition law and intellectual property, but both of them accord different importance to the aims of reward and

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[9] J. A. Schumpeter *Capitalism, Socialism and Democracy* (1974), 73 quoted by F.M. Scherer, The Innovation Lottery, in R. Dreyfuss, H First & D. Zimmerman (ed.) *Expanding the Boundaries of Intellectual Property* (OUP, 2001), 3.

[10] *Ibid.*, 20.

[11] D. Guellec & B. van Pottelsberghe de la Potterie, *The Economics of the European Patent System* (OUP, 2007), 87.

[12] J. Lerner, The Importance of Patent Scope: An Empirical Analysis, (1994) 25 *Rand. J. Econ.* 319, 325-326 ; Y. Ko, An Economic Analysis of Biotechnology Patent Protection, (1992) 102 *Yale L. J.* 777, 800.

[13] M. A. Heller. The Tragedy of the Anticommons: Property in the Transition from Marx to Markets, (1998) 111 *Harvard L. Rev.* 621.

[14] K. E. Maskus *Intellectual Property Rights in the Global Economy* (2000), 32-33. Emphasis added.

dissemination. If antitrust emphasizes dissemination, intellectual property aims to ensure that creators have appropriate incentives to engage in creative activities, which may imply, but not necessarily, the existence of a reward scheme for the investment made[15].

The tension between the objectives of intellectual property and competition law makes necessary the elaboration of a justification for granting IP rights. It is not the first time that intellectual property found itself in a defensive position. The "literary property" debate of the 18th century and the "patent controversy" of the 19th century were the result of the collision of copyright and patents with respectively the principles of common law and free trade and engendered an important debate on the theoretical underpinnings of intellectual property[16]. The narrative of property appeared in both periods as playing an "*ex post facto* role in legitimating" the granting of property rights in ideas.[17] It also served as a useful organising concept for all the different forms of IP rights that have emerged.[18] The adoption of international Treaties on intellectual property, within the WTO or the WIPO strengthened the importance of IP rights while at the same time restricted governments' discretion in applying their competition law statutes.[19]

Considered as a form of property, IP rights benefit from a high level of esteem and legal protection that could lead to a weak application or even non-application of competition law. Indeed, property rights are of constitutional value. In the United States, the Fourteenth and Fifth Amendment to the Constitution explicitly provide that property constitutes a fundamental right that shall not be taken for public use (by the federal government) without just compensation. In Europe, they are generally protected by the Constitutions of the European Union member States[20], the Charter of Fundamental Rights and by the first additional Protocol of the European Convention of Human rights (ECHR), also integrated in European Union law.[21] The rhetoric of

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[15] I. Rahnasto *Intellectual Property Rights, External Effects and Anti-trust Law* (OUP, 2003), 64 ('the dissemination of innovations and creative works is not necessarily seen as the primary goal of intellectual property systems. Rather, the encouragement of innovations and creative works is the goal of the system'); Mark Lemley, A New Balance Between IP and Antitrust, 13 *Sw. J. L. & Trade Am.* 237 (2007).

[16] On the "literary controversy" see, C. May & S.K. Sell *Intellectual Property Rights – A Critical History* (Lynne Rienner, London, 2005), 87-97; B. Sherman & L. Bently, above n 7, 11. On the "patent controversy" see F. Machlup & E. Penrose, The Patent Controversy in the Nineteenth Century (1950) 10 *Journal of Economic History* 1-29.

[17] B. Sherman & L. Bently above n 7, 206.

[18] *Ibid* . 194.

[19] H. Ullrich, Expansionist intellectual property protection and reductionist competition rules: a TRIPS perspective, in K. Maskus (ed), *International Public Goods and Transfer of Technology* (Cambridge, Cambridge University Press, 2005) 726–57.

[20] European Union law does not impose member States a specific conception of property and is neutral to its private or public character (article 295 of the EC Treaty). See also, Opinion of Advocate General Capotorti delivered on 8 November 1979, Case 44/79, *Liselote Hauer v. Land Rheinland-Pfalz* [1979] ECR 3727, 3747.

[21] According to article 6, subsection 2 of the Treaty of the European Union, "the Union shall respect fundamental rights, as guaranteed by the European Convention for the Protection of Human Rights and Fundamental Freedoms signed in Rome on 4 November 1950 and as a result from the constitutional traditions common to the Member States as general principles of Community law". See also, Article 17 of the Charter of Fundamental Rights:

> "1. Everyone has the right to own, use, dispose of and bequeath his or her lawfully acquired possessions. No one may be deprived of his or her possessions, except in the public interest and in the cases and under the conditions provided for by law, subject to fair compensation being paid in good time for their loss. The use of property may be regulated by law insofar as is necessary for the general interest.

"property rights" therefore plays an important role in defining a framework for the interface between intellectual property and competition law, which would be largely positive to IP rights[22].

Nonetheless, property rights are not absolute. European Union law emphasizes the "social function" of property, according to which property rights can be restricted for reasons of public interest, provided that those restrictions in fact "do not constitute, as regards the aim pursued, a disproportionate and intolerable interference which infringes upon the very substance of the rights thus guaranteed."[23] Competition law constitutes a "general interest" objective that can justify a restriction on the scope of property rights. In *Frankfurt Airport* the European Commission acknowledged that competition rules of the EC Treaty may be considered as restrictions on the right of property which correspond to the objectives of general interest pursued by the Community.[24] The terminology of "property rights" does not therefore create an antitrust immunity for IP rights, as their use can be restricted any time they contribute to a competition law infringement.

The European courts interestingly drew a distinction between the existence and the exercise of an intellectual property right[25]. In principle, the existence of the IP right, in other words its "specific subject matter" or essential function cannot be affected by competition law. However, the distinction does not provide a safe harbour for IP rights as the ECJ has considered as abusive practices that fall within the scope of the "specific subject matter" of the IP right[26]. The Court also gives a broad definition to the term "exercise", thus keeping an important discretion as to the scope of the application of competition law[27].

While not being able to provide an immunity status to IP rights, the "property rights" approach does not also contribute to the understanding of the necessity of balancing the objectives of reward and dissemination in order to attain an optimal equilibrium between the two. Indeed, the criterion of "property" is formalistic and does not take into account the evolution of economic structures. It does not provide any useful information as to the level of reward or incentives that should be guaranteed for the inventor, nor any standard for the adequate level of dissemination in order for the IP right's scope to be optimal. The concept of "property right" is not used with the aim to emphasize the instrumental character of intellectual property in

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2. Intellectual property shall be protected."

[22] I. Rahnasto above n 15, 57 ('(p)art of the property theory is that the rights, duties and privileges accompanying the property are absolute and universal').

[23] Case 265/87, *Herman Schräder HS Kraftfutter GmbH v. Hauptzollamt Gronau*, [1989] ECR 2237, para. 15.

[24] Commission Decision 98/190, *FAG-Flughafen Frankfurt/Main AG*, OJ [1998] L 72/30, para. 90. This is also a conclusion reached by Advocate General George Cosmas in *Masterfoods Ltd v. HB Ice Cream Ltd*, Opinion delivered on May 16 2000, Case C-344/98, *Masterfoods Ltd. v. HB Ice Cream Ltd*., ECR I-11369 [2000]

[25] Cases 56 & 58/64, *Consten and Grundig v. Commission*, [1966] ECR 299 at 345; Case 24/67 *Parke Davis & Co. v. Probel, Reese, Beintema-Interpharm and Centrafarm* [1968] ECR 55 at 62.

[26] Joined Cases C-241/91P & C-242/91P *Radio Telefis Eirann (RTE) and Independent Television Publications Ltd (ITP)* [1995] ECR I-743, paras 48-50; I. Govaere *The Use and Abuse of Intellectual Property Rights in EC Law* (Sweet & Maxwell, 1996), page 149.

[27] V. Korah *Intellectual Property Rights and the EC Competition Rules* (Oxford, Hart Pub. 2006), 3-4, ('(i)n ruling that an important difference rests on a distinction, which cannot be drawn by logical analysis, the ECJ created a very flexible instrument for it to develop the law and reduce the possibilities of dividing the Common Market through the use of national or regional intellectual property rights'). On the demise of the distinction between existence and exercise, see Commission Decision *AstraZeneca* (June 15, 2005), para 741, nyr.

order to achieve greater innovation and economic welfare. On the contrary, economists adopt an instrumental approach and consider that granting property rights is as a form of collective action in the marketplace along with other tools such as direct regulation, liabilities, rewards and taxes.

The parallel drawn with physical property is therefore not helpful in determining the adequate balance between reward and dissemination. It is remarkable that both those favouring a less activist antitrust policy against IP rights and those advocating a more careful consideration of the effects of intellectual property protection to competition adhere to the "property rights" logic of intellectual property, while supporting opposite conclusions[28]. The concept of "property rights" does not however provide a clear-cut and operational criterion for the interface between competition law and intellectual property.

This study will argue that Intellectual property rights present distinct characteristics than physical property rights (Section 2). It will then focus on the possible areas of conflict between competition law and intellectual property. These should not be considered as fixed and should follow the evolution of recent antitrust law and economics learning (Section 3). The inadequacy of the "property rights" terminology for intellectual property becomes obvious if one examines the antitrust law standards that apply to unilateral refusals to license intellectual property, which are different from those that apply to tangible property rights. Competition law takes into account the specificities of intellectual property by requiring additional conditions for finding that a refusal to license an IP right constitutes a competition law infringement. However, the emergence of multiple standards concerning the analysis of refusals to license illustrates the difficulties of finding the right balance between IP and competition law. The concept of "property" is not helpful in reaching a point of equilibrium between the different objectives pursued and other concepts have been used instead (Section 4). Another possibility would be to "internalize" competition law concerns within the boundaries of IP[29] (Section 5).

These solutions are nonetheless imperfect as they perceive intellectual property and competition law as autonomous disciplines, normatively closed to each other. Indeed, once competition law concerns have been integrated into intellectual property or the opposite, the link between the two weakens and each of the "transplants" evolves according to its new environment, without taking necessarily into consideration the transformations incurred in its original setting. This disconnection is one of the setbacks of the "property rights" rhetoric in the competition law-intellectual property interface. Considered as "property" or something more than normal property, IP rights may be subjected to a specific, more or less deferential, antitrust standard, whose application and effects will not consider the aims pursued by the establishment of these specific IP rights at the first place. This absence of a continuous cognitive relationship between the two disciplines highlights the closure of the systems, which is a consequence of the "property rights" logic[30]. It is submitted that the constitution of a dialectical relation between the two disciplines

[28] Compare C Ritter, Refusal to Deal and Essential Faciltiies: Does Intellectual Property Require Special Deference Compared to Tangible Property?, (2005) 28 *World Competition* 281; S. Gevenaz, Against Immunity for Unilateral Refusals to Deal in Intellectual Property: Why Antitrust Law Should Not Distinguish Between IP and Other Property Rights, (2004) 19 *Berkeley Tech. L. J.* 741 who take a more activist antitrust standpoint with C. Ahlborn, D. Evans & J. Padilla, The Logic & Limits of the Exceptional Circumstances Test in Magill and IMS Health, (2004) 28 *Fordham Int'l L. J.* 1109.

[29] I. Rahnasto above n 15, 36.

[30] On the closure of the of intellectual property system see, B. Sherman & L. Bently above n 7, 194.

will be facilitated if intellectual property is perceived as a form of industry specific regulation. The last part of this study will examine the regulatory theory of intellectual property as well as the implications of this theory for the antitrust/IP interface, in particular in the biotechnology sector (Section 6). Section 7 will conclude.

2. Intellectual property should not be conceptualized as a property right

The "property right" nature of IP seems to play an important role in building an argument for a strong protection of IP rights. The concept of property rights is very board. It is often linked to the freedom of action of a property owner[31]. The paper will adopt a narrow definition, building on the economic theory of property rights (A). It will then turn to the issue of the application of the economic theory of property rights to IP (B).

1.1 Economic theory of property rights

Economic theory views property rights are a way to deal with externalities. Harold Demsetz was one of the first to argue that "property rights convey the right to benefit or harm oneself or others", suggesting a close relationship between rights and externalities.[32] Externalities (or external effects) exist any time one party's action "influences, or may influence with a probability, the well-being of another person, in comparison to some standard of reference"[33]. Externalities are negative when they have a detrimental effect to others (than the right holder) and positive, when they have a beneficial effect on others. The kind of external effects that arise in the absence of private property rights can be illustrated by comparing different types of ownership with open access.

According to Demsetz, there are three types of ownership: (a) "communal ownership", which he defined as the "right which can be exercised by all members of the community" (but this falls short of open access, as members of other communities are excluded from the exercise of the right); (b) "private ownership", which "implies that the community recognizes the right of the owner to exclude others from exercising the owner's private rights" and (c) "state ownership", which 'implies that the state may exclude anyone from the use of a right as long as the state follows accepted political procedures for determining who may not use state-owned property.[34]" Property regime is generally opposed to open access.[35]

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[31] C. A. Reich, The New Property, (1964) 73 *Yale L.J.* 733, 771 ('[property] performs many different functions. One of these functions is to draw a boundary between public and private power. Property draws a circle around the activities of each private individual or organization. Within that circle, the owner has a greater degree of freedom than without. Outside, he must justify or explain his actions, and show his authority. Within he is master, and the state must explain and justify any interference. It is as if property shifted the burden of proof; outside the individual has the burden; inside, the burden is on government to demonstrate that something the owner wishes to do should not be done').

[32] H. Demsetz, Toward a Theory of Property Rights, 57 (1967) *The American Econ. Rev.* 347, 348, "[…] a primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities".

[33] S. Shavell, *Foundations of Economic Analysis of Law* (Harvard Univ. Press 2004), 76.

[34] *Ibidem*, at 350.

[35] T. Eggerstsson, Open access versus Common property, T. L. Anderson & F. S. McChesney (ed.) *Property Rights - Cooperation, Conflict, and Law* (Princeton, 2003) 73.

Open access is not a problem as long as the supply of a resource is so great relative to the demand that there is no (net) gain from conserving or improving it.[36] Nevertheless, when an open access resource becomes scarce, individuals lack the incentive to conserve it "because they cannot capture the full gains from doing so.[37]" This situation is often described as "the tragedy of the commons".[38] Open access may create adverse effects on the supply and demand side of the market for the particular resource. Eggerstsson explains that

> "joint wealth is not maximized on the supply side because of insufficient supply of resource units caused by inadequate provision, maintenance, and investment in improvement. Wealth is not maximized on the demand side because of excessive (inefficient) withdrawal of resource units.[39]"

The use of a resource by one person will have external effects on the welfare of others, as it will immediately reduce the amount of the resources available for consumption. The establishment of property rights may avoid these externalities by internalizing the benefits and the costs of the exploitation of the scarce resource, thus enhancing their more efficient use. Exclusive property rights enable individuals to use scarce resources and exclude others from using them.[40] The cost for society to create property rights is explained by the great value of the resource, which is linked to its scarcity. The value of the scarce resource is a parameter to consider in granting property rights. If the scarce resource is of limited value, the potential benefits resulting from the property right may not cover the costs of its creation[41]. Open access will in this case be the most effective regime.[42] The main function of property rights is therefore to internalize externalities when the gains of internalization become larger than the cost of internalization.

It is also important to make a distinction between private and common property. Common property regimes create transaction costs. They increase negotiating costs because the communal property owners would have to reach agreement in order to allocate efficiently the communal use of the property.[43] In addition, communal property will create externalities because "the full costs of the activities of an owner of a communal property right are not borne directly by him, nor can they be called to his attention easily by the willingness of others to pay him an appropriate sum.[44]" In comparison, private property solves the problem of

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[36] L. De Alessi, Gains from Private Property: the Empirical Evidence, in *Property Rights-Cooperation, Conflict, and Law* above n 35, 90, at 91.
[37] *Ibid*.
[38] G. Hardin, The Tragedy of the Commons, *Science* 162 (December), 1243-1248. The idea is not absent from Aristotle's writings. See, Politics, Book II (sec. 1261b of Jowett translation), "that which is common to the greatest number has the least care bestowed upon it, […]Everyone thinks chiefly of his own, hardly at all of the common interest, and only when he is himself concerned as an individual. For besides other considerations, everybody is more inclined to neglect the duty which he expects another to fulfill […]" quoted in H. Demsetz, Property Rights, *The New Palgrave Dictionary of Law and Economics* (Palgrave, 1998), 144, 144.
[39] T. Eggerstsson, Open Access versus Common Property, above n 35, 77.
[40] *Ibid*, at 81.
[41] A. A. Alchian & H. Demsetz, The Property Rights Paradigm, (1973) 33 *Journal of Economic History* 16, 24, "if private right can be policed easily, it is practicable to resolve the problem by converting communal rights inot private rights".
[42] *Ibid*, at 83.
[43] H. Demsetz, Towards a Theory of Property Rights, above n 32, 356, "(u)nder the communal property system the maximization of the value of communal property rights will take place without regard to many costs, because the owner of a communal right cannot exclude others from enjoying the fruits of his efforts and because negotiation costs are too high for all to agree jointly on optimal behavior".
[44] *Ibid*.

externalities (because of the scarcity of the resource) and the problem of transaction costs by concentrating costs and benefits on owners, creating therefore incentives to use resources more efficiently.[45] One should nevertheless be cautious in transposing the economic theory of property rights to IP rights, because of the specific characteristics of property rights on information.

1.2. Differences between the economic theory of property rights and the economic theory of intellectual property

Intellectual property law creates property rights on information if the social value of this information exceeds the cost of its development[46]. The premises do not seem to be different than in physical property rights[47]. Nonetheless, there are important differences between the two, requiring a more cautious approach for intellectual property.[48] My objective is not to argue that intellectual property is not "property", for the simple reason that there are differences between property rights on ideas and on tangible resources, but to stress the inadequacy of the extension by analogy to intellectual property of the legal regime of property rights on tangible goods.[49]

1.2.1. Intellectual property and the free rider argument

The need to allow the property owner to capture in full the returns of her investment and to avoid free riding is generally emphasized as one of the main justifications for instituting property rights. This justification is not self-evident for intellectual property rights. Indeed, it is difficult to accept on its face the idea that overuse of the intellectual property rights by free riders will create a tragedy of the commons. Information may be considered as a pure public good. The "consumption" of information by one person does not diminish the possibility of its consumption by another. Simultaneous (or joint) consumption is possible. The necessity to confer property rights in order to avoid congestion externalities, which is the usual rationale for physical property rights, is not so compelling. The consumption of the good is non rivalrous and it is also difficult to exclude others from its use.

It is not therefore surprising that many authors have criticized the use of the scarcity rationale (tragedy of the commons) for intellectual property rights as being tautological. According to Arnold Plant,

> "it is a peculiarity of property rights in patents (and copyrights) that they do not arise out of the scarcity of the objects which become appropriated. They are not a *consequence* of scarcity. They are the deliberate creation of statute law; and, whereas in general the institution of private property makes for the preservation of scarce goods, tending […] to lead us to 'make the most of them', property rights in patents and copyright make possible the *creation* of a

[45] *Ibid.*, "the externalities that accompany private ownership of property do not affect all owners, and generally speaking, it will be necessary for only a few to reach an agreement that takes these effects into account. The cost of negotiating an internalization of these effects is thereby reduced considerably."
[46] S Shavell *Foundations of Economic Analysis of Law* (Harvard Univ. Press, 2004), 138.
[47] H. Demsetz, Towards a Theory of Property Rights, above n 32, 359.
[48] M. Lemley, Property, Intellectual Property, and Free Riding, (2005) 83 *Tex. L. Rev*. 1031, 1059.
[49] *Contra* on the need to develop a unifying theory of property, J. F. Duffy, Intellectual Property, Isolationism and the Average Cost Thesis, (2005) 83 *Texas L. Rev*. 1077.

> scarcity of the products appropriated which could not otherwise be maintained.[50]"

Plant's argument is that a patent system, by granting exclusive rights, creates itself the scarcity it is using afterwards as a rationale for the creation of intellectual property rights.

Two arguments have been opposed to this theory. Steven Cheung argued that one should distinguish between inventions that would have been produced in the absence of any property rights protection and those that would not have been produced without protection because "for any invention which would not have been produced at all in the absence of property rights, the scarcity is not in 'ideas' as such" but rather lies "in the resources required to produce the ideas themselves."[51] The overuse of the information by free riders decreases the value of the resource for the inventors who will find it more difficult to recoup their fixed costs. As a result, their incentives to innovate will diminish and the level of provision of this good would be below the socially optimal level.

One could also distinguish between the scarcity that existed before and that which came after the property rights were created.[52] According to Harold Demsetz, "for the discovery to yield value, even to a monopoly owner of the rights to the discovery, it must alleviate the scarcity that existed *before* its discovery"[53]. However, "viewed *ex ante*, the possibility that ownership may be associated with monopoly does not necessarily exacerbate, and may reduce, the severity of scarcity-caused problems.[54]"

If we start from the assumption that without any prospect of a future reward, nobody will invest in developing new ideas, it is desirable to ration the use of information. It is a conscious decision of the public authority to create scarcity by conferring property rights on information. The artificial scarcity will create additional value and will avoid a market failure, in the sense that without property rights the price mechanism would not be able to take into account the full social costs and benefits of the production and consumption of information, because of the free rider problem.

The additional value created by innovation will be appropriated by the property right owner. Property rights are therefore absolute in the sense that there is no limit settled on the value that the property owner can get. Indeed, it would be possible to appropriate more value than what was initially necessary for the generation of the invention. This optimal value would include the total costs and may also go far beyond. The optimal level of remuneration will vary as incentives can be different from industry to industry. The situation will conclusively be economically efficient, as the property owner will be able to internalize the full amount of external effects (negative and positive).

It is irrelevant that the property right may lead to the exclusion of other individuals from the use of this particular resource (here information)[55]. These effects constitute pecuniary externalities and as such they should not be considered. This

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[50] A. Plant, The Economic Theory Concerning Patents for Inventions, (1934) 1 *Economica* 34.
[51] S. Cheung, Property Rights and Invention, above n 1, 10.
[52] H. Demsetz, Property Rights, The New Palgrave Dictionary of Law and Economics, above n 38, 151.
[53] *Ibid*, at 152
[54] *Ibid*.
[55] I assume for the moment that this is a situation of a stand-alone innovation and not that of a cumulative innovation. Regarding the later, the initial innovator would be able to appropriate more of the rewards from the invention, which may have the result to hinder independent follow-on innovators from having the incentive to invest on research and development and produce valuable information.

conclusion stems from Ronald Coase's theorem that absent transaction costs, a mutual beneficial outcome will anyway be achieved between the owner of the resource and the individuals that would like to have access to it[56]. However, pecuniary externalities may be relevant if we decide to take into account distributional justice concerns.

Moreover, even if one focuses only on efficiency considerations and takes for granted the assumption that this is a stand-alone innovation, it is important to recognize that property rights on information can be efficiently created only if, in their absence, the inventive effort would not have been made at the first place[57]. The benefice of a first mover advantage may be an adequate reward that may induce the firm to innovate, without enjoying the additional benefit of an intellectual property right. In addition, granting a property right on information requires a trade-off between the need to encourage innovation and the protection of the interest of the consumers[58]. This is an important difference with physical property rights and highlights the inherent instrumentalism of intellectual property.

1.2.2. Intellectual property as business assets: an information cost approach

Intellectual property rights on information may also make it easier for innovators to commercialize their inventions and conclude transactions with other economic units[59]. This creates a market for the transformation of the inventions into commercially viable products. Indeed, an inventor will not always be able to develop commercially her invention and will need to bargain with other firms that will provide her the necessary capital and commercial expertise. This could also be used as an argument for the institution of tangible property rights. However, in reality, transaction costs are higher concerning intellectual property, because of "the frequent difficulty of identifying such property", which by definition has no unique physical sight.[60] This risk is particularly important in the case of cumulative innovation, as the fragmentation of intellectual property rights may lead to extensively complex transactions involving an important number of parties, thus increasing the costs of bargaining.[61] According to Landes and Posner, "this difference argues for less extensive propertization of intellectual than of physical property[62]" as the costs of internalization may be more important than the external costs that are internalized. Indeed the public good character of information makes it difficult to identify the free riders and therefore to assure an effective protection, thus increasing the costs of internalization. In conclusion, the high transaction costs of intellectual property can be considered as an important reason for adopting a more cautious approach in creating property rights on information than tangible property rights.

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[56] R. Coase, The Problem of Social Cost, (1960) 3 *Journal of L. & Econ*. 1.
[57] M. Lemley, Ex Ante versus ex Post Justifications for Intellectual Property, (2004) 71 *U. Chi. L. Rev*. 129.
[58] W. Nordhaus *Invention, Growth and Welfare: A Theoretical Treatment of Technological Change* (Cambridge, MIT 1969).
[59] Federal Trade Commission (FTC), *To Promote Innovation – The Proper Balance of Competition and Patent Law and Policy*, (hereinafter *FTC Report*), October 2003, chap. 2, at 5. See also, S. Ghosh, Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred, (2004) 19 *Berkeley Tech. L.J.* 1315 (arguing that patents should be considered as "business assets").
[60] W. Landes & R. Posner *The Economic Structure of Intellectual Property Law* (Harvard Univ. Press, 2003), 16.
[61] M. Heller, The Boundaries of Private Property, (1999) 108 *Yale L.J.* 1163, 1174.
[62] W. Landes & R. Posner, above n 60, 8.

1.2.3. Prospect patents and the innovation incentives theory

Another important difference between intellectual property and tangible property is that according to the "innovation incentives" theory, the objective is not only to reward the inventor for the investments made, which could also be considered as a rationale for physical property rights, but, in addition, to provide an economic stimulus for innovation.

The acquisition of an intellectual property right is often the outcome of a race to innovation. This is particularly important concerning patents ("patent races"). Firms are investing in order to be the first to file an application to the Patent Office or to have invented the particular product or process[63]. This race may lead to rent seeking behavior, excessive investments and duplication of efforts that will be finally wasted as it would have been more efficient to use these resources for other productive activities. The risk of rent-seeking behavior is more pronounced for intellectual property rights than physical property rights.

Some authors go even further and argue that the risk of rent-seeking behavior does not question the existence of intellectual property rights but, on the contrary, could be used as an argument for granting property rights on information at an earlier stage of the inventive process[64]. The objective is to allow patent holders to coordinate innovative efforts within the area covered by the patent and thus develop the "prospect" of future research. These "prospect patents" have a scope "that reaches well beyond what the reward function would require".[65] Contrary to the reward theory the prospect development theory is forward looking and constitutes an "ex-post justification" of intellectual property.[66]

A prospect patent places its owner in a position "to coordinate the search for technological and market enhancement of the patent's value so that duplicative investments are not made and so that information is exchanged among the searchers", thus avoiding inefficient races to invent.[67] The initial innovator can also make the necessary investments without incurring the risk that the fruits of the investment will be appropriated by competitors.[68] The prospect theory of patents assumes that the initial inventor is the best suited for accelerating second-generation innovations. The validity of this assumption has nevertheless been questioned[69] and ultimately rests on the belief that innovation is best achieved in a situation of monopoly.[70] This hypothesis has not yet been empirically verified and many economic studies insist on

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[63] There is a difference between the patent regimes in the United States and in Europe concerning patent priority. The United States follow a "first to invent" rule, while in Europe priority is awarded to the first inventor to file a patent application.

[64] E. W. Kitch, The Nature and Function of the Patent System, (1977) 20 *J.L. & Econ*. 265.

[65] *Ibidem*, at 267.

[66] M. Lemley, Ex ante versus ex post justifications for intellectual property, (2004) 71 *Chi. L. Rev.* 129.

[67] E. W. Kitch, above n 64, 267.

[68] *Ibid.*

[69] See, M. Lemley, Ex ante versus ex post justifications for intellectual property, above n 66, 141 (2004), "[…] prospect theory is needed when control over subsequent development is a necessary part of the incentive to produce the pioneering invention in the first place, as is arguably true with pharmaceuticals. Prospect theory as a justification for displacing the market for invention, by contrast, is not a helpful justification for intellectual property"; See also the references quoted in the *FTC Report*, above n 59, chap. 2, at 19-20. For a restatement of this theory but without this time taking a propert rights approach, see J. Duffy, Rethinking the Prospect Theory of Patents, (2004) 71 *U. Chi. L. Rev*. 439.

[70] This is the classic "Schumpeterian Hypothesis" according to which larger firms innovate more than smaller firms, and firms in concentrated markets innovate more than firms in competitive markets

the importance of independence and competition for innovation.[71] Whatever the outcome of this debate will be, incentives to innovate are not explicitly considered in granting physical property rights, which also explains the differences in the legal regime of intellectual property and physical property.

1.2.4. A different legal regime than physical property rights

A quick look to the legal regime that applies to intellectual property is enough to convince of the need to avoid simplistic analogies with physical property rights. First, according to Spence an important difference is that "intellectual property rights do not exclude others from the enjoyment of the relevant subject matter, but only from its use in one of a broadly or narrowly defined range of ways".[72] The limited duration of intellectual property rights is certainly a characteristic that does not exist as such for normal property rights.[73] Once the duration of a patent has expired, that which has been protected is on the public domain (open access) and can no longer be owned as property. One could also add the conditions of validity of a patent. A patentable invention should be novel, non-obvious, capable of industrial application and must not fall "as such" within any of the categories of subject-matter specifically excluded.[74] These conditions do not have a counterpart in the law of tangible property.

1.2.5. The intervention of public authorities in the definition of IP rights

The intervention of the public authorities is also more systematic and intensive for IP rights than for tangible property rights and starts from the granting of the property right. For example, the examination of the conditions of patentability is done by the relevant Patent Office. This highlights the most important difference between intellectual property rights and property rights on physical things: the intervention of an independent regulatory agency. Landes and Posner make the point when they remark that

> "equating intellectual property rights to physical property rights overlooks the much greater governmental involvement in the former domain than in the latter, at least in a mature society in which almost all physical property is privately owned, so that almost all transactions involving such property are private. Government is continuously involved in the creation of intellectual property rights through the issuance of patents, copyrights and trademarks. Skeptics of government should hesitate to extend a presumption of efficiency

[71] For a more extensive analysis see, *FTC Report*, chap. 2, at 14-15. See also, ABA, *Section of Antitrust Law, The Economics of Innovation: A Survey*, July 2002, 33-35 (which concludes that the "the results that relate concentration to innovation are sensitive to industry characteristics). See also, R. Gilbert, *Looking for Mr. Schumpeter: Where Are We in the Competition-Innovation Debate?*, *in* 6 *Innovation Policy and the Economy* 159 (A. B. Jaffe, J. Lerner & S. Stern, eds. 2006); R. J. Gilbert, *Competition and Innovation* (Competition Policy Center Paper CPC 07-069, January 27, 2007). *available* at http://repositories.cdlib.org/iber/cpc/CPC07-069

[72] M. Spence, The Mark as Expression/The Mark as Property, (2005) 58 *Current Legal Problems*, 491, 494.

[73] The doctrine of adverse possession may limit the duration of a normal property right. However, the effects of the adverse possession are different to the extent that "adverse possession shifts ownership from one person to another, whereas the expiration of a fixed-duration intellectual property rights eliminates ownership and makes the work a part f the public domain". W.M. Landes & R.A. Posner, above n 60, 34.

[74] W. Cornish & D. Llewelyn, *Intellectual Property*, (5th ed., Sweet & Maxwell), 173.

to a process by which government grants rights to exclude competition with the holders of the rights"[75].

Landes and Posner do not argue that the judiciary is not involved in the enforcement of these rights, but that the definition of the scope of these rights, especially patents, is done mainly by an administrative agency, under the control of a specialist court[76]. Specialist courts cannot be considered as equivalent to generalist courts as it is more likely to have a mission orientation and favor a broad scope of protection for intellectual property rights. This is not necessarily the case in all areas of intellectual property, as generally trademarks, trade secrecy and publicity rights laws appear to be rather common law oriented and thus efficient. The importance of this point should not be underestimated. By considering that intellectual property rights are not common law rights but simple creations of an administrative process, it is possible to argue that they should not benefit from the thesis of the efficiency of common law[77] and should therefore have a different legal regime than normal property rights. It follows that the possible areas of conflict between IP and competition law may not be the same than those that exist between competition law and physical property rights

2. Intellectual property and competition law: possible areas of conflict

By granting an exclusive right, intellectual property offers the opportunity to the right holder to earn extra profits. The consumers of the particular good embodying the IP right will consequently loose because the level of output of the particular good will be lower than in the absence of an exclusive right. A tension between intellectual property policy and competition policy will result as the objective of the later is to maximise consumer welfare. However, if the right holder didn't have the opportunity to overprice the good, there would be suboptimal incentives to commit resources to investment at the first place. The assumption is that if no intellectual property right was granted, the consumers would benefit from less innovation. The term "innovation" covers, according to Joseph Schumpeter the following five cases:

> "(1) the introduction of a new good – that is one with which consumers are not yet familiar – or of a new quality of a good. (2) The introduction of a new method of production, that is one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. (3) The opening of a new market that is a market into which the particular branch of manufacture of the country in question has not previously

[75] W. Landes & R. Posner, above n 60, 415. *Contra* R.E. Meiners & R. J. Staaf, Patents, Copyrights, and Trademarks: Property or Monopoly?, (1990) 13 *Harv. J. L. & Pub. Pol'y* 911, 916-917, "patents, copyrights, and trademarks granted recognition by the State are essentially the same as recognition by the State of claims in real property […] They are like common-law rights, valuable not to specific groups that obtain the passage of the statutes but to all current and future members of society who will have equal access to property and the enforcement of ownership rights by the judicial system".

[76] Indeed, the Federal Circuit was established in 1982 in the United States

[77] W. Landes & R. Posner above n 60, 417 remark that common law refers to "any body of law that is judged created", "it refers not only to judge-created bodies of law but also to judge-created doctrines that fill gaps or resolve ambiguities in statutes or constitutions. In this sense, much of antitrust law, much of constitutional law, and much of patent and copyright law are common law". According to B. Bouckaert, What is Property?, (1990) 13 *Harv. J. L. & Pub. Pol'y* 775, 790, "the origin of intellectual property rights has its historical roots in deliberate interventions by political authorities rather than in a spontaneously evolved continental legal tradition".

> entered, whether or not this market has existed before. (4) The conquest of a new source of supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. (5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position"[78].

The European Commission seems to adopt this broad definition of "innovation"[79]. Not any type of innovation should, however, be protected by intellectual property rights; only those whose value to the consumers is more important than the cost of the intellectual property rights' protection mechanism.

The difficult trade off between the long-term effects of IP rights on incentives to innovate and their short-term effects on output and prices will be an important issue in the interface between competition law and intellectual property. Indeed, in theory, intellectual property law focuses more on the long-term effects, while competition law's focal point has traditionally been primarily on the short-term effects of a business practice on consumer welfare.

Innovation and long-term effects on consumer welfare have been recently brought in competition law analysis. The European Commission's *Guidelines on the application of article 81(3) of the Treaty* examine the effects of a particular agreement on innovation[80] while they also integrate dynamic efficiencies as possible compensating factors of an otherwise anticompetitive agreement restricting output and increasing prices[81]. The "balancing test" of the Commission has the objective to ensure that these "qualitative efficiencies", such as new and improved products, will create "sufficient value for consumers to compensate for the anti-competitive effects of the agreement, including a price increase".[82] This is because "(t)he availability of new and improved products constitutes an important source of consumer welfare".[83] The assessment of pro and anti-competitive effects is an arduous task as it is difficult to assign precise values to dynamic efficiencies in order to conduct a cost benefit analysis.[84] Similarly, competition law takes into account the effect of commercial practices on innovation markets.[85] One could therefore conclude that intellectual property law shares with competition law a common dynamic conception of "consumer welfare".

There are usually two understandings of this concept. Competition law economists generally distinguish between total welfare, sometimes also referred to as consumer welfare[86], and pure consumer welfare (consumer surplus or distributive

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[78] J Schumpeter *The Theory of Economic Development* (London, Transaction Pub., 2005), 66. The book was first published by Harvard Univ. Press in 1934.

[79] European Commission, Green Paper on Innovation, COM(1995) 688 final, which defined innovation as "the renewal and enlargement of the range of products and services and associated markets; the establishment of new methods of production, supply and distribution; the introduction in changes in management, work organization and the working conditions and skills of workforce".

[80] European Commission, Guidelines on the application of article 81(3) of the Treaty [2004] OJ C101/97 paras 24 &25.

[81] *Ibid*, at para 70.

[82] *Ibid.*, at para 102.

[83] *Ibid*. at para 104.

[84] *Ibid*. , at para 103.

[85] *Ibid*., at para 25. For a critical and comparative analysis see, M. Glader, *Innovation Markets and Competition Analysis* (Edward Elgar, 2006).

[86] R H Bork *The Antitrust Paradox – A Policy at War With Itself* (New York, The Free Press, 1993) at 111, "[…] it seems clear the income distribution effects of economic activity should be completely

consumer welfare). Both serve as alternative standards for evaluating the effect of business practices to competition.

Total welfare is a measure that aggregates the welfare or surplus of different groups in the economy (in general consumer and producer surplus). Producer surplus refers to the sum of all profits made by producers in the industry, while consumer surplus refers to the aggregate difference between the consumers' valuation for the good considered (or what he wants to pay) and the price that he has to pay for. A situation is economically efficient and thus increases total welfare when after this situation has occurred, either both producer and consumer surplus increased or one of them increased in such a way that it could potentially compensate the loss suffered by the other (Kaldor-Hicks efficiency). For example, if producers' profits are more important than the loss incurred by consumers, so that they could potentially compensate them, the practice is economically efficient. Total welfare completely overlooks the issue of income distribution among producers and consumers.

Pure consumer welfare does not place the interest of the consumers at the same level than that of the parties to the particular business practice. The distribution of income matters. Consumers should be better of, or at least at the same position they were before the particular business practice intervened. A practice that increases the profits of the producer and decreases the profits of the consumers in such a way that it is still possible for producers to compensate the consumers' loss will still be considered as detrimental to society and therefore prohibited.

What are the implications of a strong intellectual property protection for total and consumer welfare? By offering the possibility to the IP holder to increase prices, IP rights may decrease output and therefore total welfare. However the dynamic efficiencies brought by IP may largely compensate the losses. The effect of IP to consumer welfare will depend on the question to know if the "monopolistic" profits generated by the exclusive right of the IP holder will be passed on to the consumers in a way or another. This will not necessarily take the form of lower prices, but may simply be better quality, new products or services and enhanced consumer choice. A broad intellectual property protection may nevertheless harm consumers in the long run if this will have the effect to restrict cumulative innovation. This possibility raises two issues: the importance of cumulative innovation to economic welfare and the relation between innovation and market structure as a competitive structure may not generate more innovation than a more concentrated one.

Indeed, one can distinguish between two types of innovation: stand alone innovation, which refers to the situation where the IP right will not be used as an input to another innovation and cumulative innovation, which refers to the situation where successive innovations build upon earlier innovations. It is widely accepted that cumulative innovation substantially increases social value. As Newton once wrote, "(i)f I have seen further it is by standing on ye shoulders of Giants". Public authorities recognize this reality by establishing innovation clusters, such as the Silicon Valley in the United States, which provide the possibility for information exchange and the development of research synergies.[87] Cumulative innovation may take three different varieties: either the second innovation could not be invented without the first, either the first innovation reduces the cost of achieving the second, or the first innovation

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excluded from the determination of the antitrust legality of the activity. It may be sufficient to note that the shift in income distribution does not lessen total wealth […]".

[87] For an analysis of the Silicon Valley model in product system development, see M Aoki, *Toward a Comparative Institutional Analysis* (The MIT Press, 2001), at 347.

accelerates the development of the second by providing new research tools.[88] The social value of the innovation process is, in this case, unequally distributed between the first and the second innovator. It will therefore be important to find the right incentive mechanism in order to ensure that earlier innovators are compensated adequately for establishing the foundations for later innovators, while also making sure that cumulative innovators still have an incentive to innovate. The original design of intellectual property rights should take into account the need to compensate both the initial and the subsequent innovators.

It is, however, practically impossible to consider *ex ante* all the possibilities of cumulative innovation in designing the initial intellectual property right as, by definition, cumulative innovations have not yet been produced. Confronted with the demands of subsequent innovators to use the first-generation innovation, the IP holders face a strategic choice: either they will encourage cumulative innovation either they will refuse to license their inventions and therefore block innovation. They may have the interest of doing so only if the cumulative innovation may be in a position to compete with them in the market of the second-generation product or in the market of the first-generation product, covered by the intellectual property right. This will indirectly affect consumers as, in the absence of cumulative innovation, these will not benefit from new products and services. However, one should also take into account that in the case of a refusal to license, the IP right holders incur the risk that their rivals may develop a competing technology, which will provide alternatives to the first-generation innovation. The initial design of intellectual property rights will also affect the bargaining position of the parties to the licensing agreement.

Usually the IP right owner will not have the interest to refuse to license. There is an important literature explaining that, in high technology sectors, competitors usually share information by publishing their research and do not systematically have recourse to intellectual property protection in order to appropriate part of the social value created by cumulative innovation.[89] In publishing the results of their research, the initial innovators weaken their bargaining position in the licensing negotiation process. By the same token they increase the potential reward of the cumulative innovators by maintaining their incentives to innovate *ex ante*. Oren Bar-Gill and Gideon Parchamovsky argue that this disclosure strategy is also to the interest of the IP right holder as the revenues that an initial inventor can derive from cumulative innovation via licensing may easily trump the profits that the initial inventor can secure on its own without licensing out her technology. In fact, facilitating rather than excluding cumulative innovation will often be in the best interest of the initial patent holder.[90]

Nevertheless, the private interest of the IP right holder will not always coincide with the goal of promoting cumulative innovation. The IP right owners might likely decide to exclude competition, but the simple fact that the refusal to license will have the effect to exclude rivals from the market is not enough to infer a competition law infringement but it should also be possible to plausibly explain it by an anticompetitive harm story.

One of the most commonly used doctrines in EC competition law is the leverage theory, which explains that, by refusing to license, the monopolists seek to

[88] S. Scrotchmer, Standing on the Shoulders of Giants: Protecting Cumulative Innovators, ed. S Scrotchmer *Innovation and Incentives* (MIT Press, 2005) at 139.
[89] O. Bar-Gil & G. Parchomovsky, The Value of Giving Away Secrets, (2003) 89 *Va. L. Rev.* 1857; Yoshai Benkler, Coase's Penguin, or, Linux and the Nature of the Firm, (2002) 112 *Yale L. J.* 369.
[90] O. Bar-Gil & G. Parchomovsky, above n 89, at 1859.

extend their monopoly power to a downstream related market[91]. This theory has been criticized by the Chicago school of antitrust economics, which argued that an upstream monopolist has no interest in leveraging its monopoly power to a related market because it is possible to gain only one monopoly profit overall (single monopoly profit theorem).[92]

The economic grounding of the theory has nevertheless been revigorated by some recent economic studies. Whinston criticized the assumptions of the Chicago school and argued that, in certain circumstances, a monopolist in a market A will follow a leveraging strategy by using tying practices as a commitment value in order to signal to its actual or potential competitors in the downstream market B that they will face aggressive competitive behaviour, which will decrease their profits.[93] They will thus be less inclined to enter the market or they could be finally excluded from it, if they were present. This strategy is profitable if the tied goods are complements in fixed proportions.

Choi and Stefanadis also developed a model in which the incumbent firm will have the interest to extend its monopoly from one market to another if the two products are complements and the new entrant can effectively enter the market for one of the two product only if it has successfully innovated in both markets.[94] Indeed, as the two products are components, the cumulative innovators' rents will be dissipated. They would therefore not be able to capture the social value of their innovation in one market because the products are complements and will not have the interest to innovate. The strategy of the dominant firm will thus pre-empt the emergence of cumulative innovation.

The essential facilities doctrine is inspired by the leverage theory but presents certain specific characteristics. It is a legal doctrine framed by some earlier decisions of the U.S. courts, which considered that under specific circumstances, firms have affirmative duties to assist their competitors.[95] Indeed, the "monopolist's control of an essential facility (sometimes called bottleneck) can extend monopoly power from one stage of production to another, and from one market into another."[96] Under the essential facilities doctrine, a vertically integrated monopolist will be required to share some input in a vertically related market with a firm operating in a downstream market. This will be the case if it is feasible for the monopolist to provide the facility, the competitor would be reasonably and practically unable to duplicate it and the denial of the use of the facility will deprive the competitor of an essential input, thus offering the opportunity to the dominant firm to extend its monopoly power in an related market. Contrary to the traditional leverage theory, the essential facilities doctrine has a structural and not a behavioural component, in the sense that "a monopolist's status (as the owner of the facility and a competitor in the market that

[91] L. Kaplow, Extension of Monopoly Power Through Leverage, (1985) 85 *Colum. L. Rev*. 515.
[92] W. Bowman, Tying Arrangements and the Leverage Problem, (1957) 67 *Yale L.J.* 19; R Posner *Antitrust Law* (Univ. of Chicago Press, 2001), 198-200.
[93] M. D. Whinston, Tying, Foreclosure and Exclusion, (1990) 80 *American Econ. Rev.* 837.
[94] J.P. Choi, Preemptive R&D, Rent Dissipation and the 'Leverage Theory', (1996) 110 *Quarterly Journal of Economics* 1153; J.P. Choi & C. Stefanadis, Tying, Investment, and the Dynamic Leverage Theory, (2001) 32 *Rand Journal of Economics* 52.
[95] *United States v. Terminal R.R. Ass'n*, 224 U.S. 383 (1912); *Associated Press v. United States*, 326 U.S. 1 (1945); *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973).
[96] *MCI v. AT&T*, 708 F.2d 1081 (7th Cir. 1983).

relies on the facility) rather than any affirmative conduct determines liability."[97] The application of the essential facilities doctrine has been extended to a wide variety of "facilities" owned or controlled by a monopolist. Commentators seem increasingly to question the existence of the essential facilities doctrine as a valid basis for antitrust liability[98] and recent case law in the United States has placed limitations on its use.[99] The doctrine continues nonetheless to have some significance in Europe.[100]

A distinct theory of anticompetitive effects is that dominant firms may use IP rights to create barriers to entry and raise the costs of their rivals.[101] They will therefore have the opportunity to increase profitably their prices, up to the level of their rivals' increased costs and exercise market power or profitably undercut rivals' prices and drive them out of the market. IP rights may facilitate raising rival costs strategies if the technology covered by the IP right is a valuable input. Rubinfeld and Maness underscore that IP owners may use their IP portfolio strategically to raise their rivals' costs by creating a "patent thicket", which includes patents whose validity is questionable ("submarine patents") or by adopting a strategy of "patent flooding", in which "a firm files a multitude of patent applications that claim minor variations on a competitor's existing technology".[102] These strategies will have the advantage, according to the same authors, to "require little or no short-run profit sacrifice to achieve the desired long-term goal of lessening competition in the marketplace", but may achieve a number of anticompetitive effects, such as foreclosure, predatory pricing and tacit collusion.[103] Indeed, competitors will face a difficult choice: either they litigate the validity of the patents or they accept a license and pay the fee or finally they design their products "around the patent".[104] All these practices will increase their costs, reduce their incentives to innovate and facilitate collusive practices as, in most cases, the dispute will lead to an anticompetitive patent settlement[105] or a cross-licensing scheme.[106] The IP owners could also offer a predetermined bundle of licenses to their competitors (package licensing), even if the later do not need the whole package. This will have the effect to limit their rivals'

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[97] H Hovenkamp, M.D Janis & M.A. Lemley, Unilateral Refusals to License in the US, F Lévêque & H Shelanski (ed.) *Antitrust, Patents and Copyright - EU and US Perspectives* (Edward Elgar, 2005), 12, 18.

[98] See, A B Lipsky & J G Sidak, Essential Facilities, (1999) 51 *Stan. L. Rev.* 1187, 1191-1192.

[99] *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko*, 540 U.S. 398, 415 n4 (2004). The Supreme Court has recently held in *Trinko* that for a leverage claim to succeed there must be a "dangerous probability of success" in monopolizing a second market.

[100] See, Case T-201/04, *Microsoft v. Commission* [2007] 5 CMLR 846, para. 1344, 1347 & 1363. For a comparison of EC and US antitrust law on the doctrine of essential facilities see, Alexandros Stratakis, Comparative Analysis of the US and EU Approach and Enforcement of the Essential Facilities Doctrine, 27(8) ECLR 434 (2006).

[101] T G Krattenmaker & S C Salop, Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price, (1986) 96 *Yale L.J.* 209.

[102] D.L. Rubinfeld & R. Maness, The Strategic Use of Patents: Implications for Antitrust, in F Lévêque & H. Shelanski (ed.) *Antitrust, Patents and Copyright - EU and US Perspectives* above n 97, 85.

[103] *Ibid*, at 87.

[104] *Ibid*., at 97.

[105] H Hovenkamp, M Janis, M A Lemley, Anticompetitive Settlement of Intellectual Property Disputes, (2003) 87 *Minn. L. Rev.* 1719.

[106] The possibility of cross-licensing may also have anticompetitive effects. As is explained by A B Jaffe & J Lerner, *Innovation and Its Discontents* (Princeton Univ. Press, 2004), 60, "[…] companies are like countries in an arms race: since the terms of the cross-licensing agreement are driven by the size and quality of each company's patent portfolio, every company wants to have the best portfolio, in order to be in the strongest position in cross-licensing negotiations". This will create a wasteful race to patents filling and may result in bad quality patents.

choice and reduce their incentives to innovate, thus restraining competition in the final goods market.[107]

The aforementioned theories of anticompetitive harm relate to strategies that affect the competitive advantage of the monopolist's rivals in a related market with the aim to extend her market power in a secondary market. An alternative claim of anticompetitive effect is that the dominant firm will seek to maintain its monopoly power on the primary market of the technology covered by the IP right. This maintenance of monopoly claim will usually be integrated in a sequential innovation scheme.[108] Carlton and Perloff give the example of a two-period setting with a firm that operates in a primary market and a market for a complementary good[109]. Due to a patent, the firm has, in a first period, a dominant position in the primary market. However, in a second period, the incumbent monopolist faces the risk of entry of an alternative producer into the primary market. According to their model, although the alternative producer has a superior complementary product in both periods, his primary product is of equivalent quality only in the second period.

The strategy of the alternative producer will be to use the profits earned by selling units in the complementary market to cover its fixed costs of entering the primary market. The incumbent monopolist can react by increasing the costs of entry of his rivals in the complementary market. He will achieve this goal by tying the primary product with the complementary product. The entry of the alternative producer in the primary market at the second period will therefore be deterred. The objective of the strategy will not be to extend monopoly power in a secondary market but to preserve market power in the primary product. As a result, less innovation will happen in both the primary and complementary products markets.

The different models demonstrate that, in certain circumstances, IP rights holders will have the interest to deter dynamic innovation that could render obsolete their technological standard and therefore distort the dynamic innovation competition between technological standards.[110]

It is, however, clear that these anti-competitive effects can only be produced if the IP holder has a monopoly power in the market covered by the IP rights. This issue is of importance as the main objective of granting IP rights is to confer to the IP holder monopoly power. The aim pursued by competition law is nevertheless not to eliminate monopoly power but simply to constraint its use. The duties of the IP holder will therefore depend on the broad or wide definition of what constitutes a monopoly power.

3. The evolution of the "monopoly" concept and the use of the "property rights" rhetoric

The differences that exist between property rights and IP raise important doubts on the validity of the property rights approach in analyzing intellectual

[107] See, the interesting case study on Yamaha's package licensing of patents on Personal Watercraft by D.L. Rubinfeld & R. Maness, The Strategic Use of Patents: Implications for Antitrust, in F Lévêque & H. Shelanski (ed.) *Antitrust, Patents and Copyright - EU and US Perspectives* above n 97, 92-99.

[108] D.W. Carlton & M. Waldman, The Strategic Use of Tying to Preserve and Create market Power in Evolving Industries, (2002) 33 *Rand Journal of Economics* 194. See also the model developed by J.P. Choi & C. Stefanadis, Tying, Investment, and the Dynamic Leverage Theory, (2001) 32 *Rand Journal of Economics* 52.

[109] *Ibid*, at 195-196.

[110] D.W. Carlton & R.H. Gertner, *Intellectual Property, Antitrust and Strategic Behavior*, NBER Working Paper Series, Working paper 8976, available at http://www.nber.org/papers/w8976 .

property. The "property rights" rationale has nevertheless been one of the main engines of the expansion of the protection of intellectual property rights. The use of the terminology of property rights is not fortuitous. It had the objective to understate the historic link between intellectual property (mainly patents) and monopolies.

3.1. Intellectual property rights as monopolies

The history of patents highlights the fact that their conception as a form of "property right" is a recent evolution. Initially, patents were conceived of as monopoly privileges granted by the sovereign to supporters and favorites as a reward for their loyalty.[111] The excesses of these unjustified grants of privilege led to an increasing unrest of the courts and the legislature, which sought to create boundaries for these exercises of "royal prerogative".

In the case *Darcy v Allein*, in 1603, the common law of restraints to trade was used to deny Darcy, a Queen's Elisabeth I favorite, the exclusive right to import and manufacture playing cards. Darcy was not the inventor of playing cards but this was not the only reason that the Court (Kings Bench) refused to grant the exclusive privilege. According to the Court, the Queen's grant of a monopoly was invalid because such a restraint prevents persons who may be skilled in trade to exercise their activities, and therefore promotes "idleness". The grant of an exclusive privilege damages everyone who wants to use the product because the monopolist will raise the price and reduce the quality of the goods sold. This rule was codified by the Statute of Monopolies in 1623, which declared void all monopolies but explicitly excepted from the prohibition, patents granted to the first inventor or inventors of new manufactures, "as also they be not contrary to the law, nor mischievous to the state, by raising prices of commodities at home, or hurt of trade, or generally inconvenient".

The collision between the restraints of trade doctrine (an early common law antecedent of competition law) and what could be considered as the initial steps of patent law has been resolved in recognizing the limited circumstances in which patent monopoly grants could be upheld. It is interesting to note that the word "property" was not used and that intellectual property rights were referred to as "privileges". Patents were also to be considered void any time they raised the price of commodities "at home". Their creation was therefore purely motivated by mercantilist reasons (enhance technological progress and export trade) and their negative effects on prices strictly limited to foreign trade and consumers.

The use of the term "property" came later when it has become clear that there should be some kind of natural rights justification for maintaining this kind of monopoly privilege in the period of laissez-faire that followed the mercantilist era. As Spence puts it:

> "(t)o say that something is property is usually by presumption to legitimize control of its use by an individual owner. It is to require that any limitation of that control be justified […] The rhetorical power of the property topos is the implication that such control is a given: invoking the property topos challenges those who would derogate from the owner's presumptive right of control to make their case".[112]

[111] For an excellent analysis of the historical roots of intellectual property see, C. May & S.K. Sell, *Intellectual Property Rights – A Critical History* (Lynne Reiner, 2006).
[112] M. Spence, The Mark as Expression/The Mark as Property, above n 72, 492.

The evolution of the "monopoly" concept has nevertheless limited the risks of conflict between competition law and intellectual property and the need to use the "property rights" rhetoric.

3.2. The evolution of the "monopoly" concept

The use of the term "property" does not necessarily confer an absolute antitrust immunity.[113] One of the attributes of property rights is exclusivity. Exclusivity means that the owner of the property has the right to exclude others from exercising her rights of use without permission.[114] The right to exclude is also the cornerstone of the legal conception of "monopoly", before the more economic concept of market power was finally accepted. Indeed, during the most active period of antitrust enforcement that started in United States in the1930s and also even earlier, the legal definition of what constituted "monopoly" was still predominant and diverged from the definition of this term by economists.[115] This period also marks the ascendancy of the competition logic after a period of relative co-existence between intellectual property rights and antitrust.[116]

In a seminal study, in 1937, Edward Mason explained the dissimilarities between the legal and economic concept of monopoly power.[117] According to Mason, lawyers and economists use the term of monopoly power with different meanings. For lawyers, monopoly power means restriction of the freedom to compete. For economists, it illustrates the control of the market. According to Mason,

> "(t)he antithesis of the legal conception of monopoly is *free* competition, understood to be a situation in which the freedom of any individual or firm to engage in legitimate economic activity is not restrained by the state, by agreements between competitors or by the predatory practices of a rival. But free competition thus understood is quite compatible with the presence of monopoly elements in the *economic* sense of the word monopoly. For the antithesis of the economic conception of monopoly is not *free* but *pure* competition, understood to be a situation in which no seller or buyer has any control over the price of his product. Restriction of competition is the legal content of monopoly; control of the market is its economic substance. And these realities are by no means equivalent.[118]"

The legal definition of market power emphasizes, on the contrary, restriction to trade and exclusion.

> "It was not incumbent upon the courts to show that prices had actually been raised or quality of the product deteriorated in order to be able to hold that a monopoly existed contrary to the common law. Monopoly meant exclusion

[113] R.J. Peritz, The Rule of Reason in Antitrust Law: Property Logic in Restraint of Competition, 40 *Hastings L.J.* 285, 336, "history of early antitrust law chronicles a confrontation between property and competition logic".
[114] H. Demsetz, Property Rights, *The New Palgrave Dictionary of Law and Economics*, above n 38, 145.
[115] *Continental paper Bag Co. v Eastern Paper Bag Co*., 210 U.S. 405 (1908)
[116] *FTC Report*, above n 59, chap. 1, at 15, "early court opinions generally refrained from subjecting patent-related conduct to antitrust scrutiny most typically because the very object of these patent laws is monopoly".
[117] E. S. Mason, Monopoly in Law and Economics, (1937) 47 *Yale L.J*. 34.
[118] *Ibid*, 36.

from a certain trade by legal dispensation and no examination of control of the market was necessary to establish this fact".[119]

The result of this definition of monopoly power was that the courts were finding illegal "every contract limiting competition among the contracting competitors regardless of the effect or probable effect of such a contract on control of the market […] (and) without examination of the extent of its (firm's) control of the market".[120]

If monopoly is considered as a synonym for exclusive right, then by definition the owner of a patent is a monopolist. But if the meaning of monopoly is the condition that generates social loss, in economics this condition is only present "when the demand curve has a negative slope in the region at which output is occurring".[121] This is not always the case for intellectual property rights, as there may be substitute products or technologies, which are not covered by the property rights and could be used instead by the consumers.[122] The owners of the intellectual property rights are therefore limited in their capacity to charge a monopoly price as they should also take into account the competitive pressures exercised by competing products or technologies. Terminology is therefore important.[123] The term "economic rents" is a more suitable terminology than the concept of "monopoly" because it highlights the fact that the patent holder benefits from a cost advantage that allows him to make more profits than his rivals but the patent does not confer him the possibility to restrict output and therefore exercise monopoly power.[124]

As competition law has moved both in the United States and in Europe towards a more economic approach, the presumption that an intellectual property right may confer monopoly power has been weakened and ultimately abandoned. The Court of Justice of the European Communities was quick to state in *Deutsche Grammophon* that the mere possession of intellectual property rights does not automatically amount to a dominant position.[125] The Court of Justice examines instead the position of the firm in the relevant market and the ability of the IP holder to "impede the maintenance of effective competition over a considerable part of the relevant market, having regard in particular to the existence and position of any producers or distributors who may be marketing similar goods or goods which may be substituted for them".[126] In *Magill*, the Court of Justice confirmed that "so far as dominant position is concerned, it is to be remembered at the outset that mere

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[119] *Ibid*.
[120] *Ibid.* 46.
[121] E. W. Kitch, Patents: Monopolies or Property Rights?, (1986) 8 *Res. L. & Econ*. 31, 33.
[122] R. E Meiners & R. J. Staaf, Patents, Copyrights, and Trademarks: Property or Monopoly?, 13 (1990) *Harvard J. Law & Public Pol'y* 911; E. W. Kitch, Elementary and Persistent Errors in the Economic Analysis of Intellectual Property, (2000) 53 *Vand. L. Rev*. 1727, 1734, "(t)he strongest case for a patent conferring a monopoly would be a good whose economically distinctive features fell within the claims of the patent. Even here, the patent may not confer an advantage if alternative (even if inferior) technologies are available at lower cost, as will often be the case with older technologies where many of the costs are sunk costs".
[123] H. Greene, Afterword: The Role of the Competition Community in the Patent Law Discourse, (2002) 69 *Antitrust L.J*. 841, 844.
[124] K. W. Dam, The Economic Underpinnings of Patent Law, (1994) 23 J. *Legal Stud*. 247, 250-251.
[125] ECJ, Case 78/70, *Deutsche Grammophon Gesellschaft mbH v. Metro-SB-Grossmarketete GmbH & Co*., [1971] ECR 487, para. 16. Intellectual property rights may however enforce the inference of a dominant position. See, ECJ, Case 85/76, *Hoffmann-La-Roche v. Commission* [1979] ECR 461, para. 42D & 48; CFI, Case T-51/89, *Tetra Pak Rausing S.A. v. Commission* [1990] ECR II-309, para 23.
[126] ECJ, Case 40/70, *Sirena S.r.l. v. Eda S.r.l. e.o.[*1971] ECR 69, para. 16.

ownership of an intellectual property right cannot confer such a position.[127]." Although there is not presumption that intellectual property rights confer market power, IP rights may however enforce the inference of a dominant position and are usually considered as one of the factors indicating the existence of a dominant position if the undertaking has also a high market share.[128] The US Supreme Court has also made clear in *Illinois Tool Works v. Independent Ink* that patents do not necessarily confer market power on the patentee.[129]

One should note, however, that the evolution of the conception of intellectual property from monopoly power to a category of property right is far from establishing an antitrust immunity for intellectual property rights. On the contrary, it may create the risk that considered as a form of "physical property" the use of IP rights may be limited by specific antitrust doctrines developed at first for tangible property rights, such as the essential facilities doctrine.

4. Competition law and refusals to grant access to intellectual property: towards the recognition of the specific nature of intellectual property

The application of article 82 EC to unilateral refusals to license IP rights has been an important issue since the Court of Justice's (ECJ) decisions in *Volvo v Veng* and *CICRA v. Renault.*[130] The Court held in these cases that the right of the proprietor of a protected design to prevent third parties from manufacturing and selling or importing without its consent, products incorporating the design does not constitute an abuse of a dominant position as this will deprive the IP holder of the substance of her exclusive right. Nevertheless, the Court did not go as far as to create an irrebuttable presumption for IP rights. A refusal to license may constitute an abuse if the exercise of the IP right would involve, in the part of the undertaking, "certain abusive conduct". The Court did not seem to develop a different test for unilateral refusals to license IP than the test that was generally applied to unilateral refusals to deal. In subsequent decisions, the Court extended the scope of article 82 EC to cover the acquisition by a dominant firm of an exclusive patent license of an alternative technology.[131]

The case law moved, however, progressively towards the adoption of a standard, which takes into consideration the specificity of intellectual property rights. The "new product" test, adopted by the ECJ and the "incentives to innovation balance" test, developed by the European Commission illustrate the specificity of refusals to license IP rights compared to other refusals to deal. The Court of First Instance confirmed the specificity of intellectual property rights in its decision in *Microsoft* even though it adopted a different test from that suggested by the Commission in its decision.

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[127] ECJ, Joined Cases C-241/91 and C-242/91, *Radio Telefis Eireann v. Commission (Magill)*, ECR [1995] I-743, at para. 46

[128] See, ECJ, Case 85/76, *Hoffmann-La-Roche v. Commission* [1979] ECR 461, para. 42D & 48; CFI, Case T-51/89, *Tetra Pak Rausing S.A. v. Commission* [1990] ECR II-309, para 23.

[129] *Illinois Tool Works v. Independent Ink*, 126 S.Ct 1281 (2006).

[130] Case 238/87, *AB Volvo v. Erik Veng* [1988] ECR 6211; Case 53/87, *CICCRA and Maxicar v. Renault* [1988] ECR 6039.

[131] In Tetra Pak the Court created a distinction between situations in which the dominant firm acquires the patent or other right from another company and situations in which the dominant firm created the intellectual property rights itself.

4.1. The "new product" rule

The Court of Justice adopted the "new product" rule in *Magill* where it held that the exercise of an exclusive right by the intellectual property owner may, in exceptional circumstances, involve abusive conduct.[132] Exceptional circumstances consist of the following: (i) access is indispensable, (ii) the refusal to license prevented the appearance of a new product for which there was potential consumer demand, (iii) there was no justification for such refusal, (iv) the refusal to license excluded all competition on the secondary market. The requirement that the refusal to license prevented the sale of a new kind of product for which there was unsatisfied demand indicates that the Court aimed to protect innovation on the market. In *Magill* the refusal to license had impeded the emergence of a new product, a composite TV guide, which the holders of the intellectual property right did not offer and for which there was a potential demand. The weak and questionable nature of the IP right that was involved in this case, a copyright protection granted on simple TV listings under a "sweet of the brow" standard, may explain the position of the Court, in particular as access to these data was indispensable for the emergence of the new product. The decision was not also clear as to the cumulative or alternative character of these exceptional circumstances.

The Court of Justice re-affirmed in *IMS/NDC Health* that, except exceptional circumstances, a refusal to license IP rights cannot by itself constitute an abuse of a dominant position.[133] The ECJ held that these exceptional circumstances are cumulative and exist when the refusal to license is unjustified, prevents the emergence of a new product for which there is a potential consumer demand and excludes "any" or "all" competition on a secondary market[134]. By requiring that the refusal to license should prevent the emergence of a new product, the Court implicitly acknowledged the distinction between intellectual property and physical property as this condition does not exist for a refusal to grant access to tangible property. The Court also explained that the new product rule limits the finding of abuse for a refusal to licence a copyright (and presumably any type of intellectual property right) "only where the undertaking which requested the licence does not intend to limit itself essentially to duplicating the goods or services already offered on the secondary market by the owner of the copyright, but intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand"[135].

The identification of two different but interconnected stages of production is therefore important, as it is only if the products or services are an indispensable input for this new product and there is an actual demand for them by the undertakings which seek to compete with the dominant firm in the downstream product market, that a refusal to licence may fall within the scope of article 82.[136] This is not a different from leveraging cases involving property rights on tangibles.[137] As certain authors have, however, observed,

> "[…] in intellectual property cases […] leveraging itself does not constitute an abuse under Art. 82 EC. In addition, there has to be the prevention of a new

[132] Case C-241 – 1/91 P, *RTE & ITP v. Commission* [1995] ECR I-743, para 50.
[133] Case C-418/01, *IMS Health GmbH v. NDC Health* [2004] ECR I-5039, para 34-35.
[134] *Ibid*., para 38 ("any competition") & 52 ("all competition").
[135] *Ibid*, para 49.
[136] *Ibid*, para 44-45.
[137] See, for instance, Case C-7/97 *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs* [1998] ECR I-7791.

product, i.e. a product that the IP owner does not offer himself. This additional condition distinguishes IP cases from 'normal' property or 'normal' essential-facilities cases".[138]

The standard used by the Court was, however, ambivalent and gave rise to different interpretations.[139] It is clear that it does not go as far as requiring that the new product constitutes a different relevant market, nor that the new product should be novel, according to intellectual property law standards. Christian Ahlborn, David Evans and Jorge Padilla interestingly suggested that the new product is one "that satisfies potential demand by meeting the needs of consumers in ways that existing products do not", "bringing in at current prices consumers who were not satisfied before" and thus expanding the market "by a significant amount".[140] According to these authors, the burden of proof should be allocated to the party requesting the licence as it is that party that possess the relevant information and would have ultimately the means to prove that it satisfies the new product requirement.[141] While this solution has the benefit of being clear and operational, it would create a risk of under-inclusion of anticompetitive practices that may put innovation at risk.

Indeed, cumulative innovation may benefit the existing consumers with better quality products without necessarily expanding demand. Innovation also consists of new methods that lower production costs in existing products. The existence of more choice for existing consumers is also something that should be taken into account even it does not necessarily expand demand by a significant amount. By focusing on the sole level of output this definition of the "new product" rule does not take fully into account the implications of refusals to license IP rights to consumer welfare.

4.2. The balance of incentives to innovation test of the Commission in Microsoft

In my view, the standard used by the Commission in the *Microsoft* decision, one month earlier, provides a better starting point in order to achieve an effective protection of innovation and consumer welfare.[142] The facts are well known. The Commission considered that Microsoft had infringed article 82 (b) of the EC Treaty by refusing to supply Sun Microsystems the necessary information enabling them to establish interoperability between their work group server operating systems and Microsoft's PC operating system Windows. Microsoft has a dominant position on the

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[138] A. Heinemann, Compulsory Licenses and Product Integration in European Competition Law – Assessment of the European Commission's *Microsoft* Decision, (2005) *IIC* 63, 71.

[139] See the criticisms of D. Ridyard, Compulsory Access Under EC Competition Law – A New Doctrine of "Convenient Facilities" and the Case for Price regulation, (2004) 25(11) *ECLR* 669; J. Temple Lang, The Application of the Essential Facility Doctrine to Intellectual Property Rights under European Competition Law, in F Lévêque & H Shelanski (ed.) *Antitrust, Patents and Copyright - EU and US Perspectives*, above n 97, 69, "(many patents are for follow-on inventions. The law could hardly impose a duty to share important internally-generated competitive advantages with direct competitors, on demand, merely on the basis of their intention to offer a product with some new characteristics"). See also, for an analysis of the application of this standard by national courts and competition authorities, J. drexl, Abuse of Dominance in Licensing and Refusal to License: A 'More Economic Approach' to Competition by Imitation and to Competition by Substitution, in C.-D. Ehlermann & I. Atanasiu, *European Competition Law Annual 2005 – The Interaction between Competition Law and Intellectual Property* (Hart Pub., 2007), 647, 655-660.

[140] C. Ahlborn, D. Evans & J. Padilla, above n 28, 1146-1149.

[141] *Ibid*, at 1149.

[142] Commission Decision, *Microsoft/W2000* (COMP/C–3/37.792), 24 March 2004, available at www.europa.eu.int/comm/competition/antitrust/cases/decisions/37792/en.pdf.

PC operating market and Windows is the *de facto* standard for interoperability in work group networks.[143]

Microsoft was ordered to disclose interoperability information in a reasonable, non-discriminatory and timeliness way.[144] While the Commission did not contemplate compulsory disclosure of the source code of Windows and the disclosure measure only covered interface specifications[145], it acknowledged that "it cannot be excluded that ordering Microsoft to disclose such specifications and allow such use of them by third parties restricts the exercise of Microsoft's intellectual property rights."[146].

The Commission's decision was based on the leverage theory, which provides that the refusal to provide interface specifications will render Microsoft able to extend its market power from the client PC operating system market into the work group server operating system market.[147] The Commission also referred to the fact that Microsoft's refusal to supply information under Windows 2000 was an illegal disruption of previous levels of supply, under Windows NT, referring to the previous case law of the Court. Microsoft's conduct was not just a refusal to supply but also involved as the Court mentioned in the *Volvo* and *Renault* cases "certain abusive conduct". The Commission also took into consideration as an aggravating factor the fact that Microsoft had previously disclosed part of the corresponding interface specifications in order to gain a foothold in the work group server market for its product[148]. Once Microsoft managed to induce acceptance in the market for its product, the company changed its incentives and held back access to information relating to interoperability with the Windows environment.[149]

The dominant company has therefore used an open access approach, when this was necessary and gained acceptance for its own product in the market but after the attainment of this objective, it suddenly changed course and refused interoperability. Implicitly, the Commission considered that this is not a competition on the merits as Microsoft's success was partly the consequence of value added to the network by its competitors that were led to believe that Microsoft would continue to provide interoperability. However, as Hovenkamp, Janis and Lemley remark, "locking companies into existing business relationships seems particularly inappropriate in fast-changing markets" and may prevent intra-technology competition by other licensees.[150] The decision to continue to supply an existing customer is an issue that should not come within the realms of competition law as it will have the result to lock in dominant firms with their existing customers, without them being able to terminate their business relation other than by relying on a possible objective justification[151].

However, the issue in this case was not a refusal to supply or to license a specific firm but a general pattern of conduct refusing interoperability. Even if the Commission's reference to the case law on disruption of existing supplies may give the impression that there is no limiting principle for the duty to supply an existing customer, the Commission's decision should be considered in the context of the need to maintain interoperability and should not be extended to refusals to license. European competition law seeks to protect the "competitive process" and it is

[143] *Ibid*, para 779.
[144] *Ibid*, paras 999-1010.
[145] On the distinction, paras 568-572.
[146] *Ibid*., para 546 and para 1004.
[147] *Ibid*., paras 772 and 788.
[148] *Ibid*., para 584.
[149] *Ibid*., at 588.
[150] H. Hovenkamp, M. Janis, M. Lemley, Unilateral Refusals to License in the US, above n 97, at 34.
[151] According to C. Ahlborn, D. Evans and A. Jorge Padilla, above n 28, at 1146.

considered that a refusal of interoperability to a *de facto* industry standard could hurt the competitive process.

The Commission avoided any reference to the new product test because Microsoft's conduct was not necessarily impeding the emergence of an identifiable new product. Microsoft's conduct had nevertheless the effect to reduce the incentives of its competitors to innovate[152] (and produce new products in the future) and therefore to limit consumer choice.[153] Microsoft has put forward the same justification than in the US litigation: the need to protect its own incentives to innovate by preserving its intellectual property rights[154]. The Commission nevertheless affirmed that intellectual property rights "cannot as such constitute a self-evident objective justification for Microsoft's refusal to supply"[155], following the position of the Federal Circuit in the US *Microsoft* case.[156] Innovation is an objective for both intellectual property and competition law.[157]. The Commission employed a balancing test and concluded that

> "[…] a detailed examination of the scope of the disclosure at stake leads to the conclusion that, on balance, the possible negative impact of an order to supply on Microsoft's incentives to innovate is outweighed by its positive impact on the level of innovation of the whole industry (including Microsoft). As such the need to protect Microsoft's incentives to innovate cannot constitute an objective justification that would offset the exceptional circumstances identified"[158].

The balancing test is broader than the "new product" rule at two respects. First, the Commission takes into account the incentives of the competitors of the dominant firm to innovate in the future. This is not an issue considered in *Magill* and *NDC Health* where the question was about products which, absent the refusal to supply, have been sold or were to be offered in the market. The new product rule in *Magill* and *NDC Health* does not cover situations of potential emergence of a new product in the future.

Second, the Commission included in its analysis the incentives of Microsoft to innovate. In *Magill* and *NDCHealth* the Court only referred to the dominant firm's competitors, which had the intention to enter the secondary market in order to offer a new product and were excluded by the dominant firm. However, in *Microsoft*, the Commission took also into account Microsoft's incentives to innovate in comparing the situation where article 82 applies with the alternative situation where Microsoft's anti-competitive behaviour remains unfettered[159]. According to the Commission,

> "Microsoft's research and development efforts are […] spurred by the innovative steps its competitors take in the work group server operating

[152] Microsoft, above n 142, para 694.
[153] *Ibid*., para 700.
[154] Despite the terminology used by the Commission, Microsoft relied on the "reward theory" and not the "incentives theory" [Microsoft, para 709, "the objective justification for Microsoft's refusal to disclose its intellectual property rights is self-evident; those rights are meant to protect the outcome of billions of dollars of R&D investments in software features, functions and technologies"].
[155] *Ibid*., para 710 (emphasis added).
[156] *US v Microsoft Corp.*, 253 F 3d 34, 63 (DC Cir, 2001) (Microsoft's argument that the exercise of an intellectual property right cannot give rise to antitrust liability 'borders on the frivolous').
[157] According to Microsoft, above n 142 (para 712), "(i)t is therefore necessary to assess whether Microsoft's arguments regarding its incentives to innovate outweigh these exceptional circumstances".
[158] *Ibid*., para 783.
[159] *Ibid*., para 725.

system market. Were such competitors to disappear, this would diminish Microsoft's incentives to innovate".

Because of the nature of the market, Microsoft's incentives to innovate were maintained, while those of its competitors were also preserved. The analysis of the incentives of the dominant firm's rivals as well as the dominant firm's incentives to innovate extends the scope of article 82 in comparison with the "new product rule", interpreted as involving the emergence of an identifiable "new" product or of an identifiable increase of output. It is based on the assumption that the competitive pressure increases the dominant firm's incentives to innovate. This is also linked to the belief that a competitive market is the optimal structure for innovation. Surprisingly, while the Commission focused its analysis on innovation incentives, it also affirmed that "intellectual property rights are not in a different category to property rights as such"[160]. The case law of the Court on physical property rights does not, however, adopt the new product rule or include any dynamic efficiency consideration in balancing property rights with competition policy concerns.

4.3 The Discussion Paper on article 82 EC

The recent discussion paper of DG Competition's staff on the application of Article 82 of the Treaty to exclusionary abuses also provides useful information on the assessment of a refusal to licence intellectual property rights[161]. According to the Commission's staff, the enforcement of competition law should take into account "both the effect of having more short-run competition and the possible long-run effects on investment incentives"[162]. The discussion paper examines three situations of refusal to supply, without however, excluding that there might be others: the termination of an existing supply relationship, the situation where one or more companies are refusing to start supplying an input (including where the input is covered by intellectual property rights) and where this input consists of information necessary for interoperability.

The discussion paper distinguishes between first and second refusals to supply. An existing supply relationship creates a "rebuttable presumption that continuing these relationships is pro-competitive"[163]. This presumption may have far-reaching consequences for the possibility of a dominant undertaking to choose its own business partners or to extend its own activities. The Commission's staff paper does not distinguish between intellectual property rights and other property rights. A decision to terminate or renew a licence of IP rights previously granted may also fall within this presumption. The plaintiff or the Commission should prove that the dominant firm's behaviour in reality amounts to a termination, which is likely to have a negative effect on competition in the downstream market. The burden of proof then shifts to the defendant who has the difficult task to claim objective justifications and efficiencies as a possible defence of its conduct. For example, the dominant undertaking could argue that the undertaking terminated was not able to provide the appropriate commercial assurances or that it wants to integrate downstream and that the consumers are better off with a vertical integrated dominant firm than with the terminated supply relationship.

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[160] *Ibid*., para 550.
[161] DG Competition Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses, December 2005, paras 237-242.
[162] *Ibid*., at para. 213.
[163] *Ibid*., at 217.

The discussion paper suggests a more lenient approach for first refusals to supply an input. The conditions are stricter for the plaintiff or the Commission than for the defendant as the plaintiff has to prove that the refusal to supply an indispensable input is likely to have a distorting foreclosure effect. The input may be an intellectual property right and it is sufficient that a captive, potential or hypothetical market is identified. According to the Commission, "such is the case where there is actual demand for the input on the part of undertakings seeking to carry out the activity for which the input is indispensable"[164]. The burden of proof then shifts to the dominant undertaking, which can claim, as a possible defence, objective justifications and efficiencies.

Adopting an *ex ante* perspective the Discussion paper insists on the need to consider if the investments that led to the existence of the indispensable input would have been made "even if the investor had known that it would have a duty to supply"[165]. The importance of the investments made (especially for the grant of IP rights) is also an element to consider: if they have not been particularly significant, "it may be likely that the investment would have been made even knowing that a duty to supply would be imposed"[166].

The Discussion Paper provides an additional condition for unilateral refusals to license IP rights. It is only under exceptional circumstances that the refusal to licence may constitute an infringement of article 82 CE. According to the Commission, the refusal to grant licence should prevent

> "the development of the market for which the licence is an indispensable input, to the detriment of consumers. This may only be the case if the undertaking which requests the licence does not intend to limit itself essentially to duplicating the goods or services already offered on this market by the owner of the IPR, but intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand"[167].

The Commission restates the new product condition and confirms the distinction made between IP rights and other property rights.

This becomes more obvious as the Discussion Paper proposes a second test, not exactly similar to that adopted by the Commission in the *Microsoft* case:

> "a refusal to licence an IPR protected technology which is indispensable as a basis for follow-up innovation by competitors may be abusive even if the licence is not sought to directly incorporate the technology in clearly identifiable new goods and services. The refusal of licensing an IPR protected technology should not impair consumers' ability to benefit from innovation *brought about by the dominant undertaking's competitors*"[168].

This test may have the effect to extend the scope of article 82 compared with the test applied by the Commission in *Microsoft*, as it takes only into account the reduction of the incentives to innovate of the dominant firm's rivals and does not consider the dominant firm's incentives to innovate: it is not therefore a balancing test.

The difficult implementation of the *Microsoft*'s decision balancing test may have been the reason to turn towards this more open-ended test. The courts are

[164] *Ibid*., para. 227.
[165] *Ibid*., para 236.
[166] *Ibid*.
[167] *Ibid*., para 239.
[168] *Ibid*., para 240 (emphasis added).

generally ill equipped to conduct the type of prospective cost-benefit analysis that would be necessary in order to balance the incentives of the dominant firm and its rivals to innovate. In that respect, *Microsoft* was an easy case. The Commission did not undertake the difficult task to balance incentives to innovate, as the incentives of Microsoft were not hampered by the prohibition of the refusal to supply interoperability. However, if the dominant firm's incentives to innovate were affected by the prohibition of the refusal to licence, it would be necessary to conduct a proper cost-benefit analysis, which may prove a difficult task for the judiciary.

The Discussion paper identifies refusals to supply information for interoperability (the situation that arose in the *Microsoft* decision) as a specific case of refusals to supply. A refusal to supply interoperability should not be treated the same than a simple refusal to supply or to licence. Although the discussion paper considers that there is no general obligation, even for dominant companies, to ensure interoperability and therefore that there is no need to create a rebuttable presumption, it also states that "leveraging market power from one market to another by refusing interoperability information *may be* an abuse of a dominant position"[169]. The necessary elements to be considered are the conditions that normally apply to refusals to supply a new customer and the existence of a leveraging effect. These conditions do not apply if the refusal to provide interoperability involves IP rights. This conclusion stems from the discussion paper's statement that it may not be appropriate to apply to refusals to supply information on trade secrets "the same high standards for intervention as those described in the previous subsection" (on intellectual property rights)[170].

4.4. The CFI's position in Microsoft

The CFI confirmed the Commission's Microsoft decision in 2007[171]. While it reaffirmed the four criteria of the ECJ in *Magill* and *NDC Health* it also adopted a more open ended interpretation for some of these conditions.

The Court's control is limited to judicial review, which means that the Community Courts cannot substitute their own assessment of fact for the Commission's.[172] The Commission also benefits from an important margin of appreciation in complex economic and technical appraisals. The Court's role is limited to "establish whether the evidence put forward is factually accurate, reliable and consistent", "whether that evidence contains all the relevant data that must be taken into consideration in appraising a complex situation and whether it is capable of substantiating the conclusions drawn from it".[173]

Microsoft argued that if the case were to be appraised in the light of the conditions of *Magill* and *IMS Health*, there would be no abuse, as none of the four circumstances was present in this case and the same was true for the *Bronner* criteria none of which was satisfied. In addition, the Commission's decision imposed a higher degree of interoperability than what was required by the Council Directive 91/250/EEC on the legal protection of computer programs[174], the essence of

[169] *Ibid*., para 241.
[170] *Ibid*.
[171] Case T-201/04 *Microsoft v. Commission* [2007] 5 CMLR 846.
[172] *Ibid*., para 88.
[173] *Ibid*., para 89.
[174] Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, [1991] OJ L 122/42 (hereinafter referred to as Software Directive).

Microsoft's argument being that the degree of interoperability required by the Commission could only be achieved if it allowed its rivals "to clone or to reproduce its products".[175] Finally, the communication protocols that Microsoft had to share with undertakings that had an interest in developing and distributing work group server operating system products, were covered by intellectual property rights (patents, copyright as well as trade secrets) and were technologically innovative. Microsoft emphasized its important efforts to develop these protocols, in particular the "large number of engineers" and the "significant financial resources" used for their development and improvement. The Commission opposed the argument that the communication protocols were neither new nor a valuable invention and in any case they should enjoy a more limited protection than patents and copyright, as they were not intellectual property rights.[176]

The Court noted that the Commission had used in this case the "stricter legal test" of refusals to license intellectual property rights.[177] It also observed that trade secrets should be treated as equivalent in this case "to intellectual property rights", without, however, excluding the possibility that in other circumstances different rules could apply to them.[178] The main issue to examine was therefore the non-application by the Commission of the strict conditions of the *Magill*, *IMS* and *Oscar Bronner* judgments, and in particular the new product rule.

The Commission relied on three specific characteristics of the case to support its interpretation of the conditions of *IMS*: the fact that this was an interoperability case, the "extraordinary power" of Microsoft to eliminate competition on the adjacent work group server operating systems market and finally that the conduct in question involved disruption of previous levels of supply.[179] The Court reaffirmed the cumulative character of the three exceptional circumstances of *IMS*:

> "[…] the following circumstances, in particular, must be considered to be exceptional:
> - in the first place, the refusal relates to a product or service indispensable to the existence of a particular activity on a neighbouring market;
> - in the second place, the refusal is of such a kind as to exclude any effective competition on the neighbouring market
> - in the third place, the refusal prevents the appearance of a new product for which there is potential consumer demand".[180]

It also used language that implied that these were not the only exceptional circumstances in which the exercise of the exclusive right by the owner of the intellectual property rights may give rise to such an abuse[181], although it noted that the requirement "that the refusal prevents the appearance of a new product for which there is consumer demand is found only in the case-law on the exercise of an intellectual property right".[182] Intellectual property rights are therefore subject to a stricter competition law regime than property rights on tangibles as article 82 EC will apply in circumstances where cumulative innovation or technical development would likely be affected.

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[175] Case T-201/04, para 212.
[176] *Ibid*. para 280.
[177] *Ibid*, para 284.
[178] *Ibid*., para 289 & 313.
[179] *Ibid*, para 317.
[180] *Ibid*., para 332.
[181] *Ibid*., para 332 (note the use of the term "in particular" when the Court refers to these exceptional circumstances)
[182] *Ibid*. para 334.

The Court examined the facts of the case in order to establish the existence of these exceptional circumstances. Following the approach of the ECJ in *IMS*, the Court adopted a broad reading of the condition of indispensability as it found sufficient that "two different stages of production were identified and that they were interconnected in that the upstream product was indispensable for supply of the downstream product".[183]

In addition, he CFI proceeded to a broad interpretation of the criterion of elimination of competition. It rejected Microsoft's argument that the Commission had to demonstrate that there was a high probability that the refusal to license an intellectual property right to a third party would eliminate all competition in the work group server operating systems market. According to the Court, it is not necessary to demonstrate that all competition on the market will be eliminated:

> "(w)hat matters, for the purposes of establishing an infringement of Article 82 EC, is that the refusal at issue is liable to, or is likely to, eliminate all *effective* competition on the market. It must be made clear that the fact that the competitors of the dominant undertaking retain a marginal presence in certain niches on the market cannot suffice to substantiate the existence of such competition".[184]

Indeed, the application of the leverage theory by the CFI does not require the existence of a dominant position, or the likelihood of the emergence of a dominant position of the undertaking on the secondary market.[185] The Court emphasized the rapid and significant growth of Microsoft's market shares and the marginalisation of its competitors' products and market position, which constitute much lower thresholds for antitrust intervention than the existence of a dominant position. The position of the Court may have been influenced by the significant network effects on this market, which would have made irreversible any tipping of the market to the benefit of Microsoft.

Remarkably, the CFI gave also a broad interpretation of the "new product rule" in comparison to the previous case law. The Commission had adopted its decision a month before the *NDC Health* judgment of the ECJ and it did not rely on the "new product" rule which was confirmed in this judgment as one of the conditions for the application of Article 82 to unilateral refusals to license. This approach was confirmed by the CFI:

> "(t)he circumstance relating to the appearance of a new product as envisaged in *Magill* and *IMS Health* […] cannot be the only parameter which determines whether a refusal to license an intellectual property right is capable of causing prejudice to consumers within the meaning of Article 82(b). As the provision states, such prejudice may arise where there is a limitation not only of production or markets, but also of technical development".[186]

The focus on the limitation of technical development to the detriment of consumers widens the scope of application of Article 82 EC in comparison to the interpretation of the new product rule of *Magill* and *IMS*. The Court does not develop specific criteria in order to assess the effect of the practice on technical development. It rather assumes that this would be the case, based on the finding that non-Microsoft work group server operating systems were better than Windows work group server

[183] *Ibid*., para 335.
[184] *Ibid*., para 563 (emphasis added).
[185] *Ibid*. para 559.
[186] *Ibid*., para 647.

systems,[187] and on the assumption that Microsoft's competitors will have enough incentives to innovate as it will be in their interest to differentiate their products with respect to parameters which consumers consider important.[188] Contrary to *Magill* and *IMS*, Microsoft's conduct did not impede the emergence of identifiable new products but affected the competitive process that would have brought about these new products in the future. The Court's emphasis on preserving the competitive process, considered as indispensable in order to maintain the ability of rivals to innovate is not very different from that followed by the Commission in the context of innovation markets under Article 81 EC.[189]

The test is also broader than the Commission's balancing to innovation test in the *Microsoft* decision. It is reminded that the Commission employed a balancing test and compared the incentives of innovation of Microsoft's competitor's with those of Microsoft. The CFI did not embrace the balancing test and explicitly excluded from the analysis under the new product rule the consideration of the effect of the specific conduct on Microsoft's incentives to innovate. This is an issue which the Court examines only under the circumstances relating to the absence of objective justification, which is the last step of the competition assessment:

> "The Court notes […] that although the burden of proof of the existence of the circumstances that constitute an infringement of Article 82 EC is borne by the Commission, it is for the dominant undertaking concerned, and not for the Commission, before the end of the administrative procedure, to raise any plea of objective justification and to support it with arguments and evidence. It then falls to the Commission, where it proposes to make a finding of an abuse of a dominant position, to show that the arguments and evidence relied on by the undertaking cannot prevail and, accordingly, that the justification put forward cannot be accepted".[190]

It follows that the dominant firm will bear the "initial burden of proof" to establish that if it were required to disclose the interoperability information that would have significant negative impact on its incentives to innovate.[191] The onus of proof will, however, shift to the Commission, if the dominant company is successful in providing objective justifications. Infringement of intellectual property rights is not sufficient to constitute an objective justification, as this will be inconsistent "with the *raison d'être*" of the exception which is recognized "in favour of free competition", if the plaintiff establishes the existence of the exceptional circumstances of *Magill* and *IMS*.[192]

The Court did not accept to balance Microsoft's incentives to innovate with those of its competitors and exercised a limited control on the Commission's counter-arguments that Microsoft's products would not have been cloned as a result of interoperability, that the interoperability was widespread in the industry concerned, that Microsoft's commitment was not different from previous case law and that it was compatible with Directive 91/250.[193] It did not however adequately respond to the main thrust of Microsoft's argument: that its incentives to innovate would be affected

[187] *Ibid*., para 652.
[188] *Ibid*., para 656 & 658.
[189] Commission Notice – Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, [2004] OJ C 101/2, para 25.
[190] Case T-201/04, para 688
[191] *Ibid*., para 697.
[192] *Ibid*., para 690-691.
[193] *Ibid*., para 710.

by the duty to provide full interoperability. One cannot seriously claim that incentives to innovate are affected only in circumstances when the competitors are able to clone the dominant firm's products. One may interpret the Court's decision as indicating that a dominant firm cannot argue that the duty to license will affect its incentives to innovate if they had initially followed an open access policy in order to establish their products in an existing market and then refused interoperability when they foresaw the opportunity that the market could tip in their favour. The Court might have arrived to a different conclusion, had Microsoft been the first to innovate in this market. The interpretation of the new product rule of the CFI may lead to an extension of Article 82 EC, as it takes into account only the incentives of the rivals of the dominant firm to innovate without considering those of the dominant firm. Nevertheless, it is always the case that a refusal to license would make it more difficult for competitors to innovate as it has generally the effect to place them at a disadvantage by comparison to the dominant firm.

The only limiting principle to an overbroad interpretation of this test would be the requirement that the disadvantage to rivals that is produced by the refusal to license causes consumer harm. Indeed, Article 82(b) EC sanctions abuses consisting in "limiting production, markets or technical development to the detriment of consumers". However, the interpretation of the consumer detriment requirement by the Court is ambiguous. Certainly, the Court notes that consumer choice would be affected if rival products of equal or better quality would not be able to compete on equal terms at the market.[194] In other parts of the decision the Court seems, however, to interpret this condition as requiring only the preservation of market access of competitors without requiring that the plaintiff brings evidence that the products that could be excluded from the market are or would likely be better quality products than those of the dominant firm. The existence of consumer choice seems to be equated to the preservation of competitive rivalry on the market:

> "[…] it is settled law that Article 82 EC covers not only practices which may prejudice consumers directly but also those which indirectly prejudice them by impairing an effective competitive structure. […] In this case, Microsoft impaired the effective competitive structure on the work group server operating systems market by acquiring a significant market share on that market".[195]

This illustrates the risk of an overbroad interpretation of the consumer detriment requirement in Article 82 EC following the CFI's decision.

4.5. Concluding remarks: the need to apply an overall "decision theory" framework

It should be clear by now that the case law has developed multiple standards in order to tackle the anti-competitive exercise of intellectual property rights. Despite the use of the 'property rights' rhetoric, the competition law authorities and the courts do not apply the essential facilities doctrine and take into account the need to protect innovation. The standards used are nevertheless complex and fact-specific, and ultimately a source of uncertainty for firms. The need for an overall approach is highlighted by Ahlborn, Evans and Padilla, who suggest an 'error-cost framework', which is structured in two stages. First, economic theory and evidence will be used "to assess the cost and likelihood of errors resulting from condemning welfare-

[194] *Ibid*., para 652
[195] *Ibid*., para 664.

increasing business practices or condoning welfare reducing ones"; in a second stage, "a legal rule that minimizes the expected cost of intervention taking into account the possibility of legal error" will be "selected from a spectrum of standards ranging from *per se* legality to *per se* illegality, including the rule of reason".[196] The authors start from the assumption that "what matters is the impact of forcing access on the incentives to innovate, and not the nature of the property rights at stake".[197] What applies to intellectual property rights should also apply to other property rights as both are "the result of previous investment or risk taking"[198].

This starting position may be criticized as it is not always true that intellectual property rights are the result of important investment or risk taking. In addition, this approach does not take into account the different degrees of previous investment and risk taking. An insignificant inventive effort will be considered the same way a significant one would be. The authors' assumption may be explained by the fact that they try to avoid the difficulties of balancing incentives to innovate with anticompetitive effects, which, they consider, is "an extremely complex" and "daunting task" for courts[199]. However, no valid reason exists in adopting such a strong assumption. If courts are considered able to conduct a rather complex balancing approach and take into account dynamic efficiencies in implementing article 81§3 EC, there is no reason why they are not able to exercise the same kind of analysis in implementing article 82 EC.

Based on their first assumption, the authors advocate that "the optimal legal standard for the antitrust assessment of refusals to license IP by dominant companies takes the form of a modified *per se* legality rule, where compulsory licensing is required only in exceptional circumstances"[200]. This is the case only when compulsory licensing is "most likely to result in a long-run welfare increase"[201]. However, the standard proposed is, in reality, a *per se* legality one as the authors add that "there is no practical way to restrict compulsory licensing to those situations in which it would necessarily improve consumer welfare in the long run"[202]. This conclusion stems from another assumption that may also be criticized. According to Ahlborn, Evans and Padilla, the existence of compulsory licensing will inevitably reduce the incentive *ex ante* for the IP holder to take the risk to invest in new products[203]. However, this hypothesis does not always hold. The increasing competition in the secondary market will exercise pressure on the IP holder to innovate as this will be the only way to maintain its competitive advantage against its competitors. The disincentive created by the compulsory license may well exist but it is also important to consider that the IP holder will still have a first mover advantage as it would probably not be before a substantial period of time that her rivals would be able to compete in equal terms.

Ahlborn, Evans and Padilla apply the "cost-error framework" to antitrust but not to intellectual property rights, which, they consider, is the outcome of a meritorious investment and risk taking. However, this double standard is not

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[196] C. Ahlborn, D.S. Evans & A. Jorge Padilla, above n 28, 1129.
[197] *Ibid*.
[198] *Ibid*., at 1141. They reiterate this proposition at the end of their article: "a similar approach should be applied to the assessment of unilateral refusals to provide access to physical infrastructure or to any other tangible or intangible property" (at 1156).
[199] *Ibid*., at 1143-1144.
[200] *Ibid*., at 1144.
[201] *Ibid*.
[202] *Ibid*.
[203] *Ibid*.

justifiable. Ironically, this approach assumes that decision analysis theory may be useful for assessing antitrust, which is essentially a judge-made law that follows an adversarial process[204] but not for examining intellectual property rights, which are granted by a regulatory body and therefore it is more likely that they are subject to decision errors. Indeed, the protection of IP has expanded considerably the last twenty years following the transformation of economic structures and the focus on competitiveness[205]. Even trivial inventions may benefit from an IP protection. Type I errors (over-expansion of IP rights) are therefore more likely to happen than type II errors (under-inclusiveness of IP protection).

The protection of intellectual property is backwards looking. The examination of the patent application focuses on the prior art and there is no assessment of the existence of possible substitutes or potential competition. The problem is particularly acute in emerging industries where prior art is difficult to locate as it is disseminated in scientific journals or in the form of informal know how, with the result that the patent officer's examination can be easily flawed.[206] By limiting the negative effects of type I errors, caused by a broad intellectual property protection, competition law is a necessary complement to intellectual property law.

In conclusion, competition law's intervention is justified if IP law has failed to guarantee the level of innovation in the market. This is what happened in *Magill*. Intellectual property rights were granted to simple data without any inventive effort been made. The European Community's Directive on the Legal Protection of databases, which provides high levels of protection for databases may also illustrate the side-effects of a careless intellectual property protection towards the need to protect competition in the markets[207]. The directive was adopted following an intense effort of lobbying by database companies and is a compromise between the lower "sweat of the brow" copyright protection that was granted to databases in some European countries (UK, Ireland) and the higher standard of copyright protection granted by other Member States (France). The directive established a legal framework giving a high level of copyright protection to "original" databases, which "by reason of the selection or arrangement of their contents constitute the author's own intellectual creation"[208] and a new form of "*sui generis*" protection to non-original databases if the "maker" of the database showed "that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents" of the database.[209]

The Directive protects a simple compilation of existing basic information, which is the result of some kind of investment. The objective of this form of IP protection is therefore not to protect innovation but to protect the database "makers" investments against the "parasitic behaviour" of free riders[210]. The "*sui generis*" protection granted has the potential to produce important anticompetitive effects. Contrary to a copyright protection, which distinguishes between the idea, which stays in the public domain, and the expression of the idea, which is protected, the database directive gives the possibility to exclude the re-utilization of the data by others. This

[204] According to the theory of the efficiency of common law: R. Posner, *Economic Analysis of Law* 6th edn (New York, Aspen, 2003), 25–27.
[205] C.May & S.K. Sell, *Intellectual Property Rights – A Critical History* (Lynne Rienner Pub., 2006), 143.
[206] A. Jaffe & J. Lerner, *Innovation and its Discontents* (Princeton Univ. Press, 2004) at 145-149.
[207] Directive on the legal protection of databases 96/9/EC OJ L 77/20 [1996].
[208] Art. 3 (1) of the Directive 96/9/EC
[209] Art. 7 (1) of the Directive 96/9/EC.
[210] First Evaluation of Directive 96/9 on the legal protection of databases, December 2005, 9.

is particularly risky for competition, "in cases, where a database is the only possible source of the data contained therein, such as telephone directories, television program listings or schedules of sporting events" and may result in "an absolute downstream information monopoly in derivative information products and services"[211].

In response to this risk, article 16 of the Directive required from the Commission to submit a report examining whether the application of the *sui generis* right "has led to abuse of a dominant position or other interference with free competition which would justify appropriate measures being taken, including the establishment of non-voluntary licensing arrangements". Indeed, while the first proposal of the Database Directive provided for the possibility of compulsory licensing in order to limit the risk of anti-competitive effects, these provisions were removed from its final version, which limited the right of the database "maker" only in exceptional circumstances[212]. This is probably why recital 47 of the Directive provides that this Directive is without prejudice to the application of Community or national competition rules, making therefore possible the limitation by competition law of the rights of the database "makers". The application of competition law can therefore be seen to be triggered by the failure of the text of the database Directive to take properly into account the protection of cumulative innovation and competition.

The national courts and the European Court of Justice have interpreted the "quantitative substantial investment" requirement of the Directive restrictively in order to avoid the emergence of anticompetitive effects[213]. Indeed, the ECJ curtailed the scope of the protection by explicitly refusing to adopt the "spin of" doctrine, developed by some Dutch courts, which would make possible to provide *sui generis* protection for databases generated as "by-products" of the main activities of the Database "maker" on which the later has a *de facto* monopoly (e.g. television program listings, railway schedules etc), which is the situation that arose in *Magill*[214]. The ECJ distinguished between creating and obtaining data in order to assemble the contents of a database[215]. It also considered that the activity of creating materials that make up the content of a database did not constitute substantial investment in the sense of the directive and that therefore a single-source database was not protected under the *sui generis* rights[216].

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[211] P.B. Hugenhotz, Abuse of Database Right: Sole-Source Information Banks under the EU Database Directive, in F Lévêque & H. Shelanski (ed.) *Antitrust, Patents and Copyright - EU and US Perspectives* above n 97, 203.

[212] Proposal for a Council Directive on the Legal Protection of Databases, COM (92) 24 final, OJ C 156/4 [1992] art. 8(1) and (2).

[213] Case C-46/02 *Fixtures Marketing Ltd. V. Oy Veikkaus Ab* [2004] ECR I-10365; case C-203/02 *The British Horseracing Board Ltd and Others v. William Hill Organisation Ltd* [2004] ECR I-10415; case C-338/02 *Fixtures Marketing Limited v. AB Svenska Spel* [2004] ECR I-10497; case C-444/02 *Fistures Marketing Ltd v. Organismos Prognostikon Agonon Podosfairou AE – OPAP* [2004] ECR I-10549. For an analysis of national courts' decisions, see First Evaluation of Directive 96/9/EC on the legal protection of databases [2005], 11.

[214] MJ Davison and PB Hugenholtz, Football Fixtures, Horseraces and Spin Offs: The ECJ Domesticates the Database Right [2005] *European Intellectual Property Review* 113; Derclaye, E 'The Court of Justice Interprets the Database Sui Generis Right for the First Time' [2005] *European Law Review* 420.

[215] Case C-46/02 *Fixtures Marketing Ltd. V. Oy Veikkaus Ab supra* at para. 34 ("the expression 'investment in […] the obtaining […] of the contents' of a database must […] be understood to refer to the resources used to seek out existing independent materials and collect them in the database, and not to the resources used for the creation as such of independent materials").

[216] Case C-203/02 *The British Horseracing Board Ltd and Others v. William Hill Organisation Ltd supra* footnote 213, at para. 35; M. J. Davison & P.B. Hugenholtz, Football Fixtures, Horseraces and

By adopting a narrow interpretation of the scope of the Directive the Court avoided that single-source databases would benefit from the *sui generis* protection and as a result enable the database "makers" to abuse their dominant position on the information they create. The recent evaluation report of the Database directive also considers the risk of potential anticompetitive effects and examines different options, ranging from the simple repeal of the Directive to the preservation of the status-quo. While the Commission notes the "attachment" of the EU database industry to the *sui generis* protection for factual compilations and their "considerable resistance" to any reform (an indication of the "specific-interest group" character of this legislation), it also remarks the weak empirical support for such system of protection.[217] It is interesting to note that the United States have opted for a system of liability and not of property rights in protecting the investments of the database "makers".[218] The US approach is based on unfair competition principles which protect the database "maker" against misappropriation only if, as a result, there will be market harm.[219]

The limitation of the scope of intellectual property protection makes possible the consideration *ex ante* (before the grant of the IP right) of the effects of IP rights on competition and constitutes therefore a conceivable option for attaining the right balance between competition law and intellectual property.[220]

The European Commission's recent proposal to amend Directive 98/71/EC on the legal protection of designs illustrates the dialectic relationship between the scope of IP rights and competition law.[221] By removing Members States' option to provide design protection for spare parts of complex products, such as motor vehicles, the Commission seeks to avoid the constitution of monopolies in the aftermarket for spare parts for which "there is no practical alternative".[222] The proposal codifies the case law of the ECJ in *Renault* and *Volvo*,[223] whose effect could have been curtailed by the generalisation of the 'new product rule' to all refusals to license IP rights, following the ECJ's judgment in *IMS/NDC* some months earlier.[224]

However, limitation of the scope of the IP rights is not always easy to achieve, especially because this will necessitate the harmonisation of national intellectual

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Spin Offs: The ECJ Domesticates the Database Right (2005) *E.I.P.R.* 113-118; E. Derclaye, The Court of Justice Interprets the database Sui Generis Right for the First Time (2005) *E.L.Rev.* 420-430.

[217] First Evaluation of Directive 96/9/EC on the legal protection of databases, *supra* at 5.

[218] The Supreme Court in *Feist Publications v. Rural Telephone Service Company*, 499 U.S. 340 (1991) refused to accept that information contained in a telephone directory could be protected under copyright laws. A database may only be copyrighted if it possesses some "minimal degree of creativity".

[219] G. Westkamp, Protecting databases under US and European Law: methodical approaches to the protection of investments between unfair competition and intellectual property concepts (2003) *International Review of Industrial Property and Copyright Law* 772-803.

[220] The adjustment of the duration of the IP protection is another option. See, L. Kaplow, The Patent–Antitrust Intersection: A Reappraisal (1984) 97 *Harvard Law Review* 1813, 1840 ('setting the patent life and determining patent-antitrust doctrine are interdependent endeavours; in other words, the system of equations that defines the optimization process must be solved simultaneously' and at 1841: 'the ideal institutional arrangement would involve a single entity with control over both policy instruments'). However, this is unlikely to happen as the duration of the IP protection is usually determined by international treaties, which is impossible or extremely difficult to amend.

[221] Proposal for a Directive of the European Parliament and of the Council amending Directive 98/71/EC on the legal protection of designs, COM(2004) 582 final.

[222] *Ibid*., 9.

[223] See above n 130.

[224] See on this point the criticisms of J. Strauss, Design Protection for Spare Parts Gone in Europe? Proposed Changes to the EC Directive: The Commission's Mandate and its Doubtful Execution (2005) *European Intellectual Property Review* 391, 394–6.

property laws and the emergence of a unified intellectual property enforcement system. A more viable option would be to "internalize" competition law concerns within intellectual property by developing "built-in balancing factors in intellectual property laws".[225]

5. The integration of competition law concerns in intellectual property law

Intellectual property has developed its own mechanisms in order to set limits on abusive patent exploitation of intellectual property rights. I will examine the issue of patents as these are the stronger IP rights in the sense that they give the possibility to the IP owner to exclude others from the use of the IP right. Copyright law only protects from copying (duplication, adaptation, distribution and public performance) and is subject to important exceptions and defences, such as the fair use doctrine. "Inadvertent" re-creation of the copyright work is also not actionable. "Inadvertent" infringements of patents are, on the contrary, actionable.[226] More generally, patents involve a stronger exclusionary right, while copyright may be conceptualized as a governance regime.[227]

Different instruments restrict the patentee's rights once they have been granted.[228] According to the exhaustion doctrine, the rights of the patent holder are "exhausted" after first sale by the right-owner or his consent therefore limiting the rights of the patentee. However, this doctrine relates to the free circulation of the goods embodying the patent right and does not solve the main issue covered by this paper, the possibility of the patent-holder to block cumulative innovation.

5.1. The reverse doctrine of equivalents

The reverse doctrine of equivalents in US patent law is another option to protect cumulative innovation and prevent unwarranted extension of the patent claims beyond a fair scope of the patentee's invention.[229] This doctrine is an instrument to accommodate two conflicting sets of property rights: the property right of the initial inventor with the property right of an improver. A cumulative innovator may own an improvement patent, which renders impossible for the subsequent innovators to use their improvements without infringing the pioneer's patent. The initial inventor cannot also use the improvement without infringing the subservient innovator's patent, which leads to a situation of blocking patents. The reverse doctrine of equivalents comes into play when the subservient innovation adds a considerably important value to the pioneer invention offering to the initial innovator the possibility to extract the most important part of the value created by the cumulative innovation (and avoid hold-up situations).[230] As Merges and Duffy explain "the reverse doctrine of equivalents solves the problem, by in effect excusing the improver from infringement liability – and therefore removing the original patentee's hold up

[225] I. Ranhasto, above n 15, 64.
[226] For an economic analysis of this difference see W. Landes & R. Posner, above n 60, 85-88.
[227] H. E. Smith, Intellectual Property as Property: Delineating Entitlements in Information, (2007) 116 *Yale L.J.* 1742, 1799-1814 (with regard to the definition of rights, the existence of compulsory licenses or exceptions as well as the range of theories of justification for granting IP rights). *Ibid*., 1814 ("rewards for invention or encouragement for creation have been invoked in both areas, but prospects for development and commercialization-based theories are largely limited to patent law").
[228] The duration of the patent right is obviously an important limit, which I will not examine further.
[229] *Westinghouse v. Boyden Power Brake Co.*, 170 U.S. 537; *Graver Tank*, 339 U.S. 605, 608-609.
[230] R.P. Merges & J.F. Duffy, above n 5, 997-1001.

right".[231] The doctrine offers a useful alternative to the absence of a formal possibility of compulsory licensing under US patent law.

5.2. Compulsory licensing

The possibility of compulsory licensing renders unnecessary such a doctrine in Europe. Indeed, according to Section 49 of the Patents Act 1977, once a British patent has been granted, the Comptroller has the power to grant a compulsory licence for a number of grounds, depending on the fact that the patentee is established in a country that is a member of the WTO agreement. Indeed, article 31 of the TRIPS agreement limits the number of grounds on which compulsory licensing can be based. One of the grounds is that "because of unreasonable restrictions on licensing the patent, exploitation of another patented invention, which is technically and economically important as being prevented or hindered, or commercial or industrial activities in the UK are being unfairly prejudiced".[232] The Comptroller has the discretion to grant compulsory licensing and will usually balance a variety of considerations, such as the nature of the invention, "the time that has elapsed since grant" or "the ability of the applicant to work it to the public advantage and the risks to him".[233] However, the high costs of compulsory licensing[234] and its disincentive effect to invest in R&D, may explain why this instrument is only used in rare occasions.

Both the reverse doctrine of equivalents and compulsory licensing provide limitations to the exercise of the exclusive right by the IP holder with the aim to protect cumulative innovation. Nevertheless, these restrictions do not cover pure competition law concerns, such as the leveraging of the monopoly power granted by the exclusive right to an adjacent market or the strategic use of the IP right in order to increase rivals' costs to the detriment of consumers. These are doctrines of IP law and cannot adequately address the interface between competition law and intellectual property. The patent misuse doctrine addresses these specific concerns.

5.3. Patent misuse doctrine

The patent misuse doctrine constitutes an affirmative defence to an action for patent infringement, the counterclaimant defendant arguing that the patentee improper attempts to extend the scope of the patent or violates the antitrust laws.[235] The doctrine was created in order to avoid the leveraging by the patent holders of their monopoly power from the patented good market to another market that was previously anticompetitive. This mainly covered two practices: tying practices "that conditioned a patent license on the purchase of an unpatented product" and "assertions by patentees that a sale of an unpatented good constituted contributory infringement".[236]

The doctrine first appeared after the failure of early case law to restrict the patent holders conduct relying solely on the antitrust laws.[237] The courts employed a

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[231] *Ibidem*, at 1000.
[232] W. Cornish & D. Llewelyn *Intellectual Property: Patents, Copyright, Trademarks and Allied Rights* (Sweet & Maxwell, 2003), 292.
[233] *Ibidem*, 292.
[234] The Comptroller has to decide the terms and the rate of the royalty of the licence granted.
[235] On the patent misuse doctrine see, ABA Section of Antitrust law, *Intellectual property Misuse: Licensing and Litigation* (2000).
[236] R.P. Merges & J.F. Duffy above n 5, at 1350.
[237] ABA Section of Antitrust law, *Intellectual property Misuse: Licensing and Litigation*, at 3-6.

property right rhetoric and refused to accept antitrust based defences to patent infringement claims. However, based on equity grounds, the Supreme Court refused in *Morton Salt Co. v. G.S. Suppinger Co* to enforce a patent because the patent holder was making use of its "patent monopoly" (sic) to restrain competition in the marketing of unpatented articles for use with the patented machines, thus extending its "monopoly" to a market uncovered by his or her patent right.[238] The doctrine was later extended to a number of commercial practices such as tying, minimum resale price maintenance and non-competition clauses but does not cover unilateral refusals to deal.[239] The 1952 Patent Act was amended in 1988 in order to overrule *Morton Salt* by eliminating the *per se* ban on patent tying when the patent holder does not dispose of market power. Subsequent case law linked the analysis of tying arrangements in the context of patent misuse with antitrust law standards.[240]

The evolution of the patent misuse doctrine towards antitrust law standards is a good example of the dialectical relation that should exist between these two disciplines, but also highlights the comparative advantage of the highly sophisticated in economic learning and evolving antitrust law standard in assessing the anti-competitive effects of business practices. The original IP doctrine of patent misuse was in fact a creation of the Supreme Court and as long as its foundations were in harmony with the activist antitrust enforcement of the 1950s and 1960s, the doctrine expanded. However, once the new economic learning of the Chicago school put into question the leverage theory on which the patent misuse doctrine was largely based, the later entered a long period of agony and gradually lost its autonomy to the antitrust concepts. By introducing a market power requirement, the reform of 1988 marked a turning point but was finally ineffective in maintaining the autonomy of the doctrine. Indeed, at the end, the courts turned to the familiar antitrust standards.

While having distinctive characteristics than the US patent misuse doctrine, the evolution of the misuse rule in Britain is not different. Established by the UK Patents Act of 1907 and recently embodied in Section 44 of the UK Patents Act of 1977, the misuse doctrine was restrictively construed by the courts and essentially covered tying arrangements. Article 44 was finally repealed by section 70 of the Competition Act in 1998 in order to render British legislation compatible with EC competition law, which exempted certain tying arrangements from the application of article 81 of the EC Treaty.[241]

The proposals of the FTC Report to integrate competition concerns in patent law constitute also another illustration of the effort of IP law to conform to antitrust standards. The FTC report made several proposals as to the necessary reform of the patent system. Two of them are of particular interest for this study: the possibility for the Patent Office to "consider possible harm to competition along with other possible benefits and costs, before extending the scope of patentable subject matter" and the necessity to "expand consideration of economic learning and competition policy

[238] *Morton Salt Co. v. G.S. Suppinger Co.*, 314 U.S. 488, 491-492 (1942)

[239] *Dawson Chem. Co. v. Rohm & Haas Co.*, 448 U.S. 176 (1980). See also, Section 271(d) of the Patent Act, which were added by the Patent Misuse Reform in 1988 and which provide that "no patent owner otherwise entitled to relied for infringement or contributory infringement of a patent shall be denied relied or deemed guilty of misuse or illegal extension of the patent right by reason of his having […] (4) refused to license or use any rights to the patent".

[240] *Virginia Panel Corp. v. MAC Panel Co.*, 133 F3d 860, 869 (Fed. Cir. 1997); *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1372 (Fed. Cir. 1998); *U.S. Philips Corp. v. International Trade Commission*, 424 F.3d 1179 (Fed. Cir. 2005); *Illinois Tool Works v. Independent Ink*, 126 S.Ct 1281 (2006).

[241] L Bently & B Sherman *Intellectual Property Law* (OUP 2004), 555.

concerns in patent law decision-making by increasing communications between the PTO and the antitrust agencies"[242]. These recommendations insist on the importance of trans-disciplinary links between IP and competition law[243] and illustrate the fact that intellectual property and competition law are in the process of becoming a unified field.[244] The Antitrust Modernization Commission, a bipartisan Commission put in place in order to reflect on the reform of US antitrust law, has also suggested that Congress "should seriously consider" the recommendations of the FTC Report and that "the courts and the Patent and Trademark Office should avoid an overly lax application of the obviousness standard that allows patents on obvious subject matter and thus harms competition and innovation".[245]

The rhetoric of "property rights" may artificially impede that trend. Propertarianism (and the possible slippery slope towards the concept of subjective rights) may render difficult the infusion into intellectual property of a degree of instrumentalism.[246] An instrumental approach presents the advantage that it avoids the caveat of considering IP rights as monopolies or as Drahos puts it "monopoly privileges".[247] The terminology of "monopoly privileges" does not avoid the pitfall of considering that an exclusive right is automatically a monopoly. Drahos uses the term "monopoly" because it has a negative connotation and therefore it could give more strength to his argument on the necessity to impose duties on the holders of IP rights. The term privilege also is used for the same reason.

Nevertheless, Drahos' definition of IP rights as "monopoly privileges", which give rise to corresponding duties does not avoid an internal inconsistency: how is it possible to argue that something is still a "privilege" if at the same time it generates duties? When does a privilege increasingly burdened with duties stop being a privilege? Drahos' definition also links the existence of duties to the idea of monopoly privilege and assumes that these are constant. If one person benefits from the same privilege than another one, both of them should be burdened with the same duties. However, this is not always true. The duties imposed on patent holders vary. A patent holder without a dominant position on the relevant market does not incur the same duties as a patent holder who does benefit from a dominant position and decides to adopt a tying practice. The nature of the "monopoly privilege" of both patent holders is nevertheless the same. It seems therefore necessary to search for another concept, which will be flexible enough to take into account the different situations. The concept of regulation avoids the negative connotation of the term monopoly privilege" and is flexible enough to facilitate the interaction between IP and competition law. The next section will explore the idea of IP as a form of regulation and its implications on the IP-competition law interface.

6. IP as a form of regulation

[242] *FTC Report*, Recommendations 6 and 10.
[243] See also, W. Kovacic, Competition Policy and Intellectual Property: Redifining the Role of Competition Agencies, in F. Lévêque & H. Shelanski (ed.) *Antitrust, Patents and Copyright – EU and US Perspectives*, above n 97, 1.
[244] W. K. Tom & J.A. Newberg, Antitrust and Intellectual Property: From Separate Spheres to Unified Field (1997) 66 *Antitrust Law Journal* 167.
[245] Antitrust Modernization Commission, Report and Recommendations, April 2007, 123.
[246] For a definition of this concept, see P. Drahos, *A Philosophy of Intellectual Property* (Dartmouth, 1996), 214.
[247] *Ibid*., 223-224.

There is not need to develop a grand theory on the perfect equilibrium between intellectual property and antitrust. This is a matter for the courts to resolve and, in my opinion it would be wrong to define *a priori* an abstract point of equilibrium which should anyway be achieved. Indeed, my objective is not to question the way each discipline is framed by its own institutions, but to propose the establishment of a permanent dialectical relationship between them. My analysis does not have the ambition to conceptualize in general IP rights as a form of regulation but to find an adequate terminology in the framework of the competition law discourse on IP. I will compare the practical implications of the terminology of "regulation" on the antitrust law-IP interface with those of the rhetoric of "property rights" and will conclude that the terminology of "regulation" is better suited for the constitution of a dialectical relation between competition law and intellectual property. This is not to deny that IP lawyers may take the view that in other circumstances a property rights terminology is more appropriate

6.1. The regulatory theory of intellectual property

The idea is not a new one. In his concurring opinion in the *Picard v. United Aircraft Corp.* in 1942, Judge Frank analysed patents as "public franchises, granted by the government, acting on behalf of the public".[248] Endorsing the view that patents were monopolies was nevertheless for him "superficial thinking", as patents may be a stimulus to competition and may offer the opportunity to small firms to compete with important corporations and attract investors. As Judge Frank puts it,

> "the threat from patent monopolies in the hands of such outsiders may create a sort of competition - a David versus Goliath competition – which reduces the inertia of some huge industrial aggregations that might otherwise sluggish"[249].

The problem therefore "is not whether there should be monopolies but rather, what monopolies there should be, and whether and how much they should be regulated"[250]. If patents are viewed as "public franchises",

> "it is, accordingly, appropriate to ask whether the holder of such a public franchise should be permitted, without any governmental control whatever, to decide that no public use should be made of the franchise during its life or only such public use as the franchise-holder, in its utterly unregulated discretion, deems wise, and at such prices as it sees fit to extract. We accord no such powers to the holder of a public franchise to run a bus line or to sell electric power"[251].

Although there are differences between public franchises on networks and public franchises for innovation purposes[252], the parallelism drawn by Judge Frank is particularly useful as it provides a flexible overarching theory and is compatible with the historical roots of intellectual property. The protection of new inventions and situations of natural monopoly in network industries may indeed be considered as the two remaining exceptions to the traditional common law principle of the prohibition

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[248] *Picard v. United Aircraft Corp*., 128 F.2d 632, 645 (2nd Cir. 1942), Judge Frank (concurring opinion)
[249] *Ibid*., at 643.
[250] *Ibid*.
[251] *Ibid*., at 645.
[252] While the reward theory may serve as a common ground for both of them, public franchises for innovation purposes have also the objective to provide incentives to potential inventors by promising them supra-competitive profits ("monopoly-profit-incentive thesis").

of monopolies, now enshrined in competition law. Their nature as exceptions to the rule inevitably raises questions concerning possible regulatory constraints to the IP holder's actions. The study of the evolution of public franchises in the late 19th century can provide an interesting illustration of the inevitable movement of public franchises to regulation.[253] Patents may also "fit the model of the relational contract, particularly if we view the patent owner and the state as engaging in a long-term, open ended contract.[254]

The term 'regulation' is predominantly taken to refer to a form of collective intervention with the principal objective to address market failures.[255] IP rights impose obligations on third parties, not as a consequence of a contract, tort or voluntary exchange, but because of the direct intervention of the government, which aims to "stimulate particular activities to foster the general welfare".[256] Consequently, IP rights "have nothing to do with the classical notion of property, but rather have to be qualified as a kind of government intervention in the market place".[257] By conferring property rights on ideas, the government seeks not only to facilitate market transactions, as is the case for physical property rights, but also to correct a market failure, which is in this case "free riding that occurs when innovations are too easily copied, and the corresponding decrease in the incentive to innovate".[258] This is a fact that is often forgotten by the "extreme free marketers", who "might rail at the excesses of regulation or antitrust" but "they tend to accept the system of intellectual property rights as if it were handed from a mountaintop".[259] Yet as Hovenkamp observes,

> "IP laws create property rights. But so do state created exclusive franchises and filed tariffs. In fact, the detailed regulatory regimes that we call the IP laws are filed with very rough guesses about the optimal scope of protection – ranging from the duration of patents and copyrights to the scope of patent claims and fair use of copyrighted material. The range of government estimation that goes on in the IP system is certainly as great as in regulation of, say, retail electricity or telephone service. Further, the IP regime is hardly immune from the legislative imperfections that public choice theory uncovers".[260]

Other authors have criticized the reward theory of patents which, according to them, "emphasizes only one dimension of the patent instrument – compensation for innovation – and ignores the role of patents as means of regulating markets".[261] The

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[253] See the excellent study by G. Priest, The Origins of Utility Regulation and the 'Theories of Regulation Debate' (1993) 36 *Journal of Law and Economics* 289.

[254] S. Ghosh, Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred, (2004) 19 *Berkeley Tech. L. J.* 1315, 1341.

[255] On the different meanings of the term 'regulation', see A. Ogus, *Regulation: Legal Form and Economic Theory* (Oxford, Hart Publishing 2004) 1–3; R. Baldwin & M. Cave, *Understanding Regulation* (Oxford, OUP, 1999) 1–2.

[256] B. Bouckaert, above n 77, 805 (IP rights 'are exogenous to the inner logic of private law' and 'the only difference (with government regulation) is that the users of the ideas compensate producers directly without the intermediation of the government').

[257] *Ibid,* 806.

[258] H. Hovenkamp, *The Antitrust Enterprise—Principle and Execution* (Cambridge, Mass, Harvard University Press, 2005) 228.

[259] H. Hovenkamp, Antitrust and the Regulatory Enterprise, (2004) *Columbia Business L. Rev.* 335, 336.

[260] *Ibid,* 337.

[261] S. Ghosh, Patents and the Regulatory State: rethinking the Patent Bargain Metaphor After Eldred, above n 254, 1351.

same point is also made by Bently and Sherman, for whom patents are "regulatory tools" which are used by governments in order to achieve economic as well as non-economic ends.[262] For example, the patent offices should also take into account the external effects of the impact of technology on the environment or health.

In their seminal study of the case law of the Federal Circuit on patents, Burk and Lemley present the view that patent law is an industry and technology specific regulation.[263] Different innovation theories, such as prospect theory, incentive theory, cumulative innovation theory and anti-commons theory are appropriate for some industries and inappropriate for others. This "industry-specific patent theory" may explain what would seem otherwise an inconsistent theoretical framework.[264] Exploring the enforcement of patents in the US, Burk and Lemley identify several 'policy levers', which help the patent offices and the courts to frame IP doctrines which correspond to the needs of cumulative innovators and consumers.[265] Intellectual property protection should depend on the characteristics of the industry. For example, Burk and Lemley consider that while it is necessary to assure a broad patent protection for biotechnological and chemical inventions, "because of their high cost and uncertain development process, the opposite is true in the case of software development."[266] It is therefore important to protect competition and cumulative innovation more than this would be the case with biotechnology or the semi-conductors industry[267]. Competition law could be a necessary complement to patent law in this case more than it would be in another industry. This does not support the existence of sui-generis IP regimes but the development of policy levers within IP law that would take into account these sector specific characteristics.[268] The existence of sector-specific IP protection on semi-conductors, software, medicinal products and biotechnology in Europe may however illustrate the point.[269]

More recent studies insist on the modularity of the concept of exclusion, which is the characteristic of property rights and the existence of governance mechanisms which may be used as complementary strategies for defining property rights: "(i)ntellectual property, like property in general, can be seen as (at best) a second-best solution to a complex coordination problem of attributing outputs to inputs".[270] The analysis of IP rights as falling between the poles of a continuum between property rights and liability rules, depending on the information costs involved in the definition of these rights or the existence of adequate remedies, injunctive relief or liability rules which allow access at a price set by a court or agency, also conceptualizes IP rights as

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[262] L. Bently, L and B. Sherman, above n 241, 329

[263] D.L. Burk & M.A. Lemley, Policy Levers in Patent Law, 89 *Va. L. Rev.* 1575 (2003).

[264] *Ibid*. 1615-1630.

[265] *Ibid*. 1687-1689.

[266] *Ibid*. 1687-1688 ("software inventions tend to have a quick, cheap, and fairly straightforward post-invention development cycle […] The lead time to market in the software industry tends to be short. The capital investment requirement for software development is relatively low- mostly infrastructure")

[267] *Ibid*., at 1689.

[268] *Ibid*. 1631-1638.

[269] Council Directive 87/54/EEC of 16 December 1986 on the legal protection of topographies of semiconductor products, OJ 1987 L 24/36; Council Directive 91/250/EEC above n 174; Council Regulation 1768/92/EEC of 18 June 1992 concerning the creation of a supplementary protection certificate for medicinal products, OJ 1992 L 182/1; Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions, OJ 1998 L 213/13.

[270] H. E. Smith, Intellectual Property as Property: Delineating Entitlements in Information, (2007) 116 *Yale L. J.* 1742.

a non-uniform regulatory tool that can be employed according to the circumstances of each economic sector.[271]

6.2. Implications for the competition law-intellectual property interface

The regulatory theory of IP may provide a better platform than the "property rights" rhetoric for establishing a dialectical relationship between competition law and IP. In particular, it will allow consideration of the internalisation of competition concerns within the IP regime, while avoiding the application of the essential facilities doctrine.

The example of the *Microsoft* case is worthy of note. Microsoft argued that Article 6 of the EC Software Directive provided an adequate remedy for competition law concerns, as it authorised the decompilation of "parts of a software program", without the permission of the copyright holder, if this was "indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs".[272] While this possibility was subject to certain conditions,[273] Microsoft argued that the balancing of IP with competition law concerns had already been done by the Software Directive, which provided a standard of "full interoperability".[274] Accordingly, the application of Article 82 was redundant and would have "upset the careful balance between copyright and competition policies struck by the Software Directive".[275]

The Commission refused Microsoft's claims. Taking a dogmatic approach, it emphasised the quasi-constitutional character of Article 82, which cannot be "superseded" by "secondary Community legislation".[276] The Commission remarked that the Software Directive simply provided for a passive duty of interoperability. In any event, recital 27 of the Directive explicitly stated that its provisions were without prejudice to the application of competition rules under Articles 81 and 82 EC. However, while affirming the primacy of Article 82, the Commission examined at length Microsoft's claim that its rival, Sun required a high degree of interoperability that went "beyond the full interoperability" requirement of the Software Directive.[277] By doing so, it implied that if the Software Directive did not explicitly mention that a refusal to grant interoperability might constitute an abuse of a dominant position and if Microsoft provided the "full interoperability" required by the Directive, Article 82 EC might not have applied in this case.[278] It was indeed clear that the Software Directive avoided adopting measures restraining competition and did not provide any express or implied anti-trust immunity. The decompilation requirement that it imposed was therefore a minimum standard to achieve.[279]

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[271] M. Lemley & P. J. Weiser, Should Property or Liability Rules Govern Information?, (2007) 85 *Tex. L. Rev.* 783.

[272] Art 6 of the Software Directive above n 174.

[273] In particular, according to Art 6(c), the independently created program should not be 'substantially similar in its expression' to the de-compiled programs. This requirement is less far-reaching than the 'new product rule' of *IMS/NDC Health,* above n 133, as it does not exclude decompilation for creating independent competing products, which may accomplish the same functions as the decompiled program, without however being substantially similar to the latter.

[274] *Microsoft/W2000,* above n , para 750

[275] *Ibid,* para 743.

[276] *Ibid.*, para 744.

[277] *Ibid,* paras 749–62.

[278] *Ibid,* para 763 (interpreted *a contrario*).

[279] On the struggle between 'pro-competition' forces and strong IP protection proponents and the resulting compromise that led to the adoption of the Software Directive see A. Palmer & T. Vinje, The

The CFI did not accept Microsoft's arguments that the interoperability requirement imposed by Article 5 of the contested decision was not consistent with the concept of full interoperability envisaged by Directive 91/250 and suggested a restrictive definition of this concept as involving a "one-way" interoperability instead of the "two-way" relationship that was required by the Commission's decision.[280] The Court considered that recital 12 of the 91/250 Directive gave a clear indication that interoperability, according to the Directive, implied a two-way relationship and was therefore consistent with the full interoperability required by Article 5 of the Commission's decision.[281] Nevertheless, the Court also remarked that

> "(i)n any event, it must be borne in mind that what is at issue in the present case is a decision adopted in application of Article 82 EC, a provision of higher rank than Directive 91/250. The question in the present case is not so much whether the concept of interoperability in the contested decision is consistent with the concept envisaged in that directive as whether the Commission correctly determined the degree of interoperability that should be attainable in the light of the objectives of Article 82 EC".[282]

The Court's approach has two implications: First, it reaffirms the normative hierarchy of the competition provisions of the Treaty with regard to secondary legislation adopted in order to enhance the protection of IP rights at the EC level. Second, it requires the interpretation of the provisions of the Directive in conformity with the competition law provisions of the Treaty, regardless of the specific characteristics of the IP rights or the economic sector involved. In *Microsoft* the Court was quick to find that the Commission was right in assessing the degree of interoperability by reference to what, in its view, "was necessary in order to enable developers of non-Microsoft work group server operating systems to remain viably on the market".[283] The Court observed that dominant firms have a "special responsibility, irrespective of the causes of that position, not to allow its conduct to impair genuine undistorted competition on the common market" and that "if the existing degree of interoperability does not enable developers of non-Microsoft work group server operating systems to remain viably on the market for those operating systems" the maintenance of effective competition on that market would be hindered.[284]

The fact that competition law concerns will always trump the IP right of exclusion if competitors are marginalised or are forced to exit the market, denotes the broad scope of the interoperability duty that is required by the Court and the lack of any analysis of the economic and legal context of the specific IP right or economic sector. The Court's one size fits all position can be fully justified in certain industries but may prove to be inadequate in others. The necessary balance to achieve between the two areas of law should depend on the scope, strength of the IP protection provided and the specificities of each economic sector. Mark Lemley interestingly observes that "we must treat IP and antitrust law as equals" and that "both IP and antitrust are policy tools that can be used to encourage innovation and therefore promote dynamic efficiency".[285] This approach implies that competition enforcers

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EC Directive on the Legal Protection of Computer Software: New Law Governing Software Development (1992) 2 *Duke Journal of Comparative and International Law* 65.

[280] Case T-201/04, above n 100, para 108.

[281] *Ibid*, para 226.

[282] *Ibid*, para 227.

[283] *Ibid*, para 228.

[284] *Ibid*, para 229.

[285] Mark Lemley, above n 15, at 256

should take into account the economy of the particular IP rights, their scope, the degree of protection that is needed in order to promote innovation, the possibilities to adequately address dissemination concerns within the IP law system, before reaching any decision to impose an antitrust remedy. Regardless of the factual situation in the *Microsoft* case, which may ultimately justify the conclusion reached by the Commission, the overly restrictive language used by the Court does not leave much space to this necessary additional step to the analysis.

One could compare the position of EU law with the "federal regulatory immunity" doctrine which applies in US anti-trust law, according to which anti-trust should not apply if it were to frustrate the economic goals pursued by a specific regulatory regime.[286] This "immunity" (the term 'deference' is preferable in this case) could be either explicitly mentioned by the regulatory statute itself or implied in order to avoid conflicts between regulatory and antitrust requirements. Based on this doctrine one could advance the position that competition law should not frustrate the regulatory goals of IP rights protection. Consequently, competition law will be less likely to apply if the IP regime has already internalised competition-like (open access) concerns and provided an effective system of remedies that may guarantee an adequate level of dissemination of the innovation. This approach avoids an across-the-board application of competition law which will overlook the particular characteristics of the industry and of the specific IP rights.

The absence of extensive Community harmonisation of IP rights may, however, be an obstacle to the expansion of this doctrine. Community harmonisation of IP rights has also been mainly achieved by directives, which leave to the Member States an important margin of discretion regarding the way in which dissemination of innovation concerns could finally be implemented.[287] It should be possible in this case to have recourse to the residual application of competition law. Furthermore, contrary to US antitrust law, European competition law does not exempt from competition law enforcement, practices that have already been subject to the regulation of a Member State, even if this regulation was adopted in compliance with an EU regulatory framework.[288]

It follows that the extent of competition law deference to the IP regime will depend on the degree (and detail) of Community harmonisation and the effective internalisation of dissemination concerns within the particular IP regime. The Community legislature and IP regulators and courts would therefore be in a position to define the balance between incentives and dissemination according to the characteristics of the particular economic sector or IP regime, without undue interference from competition law. Indeed, advocating the existence of a hierarchy between intellectual property and competition law, for the simple reason that the latter

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[286] See H. Hovenkamp, above n 258.

[287] The implementation of the decompilation defence of Art 6 of the Software Directive in the UK illustrates the risks of regulatory diversity between Member States. See L. Bently and B. Sherman above n 241, 219–21.

[288] Cf. Commission Decision 2003/707, *Deutsche Telekom AG*, OJ 2003 L 263/9 (an action for annulment of this decision was brought before the CFI—Case T–271/03) ; Commission Decision COMP/38.784 - *Telefonica SA*(broadband) 4 July 2007, available at http://ec.europa.eu/comm/competition/antitrust/cases/decisions/38784/dec_en.pdf
(appeals pending T-336/07 (Telefonica), T-398/07(Spanish gov) with *Verizon Communications Inc Law Offices of Curtis V Trinko, LLP*, 540 US, 398, 413 (2004) & *Credit Suisse Securities (USA) LLC v. Billing*, 127 S.Ct 2383 (2007). See however, Commission decision 2004/207, *T-Mobile Deutschland/O2 Germany*, OJ 2004 L 75/32, para 95 (the alternative offered by a sector specific regulatory remedy is a factor to be considered).

is a Community competence enshrined in the Founding Treaties, whereas the former remains largely a national competence or the product of derivative legislation, is a legalistic approach which neglects the fact that both regimes are complementary tools in the regulation of innovation.

Adopting a regulatory approach to IP will also make possible the establishment of interdisciplinary and trans-national networks which will enhance interaction between the different patent offices, at the European and national level, judges and competition authorities, as is already happening with the European regulatory networks in telecommunications, electricity and gas.[289] Competition law should of course remain the default option in case the IP system does not provide for a specific mechanism of promoting innovation *ex post* grant of the IP right. Indeed, *ex ante* consideration of competition or dissemination concerns may not be an effective tool in situations of significant informational uncertainty as to the form of the innovation process. The IP authorities and specialist courts may be in a better position, in terms of specialist knowledge of the specific industry, than the general antitrust courts to devise a remedial structure that will address *ex post* the specific dynamic efficiency or innovation concerns.[290]

These are some of the implications of the regulatory approach to the competition law–IP interface, but other possibilities could also be explored. It is clear, however, that the abandonment of the sterile "property rights" approach is a prerequisite for establishing a real dialectical relationship between competition law and IP that will guarantee the optimal level of innovation in the specific industry. This implies, as the first step of the analysis, the clear identification of the risks to innovation that would result from an overly broad IP protection.

6.3. Biotechnology as an illustration of the new competition law-IP intersection

Biotechnology is a fairly recent industry that involves the engineering of genetic material towards practical ends such as medical and veterinary advances.[291] The development of the industry is quite recent, starting with the invention by professors Cohen and Boyer of the basic technique for creating recombinant DNA and the filing of the first patent application (Cohen-Boyer technology) in November 1974. Since then, a number of patents have been issued on research tools, such as recombinant DNA technology, on newly discovered and isolated genes or proteins, or on methods of treating patients through the use of a particular gene or protein.[292] However, "largely by chance, the industry has remained relatively free of broad, dominant patents covering basic technology", at least during the first twenty years of its development.[293] The biotechnology industry has developed strong links with the pharmaceutical industry: basic research identifies potential products and then these

[289] On the need to develop informal trans-disciplinary links between competition law and IP, see also W. Kovacic, Competition Policy and Intellectual Property: Redefining the Role of Competition Agencies in F. Lévêque and H. Shelanski (eds), above n 97, 1, 9 (advocating "the development of new cooperative networks in which competition agencies work with collateral government institutions, such as rights-granting authorities, to study the interaction of these regulatory regimes").

[290] The approach is not very different from that of the Supreme Court in *Credit Suisse Securities* above n 288, at 2395-2396 (where the absence of expertise of antitrust courts and the "threat of antitrust mistakes" led to a finding of antitrust immunity).

[291] *FTC Report*, above n 59, chap. 3, at 15

[292] Y. Ko, An Economic Analysis of Biotechnology Patent Protection, (1992) 102 *The Yale L. J.* 777, 783.

[293] R. Merges & J. Duffy, above n 5, 856-857.

are developed through partnerships with the pharma industry in order to test and commercialise the product.[294] Patents facilitate this process of innovation by attracting venture capital and thus making possible for the biotechnology industry to sustain innovation through massive R&D investments. The patenting of research tools, such as screening technologies, modelling programs or genomic databases spurs the process of cumulative innovation, according to the prospect theory of patents.

Since the seminal *Diamond v. Chakrabarty* decision of the US Supreme Court[295], which declared that living organisms produced by human intervention are patentable, the trend has been to grant broad patents to the biotechnology industry, in particular as the costs and the risks of R&D in this area are particularly high.[296] A similar trend can be identified in Europe, with the adoption of a specific Directive on Biotechnology in 1998 and the broad interpretation of Article 52(1) of the European Patent Convention (EPC) in the biotechnology industry, following Rules 26-29 of the Implementing Regulations to the European Patent Convention.[297] Biotechnological inventions are patentable under the EPC if they concern either (i) a biological material which is isolated from its natural environment or produced by means of a technical process even if it previously occurred in nature, (ii) plants or animals if the technical feasibility of the invention is not confined to a particular plant or animal variety or (iii) a microbiological or other technical process, or a product obtained by means of such a process other than a plant or animal variety.

The grant of broad patents in the biotechnology sector may, however, restrict innovation and produce anticompetitive effects essentially in two ways. First, multiple property rights may lead to the development of anticommons, which defines a situation where owners have claims to separate inputs needed for the same product or line of research.[298] This situation may increase transaction costs, inventing around costs and/or eventually produce a situation of royalty stacking that can ultimately harm consumers (exploitative abuses). Second, broad patents on upstream research methods may lead to the foreclosure of the development of independent research paths that are important in order to promote creative development of early-stage research that could lead to the commercialisation of new drugs or will increase competition in the downstream market. Blocking patents or patent thickets situations may block the process of cumulative innovation and consequently harm final consumers (exclusionary abuses).

There are certainly a number of tools to address these concerns. It is possible to conclude licensing arrangements, develop open-access regimes by making upstream research public (or though copyleft licences) or conclude alliances between upstream inventors and multiple downstream companies that will avoid anticommons

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[294] A. Rai, Fostering Cumulative Innovation in the Biopharmaceutical Industry: The Role of Patents and Antitrust, (2001) 16 *Berk. Tech. L. J.* 813, 817.

[295] *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

[296] The obviousness standards for biotechnology inventions has been lowered following the enactment of § 103(b) also known as the "Biotechnological Process Patents Act of 1995"). The trend towards a broad approach in defining non obviousness may however change after the *KSR International Co. v. Teleflex* 550 U.S._, 127 S. Ct 1727 (2007) decision of the Supreme Court which although it does not concern the biotechnology sector may mark a trend towards the tightening of the nonobviousness standard..

[297] Directive 98/44/EC, above n 269; Implementing Regulation to the Convention on the Grant of European Patents of 5 October 1973 as adopted by decision of the Administrative Council of the EPO of 7 December 2006 (hereinafter *Implementing Regulation*), available at http://www.epo.org/patents/law/legal-texts/html/epc/1973/e/ma2.html

[298] MA Heller & R.S. Eisenberg, Can Patents Deter Innovations? The Anticommons in Biomedical Research. (1989) 280 *Science* 1.

and will eventually reduce transaction costs. In addition, patent law may develop specific instruments that will address these concerns. First, it may ensure that most upstream research remains outside the bounds of patentability, by excluding from patentability abstract ideas or imposing a requirement of specific, substantial and credible utility.[299] Second, the patent authorities may develop a narrow interpretation of patent claims in the specific industry in situations where broad patent claims will create impediments to competition and there is no possibility of inventing around even narrow patents.[300] Third, the specific patent law regime may recognize the existence of an experimental use exemption.[301] This possibility is envisaged in Europe, where according to Article 9(b) of the Draft Community Patent Regulation, "acts done for experimental purposes relating to the subject matter of the patented invention" are not found to infringe the patent.[302] Furthermore, Article 60(5) of the UK Patent Act of 1977 provides also for an experimental use exception as well as in situations where the infringement act of the patent is done privately and for purposes that are not commercial.[303] These exceptions are in conformity with Article 30 of the TRIPS agreement, according to which, "(m)embers may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties".[304] Finally, there is always the possibility of compulsory licensing in certain specific circumstances, according to Article 21 of the Draft Community Patent or Article 12 of Directive 98/44/EC[305]. Nevertheless, the conditions to apply for compulsory cross-licensing are quite restrictive, as applicants must show that

> "(a) they have applied unsuccessfully to the holder of the patent or of the plant variety right to obtain a contractual licence;
>
> (b) the plant variety or the invention constitutes significant technical progress of considerable economic interest compared with the invention claimed in the patent or the protected plant variety"[306]

In practice, the possibility of compulsory licensing is quite limited and does not cover all possibilities of restriction of competition and cumulative innovation in the downstream market, following a refusal to licence.[307] In addition, the European Patent Office does not take into account the economic effect of the grant of patents in

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[299] One could also add the exceptions to patentability under article 53(a) of the European Patent Convention or Rule 28 of the Implementing Regulation.

[300] D.L. Burk & M.A. Lemley, above n 263, at 1676-1683.

[301] R. Eisenberg, Patents and the Progress of Science: Exclusive Rights and Experimental Use, (1989) 56 *U. Chi. L. Rev.* 1017.

[302] Art. 9(b) of the Draft Community Patent Regulation, 21 Dec. 2003 version, available at http://ec.europa.eu/internal_market/indprop/patent/index_en.htm#patent

[303] However, this exception has been interpreted narrowly by the Courts. See, *SK&F v Evans* [1989] FSR 513; *McDonald v Graham* [1994] RPC 515 (CA).

[304] On the interpretation of the specific conditions of this provision, see World Trade Organization Panel Report *Canada - Patent protection of Pharmaceutical Products* WT/DS114/R (2000), para. 7.3.

[305] According toArticle 31(k) of the TRIPS agreement, compulsory licensing is possible in order to remedy a practice determined after judicial or administrative process to be anticompetitive.

[306] Art. 12, Directive 98/44/EC.

[307] According to recitals 52 and 53 of Directive 98/44 compulsory licensing is granted in situations where the invention represents *significant* technical progress of *considerable* economic interest. Emphasis added. It is clear that the simple existence of anticompetitive effects in a downstream market is not sufficient to grant compulsory licensing. See also, I. Haracoglou, Competition Law as a Patent 'Safety Net' in the Biopharmaceutical Industry, (2004) 1(2) *Comp. L. Rev*. 65, 72-73.

specific areas of technology and any limitation or exception to the grant of patent rights, under Article 53(a) of the European Patent Convention, is only confined to situations where the commercial exploitation of the invention would be contrary to "ordre public" or morality.[308]

Competition law should in this case intervene in order to address the issues left unresolved by the IP regime but should also take into account, as an interpretative guide, the need for a relatively broad protection of biotechnological inventions and the importance granted to the incentives of the biotechnology companies to invest in R & D, as this is clearly identified in Directive 98/44.[309] The enforcement of competition law in this industry should therefore be extremely cautious and should avoid the application of overly restrictive to incentives to innovation competition law instruments, such as the essential facilities doctrine. Competition law intervention should be responsive to the specific anticompetitive effects that have been identified in this industry, such as the risk for cumulative innovation following the patenting of upstream research tools and the anticommons problem.

The competition authorities may employ the concept of innovation markets in order to tackle the first anticompetitive concern.[310] The European Transfer of Technology Guidelines provide that,

> "(s)ome licence agreements may affect innovation markets. In analysing such effects, however, the Commission will normally confine itself to examining the impact of the agreement on competition within existing product and technology markets. Competition on such markets may be affected by agreements that delay the introduction of improved products or new products that over time will replace existing products. In such cases innovation is a source of potential competition which must be taken into account when assessing the impact of the agreement on product markets and technology markets. In a limited number of cases, however, it may be useful and necessary to also define innovation markets. This is particularly the case where the agreement affects innovation aiming at creating new products and where it is possible at an early stage to identify research and development poles. In such cases it can be analysed whether after the agreement there will be a sufficient number of competing research and development poles left for effective competition in innovation to be maintained".[311]

Competition law enforcement may also adopt a more permissive approach for technological patent pools in this particular industry as patent pools may effectively address the anticommons problem and reduce transaction costs.[312]

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[308] Guidelines for Examination in the European Patent Office, Dec. 2007, Chapter IV-7, para. 4.4. See also G 1/98, OJ 3/2000, 111, reasons 3.9.

[309] Reciotal 2 of Directive 98/44 provides that "[…] in the field of genetic engineering, research and development require a considerable amount of high-risk investment and therefore only adequate legal protection can make them profitable".

[310] R. Gilbert & S. Sunshine, Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets, (1995) 63 *Antitrust L.J.* 569.

[311] Commission Notice – Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, above n 189, para. 25. For a similar cautious approach in using this concept see, Timothy J. Muris, Chairman, FTC, Statement In re Genzyme Corp./ Novazyme Pharmaceuticals 25 (Jan. 13, 2004), available at http://www.ftc.gov/opa/2004/01/genzyme.shtm

[312] For the application of competition law to technologicla patent pools, see Commission Notice – Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, above n 189, para. 210-235.

7. Conclusion

The emergence of a particular discourse is often the response to a situation of conflict between policies pursuing different objectives. The property rights rhetoric has been instrumental in providing some degree of deference to intellectual property rights during a period of active anti-trust enforcement. However, circumstances have evolved. Innovation has become an objective of competition law. The relationship between the two disciplines is no longer antagonistic, but complementary. At the same time, intellectual property protection has expanded considerably and is often granted to trivial inventions.

This evolution challenges the usefulness of the property rights approach which aimed at defending IP rights against a disproportionate application of competition law. In fact, the property rights rhetoric does not contribute to the understanding of the need to balance incentives to innovation with that of enhancing cumulative innovation to the benefit of the consumers. It is also misleading as the analogy between IP rights and property rights on tangibles cannot stand close scrutiny. Indeed, from an economic analysis perspective, IP rights present different characteristics from property rights on tangibles.

This entails the emergence of different competition law standards in assessing refusals to license IP rights from those employed for “normal” property rights. Competition law or access concerns have also been internalised in intellectual property, which reveals the close links between these two areas of law. On the contrary, the rhetoric of “property rights” is static as it visualises IP and competition law in separate spheres, and therefore renders more difficult the establishment of a dialectical relationship between the two areas. It is submitted that the conceptualisation of IP as a form of regulation may provide a useful theoretical basis for a better understanding of the interactions between competition law and intellectual property. It will make possible the realisation of the objectives of both of these two areas of law while also taking into account in assessing the appropriate levels of regulation, the specific circumstances of each economic sector.