

COPYRIGHT AND ANTITRUST ISSUES**

*Giovanni B. Ramello**

1. Introduction

The recent Microsoft case has brought spectacularly before the public's attention the tension which exists between antitrust and copyright law¹. In fact intellectual property rights, even where not expressly invoked, have been the focal point of the judicial proceedings and remedies². In addition, charged with anti-competitive practices, Bill Gates' company appealed directly to the exclusive rights conferred by copyright in his defence, pointing out the margin of uncertainty which exists between legitimate use of copyright and the protection of competition³.

An equally dramatic legal battle, in terms of intensity, unexpected reversals and duration, has been the Napster case which posed the opposite dilemma, raising the question of whether copyright enforcement, an apparently neutral and legitimate practice, can in reality become part of a strategy aimed at monopolising the market⁴. Currently the case is in the pre-trial phase and will only be heard in one year's time⁵. Nevertheless, this has been enough to fan the flames of the debate, which in less dramatic but equally impassioned tones has been continuing in various settings⁶.

Generally speaking, the difficulty in analysing the interplay between competition and copyright law lies in fact that the two statutory frameworks contain both convergent and opposing elements, which render the final balance uncertain. The convergence lies in the stated "common purpose of promoting innovation and enhancing consumer welfare"⁷: in fact both laws are based on the microeconomic principles of efficiency and are designed to avoid specific market failures. In this respect, therefore, copyright and antitrust laws are both equally aimed at maximising social welfare. However, whereas antitrust law seeks to achieve this through the elimination of behaviours and practices that restrict competition, copyright pursues the same aim in the opposite way, by creating legal monopolies and altering the competitive paradigm. It is from the friction between these two different and opposing policies that the conflict can arise.

This paper attempts to support the thesis that the framework of intellectual property rights is crucial to antitrust evaluations because there is a deterministic relation between property rights on the one hand, and market structure and modes of competition on the other. This consideration does not generally receive adequate emphasis in antitrust investigations. In particular, the analysis will adopt the following perspective: antitrust aims to discourage behaviours which are incompatible with the competitive game and lead to inefficient outcomes. However, if the markets in question are not efficient or competitive, due

to a particular statutory framework defined *ex-lege*, the entire question and its interpretation become less clear. And in this state of vagueness the distinction between what is legal and what is not becomes somewhat difficult to make. This appears to be the case for copyright because, we will argue, by defining a precise system of incentives and barriers to entry, copyright sets up a market structure characterised by behaviours and outcomes which tend to deter efficiency and competition. In such markets, as we shall detail below, competition is non-price and the industrial structure is normally that of a strongly concentrated oligopoly. In addition, there are peculiar characteristics such as network externalities on the demand side, stock and catalogue inertia effects on the supply side, which further distort the competitive game. All these aspects are in many ways deterrent and prejudicial to the existence of perfect competition, or of an innovation race in which many producers of many ideas confront each other. In fact, the configuration of such markets tends to foster not so much creative investments, as commercial investments (for instance, by means of sunk costs) which promote the emergence of dominant positions. In general, therefore, conducting a cost-benefit analysis, the outcome of copyright in terms of welfare becomes more uncertain than asserted by the traditional economic theory of intellectual property.

Antitrust can contribute to re-balancing the situation described above. For example, it can prevent the application and the extension of copyright, with its negative side effects, where it is not necessary. However, there seems to emerge a fundamental contradiction between the two statutory frameworks, which have grown out of profoundly different economic and historical contexts and operate in a completely different manner. In consequence, even though recourse to antitrust law in markets regulated by copyright can occasionally have beneficial effects, these effects are necessarily limited, and it would seem more appropriate to intervene on copyright itself, by directly altering the system of incentives which it creates.

The paper is organised as follows: Section 2 examines the main features of both copyright and competition law, with an in-depth discussion of the aims, structure, scope and effects on the market configuration of each legal framework. Section 3 proposes an evaluation of copyright law from the standpoint of competition, paying special attention to the system of incentives and the resultant behaviours adopted by copyright owners. Section 4 then addresses the difficult assessment of tying in the copyright sphere, while Section 5 attempts to formulate some policy recommendations. Finally, Section 6 contains the concluding remarks.

2. Competition and copyright: comparing two legal paradigms

The first step in a discussion of the conflict between antitrust and copyright law is to address the differences between the legal paradigms, which have distinct origins, aims and structure. In the following paragraphs we will attempt to clarify the reasons for this conflict, underlining in particular the different aspects and the - at times contradictory - impacts which these regulations can have on the economic scenario and on behaviours.

2.1. Antitrust law

It is important to note that, at the origin, the main motivation behind the institution antitrust law was political: i.e. to curb the influence of the powerful trusts that were emerging from the burgeoning industrial development of the United States⁸.

Therefore, even though a complex and sophisticated antitrust doctrine developed over the years, at the bottom it lacked an economic theory in support of antitrust law enforcement. Only in the 20th century--in the decades of the '20s and '30s--did economists undertake the study of monopolistic competition, systematising oligopoly theory and, starting in the '50s, developing the first general model that could be used in antitrust proceedings (structure-conduct-performance)⁹. Finally, during the last thirty years, with the establishment of the Chicago school, antitrust actions became dominated by the criterion of economic efficiency. We can therefore say that the branch of economics research known today as Industrial Organisation (IO) is in large part the effect, rather than the cause, of the Sherman Act.

Today, jurists and economists concur that antitrust is a tool for combating monopolistic behaviours which have the effect of excluding a segment of consumers from the market, relative to the competitive context. The law enforcement activity targets the behaviours of firms – given the structure of the markets – to induce them to engage in virtuous competition and thereby avoid a type of market failure.

However we note that economic theory has not always provided judges with effective tools for detecting and punishing certain unlawful behaviours which impact negatively on consumer welfare. One of the most important such instances is collusion: the legal action is still not adequately supported by economic tools which in fact offer judges criteria for efficiency that are still somewhat elementary¹⁰.

Although it recognises the importance of dynamic processes, such as technological change, economic doctrine mainly provides a consolidated theory of static efficiency, but not of dynamic efficiency. Consequently, even today antitrust policy still prevalently deals with static efficiency and markets¹¹.

The long-run effects on welfare of acquisitions, joint ventures, vertical restrictions and even of certain ‘abuses’ of dominant position are quite uncertain, especially in new industries. And what's more, antitrust interventions are primarily referred to strategies relating to pricing. This perspective is a consequence of the law itself, but also of the economic theory, which offers models of product differentiation and non-price competition that are poorly utilizable in legal proceedings. Whereas it is known that strategies such as product differentiation and advertising, for example, characterise the competition in many markets, particularly in the service and information industries¹².

Summing up, therefore, the first point to be noted is the structural weakness of the IO theory, with respect to the current needs of antitrust law in markets regulated by copyright. This weakness is probably attributable to the fact that this theory chiefly grew out of a study of the structure and dynamics of the manufacturing industries. And it has therefore produced analysis tools geared to that particular context¹³. Now this tools poorly apply to the markets of information goods protected by copyright, where the modes of competition differ significantly from those of the sectors which produce tangible goods.

The final observation concerns the evolution and workings of antitrust law. Over the years the US antitrust model has spread to a great many countries, starting with Europe, thereby undergoing a process of partial internationalisation—so to speak¹⁴. Nonetheless, the legal underpinnings and the organisation of law enforcement activities are national in scope, even though co-operation between different countries remains possible. A world-wide antitrust framework does not yet exist, nor is this in itself necessary for the individual national antitrust laws to work. The globalisation of antitrust is as yet limited, and not strictly necessary, even though it is undoubtedly important.

2.2. Copyright law

It is interesting to note that copyright shares with antitrust the political motivations for its inception. In this case, however, the purpose of the law was to control – and if necessary censor – new information before it was put into circulation (Patterson, 1968, Chap. 2)¹⁵.

There were two guiding principles which characterised the development of copyright: technological dynamics and the evolution of markets. On the one hand, every stage of technological change has shaped the current framework of the law, which was originally conceived for literary texts, and subsequently extended to phonograms, computer programs and, most recently, to databases. On the other hand, the emergence of new economic interests has led to repeated amendments of the law, which have tended to favour the interests of producers (publishers) more than those of the authors¹⁶. In the past few decades there has also been a gradual internationalisation of copyright – recently regulated within the WTO by the TRIPs agreements (1994) – and aimed at creating a statutory framework that is valid and applicable in the global marketplace¹⁷. As we shall show below, the differences in scope of the laws – international for copyright *versus* national for antitrust – can give rise to ambiguity and conflict.

Today, copyright protects original works of authorship, fixed in any tangible medium of expression. Ownership of the right grants the author or her licensee an exclusive right to the exploitation of the work through its reproduction, the distribution of copies, its public performance and the creation of derivative works. In addition to the above rights, which are of an economic nature, copyright also confers moral rights which are not, however, of practical relevance for the purposes of economic analysis¹⁸.

The theoretical justification for copyright law rests on the thesis of the ‘incentive to create’, and seeks to prevent a different type of market failure from that addressed by antitrust. In fact, because ideas are by

their nature public goods – characterised by non rivalry in consumption and non exhaustibility, and by very low marginal costs of reproduction/diffusion – they can be easily imitated by free-riders who do not, however bear the production costs. This circumstance does not therefore permit the existence of an efficient market of ideas¹⁹. Copyright is one artifice for converting copyrightable works into private goods and securing for creators appropriate profits deriving from their activity. In a manner significant for the economic analysis, it gives owners the right to exclude other individuals from accessing the protected information good, save upon payment of a price. In other words, it grants authors a statutory monopoly over the copyrightable work which they have created. This legal monopoly confers—at least potentially—a certain amount of market power to the copyright owner. It is worth noting that, although the mere existence of copyright does not necessarily *per se* confer significant market power to owners or their licensees, the success of a given item on the market and the exclusive exploitation of the right imply market power. This point needs to be made for several reasons. First, according to Nordhaus' (1969) seminal contribution, the optimal incentive to create for the individual - not for the society (ref. Arrow, 1962) - is represented by monopoly profit²⁰. In addition, a large part of the economic literature on copyright maintains the standard assumption of monopoly profits, and this will constitute the reference for the present work (Besen, 1986; Landes and Posner, 1989).

Secondly, market power is conferred by the poor substitutability of most information goods²¹. Note that this presumption is consistent with the assumption of the welfare enhancing effects of a variety of ideas.

The specificity of individual information goods is indirectly recognised by copyright when it endeavours to encourage their creation. If copyrightable works were not so manifold and diverse, there would be no need to set up such a complex system of incentives. In other words, if information goods were near or perfect substitutes for each other—as would be necessary to cancel out the market power—due to their low marginal costs of reproduction and non exhaustibility there would be no need to produce a number of different ideas and the copyright mechanism wouldn't make sense, since it would be easier and more affordable to provide direct incentive to only one (or a few) creators.

Moreover, there is the objective fact that many goods are different from each other due to 'natural' differentiation effects, i.e. which depend on the specific nature of the information, such as its meaning and its symbolic value. The Bible is not a substitute for the Koran, but neither is a Spice Girls CD a substitute – other than a very poor one—for a recording of Pavarotti singing Umberto Giordano's *Andrea Chénier*²². This type of differentiation is set in motion by specific characteristics of the preferences ordering and the action of complex phenomena such as network effects on the demand.

The exogenous market power is then strengthened by the competitive strategy adopted by copyright owners and by the specific characteristics of the information goods. On the one hand industries producing such goods frequently exhibit special features such as economies of scope and scale and/or network externalities (i.e. economies of scale on the demand side) which confer market power in and of themselves, at least in the short-run. On the other hand, the production process of such goods often entails endogenous sunk costs which chiefly serve the purpose of differentiating items by quality (thereby creating market power) and which, according to the literature (Sutton, 1998; Carlton and Gertner, 2002),

lead to highly concentrated markets in which a few firms hold significant market power²³. The empirical evidence confirms these assertions²⁴.

All these characteristics, taken together, create a market structure that strongly steers the competitive behaviours of firms, and hence the performance of the market, in the direction of reduced competitiveness. It is paradoxical that copyright, created to overcome the market failure arising from the existence of public goods, lays the groundwork for the market failure which is instead addressed by antitrust law²⁵.

This fact introduces a fundamental difference between antitrust and copyright which must be taken into account. Whereas the former, given the property rights and market structure, simply targets the behaviours of firms by specifying what *cannot be done*, the latter defines the property rights, that is to say the goods and the market structure, creating a precise system of incentives²⁶.

Therefore it is worth repeating that the framework of property rights is critical to antitrust evaluations: there is a deterministic relation between property rights on the one hand, and market structure and modes of competition on the other.

3. Costs and effects of copyright: a different perspective

The economic evaluation of copyright and its competitive impact requires a careful consideration of the costs. The standard theory of copyright set out in the preceding section rests on the assumption that the social cost of the monopoly granted by the right is effectively less than the expected benefits, with a positive balance that maximizes welfare. In other words, the static inefficiency associated with the monopolies granted by the right is offset by the expected dynamic efficiency resulting from the production of an optimal level of new ideas²⁷. However this assertion raises some questions, due to the rather perfunctory and narrow description which it gives of the sectors involved and the effects of copyright in shaping industrial configurations and behaviours.

3.1 Added costs

There is first of all the logical difficulty of accepting the concept of injecting a *certain* amount of inefficiency into an economic system today to promote only its *possible* efficiency tomorrow; this is in effect an anomalous passage for the economic theory, and worth paying attention to as of now. The desired outcome is not guaranteed, but rather lies in the ability "[to] achieve the proper balance between the incentive needed to call forth productive activity, and the access to existing works upon which this activity builds" (Cotter, 1999, p.218). Therefore, for the purposes of creating the correct system of incentives for any given idea, category by category fine tuning would appear more appropriate. Instead, copyright today provides virtually identical protection to information goods that differ vastly in their nature and production costs, making it a rather coarse -- and not necessarily efficient - stimulus for creative activities. Indeed, the theory of the mechanisms has shown that for an incentive to function correctly it must be opportunely tailored to the production costs. Otherwise, the outcome will be

haphazard. For example, if the incentive is higher than necessary, even ideas that are inefficient will be produced (Scotchmer, 1998).

However, little consideration has been given to these aspects in the copyright field, not even for what concerns the correct use of parameters such as the scope and duration of the right (Barton, 1997). On the contrary, copyright grants equal protection to the most diverse ideas, with a duration that in many cases is as high as 70 years *post mortem auctoris* (i.e. author's life plus seventy years)²⁸-an arbitrary and decidedly excessive term for the purposes of incentive.

Similarly, no consideration is given to the 'incremental creation' costs which result from monopolistic rationing. In fact, because creative processes inevitably follow a cumulative procedure-yesterday's ideas become the inputs for the ideas of today²⁹--the rationing of ideas through copyright increases the costs for follow-on creators and excludes certain individuals from creative activities (Scotchmer, 1998)³⁰.

And finally, there are the transaction costs generated by copyright. Some of these are classifiable as administrative costs, for example those connected with the set up and management of collecting societies (Landes and Posner, 1989; Gordon and Bone, 1999). Then there is the special category of legal costs and infringement monitoring costs-which are often overlooked despite their considerable impact on those operating in the market³¹. It is important to note that, at times, the enforcement of a copyright depends precisely upon the owner's ability to sustain such costs, and therefore the competitive process will also be affected by their existence.

In short, it seems clear that the welfare impact of copyright will certainly be different if we include the above described costs in the evaluation. In some cases the outcome might even be negative, and the incentive will not work. This is a first, elementary (though important) conclusion. However it is not the main object of the argument.

Rather, it is interesting to introduce a second observation: the implementation of copyright also produces the understandable side-effect of shaping the industrial sectors involved, generally by weakening the degree of competition. The design of an incentive that is disproportionate to the needs, such as the copyright of today, with its duration of 70 years *post mortem auctoris*, the elevation of costs for follow-on creators which tends to block the potential competitors of tomorrow, and the exponential growth of transaction costs which mean that copyright is only fully accessible to those able to sustain long and expensive legal battles-all this effectively indicates that there exists a cost dimension to copyright that is measured in terms of a gradual erosion of competitiveness.

3.2 Variations on the theme of competition

We reach the same conclusion if we examine the model of competition put forward by the economic theory of copyright. This is generally represented as a dynamic Schumpeter-style innovation race, which continually generates an efficient level of new copyrightable works. Through the expected profits, copyright creates an endless succession of winner-take-all (and competitive) races which inject an optimal quantity of copyrightable works into the market³².

Nevertheless, this model does not truly fit the copyright industries. On closer examination, there is little dynamic about the proposed model, which is an intertemporal transposition of a static competition

whose output is measured in terms of quantity of copyrights. For example, an innovation race presupposes the ongoing possibility of leapfrogging by competitors, who can therefore claim the reward at any time, irrespective of their history. But recent theoretical developments (Shapiro, 2000) have clearly shown how this is not the case for information industries where, on the contrary, pockets of monopoly power (which copyright creates) can be competitively exploited to secure or reinforce monopolistic positions. This is borne out by the studies of specific industries, which have found that the majority of information goods markets follow a pathway of progressive concentration, at both the national and international levels³³. This dynamic can in part be explained by the existence of scale economies and scope economies on the supply side, and of network externalities on the demand side. But the excluding and self-reinforcing effects of copyright still contribute to creating and strengthening dominant positions and consolidations.

The overall outcome of the described phenomena contributes to creating markets that bear little relation to the Schumpeterian characters-except perhaps during the first few rounds of the race³⁴ -and which instead exhibit all the symptoms of a weakened, or at any rate significantly altered competitive scenario³⁵. One persistent trait is the existence of non-price competition, in which the sunk cost component has the dual role of consolidating and increasing demand and/or creating barriers to entry for potential competitors. A possible model for this scenario is for example a vertically differentiated oligopoly, in which the presence of sunk costs also explains the high degree of concentration³⁶. The *leitmotiv* of the strategies adopted by copyright owners is the attempt to strengthen market power.

If we then combine differentiation practices with the inherently poor substitutability of goods protected by copyright, the effect is to create a peculiar competitive context in which price plays a limited role, exerted for the most part in relation to direct demand.

Note that, the 'natural' differentiation of ideas and that effected by copyright strategies means that each information good can be interpreted-at least to some degree-as a 'separate market'. Therefore, the owner of several copyrights is, to a certain extent, in a similar position to a multi-product company or conglomerate, whose relationships with competitors are in good measure still ambiguous and in any case difficult to interpret³⁷.

The nature of these behaviours is often precariously balanced between legitimacy and unlawfulness, and the standard IO still does not offer sufficiently robust tools for supporting antitrust evaluations. Although--since US case *United Shoe Machinery*³⁸--the antitrust authorities have acknowledged, for example, that the accumulation of intellectual property rights (patents in this case), though legal in itself, can be used to suppress competition by creating barriers to entry and foreclosing competitors (Anderson, 1998), and economic theory has backed up these findings with specific models³⁹, there is still no robust method for detecting and interpreting the alleged anti-competitive practices.

In the following section we shall seek to extend this consideration to the copyright field.

3.3 A simple model for altering the competitive paradigm

Behind the interpretation of copyright as a pro-competitive tool lies the assumption that copyrightable works, once created, confront each other symmetrically in a competitive marketplace. In other words, the

monopoly created by the right is temporary and disappears in a short time, whereas the innovation race is renewed at each step in a competitive manner (ref. for example Kingston, 1990). However the hypothesis of symmetry is not only unproven, but also misleading: to the extent that copyright provides an incentive in the form of a monopoly, it is rational for the owner to adopt behaviours aimed at strengthening and preserving the monopoly. But such behaviours cannot then be automatically deemed unlawful, since they take place within a sphere where competition is already restrained. While the success of one expression of idea over others may be the result of historical accident, the persistence of dominant firms is often a consequence of market imperfections which in our case are introduced by copyright (Williamson, 1977).

To better understand this assertion, let us consider a simple model representing a market in which there exists a producer who, for whatever reason, has the exclusive faculty of producing a catalogue of copyrights characterised by conditions of uncertainty. The reasoning set forth below is that this asymmetry, which is exogenous for the purposes of the analysis, can under certain structural conditions alter the competitive scenario to the advantage of the incumbent, to an extent that potentially creates barriers to entry.

The stylised facts represent a static market in which the incumbent has the ability to create a (horizontal) *catalogue* of n copyrights at time t_0 . Naturally, this reasoning can be extended to the dynamic case in which the incumbent has a *stock* of n_t copyrights at times $t = 1, 2, \dots, T$ (a sort of vertical catalogue).

In the static case, therefore, the incumbent creator has the ability to produce and distribute a catalogue n of information goods ($n > 1, n \in \mathbb{R}^+$). This scenario, which is realistic for many information goods markets, might arise because the incumbent already operates in the market and therefore possesses skills and a production inertia that are impossible for a newcomer to match⁴⁰. However there are no barriers to entry for a potential competitor, who can therefore enter but only producing a limited number of copyrights. For simplicity, only one. This hypothesis in effect reflects the reality of many information goods sectors in which new producers must necessarily start off with only one product.

For simplicity, let us assume that for both contenders the production costs are zero, and that there are sunk entrance costs which are positive and constant ($SC > 0$), i.e. which do not depend on the number of products put on the market. The simplest way to understand this hypothesis is to imagine that it corresponds to the creation of a distribution network. This is a sort of “admission ticket” to the market whose price does not vary significantly as a function of the number of copyrights produced⁴¹. The ability to create a distribution network is crucial for entering the market⁴². The difference in costs is necessary for representing the conjectured asymmetry between newcomers and incumbents in terms of skills and production inertia. The fact that SC does not change as a function of n can instead be interpreted as an extreme instance of subadditivity of the cost function, attributable for example to economies of scale and/or scope.

Let us furthermore assume that all $n+1$ products have the same probability of success, defined as $P(S) = 1-p$, or of failure, defined as $P(F) = p$, with $0 < p < 1$. The idea behind this hypothesis, in line with the structure of the information goods markets which, as mentioned previously, are generally vertically differentiated oligopolies, is that each product within a given quality segment has an approximately equal probability of success⁴³.

Finally, the success (and hence the failure) events for each $n+1$ copyright are statistically independent, that is to say the success on the market of one title does not depend on the success or failure of the others⁴⁴. Note that this is the least favourable hypothesis for the incumbent, since it puts her copyrights on the same plane as those of the competitor. A further development of the analysis, which is not pursued here, could in any case examine different probability distributions, perhaps ascertaining whether they can be influenced by specific strategic behaviours.

According to the standard economic theory of copyright cited above, the profit of each product in case of success will be Π_M which represents the gross monopoly profit, that is to say without still subtracting the costs SC . This profit is conjectured to be equal for each product⁴⁵. We therefore assume that each intellectual work is not in direct competition with the others, and that it faces its own demand curve. This condition follows from the observation, set out previously, that copyrightable works are considered poor substitutes for each other. And in any case it is consistent with the reality of the markets, in which firms offer catalogues and stocks with many titles. Such variety would not be rational if the different titles were interchangeable, because this would mean that the firms wish to engage in internal competition.

If the producers of information goods are neutral to risk, they will seek to maximise the expected profits, that is to say the weighted mean of the probability of profit and loss, which therefore represents the incentive to create. Now it is clear that each n^{th} work, considered singly, will promise an expected profit given by:

$$E_n(\Pi_M) = (1 - p)\Pi_M - SC$$

For the producer to have an incentive to create the item it is necessary to satisfy the participation constraint⁴⁶

$$E_n(\Pi_M) \geq \Pi_0$$

where $\Pi_0 > 0$ is the profit obtained from an alternative activity. If the above condition is met the information good will be produced and therefore the economic theory of copyright would appear to be validated: each idea created is promised an equal reward.

However, if we consider the initial asymmetry, a substantially different picture emerges: the new entrant will face a higher overall risk of failure than the incumbent, and this will substantially alter the system of incentives. In fact, because he produces only one item, her probability of failure, and hence of losing SC , will be that defined previously, $P_{nc}(F) = p$. Conversely the probability of failure for the incumbent, thanks to the possibility of offering a catalogue, will be given by the joint probability of failure of her n copyrights, expressed as

$$P_{inc}(F) = \prod_{i=1}^n P(F) = p^n$$

which measures the probability that all n products will simultaneously fail. Now, because the probability of failure of one item is $p < 1$, the effective risk of loss for the new entrant is always greater than that faced by the incumbent, due to the initial asymmetry. The final order of probability will be as follows: $P_{nc}(F) > P_{inc}(F)$, since $p < p^n$.

The proposition is validated by the fact that the incumbent's risk of failing to cover the costs SC , given by the joint probability $P_{inc}(F)$, decreases with increasing numbers of copyrights, with the limiting case being that of an infinite number of titles. In this case

$$P_{inc}(F) = \lim_{n \rightarrow +\infty} \prod_{i=1}^n P_n(F) = 0$$

This assertion appears consistent with the findings of other studies in the field⁴⁷.

Note also that, in the scenario thus described, the production of a high number of copyrights answers the need to minimise risks. Consider for example the production of a large number of products. According to the above, this strategy increases the likelihood of success of at least one copyright, which represents the minimum probability of success.

In the borderline case where the incumbent has an infinite number of products, the minimum probability of success will be

$$P_{inc}(S) = 1 - P \prod_{i=1}^{n-1} P_n(F) = 1 - p^{n-1} \text{ with } \lim_{n \rightarrow +\infty} P_{inc}(S) = 1.$$

In this case, because at least one copyright will be successful, there exists a lower bound on the profits. This bound is of course given by the profit from exactly one successful copyright – i.e. the gross monopoly profit – minus the sunk costs. We can therefore state that the expected profit for an incumbent with an infinite catalogue is at least equal to the lower bound, i.e.:

$$E_{inc}(\Pi_M) \geq \Pi_M - SC$$

Such profit satisfy the participation constraint, assure coverage of sunk costs and in general put the incumbent at an advantage with respect to new entrants.

The situation described therefore confirms the preceding assertion: that the existence of asymmetries distorts the competitive model of the innovation race and favours the incumbent⁴⁸. The effective structure of the incentives is different from that which is assumed by the mainstream literature, that is to say there is an innovation race where every creator has an equal incentive. In actual fact, however, the ranking of incentives at least is as follows $E_{inc}(\Pi_M) > E_{nc}(\Pi_M) > \Pi_0 > 0$.

And hence a second consequence will follow from the consideration that the following new condition applies:

$$(1-p)\Pi_M < SC < \Pi_M$$

In this case the incumbent will produce her own copyrights and the newcomer will be kept out of the market. Now, if the condition is exogenous and depends on the state of nature there are no particular problems. If instead the costs SC are determined endogenously by the incumbent, the definition of a level of SC for which $E_{inc}(\Pi_M) > \Pi_0 > 0 > E_{nc}(\Pi_M)$ is true would in practice effect a strategy of market foreclosure against the newcomer. Now, many authors have repeatedly observed strategies similar to that described, especially with regard to distribution costs which require a high level of sunk investments⁴⁹.

We note also that the incumbent adopts an economic logic of cross-subsidy, which can introduce a certain degree of inefficiency into the market. For example, if we assume that the profits for the different items are variable, or that the success/failure probability distribution is different for each item, the consideration of joint profits by the incumbent will lead him to produce items which would not be produced in the Schumpeterian race. This peculiarity might explain, at least in part, the high rate of failure observed in many markets for information goods, even for large firms: the expectation of sufficiently high profits on a large catalogue can reduce efforts expended on the selection of the individual copyrightable works and the production of the individual titles. There is therefore also a risk of excessive differentiation.

The scenario described also explains, on the one hand, the elevated birth/death rate of small newcomer enterprises and the stability of a small number of incumbents, and on the other hand the high level of concentration--phenomena which several authors have observed in industries for information goods⁵⁰. The progressive action of this mechanism tends to strengthen dominant positions and favours consolidation.

Finally, it is important to note that diversification into other, often complementary, production sectors provides an opportunity to make new profits on secondary markets (consider the case of home videos or television rights for films), making it easier to recover the costs and possibly further reducing the risks⁵¹. In this connection it has been observed (De Vany and Walls, 1996) that the existence of such practices can significantly alter the system of incentives, so that revenues from secondary markets become essential for permitting the production of certain items with a high production budget.

On the one hand, therefore, diversification and cross-subsidy practices can constitute an optimal strategy to be adopted in situations of uncertainty. On the other hand, however, they significantly alter the competitive balance of the market.

4. Product definition: the ambiguous case of tying arrangements

Another sphere in which traditional antitrust analysis applied to information goods protected by copyright can come up against interpretative difficulties is that of tying arrangements. In fact, as shall be discussed below, in such a case the straightforward enforcement of antitrust law can even arbitrarily influence creative activities.

The definition of tying arrangements refers to practices which force the purchaser of a given product to acquire another product in conjunction with it. Tying is deemed unlawful by antitrust law when the sellers have sufficient market power over the 'tying' product to restrict competition in the market of the 'tied' product⁵². In this case, we speak of 'leverage of tying', because the strategy described is pursued with a view to monopolise a different market (Whinston, 1990, 2001).

The application of this practice is relatively old, and there are historic antitrust cases which testify to its anti-competitive effects in the specific sector of copyright. In the celebrated *Paramount Pictures* case of 1948, the tied products were groups of films licensed to theatres by the major movie studios, and a similar suit, but involving the licensing of films for television, was brought a few years later against

*Loew's Inc*⁵³. In both cases it was alleged that the combined sale of information goods had the purpose of foreclosing the market to competitors. But once again, this didn't lead to the creation of robust analytical tools, while the interpretation of these practices in the digital domain can be even more ambiguous.

Generally speaking, tying can be effected in two different ways, which are sometimes used jointly. In one case, the agreement is of a *contractual* nature: the parties explicitly or implicitly agree to the sale, and the buyer is forced to make the joint purchase (from which he may at times obtain a private benefit). By way of example, to stay within the information goods sector, this is what Microsoft has done by forcing computer manufacturers to install Internet Explorer in order to purchase licenses of the Windows operating system (and because the cost of the browser is zero, this entails no private cost to the purchaser).

There is also a second, more technical formula for implementing tying which is achieved through the integration of products. In this case we speak of *physical* tying. This procedure can either render the two products complementary (e.g. a printer and its spare cartridge) or, in the case of intellectual property, it can create a new integrated product.

In the literature, the competitive evaluation of this type of tying is uncertain because it can create value and hence not impact negatively on welfare (Whinston, 2001). Within the context of information goods, the evaluation is even more uncertain, also because of the effects which it can have on the innovation process.

In the Microsoft case, for example, Bill Gates' decision to integrate the Internet Explorer browser into Windows was interpreted as physical tying of an anti-competitive character. This judgement was borne out by the concurrent existence of contractual tying.

Now, without entering into the merits of the decision, we note that this interpretation effectively has a prejudicial flavour, inconsistent with the particular production context, and which even risks altering the structure of incentives created by copyright law.

In fact, as those who have some programming experience will know, there are two schools of thought concerning the best architecture for a software program. At one extreme there is the 'open' architecture, consisting of a central interface (an application) which controls a set of separate routines (other applications), while at the other extreme we have the 'closed' architecture, in which a single extended application encloses all the functions within itself. According to traditional antitrust analysis, these two systems are equivalent for the user; however they are not so for the author and the law, because the adoption of an open architecture can presuppose the creation of as many copyrights as there are components (for example, the popular Word software program incorporates within itself a spell-checker application, an editor for mathematical formulas, etc.), which makes it a form of contractual tying. What's more, it is possible for an originally open product to be subsequently converted into a closed product. This operation can be interpreted by the antitrust authorities as physical tying, with the ensuing anti-competitive implications, as happened for Windows and Internet Explorer. However, because there are two different reasons why this practice might be implemented, one effectively anti-competitive while the other is pro-efficiency⁵⁴, the intervention of antitrust law also changes the incentives in this respect. A rational agent, aware that he would be incurring antitrust penalties, might decide *ex-ante* to adopt a closed

architecture, or might decide not to integrate the products even when this would benefit efficiency. In both cases, the consequence would be an alteration of the system of incentives defined by copyright. This indicates a first point of conflict between the two statutory frameworks.

A second point of conflict arises from the different direction of the laws. In the case of copyright, the system of incentives influences the behaviours of the owners of the rights. The latter are profit maximizer agents who pursue, as is normal, their own exclusive interests. Therefore it is reasonable to expect choices consistent with their objectives, including opting for creative solutions which are able to secure greater market power. The logic of attempting to secure market power is also what pushes owners to adopt differentiation strategies and is triggered by the nature of copyright, which confers a legal monopoly as a reward for innovation and is implicit in the information sector (Schmalensee, 2000). The system of property rights defined by copyright encourages owners to create a new product in exchange for a monopoly. Then-and inappropriately so, because it interferes with the self-same innovative process—antitrust law makes a value judgement on the new product which, because it is produced by the combination of two other products, is deemed to be potentially detrimental to competition.

Nevertheless, the creation of market power is the reward promised by copyright to creators, and the potential disappearance of certain markets (for example that for browsers, which become a feature of the operating system) is implicit in the concept of innovation race. Therefore, if for whatever reason we wish to alter the rational actions of the economic agents, in terms of their behaviours in response to a specific system of incentives, it is on the latter (i.e. the ‘incentives system’) that we must intervene. The use of antitrust law to correct the conceptual errors of copyright is in fact an inefficient (and costly) way of proceeding, and leads to a schizophrenic system that on the one hand encourages certain behaviours while on the other hand it punishes them.

Within the domain of information goods, both due to the incentives created by copyright and the nature of the products themselves, tying has a strongly competitive dimension and has been generally accepted. In the case of products different from software (music, literature, etc.), the fact of forcing consumers to acquire ‘tied’ or extended products has always been placidly accepted. When a consumer purchases a CD he is forced to purchase a set of songs, often in order to listen to only one of them. Such a purchase could in part damage the purchase of other songs. A similar argument could be made for a collection of novels, or for the chapters of a book on industrial economics. One might object that such a practice is made necessary by the technology which dictates a particular format for the “cans”⁵⁵. But such an assertion is debatable, also because the cans in question can be of different sizes.

And in any case, given the technological trend toward the progressive disappearance of the physical medium, how are we to interpret such practices? A creator who wishes to continue selling combined products might for example define a group of songs as an original work of authorship (a sort of “suite”), and the tying would disappear. Nor would it be feasible for an antitrust authority to order a separation of the components, as this would most probably infringe the right to integrity of the work which is one of the many rights (moral rights, in the case in point) that make up copyright.

If the above considerations, taken together, substantiate the existence of a conflict between copyright and antitrust law with regard to tying, it is sufficiently clear that the resolution of this conflict in this setting must directly implicate copyright.

5. Attempting to sketch out some general policy guidelines

In the previous sections we have shown how the system of rights and incentives created by copyright defines goods and rules of behaviour in such a way that the rule of competition does not prevail in those markets. The nature and goals of these practices are often precariously balanced between legitimacy and unlawfulness. This renders their evaluation difficult and uncertain, even to the extent of producing unsatisfactory outcomes in terms of social welfare.

However intervention by antitrust authorities only raises further questions with regard to effectiveness and results. Such actions can follow two different courses: law enforcement, i.e. detecting and penalising unlawful behaviours to restore competition, or regulation, i.e. altering the competitive scenario through structural decisions. Note that this second line of intervention is somewhat more complicated and, at least in the European system, subject to specific institutional restrictions⁵⁶.

5.1 Restoring competition ?

The first course, which is the most important and well-established in antitrust experience, presupposes the possibility of ascertaining unlawful behaviours. In fact, the results which economic theory considers inefficient, or at any rate indicative of limited competition, are not sufficient to presume the guiltiness. Antitrust decisions are judicial acts, and as such must be based on hard evidence or well founded charges of unlawful behaviours. This certainly constitutes a limitation, from the economic standpoint. But there are also other limitations, some of a general character and some specific to copyright.

Let us consider for example the case of co-operative behaviours. As is known, agreements—particularly if formal—are not very frequently discovered today. Antitrust must therefore operate in the grey area of tacit collusion. Now, ascertaining tacit collusion is particularly difficult, because it implies use of the “parallelism plus” method which not only requires showing that the outcomes are compatible with a collusive scenario, but that they cannot be otherwise explained (ref. Yao and De Santi, 1993). Nor has economic analysis yet developed a sufficiently robust theory for describing how the firms in an oligopoly can set up facilitating devices⁵⁷. These circumstances create a certain degree of structural weakness for the general enforcement of antitrust. Since copyright industries are highly concentrated as a consequence of the legal incentive system, they are continually facing this ambiguous situation.

In addition there are further complications specific to copyright. Consider for example the *Fimi/Vendomusica*⁵⁸ antitrust case in Italy, concerning agreements and concerted practices in the phonographic market, in which the 5 major labels were charged with price fixing and other cooperative behaviours. The verdict of the trial confirmed the accusations, inflicting a penalty on the firms involved, but without however addressing two crucial points. On the one hand, the behaviours in question were in any case consistent with the market structure defined by copyright, and therefore rational even in a

context without agreements. In consequence, although the antitrust action could perhaps eliminate the agreements, it could not substantially alter the market result or its structural inefficiency. On the other hand, the international scale of the firms charged with collusion (a global oligopoly with $CR_5 > 80\%$) compared to the domestic scope of the antitrust proceeding and remedies – i.e. the Italian market – preclude any form of pro-competitive effectiveness.

The other context in which law enforcement is applied is abuse of dominant position, and more specifically exclusionary practices, of which the Microsoft case has been the most sensational example. The difficulty of evaluating such practices in markets for information goods has been repeatedly pointed out in this paper. The monopoly granted to the owner of the copyright cannot in itself constitute a violation, nor can its proper exercise be considered a monopolisation attempt. Rather, the problem arises when a firm that has secured a dominant position in one market seeks to extend it to other markets, restraining competition. In this situation, however, the concepts of product, market and competition – as has been extensively discussed – are ambiguous and escape many of the standard theoretical classifications, which are based on paradigms developed for the traditional manufacturing industries.

5.2 Regulating the market ? The uneasy case of the essential facility

An interesting example of indirect regulation is the specific application of the essential facility doctrine within the sphere of antitrust intervention. This doctrine, defined within the context of public utilities, maintains that when a private resource becomes ‘essential’ for competition and cannot be duplicated by competitors, the antitrust authority under certain circumstances may force the owner to grant access to competitors on the grounds of the welfare-enhancing effects of competition itself⁵⁹. In general, the facility in question is a physical investment whose unlimited use is called into question by antitrust.

The transposition to the copyright case is therefore based on the thesis that access to a given information good is often a crucial element for the existence of competition in a specific market, and might be exploited for effecting exclusionary practices against potential competitors. Many antitrust cases have implicitly adopted the concept of essential facility for information goods, even though this principle has rarely been enunciated.

In the Microsoft case, for example, the Windows operating system is treated *de facto*, although not *de jure*, as an essential facility for competition in the Internet browser market by the Federal Trade Commission (Cotter, 1999). Therefore, when the FTC adopts the remedy of forcing Microsoft to distribute Windows with included its own Explorer browser and the competing Netscape Navigator browser, it weakens the exclusive rights conferred by copyright to Bill Gates’ company, and which define a private property, in order to permit competition on the browser market in line with the precepts of the doctrine.

Likewise, the follow-up of the Napster case, even given the uncertainty of the pre-trial phase, will still presumably hinge upon this concept, since the refusal of the major record labels to license their catalogue of phonograms for digital distribution effectively precludes access to an ‘essential and not readily duplicable’ facility for competition in the online music distribution market.

In Europe, too, the concept of essential facility has been adopted—for the most part implicitly—in a number of measures. This has been the case for the many suits involving the pay-TV⁶⁰ industry, where the antitrust authorities have once again applied this doctrine, at least in substance if not in form, by forcing the licensing or limiting the exercise of monopoly power over certain premium content—such as blockbuster movies and key sports events—to which access is a necessary condition for contending the market (Nicita and Ramello, 2002).

In a few rare cases, recourse to the essential facility doctrine has been explicit. One of these was the community *NDC Health/IMS Health*⁶¹ case, in which the European Commission explicitly applied this theory to impose mandatory licensing of a data base in the pharmaceutical sector.

This generalised lack of conviction by the antitrust authorities in explicitly espousing the essential facility doctrine in copyright markets gives further cause for thought. Even if this doctrine offers a practicable solution for stimulating competitive effects in these sectors, the question of advisability in adopting extensively such a doctrine is raised⁶². As we have shown previously, copyright operates at the structural level, by defining property rights, whereas antitrust enforcement operates at the level of behaviours. Now the emergence of inefficient behaviours in the markets for information goods depends in good measure on the system of incentives created by copyright. Therefore, a continuous recourse to essential facility – directly or indirectly, as it seems to be the case for copyright – can substantiate a sort of legal schizophrenia which on the one hand weakens competition to sustain innovation, and on the other hand penalizes innovation, violating the newly granted exclusive right in order to promote competition. Such a vicious circle does not promise efficient results.

In addition, the antitrust authorities can only apply the essential facility principle *ex-post*, since it seeks to curb monopolistic positions created by copyright and reinforced by the particular conditions discussed previously. In this prospect, it can only have narrow and limited effects. Nor is it possible to propose an *ex-ante* action, as this would be in blatant violation of copyright law; neither can it be generalised, because this would eliminate the incentive to create, which is an essential part of copyright. Unlike the cases of public utilities, its non marginal application would be in direct conflict with an entire system of rights that have been artificially defined.

5.3 Changing copyright?

The direct route for avoiding or attenuating these inefficient outcomes is to alter copyright itself –i.e. to change the incentives system set up by the law–, reducing the degree of protection conferred especially in situations where the costs clearly outweigh the benefits. One model for implementing such a policy is already provided by the fair use doctrine (ref. Gordon and Bone, 1999), which permits the duplication of information goods without a license in certain specific circumstances.

Innovation processes in contiguous markets, such as hardware or digital distribution, reinforce the stated position, based on the conviction that preserving broad scope for technological change is in the interests of consumers and society. Essentially, the dynamic process of discovery driven by individual self-interest represents another important dimension of the competition process, which makes it possible to introduce new products and new markets⁶³. Now a firm which enjoys a strong dominant position in a

copyright market might even control and direct innovation in contiguous industries. This in fact is the charge raised against the recording majors for digital distribution in the new Napster case (Picker, 2002).

In contrast, technology today offers accessible solutions for the trade-off between competition and incentives: thanks to digital storage and communication systems, we can finally envisage a system of information that is freely accessible against payment of a fair royalty, avoiding the monopolisation of downstream markets (that is distribution) according to the model proposed by Arrow (1962). And hence the need to overhaul the copyright system also appears to be entrained by technological change.

A number of recent theoretical developments bear out the idea that there can also be alternative systems for rewarding creators, which do not entail negative effects on competition⁶⁴.

To summarise, if in the past the costs of the copyright system--also in term of reduced competition--could find strong justification in light of the beneficial effects on creative activities, today they are less acceptable both because there are new possibilities for rewarding creators and because they risk weighing down the competitive dynamics and the innovation process. Several scholars have also underlined the threat to competition and innovation which exists when intellectual property rights are over-broadly defined (Anderson, 1998).

Therefore, all in all, the simplest measure to adopt for pursuing the goal of efficiency and minimising the negative impacts on competition is to reduce the burden of copyright where possible, paying a specific attention to the effects of this right on the market dynamics.

We must in any case bear in mind that the institutional dynamic is a slow process, which in this context is further complicated by the existence of multilateral international conventions and agreements. And to this we must finally add the resistance by lobbies which are investing considerable sums to obtain measures that are exactly opposite of those proposed here.

6. Conclusions

This paper analyses the relationship between competition and copyright law. In particular, it examines the points of conflict which seem to create interferences between the two statutory frameworks. On the one hand copyright regulates the market by introducing, as a solution for achieving its welfare enhancing aim, incentives and constraints which limit competition and constitute a second best. On the other hand, competition law and antitrust attempt to direct markets toward their first best solution, eliminating all possible obstacles to competition. This structural diversity creates a dialectic between the two frameworks which does not appear rectifiable. There are in fact specific characteristics of information goods and specific incentives created by copyright which lead to the emergence of inefficient behaviours in this context. The penalisation of such behaviours by the antitrust authority, in cases where they are found to be unlawful, would in any case have only doubtful effects on the competitive dynamic, whereas it would definitely impact on the system of incentives created by copyright, altering it. In certain cases it is possible to use the essential facility doctrine for effecting targeted actions, but such a practice constitutes an infringement of property rights and is therefore in conflict with copyright.

Moreover, the national scale of antitrust intervention conflicts with the international scope of the copyright industries, raising an issue of inconsistency.

It is also interesting to note how technological change is concurrently altering the structure of the markets, weakening and at times eliminating certain strategic elements crucial to the monopolistic exercise of copyright, such as control over distribution networks. In light of this observation, the previously mentioned suits—the Microsoft case and the Napster case in its antitrust aspects—can be interpreted as an initial outcome of this change, in the sense that the alteration of the industrial configuration, exogenous for the purposes of the behaviours of copyright owners, pushes them to expose the anticompetitive aspects of their strategies and puts them more clearly—when this is the case—in a position of unlawfulness.

Given this scenario, an acceptable antitrust policy for the information goods sector would appear to be one of minimum, contingent and non systematic intervention, which does not attempt to steer technological change and does not propose a different and contradictory system of incentives. A corollary to this assertion is the observation that, if effects detrimental to efficiency exist, these arise for the most part from the system created by copyright. Therefore, the rule of reason suggests that, when this is necessary, we should intervene principally on copyright itself, taking care not to further aggravate its negative effects.

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Notes

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¹ In the interests of simplicity the term copyright is used here to refer to actual copyright as well as to author's right. For the same reason we will refer indifferently to competition law and antitrust law.

² Several scholars share this view. Among others see Cotter (1999) and Anderson (1998). Note that even if the abuse of intellectual property is not directly alleged, intellectual property and the exclusive rights which it confers have been the pivotal point of the anti-competitive practices and hence of the antitrust proceedings.

³ "Microsoft argues that the licence restrictions are legally justified because, in imposing them, Microsoft is simply << exercising its rights as the holder of valid copyrights>> Appellant's Opening Br. at 102 [...] The company claims an absolute and unfettered right to use its intellectual property as it wishes : << [I]f intellectual property rights have been lawfully acquired,>>, it says, then << their subsequent exercise cannot give rise to antitrust liability.>> Appellant's Opening Br. at 105" *USA v Microsoft Corp*, U.S. DC Court of Appeals, N. 00-5212 consolidated with 00-5213.

⁴ This was the question addressed by judge Marilyn Hall Patel who, after having repeatedly ruled against the peer-to-peer file-sharing system invented by the young student Shawn Fanning, also opened an investigation into alleged anti-competitive behaviour of the plaintiffs—the major record labels—against the company Napster (see Picker, 2002).

⁵ The pre-trial phase ends on 10 January 2003, and it is therefore necessary to wait for the developments of the case.

⁶ The debate has blazed increasingly over the past year. The seminal case in Europe has been the *Magill* case (*Radio Telefis Eireann, RTE, and Anor. v. European Commission*, 1995 EC I-743), concerning a copyright holder's refusal to licence a television programming list (a subject matter in Eire) with the consequence of stifling competition on the television programming market. And many other cases have further fanned the flames of this debate. For instance, see the numerous cases in the pay-TV sector: European Commission 94/922/CE, *MSG Media Service*; UK MONOPOLIES AND MERGER COMMISSION, *BskyB/Manchester Ltd*, 1999, Italian 'Autorità Garante della concorrenza e del Mercato' *Groupe Canal+/Stream*, n.10176, 13/05/2002.

⁷ US FTC and DOJ (1995), Antitrust Guidelines for the Licensing of intellectual property, par. 1.

⁸ ref. Audretsch (1999, p. 229) and Neumann (2001, p.32). The US courts were already dealing with violations of competition rights as early as 1890. However it was with the Sherman Act (1890), and the succeeding Clayton and Federal Trade Commission Acts (1914), that the American lawmakers introduced two new and important types of violation: agreements between undertakings and abuse of dominant position. In addition to this, an effective system of law enforcement was set up, headed by the Department of Justice and the Federal Trade Commission (Neumann 2001, pp. 31-37).

⁹ The oligopoly theory was developed between the first and second half of the 19th century by Cournot and Bertrand, but in reality was consolidated in mainstream economic theory only in the next century. For the evolution of IO and antitrust theory ref. also Neumann (2001) and Viscusi, Vernon and Harrington(1995).

¹⁰ Consider for example the case of parallel behaviours and tacit collusion, in which a competitive equilibrium is not readily distinguishable from an unlawful situation (ref. for instance Neumann, 2001).

¹¹ Several scholars share this opinion (Carlton and Gertner, 2002; Evans and Schmalensee, 2001).

¹² The need of setting up a theory for these industries and markets is witnessed by the appearance of recent publications lamenting the application of standard theory (ref. for instance Shapiro, 2000 or

Audretsch, Baumol and Burke, 2001) and trying to systematise the feasible theory in one homogenous corpus (ref. for instance Oz, 2001; Shapiro and Varian, 1998).

¹³ Consider the concepts of scale economies, growing marginal costs, price competition, etc.

¹⁴ This implementation of antitrust law in different countries has sometimes introduced novelties and differences (see Neumann, 2001).

¹⁵ The origins of copyright are older than those of antitrust. A precursor to copyright law can even be found in the privilege granted in 1487 by the Republic of Venice to Marcantonio Cocci, known as Sabellicus, to "print and sell" copies of his work *Rerum Venetarum ab urbe condita ad Marcum Barbaticum libri XXXIII* (Ulmer, 1987).

¹⁶ Ref. Ulmer (1986).

¹⁷ Note that the TRIP Agreement indirectly confirms the tension between intellectual property and competition, recognising the possibility of anti-competitive practices in the exploitation of intellectual property. However they do not set out specific standards for dealing with them (Anderson, 1998).

¹⁸ For a rapid overview of copyright, among others ref. Gordon and Bone (1999). The moral rights concern the sphere of authorship and protect the paternity, the integrity of the work and the right to publication.

¹⁹ For an overview of the economics of copyright ref. Watt (2000).

²⁰ Note that, even though the real-world profit may be lower than the monopoly profit, the effectiveness of the incentive requires significant market power. The incentive to create is directly correlated with private profit, decreasing with it and dropping to zero in the case of perfect competition.

²¹ Of course, this enounced non-fungibility is less than absolute and specific copyrightable works may sometimes present a certain degree of substitutability, especially at the margin. This however does not contradict the main assertion.

²² The fact that another *Andrea Chénier* performed by José Carreras can be substituted for the one by Pavarotti does not invalidate the proposition: the information is in large part the same (the same opera), though with certain elements of differentiation that are to some extent endogenous (they depend on the choice of the two singers and the quality associated with each) and therefore constitute a successive strategy, as will be discussed below.

²³ Note that in industries which produce information goods, endogenous sunk costs can include advertising, fees for stars, and even the set-up and maintenance of specific distribution channels. In fact, due to the presence of network externalities, even this last-mentioned aspect is strategic for building the perceived quality of the products, which is crucially dependent upon their propagation and, hence, upon the distribution network.

²⁴ The record industry exhibits a high level of concentration, both in the domestic and international markets and in production and distribution; see Silva and Ramello (2000) and Black and Greer (1987). High concentration is likewise found in the pay-TV (Armstrong, 1999) and motion picture industries Marvasti (2000).

²⁵ In this connection see the ideas of Mc Gowen (1996).

²⁶ See Picker (2002)

²⁷ For a detailed presentation see, for example, Landes and Posner (1989) and Watt (2001).

²⁸ This term, for instance, as requested by the Council Directive 93/98/EEC harmonising the term of protection of copyright and certain related rights, has been adopted by European countries. The current United States law has adopted the same duration term (Gordon, 1999).

²⁹ It is important to underline that creative activities feed upon those produced at time $t-1$. This is very clearly the case in the software industry, where writing programs relies upon the study of, and therefore access to, listings of previous programs, and is one of the motivations behind the Open Source movement, which upholds the need to make software source code freely available. But in general all cultural development takes place through processes that are imitative, albeit virtuously so.

³⁰ Taking these costs into account is especially important in view of the global scope of today's knowledge markets: blocking access to certain information goods may preclude incremental creation in entire nations, thereby aggravating disparities in the international arena.

³¹ In this connection we can say that, for intellectual property lawyers, copyright unquestionably provides a different incentive from the incentive to create.

³² This appears to be the view of Evans and Schmalensee (2001).

³³ See supra note 24.

³⁴ This would explain, for example, the apparently higher degree of competitiveness of the software industry, as compared with the cinematographic or phonographic industries.

- ³⁵ It is interesting to note that the owners of rights are often, and in open contradiction with the copyright model, quite reluctant to accept fundamental innovations in adjoining domains. In fact the legal records show how the main opponents of important technological innovations such as video recorders, Mp3 players, etc. have been the audio-visual major Universal Pictures and the Recording Industry Association of America, that is to say the trade association of phonographic labels (Ramello, 2001).
- ³⁶ For an in-depth discussion see Silva and Ramello (2000).
- ³⁷ The difficulty in evaluating these types of firms from the antitrust viewpoint is asserted by Viscusi, Vernon and Harrington, 1995.
- ³⁸ *US v. United Shoe Machinery*, 110 F. Supp. 295 (D. Mass, 1953) aff'd *per curiam*, 347 US 251 (1954).
- ³⁹ See for instance the case of *sleeping patents* by Gilbert and Newbery (1982) or *brand proliferation* by Schmalensee, (1978).
- ⁴⁰ This hypothesis is consistent with many markets for information goods, from music (ref. Autorità Garante della Concorrenza e del Mercato, 1997, par.5-8) to films (ref. Marvasti, 2000), in which there are firms that consistently produce a certain number of titles per year and which moreover also hold a stock of already-produced items.
- ⁴¹ Many information goods sectors exhibit characteristics compatible with this hypothesis, with high distribution and *set up* costs that generally do not depend on the number of products, or which in any case are subject to strong economies of scale/scope. For the phonographic sector ref. Black and Greer (1987); Silva and Ramello (2000). For the cinematographic sector ref. Marvasti (2000) De Vany and Eckert (1991).
- ⁴² The literature quoted in the preceding note supports this assertion. These writings stress the point that it is not rational for the incumbent to distribute the newcomer's items, except with a view to directly or indirectly achieving control of the copyrights, which leads to further market concentration.
- ⁴³ The industrial organisation of these markets and the probability distribution hypothesis are discussed extensively by Silva and Ramello (2000).
- ⁴⁴ The debate concerning the probability of success of a product in an information goods market is complex, and gives rise to conflicting views. Note however that over time, and in different industrial sectors, a large number of authors concur that at least products in the same market segment face a substantially equal degree of uncertainty, and that the individual products are, however, poorly substitutable for each other (ref. for example from Conant, 1981 to Silva and Ramello, 2000).
- ⁴⁵ For products competing within the same market quality segment, the expected demand is the same, as are the profits for a given level of costs (ref. Silva and Ramello, 2000).
- ⁴⁶ Such a constraint, standard in incentive design, represents the necessary condition to participate for the information producer and means that she must expect a non-negative pay-off, which otherwise would imply a negative reservation level of utility. For a survey ref. Varian (1992, Chap. 25).
- ⁴⁷ The statement is consistent with the findings of De Vany and Eckert (1991) for the case of the cinematographic industry. Nor does it conflict with the sector's high level of uncertainty. In this connection, De Vany and Walls (1999) have identified the optimal strategy to be the diversification of activities into a portfolio of films.
- ⁴⁸ Note that the proposition applies also for values of n that are not infinite but sufficiently high.
- ⁴⁹ For the former ref. Black and Greer (1987); Alexander (1994). For the case of the film industry, Marvasti (2000, pp. 102 and sgg.) emphasises how the production and marketing costs and even the high salaries paid to stars could be used as barriers to entry, leading to the progressive consolidation of the market.
- ⁵⁰ Ref. again Black and Greer (1987); Alexander (1994); Silva and Ramello (2000); De Vany and Walls (1996).
- ⁵¹ Ref. Vogel (1986). This also seems to be one of the reasons for the growing diversification of the media and communication industries into complementary production activities, as testified by the recent rash of mergers and *joint ventures*, such as the agreement—opposed by various *antitrust* authorities—between Time-Warner and AOL.
- ⁵² The Intellectual Property Guidelines of the DOJ and the FTC also underline that the tying arrangements must have a significant adverse effect on market competition and that there must be justifications on the grounds of efficiency (par. 5.3).
- ⁵³ *United States v. Paramount Pictures Inc.*, 334 U.S. 131 (1948); *United States v. Loew's Inc.*, 371 U.S. 38 (1962).
- ⁵⁴ In fact Microsoft argued that the decision to integrate the browser in the OS was analogous to preceding software upgrade operations for enhancing the functionality of its product.

- ⁵⁵ The definition is taken from Edison, inventor of the phonograph, who spoke of “canned sound” (ref. Ramello, 2002).
- ⁵⁶ For example it is not possible for one body to amend regulations issued by another body higher up in the juridical scale (Parliament, the Government, etc.).
- ⁵⁷ See Neumann (2001).
- ⁵⁸ *Associazione Vendomusica/Case discografiche Multinazionali-FIMI*, n. 5385(I/207), 24 October 1997.
- ⁵⁹ Under US law, the *antitrust* authority must intervene in cases where there is: “1) control of the essential facility by a monopolist; 2) a competitor’s inability to practically or reasonably duplicate the essential facility; 3) denial of use of the facility to a competitor; and 4) the feasibility of providing the facility” (*MCI Communications Corp. v. AT&T Co.*, 708 F.2d 1081, 7th CI. 1983, 1132-1133). The EU law similarly considers that the emergence of such situations can be likened to abuse of dominant position, and therefore also justifies regulatory intervention for access to the facility in exchange for fair payment on the part of the antitrust authority (Neumann, 2001).
- ⁶⁰ See supra note 5.
- ⁶¹ European Commission, 3/7/2001, COMP D3/38.O44
- ⁶² The ‘essential facility doctrine’, entering the domain of regulation, has to be adopted only in “exceptional circumstances” as asserted for instance in the so called Magill case (ref. C- 241/91 P and C 242/91 P, *Radio Telefils Eireann and Independent Television Publications Ltd v. European Commission*).
- ⁶³ Ref. Neumann, 2001, p. 29.
- ⁶⁴ Ref. the reward system proposed by Shavell and Ypersele (2001) and the Open Source movement (Lerner and Tirole, 2001).