Trademark Law: An Economic Perspective

William M. Landes; Richard A. Posner

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TRADEMARK LAW: AN ECONOMIC PERSPECTIVE*

WILLIAM M. LANDES and RICHARD A. POSNER
University of Chicago

T HAT the law of intellectual property, including trademark law, can be analyzed in economic terms is no longer an insight with any power to astonish or even to offend.[1] What the literature thus far has lacked, however, and this article seeks to supply, is an analysis that formalizes the economics of trademarks, relates trademarks to other forms of property, brings to bear the nascent economics of language and communication, and discusses and interrelates the principal doctrines of trademark law.[2]

This is an essay in positive rather than normative "law and economics." We use economics to try to explain the structure of trademark law rather than to change that law. Our overall conclusion is that trademark law, like tort law in general (trademark law is part of the branch of tort law

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[1] The principal explicit economic analyses of trademark law are Ralph H. Folsom & Larry L. Teply, Trademarked Generic Words, 89 Yale L. J. 1323 (1980); Note, Promotional Goods and the Functionality Doctrine: An Economic Model of Trademarks, 63 Tex. L. Rev. 639 (1984); Lee R. Burgunder, An Economic Approach to Trademark Genericism, 23 Am. Bus. L. J. 391 (1985); Nicholas Economides, The Economics of Trademarks (Working Paper No. 21, Columbia University, Center for Law and Economics Studies, 1986). Two recent judicial decisions apply economics explicitly to trademark law: Scandia Down Corp. v. Euroquilt, Inc., 772 F.2d 1423 (7th Cir. 1985) (Easterbrook, J.); W. T. Rogers Co. v. Keene, 778 F.2d 334 (7th Cir. 1985) (Posner, J.). For a lucid summary of the basic doctrines of trademark law, see Arthur R. Miller & Michael H. Davis, Intellectual Property: Patents, Trademarks, and Copyrights: In a Nutshell 155–231 (1983); for fuller treatments, see J. Thomas McCarthy, Trademarks and Unfair Competition (2d ed. 1984); Jerome Gilson, Trademark Protection and Practice (1974).

[2] The articles cited in note 1 *supra* each focus on just one trademark doctrine.

known as unfair competition), can best be explained on the hypothesis that the law is trying to promote economic efficiency.[3]

I. THE ECONOMIC THEORY OF PROPERTY

The economics of property rights, on which our analysis of trademark law draws heavily, are well understood and can be summarized quite briefly.[4] A property right is a legally enforceable power to exclude others from using a resource, without need to contract with them. So if A owns a pasture, he can forbid others to graze their cattle on it without having to negotiate an agreement for exclusive use. A property right confers two types of economic benefit, static and dynamic. The former is illustrated by a natural (that is, uncultivated) pasture. If the owner cannot exclude others from using his pasture, there will be overgrazing because users of the pasture will ignore the costs they impose on each other in reducing the cattle's weight by making the cattle expend more energy in grazing in order to find enough to eat. The dynamic benefit of a property right is the incentive that the right imparts to invest in the creation or improvement of a resource in period 1 (for example, planting a crop), given that no one else can appropriate the resource in period 2 (harvest time). For example, a firm is less likely to expend resources on developing a new product if competing firms that have not borne the expense of development can duplicate the product and produce it at the same marginal cost as the innovator; competition will drive price down to marginal cost, and the sunk costs of invention will not be recouped.[5]

The costs of property rights are fourfold, the first being the cost of transferring such rights. If this is too high, a property right may prevent optimal adjustments to changing values. Suppose a factory is assigned a property right to the use of a river that runs beside it because the river is more valuable as a sewer than for recreation, but as the years go by the relative values of these uses reverse. If the recreational users are numerous, the transaction costs of their buying the right to use the river from the factory may exceed the value of the right to them. In such a case, a liability rule would be better, whereby the factory could be induced to discontinue its use of the river by being made to pay damages equal to the

[3] See William M. Landes & Richard A. Posner, The Economic Structure of Tort Law (1987).

[4] See Richard A. Posner, Economic Analysis of Law, pts. 1, 2 (3d ed. 1986).

[5] Both the static and the dynamic benefits of property rights presuppose that there are too many potential users of the property for transactions with all of them to be economical. When transaction costs (which in general, though not always, are a positive function of the number of contracting parties) are low, the Coase Theorem implies that enforceable contract rights are all that are needed to achieve optimal use and investment.

costs of the pollution to recreational users. The rule would reallocate the use of the river in accordance with changed values, without requiring a transaction.

The second major cost of a property rights system is rent seeking to obtain a property right. Suppose that a ship has sunk and that it has a salvage value of $1 million, while the cost of salvage is only $100,000. The potential gain to the salvager, a form of economic rent, is $900,000 if a property right in the sunken ship can be acquired; and the competition to acquire it may eat up all or most of the potential rents, transforming them into social costs. This example assumes, of course, that the original owner of the ship abandoned it, so that is is unowned; if it has not been abandoned, the owner can simply auction off the right to salvage the ship to the highest bidder, and there will be no rent-seeking problem. Intellectual property sometimes creates serious problems of rent-seeking because the resource is continuously created or discovered rather than being already owned. It is waiting to be discovered or invented, just like the sunken ship whose owner has abandoned it.

The third cost of property rights, the cost of protection and enforcement, includes the costs incurred by police and courts in preventing trespass and theft. It also includes the cost of a fence used to mark boundary lines or the cost of a registry used to record land titles. Intellectual property tends to be particularly costly to protect. An idea cannot be seen in the way a piece of land can be. A piece of land might have been transferred by inheritance for many generations, but it is the same piece of land, recorded in the same land registry. It is harder to trace the descent of an idea. Moreover, the public-good character of intellectual property can make it costly to prevent misappropriation and exclude free riders in the absence of legal protection.

The final cost of property rights is the cost of restricting the use of property when it has a public-good character. In the case of farmland, whether cultivated or uncultivated, adding a user will impose costs on the existing user(s); so the fact that a fence keeps additional users out need not impose a net cost. But often, adding users will not impose costs on previous users of intellectual property—not directly anyway (it may of course discourage investment by preventing the previous users from recouping their sunk costs).[6] One farmer's using the idea of crop rotation does not preclude other farmers from using the same idea.[7] When the

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[6] This is the familiar "access vs. incentives" trade-off discussed in many intellectual property cases.

[7] Of course, when more farmers use crop rotation, output will rise, and price will fall. Thus extending crop rotation to other farmers imposes pecuniary costs on farmers already using crop rotation. We ignore these price effects as they are purely pecuniary externalities.

marginal cost of using a resource is zero, excluding someone from using it creates a deadweight loss, in addition to the cost of enforcing exclusion. This loss is not significant in the case of most physical property, which lacks the public-good character of intellectual property.

Since intellectual property is a particularly costly form of property, we would expect (and we find) that it is limited in ways that physical property is not.[8] For example, the requirement that an invention, to be patentable, should not be obvious excludes property rights in inventions where excessive rent seeking would be a serious problem if such rights were recognized. "Obviousness" implies a low cost of discovery and development and therefore a large potential gap between value and cost—a large opportunity to obtain economic rents. The limited duration of patents limits rent seeking by putting a ceiling on the expected value of the patent. It also reflects the high cost of tracing an idea over a long period of time in which it may have become embodied in a great variety of inventions. As we shall see, property rights in trademarks are also limited—for example, by generally refusing to allow exclusive rights to common descriptive terms and by requiring that a similar or identical mark to one already in use be shown to create a likelihood of confusion regarding the source of the goods for infringement to be found.

II. The Economics of Trademarks

A. Introduction

To oversimplify somewhat, a trademark is a word, symbol, or other signifier used to distinguish a good or service produced by one firm from the goods or services of other firms. Thus "Sanka" designates a decaffeinated coffee made by General Foods and "Xerox" the dry copiers made by Xerox Corporation. "Bib"—the "Michelin Man"—is the symbol of tires made by the Michelin Company. A stylized penguin is the symbol of a line of paperback books published by Penguin Books; a distinctively shaped green bottle is a trademark of the producer of Perrier bottled water; the color pink is a trademark for residential insulation manufactured by Owens-Corning.

1. Benefits of Trademarks

Suppose you like decaffeinated coffee made by General Foods. If General Foods's brand had no name, then to order it in a restaurant or grocery store you would have to ask for "the decaffeinated coffee made by Gen-

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[8] See, for example, Posner, *supra* note 4, at 36–37; Edmund W. Kitch, Graham v. John Deere Co.: New Standards for Patents, Sup. Ct. Rev. 1966, at 293.

eral Foods.'' This takes longer to say, requires you to remember more, and requires the waiter or clerk to read and remember more than if you can just ask for ''Sanka.'' The problem would be even more serious if General Foods made more than one brand of decaffeinated coffee, as in fact it does. The benefit of the brand name is analogous to that of designating individuals by last as well as first names, so that, instead of having to say ''the Geoffrey who teaches constitutional law at the University of Chicago Law School—not the one who teaches corporations,'' you can say ''Geoffrey Stone—not Geoffrey Miller.''

To perform its economizing function a trademark or brand name (these are rough synonyms) must not be duplicated. To allow another maker of decaffeinated coffee to sell its coffee under the name ''Sanka'' would destroy the benefit of the name in identifying a brand of decaffeinated coffee made by General Foods (whether there might be offsetting benefits is considered later). It would be like allowing a second rancher to graze his cattle on a pasture the optimal use of which required that only one herd be allowed to graze. The failure to enforce trademarks would impose two distinct costs—one in the market for trademarked goods and the other in the distinct (and unconventional) market in language.

a) The Market for Trademarked Goods. The benefits of trademarks in reducing consumer search costs require that the producer of a trademarked good maintain a consistent quality over time and across consumers. Hence trademark protection encourages expenditures on quality. To see this, suppose a consumer has a favorable experience with brand X and wants to buy it again. Or suppose he wants to buy brand X because it has been recommended by a reliable source or because he has had a favorable experience with brand Y, another brand produced by the same producer. Rather than investigating the attributes of all goods to determine which one is brand X or is equivalent to X, the consumer may find it less costly to search by identifying the relevant trademark and purchasing the corresponding brand. For this strategy to be efficient, however, not only must it be cheaper to search for the right trademark than for the desired attributes of the good, but also past experience must be a good predictor of the likely outcome of current consumption choices—that is, the brand must exhibit consistent quality. In short, a trademark conveys information that allows the consumer to say to himself, ''I need not investigate the attributes of the brand I am about to purchase because the trademark is a shorthand way of telling me that the attributes are the same as that of the brand I enjoyed earlier.''[9]

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[9] As emphasized in Comment, Trademarks and Generic Words: An Effect-on-Competition Test, 51 U. Chi. L. Rev. 868 (1984), the benefits of a trademark to the consumer need not depend on whether the trademark identifies a particular brand or the producer of that brand. Consumers benefit even if they are unable to identify the producer of a brand

Less obviously, a firm's incentive to invest resources in developing and maintaining (as through advertising) a strong mark depends on its ability to maintain consistent product quality. In other words, trademarks have a self-enforcing feature. They are valuable because they denote consistent quality, and a firm has an incentive to develop a trademark only if it is able to maintain consistent quality. To see this, consider what happens when a brand's quality is inconsistent. Because consumers will learn that the trademark does not enable them to relate their past to future consumption experiences, the branded product will be like a good without a trademark. The trademark will not lower search costs, so consumers will be unwilling to pay more for the branded than for the unbranded good. As a result, the firm will not earn a sufficient return on its trademark promotional expenditures to justify making them. A similar argument shows that a firm with a valuable trademark would be reluctant to lower the quality of its brand because it would suffer a capital loss on its investment in the trademark.[10]

It should be apparent that the benefits of trademarks in lowering consumer search costs presuppose legal protection of trademarks. The value of a trademark is the saving in search costs made possible by the information or reputation that the trademark conveys or embodies about the brand (or the firm that produces the brand). Creating such a reputation requires expenditures on product quality, service, advertising, and so on. Once the reputation is created, the firm will obtain greater profits because repeat purchases and word-of-mouth references will generate higher sales and because consumers will be willing to pay higher prices for lower search costs and greater assurance of consistent quality. However, the cost of duplicating someone else's trademark is small—the cost of duplicating a label, design, or package where the required inputs are widely available. The incentive to incur this cost (in the absence of legal regulation) will be greater the stronger the trademark. The free-riding competitor will, at little cost, capture some of the profits associated with a strong trademark because some consumers will assume (at least in the short run) that the free rider's and the original trademark holder's brands are identical. If the law does not prevent it, free riding will eventually destroy the information capital embodied in a trademark, and the prospect of free riding may therefore eliminate the incentive to develop a valuable trademark in the first place.

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they desire to purchase—even if the good is from a single anonymous source. See Bayer Co. v. United Drug Co., 272 Fed. 505, 509 (S.D.N.Y. 1921)(L. Hand, J.).

[10] See Benjamin Klein & Keith B. Leffler, The Role of Market Forces in Assuring Contractual Performance, 89 J. Pol. Econ. 615 (1981); Carl Shapiro, Premiums for High Quality Products as Returns to Reputations, 98 Q. J. Econ. 659 (1983).

b) The Market in Languages. An entirely different benefit of trade-
mark protection derives from the incentives that such protection creates
to invest resources not in maintaining quality but in inventing new words[11]
(or symbols or, less clearly, design features used as trademarks, such as
the Perrier bottle—but for the moment we confine our attention to
words). Trademarks improve the language in three ways. They increase
the stock of names of things, thus economizing on communication and
information costs in the ways just suggested. They create new generic
words—words that denote entire products, not just individual brands
("aspirin," "brassière," "cellophane," "thermos," "yo-yo," "dry ice,"
and a number of other names of common products were once trade-
marks—and, whatever courts might say, "Kleenex" and "Xerox" are
widely used to denote entire products as well as particular brands).[12] And
they enrich the language, by creating words or phrases that people value
for their intrinsic pleasingness as well as their information value ("Phere-
mon" perfume, "Swan's Down" cake mix).

These benefits, however, are small. This point will later help us explain
important features of trademark law—such as the termination of
trademark protection if the mark becomes generic—that would be
inexplicable if trademarks provided the same sort of intellectual enrich-
ment that patents and copyrights do. To show this will require a brief look
at the economics of language.[13] The goal (to which language is central) of
a communication system is to minimize the sum of the costs of avoiding
misunderstanding and the costs of communicating. Suppose we have a
word for snow and a word for falling, and now the question is, Should
there be a new word, meaning "falling snow"? In favor of the new word is
the fact that unless it is very long it will be shorter to speak, read, and
write; against it is that people will have to learn and remember another
word. The more common a term is, the more the benefits of having a
single word are likely to outweigh the costs, not only because the gains
from shortening the term will be greater, but also because the cost of

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[11] A linguistic study of 2,000 brand names concludes that they are formed on the same
linguistic principles as other words. See Jean Praniskas, Trade Name Creation: Processes
and Patterns 101 (1968). For a fascinating older study, reaching a similar conclusion, see
Louise Pound, Word-Coinage and Modern Trade Names, 4 Dialect Notes 29 (1913).

[12] Adrian Akmajian, Richard A. Demers, & Robert M. Harnish, Linguistics: An Introduc-
tion to Language and Communication 70 (1984), give these two words as examples of how
brand names have become part of ordinary language.

[13] This is an undeveloped branch of economics. The only previous economic analysis of
language that we have found is a short paper by Jacob Marschack, Economics of Language,
10 Behavioral Sci. 135 (1965). A related subject, however, the economics of rhetoric, is
discussed briefly in Richard A. Posner, The Economics of Justice 172–73, 276–77, 280, 282
(1981).

learning and remembering a word is less if it is in common use. So we are not surprised to find that Eskimos have a single word for falling snow, though we do not.[14] The use of a word rather than a periphrasis to name a brand illustrates the same point.

Both examples are closely related to a statistical observation made years ago: the length of words is inverse to their frequency.[15] It might seem that, rather than frequently used words being shorter than infrequently used words, all words would be short in order to economize on communication costs. But length is an important dimension along which words vary, and this dimension would be lost if all words were short. It makes economic sense for the frequently used words to be short and the infrequently used ones to be long; then total length is minimized without sacrificing distinctiveness, thereby increasing the number of errors (misunderstanding). More generally, the drive to make language simple is balanced by the desire to avoid ambiguities and confusions that result from lack of differentiation.[16]

Here are some other examples of efficient language rules.

1. Irregularities of grammar and spelling are more common in frequent than infrequent words.[17] The more frequently used a word is, the easier it is to learn by rote, and hence the less important it is that people be able to construct the word by the application of a rule. Everyone knows that the past participle of the verb "to be" is "been"; but it is convenient to be able to construct the past participle of "excogitate" by rule rather than have to memorize it.

2. Pronunciation changes faster than spelling because changes in pronunciation do not reduce the intelligibility of existing reading matter, which represents a vast and valuable capital stock of knowledge.

3. Perfect synonyms are rare; they would increase learning costs without adding to the communication resources of the language (except that synonyms make it easier to write poetry that rhymes or has regular meter).

4. Pronouns, which in all languages known to us are short, are an ingenious device for economizing on the length of words.

Examples of the efficiency of language rules could be multiplied,[18] but the most important thing for present purposes is to note that efficiency is

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[14] See F. R. Palmer, Semantics 21 (2d ed. 1981).

[15] See George Kingsley Zipf, Human Behavior and the Principle of Least Effort 24 (1949), discussed in Marschack, *supra* note 13, at 139–40.

[16] See, for example, Jean Aitchison, Language Change: Progress or Decay 201, 226 (1981). This book is an uncommonly lucid introduction to linguistics.

[17] See, for example, Theodora Bynon, Historical Linguistics 43 (1977).

[18] See, for example, Aitchison, *supra* note 16, at 152–55 and ch. 8.

achieved without a system of property rights in words, grammatical forms, and so on. Of course the costs of enforcement—the costs, for example, of a system under which the coiner of a word (such as Jeremy Bentham, who coined "codification," "minimize," and several other words still in common use) obtained a property right in it—would be immense. This may be a sufficient explanation for why there is no such system. Yet it seems (though this is no better than a guess) that even without property rights the language has attained a reasonable degree of efficiency. Of particular relevance to trademarks is the fact that the creation of new words for new things seems not to be retarded by the fact that the coiner of a word can obtain no property right. Either the costs of thinking up new words are slight, or the incentives to do so, independent of any direct compensation, are great. The former seems important for proper names (naming a baby, for example) and for terms of art (we have created a few ourselves, such as "joint care"),[19] the latter for trademarks—if a producer wants to market a new brand effectively, he needs a distinctive name—unless of course he is trying to pass off his brand as someone else's.

This analysis suggests that we do not need trademark protection just to be sure of having enough words, though we may need patent protection to be sure of having enough inventions or copyright protection to be sure of having enough books, movies, and musical compositions. Computer operating systems, which are a form of language, are copyrightable; maybe any invented language, such as Esperanto, would be. But the investment required to create a whole new language is much greater than that required to create a single new word, so the case for property rights is much stronger in the former instance than in the latter.

Our analysis also suggests that the universe from which trademarks are picked is very large. The availability of alternative words, symbols, and so on to those appropriated for use as particular trademarks will play an important role in our formal analysis, where we refer to it as "W." It turns out that a high W is a precondition to a system of trademarks that is effective in lowering consumer search costs.

2. The Costs of Legally Enforceable Trademarks

These costs are modest, at least in the simple care of the "fanciful" mark, such as "Exxon" and "Kodak," which has no information content except to denote a specific producer or brand. Since the mark "goes with" the brand (in a sense explained later), the transfer of the mark is

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[19] See William M. Landes & Richard A. Posner, Joint and Multiple Tortfeasors: An Economic Analysis, 9 J. Legal Stud. 517, 518 (1980).

automatically effected by a transfer of the rights to make the branded product, as by a sale, or licensing, of production rights or assets. Quite unlike our case of the sunken ship in Section I, rent seeking to stake out a trademark is not much of a problem either.[20] Prior to establishing a trademark, the distinctive yet pronounceable combinations of letters to form words that will serve as a suitable trademark are as a practical matter infinite, implying a high degree of substitutability and hence a slight value in exchange. Finally, the costs of enforcement, though not trivial (especially where there is a danger of a brand name's becoming a generic name), are modest and (again putting aside the generic problem) do not include the cost in inefficient resource allocation from driving a wedge between price and marginal cost. A proper trademark is not a public good; it has social value only when used to designate a single brand.

We may seem to be ignoring the possibility that, by fostering product differentiation, trademarks may create deadweight costs, whether of monopoly or (excessive) competition. We have assumed that a trademark induces its owner to invest in maintaining uniform product quality, but another interpretation is that it induces the owner to spend money on creating, through advertising and promotion, a spurious image of high quality that enables monopoly rents to be obtained by deflecting consumers from lower-price substitutes of equal or even higher quality. In the case of products that are produced according to an identical formula, such as aspirin or household liquid bleach, the ability of name-brand goods (Bayer aspirin, Clorox bleach) to command higher prices than generic (nonbranded) goods has seemed to some economists and more lawyers an example of the power of brand advertising to bamboozle the public and thereby promote monopoly;[21] and brand advertising presupposes trademarks—they are what enable a producer readily to identify his brand to the consumer. Besides the possibility of creating monopoly rents, trademarks may transform rents into costs, as one firm's expenditure on promoting its mark cancels out that of another firm. Although no monopoly profits are created, consumers may pay higher prices, and resources may be wasted in a sterile competition.

The short answer to these arguments is that they have gained no foot-

[20] See our analysis in Section III on how trademarks are acquired.

[21] See, for example, Borden, Inc. v. FTC, 674 F.2d 498 (6th Cir. 1982) (the "ReaLemon" case); William S. Comanor & Thomas S. Wilson, Advertising and Market Power, ch. 3 (1974); Richard Schmalensee, On the Use of Economic Models in Antitrust: The ReaLemon Case, 127 U. Pa. L. Rev. 994 (1979); Warren G. Lavey, Patents, Copyrights, and Trademarks as Sources of Market Power in Antitrust Cases, 27 Antitrust Bull. 433, 448–51 (1982).

hold at all in trademark law, as distinct from antitrust law. The implicit economic model of trademarks that is used in that law is our model, in which trademarks lower search costs and foster quality control rather than create social waste and consumer deception. A longer answer, which we shall merely sketch, is that the hostile view of brand advertising has been largely and we think correctly rejected by economists.[22] The fact that two goods have the same chemical formula does not make them of equal quality to even the most coolly rational consumer. That consumer will be interested not in the formula but in the manufactured product and may therefore be willing to pay a premium for greater assurance that the good will actually be manufactured to the specifications of the formula. Trademarks enable the consumer to economize on a real cost because he spends less time searching to get the quality he wants. If this analysis is correct, the rejection by trademark law of a monopoly theory of trademarks is actually a mark in favor of the economic rationality of that law.

This section is hard. Skim it. We won't do the math in class. Skim until you hit Generic Names.

B.   A Formal Model

The essential economic function of trademarks—that of reducing consumer search costs—can be given greater precision and rigor in a simple formal model. We define the full price (π) of a good X as its money price (P) plus the search costs (H) incurred by the buyer in obtaining information about the relevant attributes of X:[23]

$$\pi = P + H(T; Y, W). \tag{1}$$

We assume that the firm produces information in part through its trademark T. The more resources the firm spends developing and promoting its mark, the stronger will its mark be (the greater T will be) and the smaller H will be. Information produced by T is of two sorts. One is information that enables the consumer to identify the source of the good; for example, knowing that Crest toothpaste comes from a single source even if one does not know that Procter and Gamble is that source. Information about source economizes on search costs by lowering the cost of selecting goods on the basis of past experience or the recommendation of other consumers. Imagine how high search costs would be if all producers

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[22] See Klein & Leffler, *supra* note 10, and references therein.

[23] Our "full price" model is similar to that developed in Isaac Ehrlich & Lawrence Fisher, The Derived Demand for Advertising: A Theoretical and Empirical Investigation, 72 Am. Econ. Rev. 366 (1982). Ehrlich and Fisher treat advertising as a variable that reduces search costs and thus the full price of the good. Their model builds on the approach to advertising in Gary S. Becker & George J. Stigler, De Gustibus Non Est Disputandum, 67 Am. Econ. Rev. 76 (1977).

of toothpaste used the identical mark or no mark at all. The other sort of information produced by T is information about the product itself. For example, a "descriptive" mark (of which more later) may, in addition to identifying source, decribe some properties of the brand; this information also lowers search costs.

Equation (1) indicates that H also depends on factors other than T, such as the amount of advertising, the technology available to the firm for producing information, the number of competitors (because search costs may be lower the fewer competitors there are),[24] and the cost of the buyer's time. We denote these other factors by Y in equation (1), but, because our interest is in trademarks, we shall ignore them.

The variable H will also depend on W, an index of the availability of words, symbols, and so on that the firm can use as its trademark. We assume that W will interact with the firm's trademark to provide information to consumers on relevant attributes of the firm's product. Most of the time W will be too large to affect the analysis, but if one firm is given exclusive rights to words that define or describe a product, this will reduce the productivity of the trademarks of other firms that make the same product. Suppose, for example, that a particular manufacturer of personal computers could not use the terms "personal computer" and "PC" to advertise its computer because another firm had the exclusive right to these terms. Maybe it would have to describe its product as "a machine capable of doing word processing and high speed calculations using a central processing unit, and so on." (An even more elaborate periphrasis would be necessary if "word processing" had also been appropriated.) Because it is harder to recall long than short phrases, a lengthy advertising message that is difficult to recall will convey less information about the firm's product, so search costs will rise. Although we shall discuss W in more detail later, a simple way to incorporate it into the analysis is to assume that, up to some index value of W, the greater W is (that is, the larger the universe of possible names for X), the greater will be the productivity of a firm's trademark in reducing search costs for its brand.[25]

We can write the firm's profit function as

$$I = P(T) \cdot X - C(X) - R \cdot T, \tag{2}$$

where I is net income ($=$ profit), $C(X)$ is the cost of X, and R is the cost to

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[24] This suggests that the benefits of trademarks in providing source information will be lower when there is one or a few producers of the product in question.

[25] To simplify the notation in our model, we write $H = H(T)$, although, as noted, H also depends on Y and W.

the firm of producing a unit of T. The variable R is assumed to be constant. A more elaborate model would explicitly consider trademarks as a part of the firm's capital and RT as gross investment in that capital. We ignore this refinement in our model but not in our discussion.

We assume positive and decreasing marginal product for T in lowering search costs ($H_t < 0$ and $H_{tt} > 0$) and increasing marginal cost for X ($C_x > 0$ and $C_{xx} > 0$). Substituting $\pi - H(T)$ for P yields

$$I = [\pi - H(T)]X - C(X) - RT. \tag{3}$$

Assuming a competitive industry (each firm takes π as given), the firm's profit-maximizing conditions with respect to X and T are

$$P - C_x = 0, \tag{4}$$

$$- H_t X - R = 0. \tag{5}$$

Equation (4) expresses the usual equality between the price and marginal cost of the firm's product. Equation (5) equates the marginal returns of a unit increase in T with its cost.[26]

Figures 1 and 2 may help convey an intuitive understanding of these equilibrium conditions. Figure 1 shows that the price of a unit of X is independent of the quantity of X but is greater the stronger the firm's trademark ($T^1 > T^* > T^0$). The firm in Figure 1 is operating at the minimum point on its average cost curve (including trademark costs) and is thus earning zero profits. Figure 2 shows that the benefits of an additional unit of T depend both on the productivity of T (the value of $- H_t$) in lowering search costs and on the amount of X sold because expanding T makes all units of X more valuable to consumers (with π constant, it raises the price the firm obtains on every unit of X). The profit-maximizing values of X and T in Figures 1 and 2 are X^* and T^*, and the resulting equilibrium price is P^*.

Although in our model each firm is a price taker with respect to π, the price of X—the price of the brand that the firm sells—will differ among firms. Firms with strong trademarks (lower H's) will command higher prices for their brands not because of any market power but because the

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[26] In the monopoly case, eq. (4) becomes

$$P[1 - 1/(e \cdot s)] - C_X = 0,$$

where e denotes the elasticity of demand with respect to π, and s denotes P's share of π. Since output (X) is lower under monopoly, so is T (from eq. (5)). This is not surprising since the principal benefit of a trademark—providing source information—is weaker if there is only a single producer. The monopoly model is less useful in analyzing trademark law than the competitive one because a number of trademark doctrines deal with the effect of granting exclusive rights to one competitor on the ability of others to compete effectively.
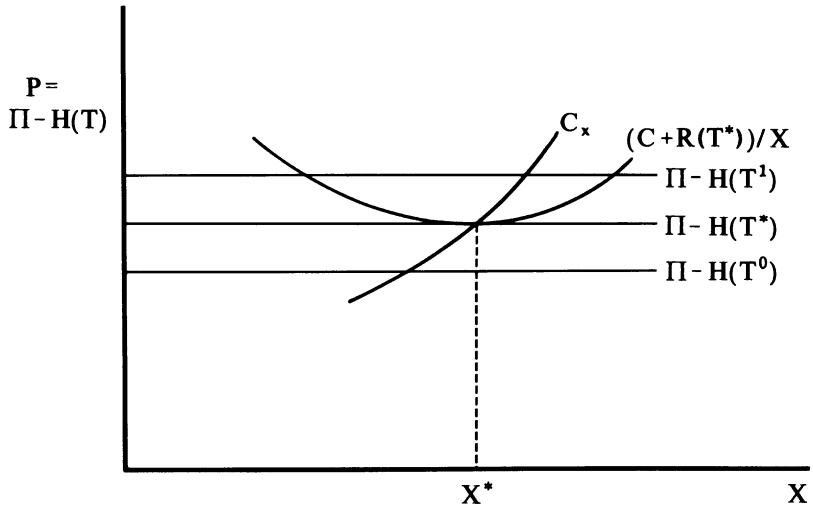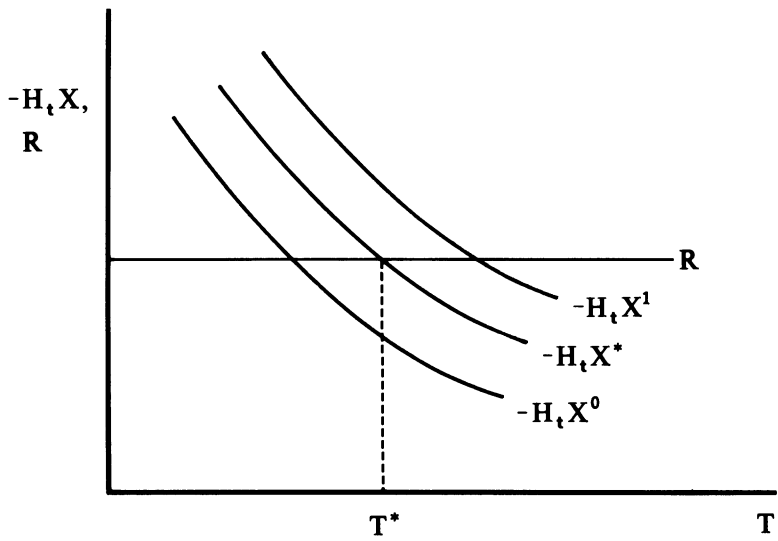
$P = \Pi - H(T)$

C_x

$(C + R(T^*))/X$

$\Pi - H(T^1)$

$\Pi - H(T^*)$

$\Pi - H(T^0)$

X^*

X

FIGURE 1

$-H_t X,$
R

R

$-H_t X^1$

$-H_t X^*$

$-H_t X^0$

T^*

T

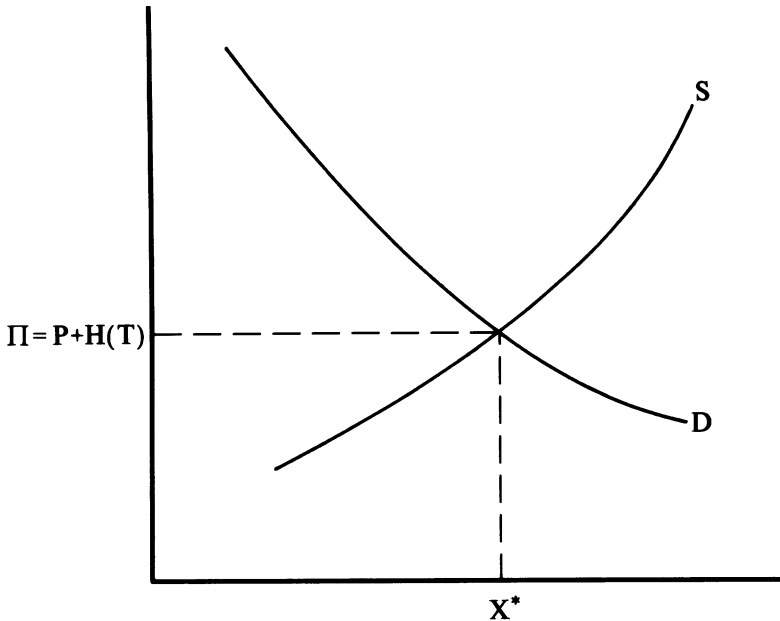FIGURE 2

$$\Pi = P + H(T)$$

FIGURE 3

search costs associated with their brand are lower. For example, if the full price of X is $2.00, a firm with $H = \$1.00$ will sell its brand of X for $1.00, while a firm with $H = \$0.50$ will sell its brand for $1.50. In general, the equilibrium values of X, T, and P will be greater the greater π, the lower the level of H, the greater the marginal product of T, and the lower the marginal costs of X and T. Observe also that, the greater the availability of words and so on for use as trademarks (the greater is W), the lower will tend to be the values of H and H_t for a given value of T, and hence the greater will be the equilibrium values of X, T, and P; and because X is greater, the equilibrium value π will be lower.

We can construct an industry supply curve for X with respect to π (Figure 3) in the following way. For each π we calculate the firm's equilibrium values of X and T that satisfy equations (4) and (5). We then sum up the individual firms' outputs for given π's to obtain the industry supply curve. The latter will be positively sloped since a higher full price (π) will induce each firm to expand its output of X (both through the direct effect of a higher π on P and the indirect effect of the initial increase in X, which leads to a higher T and hence a further increase in P). Figure 3 shows the

equilibrium full price and output. The variables D and S are the industry demand and supply curves.

A simplifying assumption in our formal model is that all firms produce products or brands of identical quality. And prices may indeed differ among brands, not because of any quality differences in the underlying physical product but because of differences in the strength of the brands' trademarks. Yet an important and widely recognized benefit of trademarks is that they give firms an incentive to improve the quality of their products. Without an exclusive right to use one's own trademark, a firm that was producing a lower-quality brand might attempt to free ride on firms producing higher-quality brands by duplicating their trademarks and hoping that consumers would be misled into believing the brands were equivalent. Since this would make it more costly for consumers to distinguish higher-quality from lower-quality brands, it would lower the incentive for a firm to incur the added cost that would be necessary to produce a higher quality. Hence, the average quality of the product as a whole would be lower than with legally enforceable trademarks.

A simple way to incorporate quality into our formal model of trademarks is to redefine the variables π, P, and H on a per-unit-of-quality basis. As before, we assume that the firm has the exclusive rights to its trademark. Let Q denote an index of quality of good X and $C(Q, X)$ the total cost of output (which we assume increases at an increasing rate for both Q and X). The firm would maximize

$$I = [\pi - H(T)]QX - C(Q, X) - RT \tag{6}$$

with respect to X, Q, and T. The first-order conditions are

$$PQ - C_x = 0, \tag{7}$$

$$[\pi - H(T)]X - C_q = 0, \tag{8}$$

$$- H_t QX - R = 0. \tag{9}$$

Equation (7) equates the price of the product (which equals the price per unit of quality times the number of units of quality per X) with its marginal cost. Equation (8) indicates that, the stronger the firm's trademark (and hence the lower is $H(T)$), the greater the price per unit of quality and hence the higher the quality of the firm's product. Similarly, the higher the quality is, the greater are the benefits of strengthening one's trademark (eq. (9)) and the greater therefore will be the firm's investment in its trademark. Thus, a simple extension of our basic model yields the intuitive result that trademark protection facilitates the production of higher-quality products.

III.   The Economics of Specific Trademark Doctrines

A.   The Acquisition, Transfer, and Duration of Trademarks

1.   How Trademarks Are Acquired

One of the costs of a property rights system—the transformation of the rents flowing from possession of a valuable right into costs of acquiring the right in the first place—is a potential problem with trademarks. There are three systems in use for regulating the acquisition of trademarks. One is registration. It resembles the systems used for acquiring patents and copyrights and is in use in most of the world outside the United States. The second system, which is the traditional approach of the common law, is a type of "first possession" rule and is thus analogous to the system for acquiring property rights in wild animals, oil and gas, and certain other resources (including, in some states, water). The third system is the current American system, which is a mixture of registration and first possession.

Under the common-law approach, the possession that confers ownership of a trademark is defined as use in commerce, which means sale to intended customers (typically, the public).[27] There are several advantages of a first-possession rule.

a) It minimizes rent seeking. A firm allowed to register trademarks without using them might invest substantial resources in thinking up plausible new brand names. For even if, as we have suggested, the elasticity of supply of such names is very high, the ownership of a vast number of them, and the aggregate licensing revenues that such ownership would command, would be a magnet drawing resources into the activity of creating brand names, probably beyond the optimal level of such investment. Apparently the "banking" of trademarks in countries such as Japan that have a pure registration system does occur and has made it more costly to enter markets in those countries.

b) First possession reduces administrative costs compared to deciding who first thought of or invented the trademark. Since trademarks often consist of common words, shapes, colors, and so on, it would be costly to figure out which party to a trademark dispute had invented the mark first. A cheaper (we do not suggest costless) alternative is to determine who used it first. An even cheaper alternative is who registered it first, but it leads to the problem discussed in the preceding paragraph.

c) Use in commerce means sale of the good, with the trademark at-

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[27] See, for example, 1 McCarthy, *supra* note 1, §§ 16.2, 16.3.

tached, to the public. Thus, a potential second comer will be on notice not to invest resources in developing a mark similar or identical to one already in use. Potential duplication costs are not avoided completely because, as we shall see in a moment, there will be an interval between developing and fully exploiting the mark during which another person (the "junior user") may be developing the same mark unaware of the first ("senior user").[28] But the costs probably are lower, on the average at least, than in the case of patents because the cost of adopting a new trademark is normally less than that of inventing a new product or process.[29]

d) Basing the property right on use fits in with the social function of trademarks in identifying and distinguishing goods. If the good is not available for sale, the trademark confers no benefit. Thus, conditioning trademark rights on use is a way of limiting the use of scarce enforcement resources to situations in which the rights in question are likely to yield net social benefits. The solution is not ideal; it could lead to the premature development and marketing of goods by a firm eager to establish a right in a nifty trademark. But if the elasticity of supply of brand names is as high as we believe, very few individual trademarks will be so valuable apart from the products that they name that a firm will distort its marketing decisions in order to appropriate a particular name.

The current American system of establishing trademark rights is a mixture of state common-law rights and an optional federal registration system (itself a mixture of registration and first-possession principles) under the Lanham Act.[30] Registration under the Lanham Act does not confer a property right without use, but less use is required than at common law; a token sole or single shipment will often be sufficient.[31] The principal social benefit of a federal registration system is that notice is likely to be more widespread, so that inadvertent duplication is less likely; hence, use becomes a less important method of preventing duplication. But the federal registration system involves significant costs. Like a pure registration system, it may enable firms to "bank" trademarks, provided the use requirement is minimal. If the sale of trademarks apart from the goods

[28] See Blue Bell, Inc. v. Farah Mfg. Co., 508 F.2d 1260 (5th Cir. 1975).

[29] The function of the patent system in reducing duplication by warning off prospective inventors of the same product or process is emphasized in Edmund W. Kitch, The Nature and Function of the Patent System, 20 J. Law & Econ. 265 (1977). Notice that this is an example of how the law of intellectual property tries to control the problem of rent seeking.

[30] 15 U.S.C. §§ 1051 *et seq.* The act also provides remedies for infringement of unregistered (that is, common-law) trademarks and for false advertising and labeling.

[31] See, for example, Blue Bell, Inc. v. Farah Mfg. Co., *supra* note 28, at 1266–67; Maternally Yours, Inc. v. Your Maternity Shop, Inc., 234 F.2d 538, 542 (2d Cir. 1956).

they denote is forbidden (which it is, as we shall see in the next section), "banking" trademarks could also impose costs by requiring competitors to adopt less efficient trademarks (those yielding a higher H in our model) since they could not buy them from the "bank."

The biggest problem with a first-possession rule for intellectual property, and the strongest argument therefore for a system of paper titles (the trademark registry, corresponding, as we have noted, to the patent registry), is that the thing possessed has no definite physical locus. Suppose that producer A, who makes brand X desk lamps, is at present selling only in New York State, but he has plans to sell eventually throughout the country. Can producer B, who operates only in California, sell the desk lamps under the X name, on the theory that A is not using the trademark in California? Or if A is selling throughout the country a hammer under the name X but plans eventually to sell a full line of tools under the name, can B affix the name to his own brand of screwdriver? If A eventually begins to sell desk lamps in California or eventually begins to produce screwdrivers as well as hammers, who owns the X trademark—A or B?

The courts resolve these issues in a way that seems calculated to minimize the costs arising from duplication of trademarks but is itself rather costly and uncertain to administer. Assuming that the goods sold by A and B (if and when A completes his plans of expansion, whether geographic or product, as the case may be) will be too similar to share the same name without unduly confusing the consumer, the courts consider primarily the closeness between A's original and expansion uses, A's unreasonable delay, if any, in enforcing his trademark against B (A's "laches," as it is called), and B's good or bad faith—whether he knew about A's trademark and was copying it or whether it was a coincidence that he began using the same mark.[32] The closer A's original and expansion uses are, the costlier it will be for A and its customers if A is forced to use a different mark in the expansion uses. Given the mobility of consumers,[33] they will be confused to find that the same brand is called one thing in one state and another thing in another. That is why Standard Oil Company of New Jersey came up with a new mark, "Exxon," to replace the Esso, Humble, Standard, and Enco marks that it had used for the identical products in different states. Consumers may also be confused if com-

[32] See, for example, Polaroid Corp. v. Polarad Electronics Corp., 287 F.2d 492 (2d Cir. 1961) (Friendly, J.); Dwinell-Wright Co. v. White House Milk Co., 132 F.2d 822 (2d Cir. 1943) (L. Hand, J.); 2 McCarthy, *supra* note 1, chs. 24, 26, 31.

[33] Well illustrated by Park 'N Fly, Inc. v. Dollar Park and Fly, Inc., 782 F.2d 1508, 1509 (9th Cir. 1986), where the parties provided services to airline passengers at different airports, but the pool of customers was the same. We discuss the determinants of the likelihood of confusion in greater detail later.

plementary goods, such as a hammer and a screwdriver, made by the same producer are sold under different names. Hence, if A is denied the use of his trademark in his expansion markets, geographic or product, he may, like Standard Oil of New Jersey, be forced to adopt a wholly new trademark, thus sacrificing some reputation capital associated with the original mark.

A doctrine of laches (unreasonable delay) forces A to internalize B's cost of duplication. If A has reason to know that B is proceeding to develop a duplicative mark in ignorance of A's prior use, A must, on pain of not being able to use his mark in his expansion markets, warn B off. If, however, B, far from proceeding in ignorance of A's prior use, has deliberately copied that mark (bad faith), the costs of duplication are self-imposed, and he is entitled to less consideration.

The Lanham Act has eased the problem of geographic overlap, thanks to imaginative judicial interpretation. The courts have interpreted the act to eliminate any good-faith defense for a firm using a trademark listed in the federal registry on the same product.[34] The idea is that, before beginning to use a mark, the firm should check the registry, and if it finds that the mark is being used on the same product, it cannot later claim good faith when sued for infringement. If the products are different (our hammer and screwdriver example), the defense is not automatically extinguished, because the path of expansion into different, though related, products is inherently uncertain. The same can be said for geographic expansion, but there is a critical difference. Even if the firm that is using a trademark in one part of the country never expands to other parts, consumers are not fixed in one place, and in traveling around the country or in moving from one part of the country to another they may be confused if different brands of the same product are sold under the same name. They are apt to assume that every desk lamp sold under a particular brand name is the same brand, that is, is produced by the same producer. The courts have eliminated this source of confusion for registered marks.

2.   The Sale of Trademarks

The law generally prohibits the sale of trademarks except as an incident to selling the right to produce the good that the mark identifies.[35] This rule

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[34] See 2 McCarthy, *supra* note 1, § 26.13.

[35] See, for example, Pepsico, Inc. v. Grapette Co., 416 F.2d 285 (8th Cir. 1969); 1 McCarthy, *supra* note 1, §§ 18.1–18.2. A major exception is for "promotional goods," which are goods that carry the trademark but are not closely related to the goods primarily produced by the trademark owner. A good example is a T-shirt with the trademark or emblem of the Chicago Bears football team. This trademark has a value independent of the good it

that trademarks cannot be appropriated "in gross" may seem puzzling. Why should Coca-Cola, for example, not be allowed to sell its trademark while retaining all rights to its secret formula for syrup? The answer relates to the economic function of trademarks in providing useful information about a good's attributes that would be more costly to obtain elsewhere. If A sells just his trademark to B, and consumers know about the sale, attaching A's trademark to B's good will not, at least as a first approximation, enable B to obtain a higher price for his good.[36] Contrast this with the case in which A sells the formula or other assets used to produce the good; here, there is essentially just a change of ownership and hence no reason to believe that the quality of the good will be less. Where the only transfer is of the trademark itself, the knowledgeable consumer will be reluctant to pay more for the same old good (B's) just because it has a new name. This implies that B will purchase A's mark in gross, for use on B's (unchanged) good, only if a sufficient number of consumers believe that the mark still identifies A's good—that is, they are confused. In such a case, the expected value of A's trademark on B's good will depend on the added price that A will be able to charge for its brand because consumers are confused. Recall from our model that trademarks lower search costs. Let ϕ^b denote the probability that consumers believe that A's mark correctly identifies B's good, and let $1 - \phi^b$ denote the likelihood of confusion—that is, the probability that consumers believe that A's mark attached to B's good still identifies A's good. Provided $H(T^a)$ is less than $H(T^b)$ (otherwise B will not attach A's mark to his good), B will obtain a higher price for his (pseudo-A) good than he would without confusion. Assuming that consumers are risk neutral, the increase in price will equal $\{[\pi - H(T^a)] - [\pi - H(T^b)]\} (1 - \phi^b)$ and will therefore be higher the greater the likelihood of confusion and the stronger A's trademark is relative to B's.[37]

This analysis is incomplete in three respects, however. First, it fails to

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identifies. Thus, the trademark itself is a good. Our analysis of trademarks does not deal with promotional goods; they are analyzed in Note, *supra* note 1. Another major exception is the service mark ("Holiday Inn," for example), often used to denote a franchise operation rather than a manufactured good. Here there is no manufacturer, so the sale of the trademark cannot be tied to the sale of a right to manufacture.

[36] One can think of exceptions. For example, if consumers believe that A's sale of its mark was contingent on its implicit certification of B's good, B may be able to obtain a higher price for its good.

[37] The increase in price will be even greater if B's quality is lower than A's (holding constant the probability of consumer confusion). Then the increase in price equals

$$(1 - \phi^b)\{[\pi - H(T^a)]Q^a - [\pi - H(T^b)]Q^b\},$$

which is greater the greater A's quality is relative to B's (the greater is Q^a relative to Q^b).

consider that, if A is blocked from making such a sale, it can accomplish
the same end by reducing the quality of its own brand and thus obtain the
same profits from deceiving consumers as it could have obtained if al-
lowed to sell its trademark to B for use on B's inferior good. Trademark
law contains, however, a doctrine designed (perhaps not very effectively)
to close this loophole. As McCarthy explains, "Since a trademark is not
only a symbol of origin, but a symbol of a level of quality, a substantial
change in the nature or quality of the goods sold under a mark may so
change the nature of the thing symbolized that the mark becomes fraudu-
lent or that the original rights are abandoned."[38]

Second, our analysis ignores the market checks on A's selling his
trademark for a deceptive use by B. Once consumers "wise up" to the
fact that A's trademark does not denote a good of consistent quality, they
will refuse to pay as much to either A or B. It might seem, therefore, that
in selling his mark, as in licensing it, A would have an incentive to monitor
the quality of B's good to make sure that B did not impair A's reputation
by selling an inferior quality of good. Moreover, even if there were no
doctrine that forbade the sale of trademarks in gross, A would forfeit the
trademark if a buyer attached the mark to an inferior good, for this is the
rule when the trademark is sold, lawfully, along with the right to produce
A's good.[39]

All this ignores the fact, however, that A, when he sells his trademark
to B, may be leaving the market in which the trademarked good is sold or
even going out of business entirely. In either of these "last-period" set-
tings, A may face no prospective market retaliation from selling a
trademark that will be used to deceive consumers. An important aspect of
the rule against sale in gross is, as a matter of fact, the law's unwillingness
to allow a creditor to levy on a trademark of the bankrupt company.
Unless the buyer of the bankrupt's estate continues the bankrupt's busi-
ness, the bankrupt's trademarks are deemed abandoned.[40] In this setting,
the rule acts as a prophylactic against the creditor's attaching the mark to
an inferior good. It is prophylactic because, as noted earlier, the mark will
be forfeited once it is discovered that it is being attached to an inferior
good—but that may take years to discover, and many consumers may be
deceived in the interim.

As our analysis would predict, the rule forbidding assignments of
trademarks in gross is, so far as we can determine, applied only in last-
period cases; although we have not made a complete search, the cases we

[38] 1 McCarthy, *supra* note 1, § 17.9, at 784 (footnotes omitted).
[39] See *id.* § 18.8.
[40] See *id.* § 18.9 at 818.

have read in which a sale was voided as being in gross are all cases in which the seller was either no longer in business or no longer using the trademark himself.[41]

Third, we have not accounted for B's incentive to try to gull consumers into thinking they are buying a superior brand. If consumers are easily gulled, our earlier rejection of the monopoly theory of product differentiation would be hard to sustain. If they are not easily gulled, B will suffer the same loss of reputation capital as A. In some cases, however, that prospect will not deter B. B may be in its last period; it may have little or no reputation capital to lose; or the cost of producing its inferior product may be so low that its short-run expected gain from deception exceeds its long-run loss of reputation capital.

3. The Duration of Trademarks

The lack of a fixed term for trademarks is one of the striking differences between trademarks, on the one hand, and copyrights and patents, on the other. The difference, however, makes economic sense. If a given name has no scarcity value, so that it yields zero rents, perpetual compared to limited duration cannot create rent-seeking problems even if discount rates are very low (or zero or, for that matter, negative). And identification costs, which would plague perpetual patents, are not a serious problem either. The trademark is tied to physical property—the good that it names—and there is usually little cost in finding out who the producer of a good, and therefore the trademark owner, is, though we shall consider some exceptions later. Moreover, to make the producer of a good give up the name before he ceased selling the good would impose search costs on consumers; and when and if he ceases selling the good, the trademark lapses—another illustration of the doctrine of trademark abandonment.[42] We shall see, however, that trademarks are subject to variable limitations both in time and in "product space."

B. The Requirement of Distinctiveness

1. Introduction

Trademark protection is available only for a word or other signifier that identifies the underlying good (or service) and distinguishes it from that of

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[41] See, for example, Pepsico, Inc. v. Grapette Co., 416 F.2d 285 (8th Cir. 1969); Uncas Mfg. Co. v. Clark & Coombs Co., 309 F.2d 818 (1st Cir. 1962); American Photographic Pub. Co. v. Ziff-Davis Pub. Co., 135 F.2d 569, 573 (7th Cir. 1943); 1 McCarthy, *supra* note 1, § 18.5(D).

[42] On the doctrine generally, see 1 McCarthy, *supra* note 1, ch. 17.

other producers. Lack of distinctiveness would make the mark incapable of identifying the good and recalling to a consumer the information (on the basis of previous experience with the good by him or other consumers) that lowers his search costs and enables the producer to charge a higher price. But even without a distinctive mark, T may reduce search costs somewhat, so that $H(T)$ would be minimally lower than if there is no trademark at all.

What would be wrong with trademark protection for nondistinctive signifiers? Such protection might be unnecessary because no one would want to free ride on a nondistinctive signifier; the incentive to free ride depends on the difference between the profits generated by the mark—which by assumption are close to zero in the nondistinctive case—and the costs of duplication. Protection would impose other costs, above and beyond enforcement costs. Since a mark that does not distinguish one brand from another probably uses words, symbols, shapes, or colors that are common to those used by other producers of X, the protection of such a mark might prevent others from continuing to use words that they require to compete effectively.

We can expand our H function and write for a particular producer

$$H = H(T; Y, W, Z), \tag{10}$$

where Z denotes words and so on used in common with other producers, such as "computer," "electrical," or "heavy." In effect, (10) redefines W as an index of words and so on for use as trademarks except those (Z) used in common with other producers. Because the Z terms typically describe features of the product, they tend to be limited in number. The variable Z combines with T to produce information that lowers search costs. But letting a producer appropriate a nondistinctive mark would enable him to obtain, in effect, exclusive rights to Z, assuming that other producers—those with distinctive marks—would have to remove Z from their labels, packaging, or product design to avoid infringing the first producer's trademark, as they would have to do if their use of Z were deemed source identifying and not merely descriptive. The result would be to shift the $-H_t X$ curve in Figure 2 downward and to lower T and raise H for those producers no longer permitted to use Z. Ultimately, this would reduce the prices of their brands and lower the amount of X they produced. The industry supply curve for X would shift to the left, resulting in a social loss because consumers would be paying higher prices for a lower quantity of X. Our earlier example of a firm allowed to use "word processor" as a trademark illustrates this point.

2.   The Types of Trademark

The law could deal with the problem of the undistinctive mark by requiring in every case an inquiry into the economic effects of allowing an exclusive right. The effect, however, would be to make a trademark case very much like an antitrust case. Antitrust cases governed by the Rule of Reason are very costly to try (or even to settle), and the only thing that makes these costs (sometimes) worthwhile, both privately and socially, is the large private and social costs that some antitrust violations impose. Since the allocative effects of individual trademark abuses are pretty much limited to raising consumer search costs, the potential misallocations are much smaller than in most antitrust cases. It therefore would not pay, privately or socially, to conduct an antitrust-type analysis in most trademark cases. Instead, the law has classified potential marks by distinctiveness in a few broad categories and has made classification determinative of legality—much as in antitrust cases governed by per se rules. The result is sometimes criticized for its crudeness,[43] but there are potentially offsetting reductions in administrative costs.

Let us consider the categories.[44] The so-called fanciful mark—the made-up name that resembles no other word, such as "Exxon" or "Kodak"—is the economically (and legally) least problematic. Much like a fanciful mark in their economic properties are arbitrary and suggestive marks. The former term refers to a word in common use that has no meaning related to the product that it is used to name; "Apple Computer" and "Black & White Scotch" are examples. The elasticity of supply (W in our formal model) of such terms is very high. There are 450,000 words in *Webster's Third New International Dictionary*, and although they are not freely substitutable if one is trying to say something that will be understood, they are freely substitutable if one is uninterested in meaning.

Somewhat more problematic are suggestive marks—words that imply characteristics of the goods they are used to name but do not describe them. A good example is *"Business Week."* The elasticity of supply of suggestive marks is less, but not much less when one considers substitution between trademark categories. *"Business Week"* competes with *"Forbes"* and *"Barron's"* (arbitrary marks) as well as with the *"Wall Street Journal"*—the last also an example of a suggestive mark.

Next in decreasing order of substitutability is the descriptive mark,

[43] See, for example, Scandia Down Corp. v. Euroquilt, Inc., *supra* note 1, 772 F.2d at 1431 n.3.

[44] Succinctly summarized in Abercrombie & Fitch Co. v. Hunting World, Inc., 537 F.2d 4, 9–11 (2d Cir. 1976).

such as "All Bran" or "Holiday Inn." Here, trademark protection is allowed only on proof of "secondary meaning," which means proof that the consuming public understands the word or phrase to name the brand.[45] A given product has only so many attributes that interest buyers. So if one producer is allowed to appropriate the word that describes that attribute, he will obtain rents measured by the higher price he receives for his brand because it is so costly for his rivals to inform their customers of the attributes of their brands without using the descriptive word that has been appropriated (Z in eq. (10)). Over time, however, the dictionary meaning of the word may go out of common use, and the word may come to signify for most people just the name of the brand; "All Bran" has come to mean not any all-bran cereal but a particular brand of all-bran cereal. Once this happens, allowing the word or expression to be appropriated may create consumer benefits, by reducing confusion and search costs by more than the costs to rivals of being forbidden to use the same word.

Just as words can be classified into different types of trademarks, so can shapes and other signifiers. Similar to fanciful and arbitrary words are unusual symbols and shapes or combinations of well-known symbols, shapes, and colors. No problem arises when a firm appropriates such a signifier as its trademark. They are distinctive, so there is no question whether they are capable of providing source information; and their supply is virtually unlimited, so a competitor is not at a cost disadvantage in choosing another signifier as a trademark. Closely analogous to descriptive marks are common symbols (circles, squares, or hearts) and individual colors (particularly primary colors). They can be viewed as part of Z in equation (10). To allow a firm to appropriate one of these potential signifiers as its trademark creates the danger that, after several firms do this, the limited number of attractive symbols and colors will all be used, making it more costly for other firms to compete. That is, without access to Z, the costs of reducing H will rise, and ultimately the industry supply curve will shift upward and π will rise. Still, there may come a time, particularly if the symbol or color in question has been used exclusively over a period of years, when the common signifier denotes the producer's brand. The symbol or color now primarily provides source information; in trademark jargon it has acquired secondary meaning. Not to allow exclusive use in these circumstances would destroy information capital should other producers start using the same signifier. Not surprisingly, the law allows appropriation in this case.

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[45] See, for example, J. M. Huber Corp. v. Lowery Wellheads, Inc., 778 F.2d 1467 (10th Cir. 1985).

An interesting example is the trademarking of common shapes and colors of pills sold as prescription drugs. After a patent on a drug expires, other firms may begin selling the "same" drug under a different brand name or under its generic name while copying the shape and color of the original manufacturer's pill. Notwithstanding the lower price charged by the new entrants, many consumers may prefer to stick with the original manufacturer; maybe they had good experience with the drug and are reluctant to believe claims that the substitute is identical in all material respects. Since a consumer is unlikely to read the fine print on the pill that identifies the manufacturer (and it really is fine print), he may rely on the only accessible signifiers—its shape and color—to indicate that he is using the pill he wants. So if entrants are allowed to use the same size, shape, and color, this may lead to deliberate substitution by the druggist (because the manufacturer of the generic substitute charges the druggist a lower price or because the druggist is temporarily out of the original manufacturer's drug) or to inadvertent substitution because of the druggist's carelessness. In these circumstances, where there are large benefits from source identification and high costs of using means other than size, shape, and color to identify, we would expect, and we find, that courts grant trademark protection to common sizes, shapes, and colors of prescription drugs,[46] although they would not do this with other products. Nonprescription drugs are an example: the manufacturer can display the brand name predominantly on the container and packaging and therefore does not require size, shape, and color for source identification.

3.   The Problem of Generic Names

Generic words cannot be trademarked at all; what is more, if a trademark becomes a generic name, trademark protection immediately ceases.[47] A generic name or term is by definition the name not of a brand but of an entire product; "airplane" and "computer" are examples of generic names. If the producer of one brand could appropriate the name of the product, he would earn rents because of the added cost to his rivals of periphrasis—of describing their products as "heavier-than-air flying machines" or "artificial-intelligence machines."

Formally, giving firm A exclusive rights to a generic term would greatly

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[46] See Ciba-Geigy Corp, v. Bolar Pharmaceutical Co. 747 F.2d 844 (3d Cir. 1984).

[47] Two illustrative cases are Miller Brewing Co. v. Falstaff Brewing Corp., 655 F.2d 5 (1st Cir. 1981) ("Lite" beer); Eastern Air Lines, Inc. v. New York Air Lines, Inc., 559 F. Supp. 1270 (S.D.N.Y. 1983)("Air Shuttle"). For a good discussion, explaining why the name "Fire Chief" on a magazine about fire fighting is not generic, see H. Marvin Ginn Corp. v. Int'l Ass'n Fire Chiefs, Inc., 782 F.2d 987 (Fed. Cir. 1986)(Rich, J.).
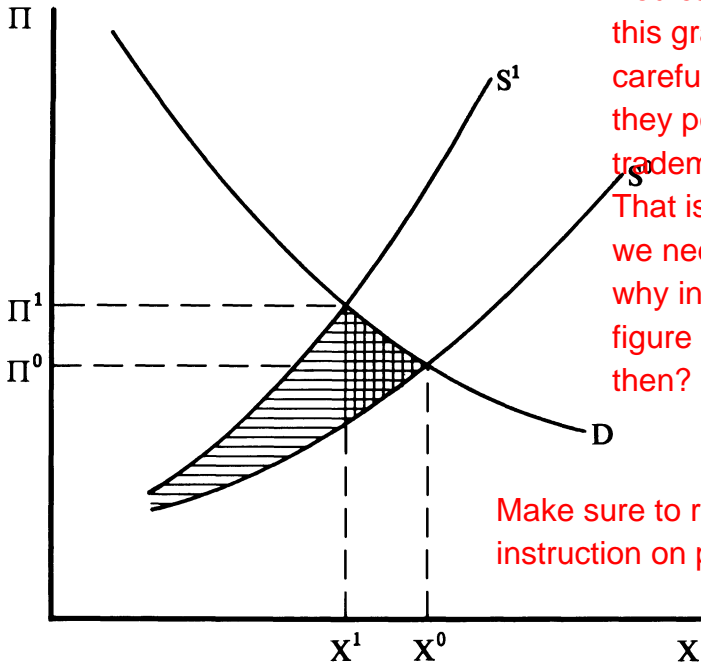
Π

S^1

S

Π^1

Π^0

D

X^1 X^0 X

FIGURE 4

reduce the value of Z to firms B, C, and so on, competitors of A. Recall that Z includes terms that describe features of the product as well as the product itself. Exclusive rights to generic terms would therefore reduce the amount of Z available to B, C, and so on, shifting the industry supply curve to the left and creating a deadweight loss equal to the shaded area in Figure 4. The shift and hence the deadweight loss will be greater the greater the cost to rivals of developing alternative means to denote the products they are selling. Since π, the full price of X, increases in Figure 4, the firm appropriating the generic term will earn economic rents equal to the higher price for its brand (recall that $P = \pi - H$) times the number of units of X it sells.

The monopoly that results from the appropriation of a generic name is conventionally described as a product monopoly but is more accurately described as a language monopoly. Unless the owner of the generic name is the lower-cost producer throughout the whole feasible range of the product's output, he will license the use of the name to competitors and receive rents in the form of license fees. Although π will still increase in Figure 4, licensing will confine the deadweight loss to the cross-hatched area, by preventing firms from expending resources on developing new

ways to denote their products (the license is cheaper to them). Licensing thus transforms a social cost into a transfer payment to the firm appropriating the generic term but does not eliminate all deadweight losses. Besides the cross-hatched area in Figure 4, there are the costs of negotiating and enforcing the trademark licenses and the costs of obtaining generic trademarks (including costs generated by rent-seeking behavior) in the first place. Moreover, even without licensing, although the appropriation of a generic mark will raise the costs of competing firms, it need not raise them so high that any firm leaves the market; but it might reduce their competitive effectiveness.

Notice that the costs of obtaining generic trademarks (if they were allowed) would often merge with the costs of invention. The firm best situated to appropriate a generic name is the first producer of the product. Hence, if generic names could be trademarked, the rents from invention would go up because they would include rents from the name of the product. If the current legal protection of inventions is optimal (or is simply assumed to be such by courts unable to investigate the issue), any legal protection for generic names will create socially wasteful opportunities to earn rents.

All this may explain pretty well why generic names cannot be trademarked, yet seem to leave unexplained why a trademark that becomes a generic name loses trademark protection.[48] If a producer is clever enough to name his brand with a word that will some day be used as the name of the entire product, should he not be rewarded for this valuable addition to the lexicon? Is the language not richer for such words as "thermos," "aspirin," "cellophane," "dry ice," well-known examples of trademarks that have become generic names? Our discussion of the economics of language suggests an answer. Property rights are not necessary in order to induce the rapid creation of serviceable new words for new things. Trademarks are a minor source of generic names, and we can think of no product whose introduction or diffusion was retarded because it did not have a serviceable name. Observe the rapidity with which a large vocabulary of arresting and memorable terms has emerged (without significant assistance from trademarks) to describe things that are new in the last half century—medicines, weaponry, political and social movements, legal and scientific terms, and so on. Our society seems not to suffer from such lexical poverty that a more extensive system of property rights in words is needed to alleviate it. And the trade-off between inven-

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[48] An important example of the fact that trademarks can be time limited, even though not subjected to fixed expiration dates the way patents and copyrights are. Another example, discussed earlier, is abandonment through ceasing to sell the trademarked product.

tion and access must always be kept in mind. It is well illustrated by the application of the fair-use doctrine in trademark law[49] to the controversy over the use of "Star Wars" to describe President Reagan's "Strategic Defense Initiative." "Star Wars" is the trademarked name of a movie, but it has been held that the owner of the trademark cannot prevent its use to describe the Strategic Defense Initiative.[50] Such a use could not be enjoined in any event under traditional trademark law, which requires proof of at least a likelihood of consumer confusion. But, were it not for fair-use considerations (= high social value of allowing the trademark to be communalized), it might be enjoinable under state antidilution statutes, of which more later.

We need not worry that cutting off trademark protection when a trademark becomes generic will reduce the output of trademarks with generic potential. It will reduce the costs of communication by making it cheaper for competitors of the first producer to inform the consumer that they sell the same product, and it will also reduce the cost of rent seeking. The solution is not costless, however. The original producer will expend resources on preventing his trademark from becoming generic. But these are not sterile expenditures, good only to protect a property right; they have the unintended but important effect of reminding consumers of the existence of competing brands. Every time General Foods stresses "Sanka-*brand* decaffeinated coffee," it implies the existence of other brands of decaffeinated coffee. This retards the emergence of "Sanka" as a generic name but reinforces "decaffeinated coffee" as a generic name. There is some social cost if "Sanka" would be a cheaper (it certainly is a shorter) generic name, but it may be less than the cost of allowing legal protection of trademarks that become generic names.

A second cost of cutting off trademark protection when a trademark achieves generic status is that it imposes a dichotomous solution on a continuous problem. Generic status is achieved gradually. There will be a long period during which some consumers will still think of the name as the name of a particular brand and others will think of it as the name of the product. If the law waits until all think of it as the name of the product, the trademark owner will obtain substantial rents; if the law ceases to protect the trademark as soon as a few consumers think of it as the product name, it will increase confusion and impose substantial consumer search costs.[51] In principle, trademark protection should cease when the costs of continued protection (deadweight losses resulting from higher prices, higher

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[49] See 15 U.S.C. § 115 (b)(4); 1 McCarthy, *supra* note 1, §§ 11.17, 13.3; 2 *id.*, §§ 31.37–38.

[50] See Lucasfilm Ltd. v. High Frontier, 227 U.S.P.Q. 967 (D.D.C. 1985).

[51] This point is stressed in Folsom & Teply, *supra* note 1.

costs to rivals in using alternative words, and the costs of licensing and defending trademarks) exceed its benefits (less consumer confusion, lower search costs, and the gains associated with the incentive of firms to develop high quality goods). But it is not to be supposed that the law can fix this point with any precision.[52] No satisfactory alternative springs to mind, a fixed date of expiration being wholly unsatisfactory for the reasons explained earlier.

A difficult problem of determining whether a trademark has become a generic name arises in cases, which are common, in which the trademark owner initially has a product monopoly. These cases are common, not because monopolies are common, but because a brand name is likely to become a generic name when there is only one brand. With one producer, consumers have little incentive to use separate terms to describe the product and the brand or, what is equivalent, to denote product information and source information. It is more economical, for example, to refer to both an instant camera and its manufacturer as "Polaroid" than to use both terms—until Polaroid ceases to be the only manufacturer. But this also makes it difficult to distinguish between brand name and product name; the brand and the product are one. Maybe the presumption should be in favor of generic status. If the consumer has never had a competitive alternative to A's product, the brand name is less likely to convey information about the particular attributes of A's good rather than simply defining the product itself. Without the comparisons enabled by competition, the benefits of a trademark are difficult to evaluate because the consumer is not using A's trademark to lower his costs of searching for the brand he wants to consume. Hence, the trademark may convey little information about brand.

A different point about the monopoly case, however, will bring out the third cost of making trademark protection end when generic status is achieved. A consumer who bought Bayer aspirin at a time when Bayer was the only producer and "aspirin" was its trademark (as it still is in Canada) might have assumed, when other brands came on the market and were allowed to be labeled "aspirin," that they would be identical to Bayer aspirin not only in formula but in every respect, including, for example, quality control. The difference between brand and product is not self-evident and may be difficult to determine in the period of transition from monopoly to competition. Giving generic status to the former

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[52] The new Trademark Clarification Act of 1984, 15 U.S.C. § 1064(c), amending the Lanham Act, makes "the primary significance of the registered mark to the relevant public" the test of whether the mark has become generic. This formulation seems vague enough to embrace the kind of cost-benefit analysis suggested in the text.

brand name may in effect produce too much or too rapid competition for the patronage of consumers who ignore quality differences between the old and the new brands.

A suggestive or descriptive mark is more likely to become a generic name than a fanciful or arbitrary mark, though there are important exceptions, such as "aspirin" and "cellophane" ("dry ice," "thermos," and "yo-yo" are examples of a descriptive and two suggestive marks that became generic names). Why, then, would anyone use a suggestive or descriptive mark? The answer is that, as noted earlier, such a mark conveys additional information to the consumer, information about the attributes as well as just the source of the good,[53] and is thus a partial substitute for advertising. This gain has to be traded off against the increased risk of losing the mark should it become generic (as well as its lesser distinctiveness, and, hence, lesser source-identifying information values, compared to a fanciful or arbitrary mark). We would predict that, the shorter the expected life of a brand, the more likely that the producer will use a suggestive mark. We would also predict that a descriptive mark will generally be used only on brands with a long expected life since it takes time to acquire secondary meaning, a prerequisite to obtaining trademark protection for such a mark.

Courts may not be doing a very good job of determining when trademarks have become generic, at least if the dictionary can be considered an accurate inventory of words in general use by the relevant publics (perhaps a big if). Of thirty-five illustrative examples in the McCarthy treatise of marks that courts have been held to be generic,[54] sixteen either do not appear in the most recent unabridged dictionary[55] or, if they do appear, the meaning held to be generic is not included (for example, "matchbox" is in the dictionary, but not as meaning toy cars sold in matchbox-sized boxes). Of seventeen illustrative examples of trademarks that courts have held not to be generic,[56] seven nevertheless are listed in the dictionary with the rejected generic meaning. Thus, although words held to be generic are more likely to show up in the dictionary than those held not to be generic, the difference in probabilities is small—54 percent versus 41 percent.

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[53] See John M. Carroll, What's in a Name? An Essay in the Psychology of Reference 179 (1985).

[54] See 1 McCarthy, supra note 1, § 12.3.

[55] Random House Dictionary of the English Language (1983).

[56] See 1 McCarthy, supra note 1, § 12.4.

C. The Defense of Functionality

The concept of functionality,[57] which is mainly important in connection with design features used as trademarks (our Perrier example), is a parallel concept to genericness. A functional feature cannot be trademarked, and a trademarked feature loses trademark protection when it becomes functional. The maker of a tire could not trademark its circular shape but could trademark an irregularly shaped hubcap. The maker of a steak knife could not trademark the serrated blade but could trademark an intricate arabesque carved into the handle. A particular shape for a container might initially be subject to being trademarked, but if technological developments made it much cheaper to manufacture than alternative shapes, it would lose its trademark protection.

As the last example suggests, the concept of functionality can be given a precise economic meaning. A nonfunctional feature, hence one that can be trademarked, is one with perfect (or nearly perfect) substitutes, so that a property right will create no deadweight loss (see Figure 4). But if the feature lacks good substitutes, either because the product is worth less without it (the circular tire) or because it makes the product cheaper to produce (the example of the container shape), trademark protection will be denied. The feature may of course be a worthwhile addition to the stock of useful knowledge, but, if so, it may be patentable. Trademark protection for a functional feature would circumvent the limits, discussed briefly in Section I, on the requirements for and duration of patents.

The trickiest problem with functionality is "aesthetic" as distinct from "utilitarian" functionality. The term "utilitarian," as used in this polarity, carries its everyday sense of "practical," "down to earth," "unadorned." The illustrations given above are of utilitarian functionality in this sense. Even if a design feature merely makes a product more pleasing, however, it may be deemed functional and trademark protection will be withheld. The concept of "aesthetic" functionality gives recognition, highly appropriate from an economic standpoint, to the fact that utility in an economic sense includes anything that makes a good more valuable to consumers.

But a producer of a consumer product will never deliberately uglify the product—and we do not want him to. Any design feature he seeks to trademark will be designed in part to please. Hence courts have the difficult problem of disentangling the aesthetic from the identifying function of a trademarked design feature.

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[57] On which, see, for example, Note, *supra* note 1; A. Samuel Oddi, The Functions of "Functionality" in Trademark Law, 22 Houst. L. Rev. 925 (1985).

The concept of functionality, in both its "utilitarian" and its "aesthetic" aspects, can be formalized by an extension of our basic model. We can illustrate utilitarian functionality by rewriting the profit function as

$$I = [\pi - H(T)]X - C(X; F) - RT, \qquad (11)$$

where C, the cost of production, has been expanded to make it a function not only of the amount of X produced but also of the physical attributes (F) of the product that are claimed as trademarks. Assume that, if another firm is denied access to F, its marginal cost of producing X will increase; that is, $C_{xf} < 0$. Hence, if A is given exclusive rights to F, C_x will rise for firms B, C, D, and so on. This, in turn, will shift the marginal cost of producing X to the left in Figure 4, producing a deadweight loss. Exclusive rights for functional features of a product and for generic terms thus have the same economic effect in our model.

A mark is not functional just because it makes the product more attractive.[58] Let a more attractive trademark be equivalent to a higher-quality good. Let $Q(A)$ denote quality and A the attractiveness of the mark ($Q_a > 0$ and $Q_{aa} < 0$), and assume that a more attractive trademark is more costly to produce. Thus, the cost to the firm of producing a unit of T (that cost being R in our notation) is no longer constant but depends on A, as in $R = R(A)$, where $R_a > 0$ and $R_{aa} \geq 0$. While a strong trademark increases the price that consumers are willing to pay for the good by lowering search costs ($H_t < 0$), an attractive trademark raises price by increasing the utility that consumers get from the good once they have bought it. Rewriting equation (11) and assuming that the firm can prevent others from copying its trademark yields

$$I = [\pi - H(T)]Q(A)X - C(X; F) - R(A)T. \qquad (12)$$

Profit maximization requires

$$[\pi - H(T)]Q(A) - C_x = 0, \qquad (13)$$

$$- H_t Q(A)X - R(A) = 0, \qquad (14)$$

$$[\pi - H(T)]Q_a X - R_a T = 0. \qquad (15)$$

Because a more attractive mark is more expensive to produce, the firm will invest in such a mark only if it is rewarded for its efforts by obtaining a higher price for each X it sells—the increase in price equaling $[\pi - H(T)]Q_a$ in equation (15). And the higher the price, the more units of X the

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[58] See, for example, LeSportsac, Inc. v. K. Mart Corp., 754 F.2d 71, 76–78 (2d Cir. 1985).

firm will produce (eq. (13)). Other firms are not put at a cost disadvantage, however, as they were by utilitarian functionality, since in the aesthetic case $R(A)$ depends only on the firm's investment in making its mark attractive. In terms of Figure 4, allowing a firm to prevent others from duplicating its attractive trademark (so that the level of A increases) increases both the number of units of output (X) and the quality of that output ($Q(A)$) and therefore shifts the supply curve to the right (QX rather than X is on the horizontal axis). It thus expands output and hence benefits consumers. It does not reduce output by raising rivals' costs, as in the case of utilitarian functionality.

A problem arises only if the aesthetic feature becomes an attribute of the product (an F) in the minds of consumers. In that event, to produce an X equivalent in the consumer's mind to an X that has this feature, a firm would have to incur additional costs, just as in the utilitarian case. The effects in Figure 4 will be ambiguous. Appropriability will expand A by giving the firm an incentive to spend the money necessary to produce a more attractive T but will reduce the level of F available to competitors and hence raise their costs of producing X, so that the net effect on the supply curve in Figure 4 will be uncertain. This is an example of true aesthetic functionality, where trademark protection is denied. Although appropriability may still be necessary to induce the expenditures required to create a pleasing design, just as to create a "utilitarian" functional design, it need not take the form of trademark protection. The law has authorized the grant of "design patents" for up to fourteen years to reward the investors of pleasing (but not "utilitarian") designs.[59]

It might seem that, if a design feature is both functional and identifying, the law should make a trade-off between $Q(A)$, which will fall if trademark protection is denied, and C, which will rise for other producers if trademark protection is allowed. Instead, however, it denies protection automatically once the feature is adjudged functional. This makes economic sense. A functional feature is unlikely to identify a particular brand; by definition it is a feature that the consumer associates with the product rather than the brand (for example, the oval shape of a football). As a feature becomes functional, the producer will place increasing emphasis on the brand name, rather than the feature, to identify the brand. The tricky problem is to determine when the feature has become functional, that is, when its value in making the product more pleasing, or otherwise more valuable, or simply cheaper to produce, overtakes its value in preventing consumer confusion.

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[59] See 35 U.S.C. §§ 171–73.

D. Infringement and Confusion

1. Why Require Proof of Actual or Even of Likely Confusion?

The ownership of a valid trademark does not carry with it as broad a right to exclude others from using it as the ownership of a piece of land does, at least in jurisdictions under which dilution (discussed in the next subsection) is not actionable. In order to prevent another seller from selling his goods under your trademark, you must show that consumers are likely to think that it is your brand that he is selling.[60] This is a sensible restriction on the scope of the property right if the function of a trademark is, as we have been assuming, to name a brand. Just as people in different parts of the country or in different occupations can have identical names without causing misunderstanding, so sellers in unrelated product or geographic markets should be able to affix the same names or other marks to their goods without confusing consumers. Suppose A and B produce different brands of product X. A has a strong mark that yields low search costs, denoted by H^a. B adopts a similar mark, but there is no likelihood of confusion between the two marks. Both marks then convey accurate information about the reputation of the underlying product (or producer). A's good will command a higher price than B's because $H^a < H^b$ (since $\pi = (P^a + H^a) = (P^b + H^b)$, $P^a > P^b$ if $H^a < H^b$), but this is consistent with competition and with maximizing the sum of consumer and producer surplus in the X market. There is no free riding because B is unable to appropriate any of A's return from A's high reputation for quality. B's revenue depends solely on the value of H^b, not H^a, the absence of confusion implying that consumers correctly match the particular H with the firm's product.

Legal intervention to prevent B from using a mark that is similar to A's but unlikely to cause confusion would impose litigation and other costs (for example, the cost of B's changing its trademark) without any offsetting benefits. The costs could be heavy. A seller might adopt a trademark in all innocence, not knowing that some other seller, selling a different product in a remote area of the country, had adopted the same trademark previously; he might invest substantial resources in advertising his trademarked goods; and he might be forced to write off the entire investment if first use established a nationwide property right covering all products. To avoid such disasters, sellers would have to invest heavily in

[60] This is a lesser burden than having to prove actual confusion. The choice between a "likelihood" and an "actual" standard involves balancing two potential error costs. Under the former standard, some similar marks that do not cause confusion will be held infringing. Under the latter, some similar marks that do cause confusion will be held noninfringing. We do not analyze the choice between the two standards.

investigating prior uses of trademarks they were thinking of adopting. These costs are reduced if the original owner must show a likelihood of confusion.

Consistently with this analysis, the owner of a registered mark bears a lighter burden of proving likelihood of confusion, as we saw earlier. Registration warns off potential infringers in a way that mere use does not; in the example just given, the infringer, but for the trademark registry, might have no idea that the same product was being sold under the same name elsewhere in the country.

2. Determining Likelihood of Confusion

In deciding whether there is a likelihood of confusion, courts look at such things as the similarity of the original and allegedly infringing trademark (for example, "Exxon" and "Exxene"), the strength of the original mark, the similarity of the products involved, whether the consumers of the products overlap, whether the products are sold through the same retail outlets, and how knowledgeable consumers of these products are.[61] The last point is particularly interesting from an economic standpoint by showing that the inputs into the sale of a product include information supplied by buyers as well as by sellers. The cheaper the buyer-produced information is—perhaps because the consumers of a particular product are particularly knowledgeable, such as business purchasers of a supply essential to their business—the less information the seller must supply, such as making more effort to distinguish his trademark from a competitor's.

Formally, a consumer looking at one of two confusingly similar marks will be uncertain whether the search costs associated with it are H^a or H^b (whether he will be receiving A's or B's brand of X).[62] Let the expected value of H^a (that is, $E(H^a)$) equal $\phi^a H^a + (1 - \phi^a)H^b$, where ϕ^a is the probability of correctly relating the trademark to A's good, and $1 - \phi^a$ is the probability of mistaking B's for A's good. The corresponding price of A's brand (assuming risk neutrality) will be $P_0^a = \pi - E(H^a)$. In the absence of any confusion, A's brand would sell for $P_1^a = \pi - H^a$ (where $P_1^a > P_0^a$, assuming $H^a < E(H^a) < H^b$). The reduction in A's price per unit of X caused by B's adopting a similar mark is

$$P_1^a - P_0^a = (1 - \phi^a)(H^b - H^a), \qquad (16)$$

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[61] See, for example, Application of E. I. DuPont DeNemours & Co., 476 F.2d 1357, 1361 (C.C.P.A. 1973); 1 Gilson, *supra* note 1, § 5.01.

[62] We consider later the case of noncompeting goods.

which will be greater the stronger A's trademark is relative to B's (the greater $H^b - H^a$) and the greater the likelihood of confusion $(1 - \phi^a)$.[63]

Consumers will at the same time underestimate the search costs associated with B's product because they will attach a positive probability to B's product actually being A's. This will lead to a higher price for B's product, equal to

$$P_0^b - P_1^b = (1 - \phi^b)(H^b - H^a), \tag{17}$$

which is greater the greater the likelihood of confusion $(1 - \phi^b)$ and the stronger A's trademark relative to B's.

The net effect on consumers of B's adopting a mark confusingly similar to A's will at first be zero. If the likelihood of incorrectly identifying A's and B's goods is identical $(1 - \phi^a = 1 - \phi^b)$, consumers paying a lower price for A's good will just offset those paying a higher price for B's. But confusion between the two marks will lower A's profits and thus ultimately harm consumers. For A will respond to the confusion by reducing both his output of X and his expenditures on T.[64] The reduction in output will lower ϕ^a, further reducing A's output and trademark investment.[65] This process may continue until eventually the information conveyed by A's trademark is little more than that conveyed by B's. Thus, as noted in Section IIA, B's infringement will harm consumers by eliminating A's incentive to produce a higher level of T and hence a more valuable product (one with lower search costs).[66]

Thus far, we have assumed that firms produce identical physical products (X's) but different brands and that A's brand has the better reputa-

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[63] Notice that $1 - \phi^a$ will also tend to be greater the greater the amount of X produced by B relative to A. For example, suppose consumers cannot distinguish between A's and B's mark, and B produces $90X$ and A $10X$. Consumers will assume that $\phi^a = .10$ and $1 - \phi^a = .90$.

[64] Equation (4) and Figure 1 show that a lower price will lead the firm to reduce its output of X. The firm will cut back on its trademark expenditures (see (5) and Figure 2) because both the output of X and the marginal product of T will have fallen. (The marginal product of T with confusion is $-\phi^a H_t$, which is less than $-H_t$.) Other responses are also possible; in particular, A may change his trademark to avoid its being confused with B's, but there are costs of doing this, too.

[65] Recall that the probability that a consumer assigns to correctly identifying that he is purchasing A's product declines as the amount of X produced by A falls relative to the amount produced by B.

[66] Notice that, in our model, the harm to A arises because consumer confusion lowers the price A receives for a unit of X. This, in turn, causes A to reduce X and T. One would also expect confusion to harm A because it would allow B to take sales away from A. But this does not occur in our formal model because we assume that each firm (including A) faces a perfectly elastic demand for its output. If we allowed for a negatively sloped firm demand curve, B's infringement would lead A to produce fewer X's even if the price of X were unchanged.

tion. Abstracting from physical differences among products simplifies our model while allowing us to analyze the law and economics of trademarks, but is unrealistic. When B adopts a mark similar to A's for the purpose of confusing consumers, B is also likely to produce a lower-quality product than A (a lower Q in our expanded market set out in eqq. (6)–(9)). Consumers who confuse B's mark with A's will assume that the quality of the underlying physical good is the same; and if B can cut costs by cutting product quality without consumers' becoming aware, he will have even higher profits than by maintaining the same quality as A.[67] Moreover, B's incentive to free ride on A's trademark will be greater the higher the quality of the underlying good (adjusted for B's costs of making the physical good appear equivalent to A's). Without trademark protection, therefore, A would have less incentive either to develop a strong trademark or to produce a high-quality good.

The factors that courts use to estimate the likelihood of confusion bear directly on A's losses, which equal

$$(P_1^a - P_0^a)X = (1 - \phi^a)(H^b - H^a)X, \tag{18}$$

and, ultimately, therefore, on A's incentive to adopt a stronger mark. Similarities in the appearance and sound of the two marks, buyers' lack of sophistication, similarity of the underlying product, and overlapping sales territories all raise the probability of confusion $(1 - \phi^a)$; and the stronger A's trademark (the lower H^a) is, the greater will be the price reduction for A's good if infringement is not prevented. The same factors also affect B's gain from free riding (see eq. (17)). Notice in particular that B has an incentive to adopt a mark similar to A's only if A has a better reputation than B, so that the search costs that the buyer must incur to be sure of obtaining satisfactory quality are lower in buying from A than from B $(H^a < H^b)$. Only then can B charge a higher price for a unit of X and earn higher profits, assuming that the physical costs of duplicating A's trademark are not so large as to make infringement unprofitable. It would be surprising, therefore, if firms intentionally infringed weaker trademarks.[68]

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[67] In our previous discussion, we assumed that A and B produced X's having the same expected physical characteristics but that B produced a lower quality *brand* because, for example, its reputation embodied in its trademark was lower as a result of a greater variance in the quality of its X, requiring consumers to search more to be sure of getting the quality they want. Because search costs are greater, consumers are unwilling to pay as high a price for B's good.

[68] The analysis is more complicated, although the conclusion is the same, if the quality of the underlying good (that is, of the X's) differs among firms. A firm producing a high-quality–weak-trademark good might infringe the trademark of a low-quality–strong-trademark good because the gain in consumer recognition would more than offset the re-

3.   How Likely Must Confusion Be? Herein of Intent

A final question is, How many or what proportion of consumers must be confused (or are likely to be confused) before an infringement will be found? Consumers differ in their ability to distinguish among trademarks, according to how careful they are in searching for goods and to their intelligence.[69] Suppose Seller B adopts a trademark that is similar but not identical to that of a similar product sold by A. Careful consumers, defined for our purposes as consumers with low information costs, are not fooled, but careless consumers, defined for our purposes not as consumers who do not care about brands but as consumers with high information costs (equivalent in the economics of tort law to potential accident victims who have above-average costs of taking care),[70] are. Craswell is concerned with the situation in which removing all ambiguity from an advertising claim for the sake of the careless may make the advertisement confusing for the careful (or, perhaps, for some other group of careless who, however, were not deceived by the original claim). That problem is less acute in the trademark context. B should be able to find a trademark that distinguishes his product from A's in the minds of the careless without confusing the careful (or other careless). We would therefore predict that courts would be more protective of the careless consumer in the trademark setting than in false-advertising cases.

We would also predict that the allegedly infringing use would be enjoined if the plaintiff (seller A in our example) could show that B had adopted its similar trademark with intent to deceive, even if only the most careless consumers would be deceived.[71] This is a case in which the cost of preventing confusion is negative, so that, even if the benefits are slight, prevention is cost justified unless the costs of using the legal system are very high.[72] The case in which the second seller incurs costs to devise a

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duced consumer perception of the quality of the underlying product. Taylor Wine Co. v. Bully Hill Vineyards, Inc., 569 F.2d 731, 733–34 (2d Cir. 1978), was such a case. The defendant used the well-known "Taylor" name in its trademark, although it made higher-quality wines than the Taylor wines.

[69] Compare Richard Craswell, Interpreting Deceptive Advertising, 65 B. U. L. Rev. 657, 672–84 (1985).

[70] See, for example, Landes & Posner, supra note 3, ch. 10.

[71] See, for example, American Chicle Co. v. Topps Chewing Gum, 208 F.2d 560, 563 (2d Cir. 1953)(L. Hand, J.); compare My-T Fine Corp. v. Samuels, 69 F.2d 76 (2d Cir. 1934) (L. Hand, J.); 2 McCarthy, supra note 1, §§ 23.30, 32.

[72] This is the economic definition of an intentional tort for which no defense of or akin to contributory negligence (that is, no defense of victim fault) should lie. See William M. Landes & Richard A. Posner, An Economic Theory of Intentional Torts, 1 Int'l Rev. L. & Econ. 127 (1981).

confusingly similar trademark is thus fundamentally different from the
case in which the second seller would have to incur (modest) costs to
avoid confusion. Furthermore, the more the infringer spends on duplicat-
ing another firm's mark, thereby creating the impression that there is a
single source of these two goods, the greater will be the number of con-
sumers who are likely to be confused (given the underlying distribution of
abilities and care among consumers).

Now suppose the infringement is unintentional. B adopts a mark not
knowing that it is similar to A's and likely to confuse consumers. Maybe
B was unaware of A's mark because the geographic overlap between A's
and B's markets is small or their products appeal to different consumers.
Here our analysis suggests that the question of how many consumers
must be confused before a court should find that B has infringed A's mark
should be decided by balancing costs and benefits. B's trademark pro-
vides benefits to those consumers who are not confused and who use B's
mark to identify and distinguish B's good, thus lowering H^b and raising
the amount of X that B produces. But it harms those consumers who
believe that they are getting a good produced by A—who assume, in other
words, that the search cost associated with B's good is H^a rather than (the
higher) H^b. If the additional cost to B of reducing confusion is greater than
the expected reduction in harm, B should not be found guilty of infringe-
ment. If the situation is reversed, B should be found guilty.

Although the courts do not explicitly balance costs and benefits in
deciding whether there has been infringement, such a calculus may be
implicit in the judicial requirement that, in a case of nondeliberate in-
fringement, the plaintiff must prove that an appreciable number of ordi-
narily prudent consumers are likely to be misled by the similarity between
the two marks.[73] The more who are misled, the likelier are the costs of
confusion to exceed the costs of changing the second mark. If the law
found infringement when only a trivial number of careless consumers
were likely to be confused, the benefits in reduced confusion would prob-
ably be less than the costs in requiring the owner of the second mark to
adopt a new and even more dissimilar mark (or to have adopted such a
mark before beginning to sell his product). But if the law required that all
or the vast majority of consumers be confused before infringement could
be found, the balance would tip too far the other way, for the cost of
finding a new mark (especially ex ante) is not so great that it is likely to
exceed the cost to a large number of consumers of being confused. Notice
how the focus on the ordinarily prudent consumer allows for the possibil-

[73] See, for example, McGregor-Doniger, Inc. v. Drizzle, Inc., 599 F.2d 1126 (2d Cir.
1979); 2 McCarthy, *supra* note 1, § 23.1(B).

ity that the lowest-cost avoider of confusion may be the consuming public itself, in which event the burden of avoiding confusion is placed on consumers by refusing to enjoin the second mark.

It is interesting to compare the approach taken by trademark law to the problem of consumer confusion with that taken by the Federal Trade Commission to the parallel problem of misrepresentations about quality. The commission's efforts in this area have invited a drumbeat of criticism,[74] which the common law of trademark infringement has escaped. In part this is due to doctrinal differences; the commission protects (or, at least, purports to protect) careless consumers from even innocent misrepresentations,[75] while trademark law, as we have seen, protects the careless consumer only from deliberate misrepresentation. In part it may be due to the fact that, since a firm that complains to the commission bears none of the costs of enforcement (they are borne by the taxpayer if the commission decides to act on the complaint), it has less incentive to avoid making frivolous and anticompetitive complaints than it would have if it bore part of those costs, which it would do in a private lawsuit.[76] Even more important is the difference between common law and public regulation as methods of promoting the efficient use of resources. Studies have shown that common-law fields (which trademark law mainly is, despite the Lanham Act) are more likely to be informed by a concern with achieving efficient resource allocation than administrative regulation is, for a variety of institutional reasons.[77] This study provides further evidence of the difference.

E.   Dilution

Suppose a lounge in Boston calls itself "Tiffany's" or a peanut vendor in the Bowery calls himself "Rolls Royce Ltd." There is no danger that consumers will think that they are dealing with Tiffany's or Rolls Royce if they patronize these sellers, so it might seem that there would be no case for thinking them guilty of trademark infringement. Many states, however, would recognize a cause of action in such a case today for "dilu-

[74] See, for example, Richard S. Higgins & Fred S. McChesney, Truth and Consequences: The Federal Trade Commission's Ad Substantiation Program, 6 Int'l Rev. L. & Econ. 151 (1986); Richard A. Posner, Regulation of Advertising by the FTC (Evaluative Study No. 11, American Enterprise Institute, November 1973); and references cited in both these works.

[75] See Craswell, *supra* note 69, at 697.

[76] And if the suit is deemed frivolous, the plaintiff will have to pay the defendant's attorney's fees as well as his own. See, for example, Blau Plumbing, Inc. v. S.O.S. Fix-It, Inc., 781 F.2d 604, 612 (7th Cir. 1986).

[77] See Posner, *supra* note 4, § 12.9 and ch. 19.

tion'' of the Tiffany's and Rolls Royce trademarks.[78] A related problem—where, however, a cause of action is not recognized—is that of cheap copies, as where a perfume manufacturer advertises a very cheap perfume as a copy of Chanel no. 5.[79]

There are three possible economic grounds for the extension of the property right in the trademark beyond its use to identify a brand. The first is that there is a potential for confusion because, hereafter when the consumer sees the name "Rolls Royce," he will think both about the auto manufacturer and about the peanut vendor, and the connotations of the name will blur. The problem is akin to that which leads some people to change their names if a namesake becomes famous (or notorious). There are very few people any more named "Hitler," or even "Adolf," not because these names would cause confusion, but because they have distracting and inappropriate associations. So the communicative value of "Rolls Royce" and "Chanel no. 5" is diluted in the cases we have put, although in the second case there may be an offsetting benefit: potentially valuable information is conveyed, and circumlocution would be costly. This leads us to predict that the cheap copy will be less likely to run afoul of antidilution statutes than would appropriation of a well-known trademark for an unrelated product.

The second economic reason for antidilution laws is based on external benefits. Rolls Royce and Chanel have made substantial investments in creating prestigious names, and the peanut vendor or (less clearly) the cheap copier appropriates some of the benefits of those investments without compensating the investor. If appropriation is forbidden without the trademark owner's permission, the benefits will be internalized, and the amount of investing in creating a prestigious name will rise. Those who believe that "product differentiation" is a bad thing because it creates artificial barriers to entry will not applaud such a result, but this view is no longer widespread among economists, as we noted earlier. The economic objection to the argument from external benefits lies elsewhere. Since the

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[78] See, for example, Hyatt Corp. v. Hyatt Legal Servs., 736 F.2d 1153, 1157–59 (7th Cir. 1984); 2 McCarthy, *supra* note 1, § 24.13.

[79] See Smith v. Chanel, Inc., 402 F.2d 562 (9th Cir. 1968); 2 McCarthy, *supra* note 1, § 25.14. A legal-doctrinal reason for this result is that the copier is not using the trademark to denote his cheap copy, just as we are not using "Chanel No. 5" to denote any product of ours merely by using the name in this paper. In the Chanel case, the copier is using "Chanel No. 5" to inform consumers about the scent of his perfume. Moreover, it would be very costly for consumers to acquire such information before purchasing the copier's perfume because the perfume was sold through the mail. On remand, the court found that the copier had violated section 43(a) of the Lanham Act (the section dealing with false advertising) because its perfume did not have the identical scent as Chanel No. 5, as claimed in its advertising.

number of prestigious names is vast (and, as important, would be even if there were no antidilution laws), it is hard to see how any of their owners could obtain substantial license fees. Competition would drive the fees to zero since, if the name is being used in an unrelated market, virtually every prestigious name is a substitute for every other. The peanut vendor could call himself "Tiffany's" just as well as "Rolls Royce"; he is not confined to any product market for the name. The external benefits, in short, seem slight.

The last economic ground for trademark protection on the basis of dilution relates to cheap copies and is suggested in a recent paper by Higgins and Rubin.[80] They note that "many persons purchase branded goods for the purpose of demonstrating to others that they are consumers of the particular goods,"[81] in other words, to impress others. Higgins and Rubin treat this as a pure consumption preference, but we prefer to view it as investment in reputation capital. Just as people conceal their undesirable characteristics in order to create or protect such capital,[82] so they flaunt their desirable characteristics. They advertise themselves (much as sellers of goods advertise their goods) by wearing clothes, jewelry, or accessories that tell the world that they are people of refined (or flamboyant) taste or high income. If others can buy and wear cheap copies, the "signal" given out by the purchasers of the originals is blurred.[83] The perfume you smell may be Chanel no. 5, which tells you something about the wearer, or it may be some cheap copy. It may be difficult or impossible to tell which.

The twist here is that the confusion does not occur in the market for the trademarked good, or in any other product market, but in a "resale" market where consumers of the product compete with other consumers for advantageous personal transactions. Using trademark law to make it harder to market cheap copies (say, by forbidding the maker of the cheap copy of Chanel no. 5 to mention Chanel no. 5 in its advertising) promotes competition in this market while impairing it, perhaps severely, in the product market. The trade-off would be simple only if we were confident

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[80] See Richard A. Higgins & Paul H. Rubin, Counterfeit Goods, 29 J. Law & Econ. 211 (1986).

[81] *Id.* at 211.

[82] See Posner, *supra* note 13, at 232–42.

[83] This was the explicit basis for sporadic efforts to regulate luxury in dress in medieval Europe. In the fourteenth century, "nothing was more resented by the hereditary nobles than the imitation of their clothes and manners by the upstarts. . . . Magnificence in clothes was considered a prerogative of nobles, who should be identifiable by modes of dress forbidden to others. . . . [S]umptuary laws were repeatedly announced, attempting to fix what kinds of clothes people might wear." Barbara W. Tuchman, A Distant Mirror: The Calamitous 14th Century 19 (1978).

that the sole motive for buying the cheap copy was to pass oneself off as having a higher income; then one could regard the seller of the cheap copy as a kind of contributory infringer whose sole commercial function was to make it easier for consumers to deceive the people with whom they transact in the market for personal relations and, sometimes, in the job market. But if this is not the sole motive, the effect of allowing damages for dilution may be to prevent the marketing of imitations, resulting in higher prices because of reduced competition. Suppose someone really could duplicate the scent of Chanel no. 5; how could it describe its product accurately without mentioning the Chanel brand? Trademark protection here would have the same effects as allowing the descriptive mark to be trademarked without proof of secondary meaning.