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In light of the federal antitrust agencies' revitalized focus on intellectual property,¹ and the dawning of new economic and business models in many high-tech industries,² there is heightened interest in the legality of different intellectual property licensing practices under the federal antitrust laws.

This article argues that, where a rule of reason complaint arises from an intellectual property licensing practice, a "comparative competitive effects" test is a particularly useful standard of judgment. While the name proposed for the standard is new, the standard is consistent with, suggested by, and even used in previous cases. More significantly than proposing a name, however, this article is the first to demonstrate that the standard is grounded in case law and is the first to argue for its general applicability to rule of reason complaints about intellectual property licensing practices.

The comparative competitive effects test is revealed by first analyzing cases that delineate the line between proper and improper

licensing schemes and then synthesizing these teachings with more recent cases that refuse to impose a "duty to deal"³ on an owner of intellectual property. These more recent cases hold that, as a practical matter, a patentee may refuse to license anyone so long as the decision is truly unilateral,⁴ even if the patentee has market power in the patented or covered product.⁵

The approach suggests that the net effect of an intellectual property license (and any restrictions it contains) should not be more anti-competitive than a refusal to license, or an exclusive license to one person. The "net effect" of the license, in turn, is determined by summing the pro-competitive effects of the license with the anti-competitive effects of any accompanying restrictions. If the net competitive effect is more anti-competitive than a refusal to license, the license should be illegal under the Sherman Act⁶ (see Figure 1).

Public policy, sound economics, and past cases support the idea that any greater impact on competition than a refusal should not be tolerated. Certainly, a licensing practice that has the effect of slowing down or co-opting competition with the licensor's market-power product to a greater extent than would otherwise occur should be unlawful under antitrust law. This is a concern because a monopolist frequently has more to gain by licensing with restrictions than by refusing to license altogether. For example, a refusal may actually generate more incentive in others to invent around or "leapfrog" the monopolist's position than a license with restrictions. Conversely, licensing just enough and with sufficient restrictions to stymie innovation may be more effective in protecting and extending a monopoly than refusal, and thus more detrimental to the public interest.

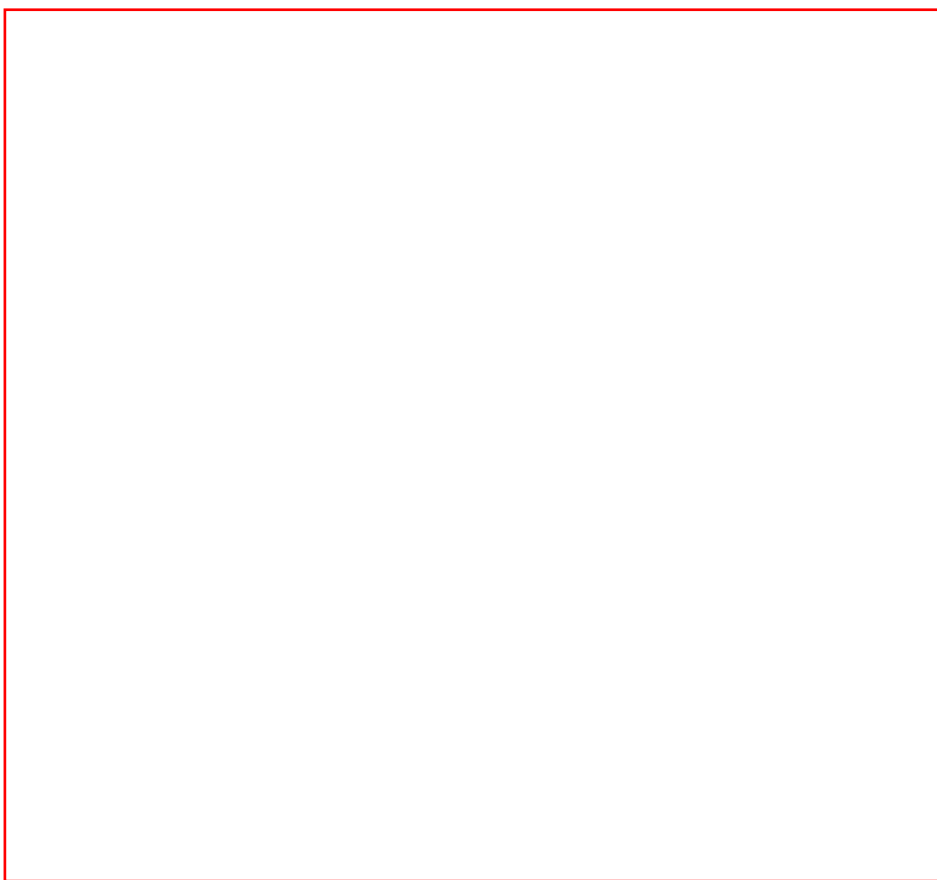


Figure 1.

Thus, in a Sherman Act Section 1 inquiry,⁷ where one is evaluating the effects of a single contract, this "comparative competitive effects" inquiry boils down to a familiar rule of reason test: Is the market more or less competitive after the contract?⁸ In a Sherman Act Section 2⁹ monopolization analysis, however, the comparative competitive effects

standard can be a useful way of viewing the sum effect of the licensing practices of a monopolist regarding a particular patent or product.¹⁰ By highlighting a "line of legality," it gives a reference for the rule of reason inquiry.¹¹

The comparative competitive effects test is not, nor should it be, the only test of whether a licensor's practices violate the antitrust laws in general,¹² or even the law against monopolization (Section 2 of the Sherman Act) in particular. This article simply demonstrates that the comparative competitive effects standard provides an easier way to evaluate certain kinds of practices and circumstances.

After first summarizing generally applicable antitrust law and how the comparative competitive effects test fits into that law in part II, this article examines some recent cases that have upheld the right of the property owner to refuse to license others. Next, part IV of this article examines several earlier antitrust cases, as well as the patent law on tying staples to patents, and shows that the comparative competitive effects test is enunciated in, consistent with, and/or provides a rationale for, the cases and law examined. Finally, in part V, the comparative competitive effects test is applied to a hypothetical (but realistic) licensing scheme in a technology-driven market.

II. Antitrust Law Background

This section briefly outlines the mechanics of Sections 1 and 2 of the Sherman Act,¹³ as a backdrop to the later specific application of antitrust principles to intellectual property licensing.

A. Rule of Reason¹⁴ Analysis Under Section 1 or 2 of the Sherman Act

A prima facie case of monopolization under Section 2 of the Sherman Act,¹⁵ consists of "(1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historical accident."¹⁶

Which market is "relevant" is a question of fact determined by cross-elasticity of demand and product interchangeability.¹⁷ That is, the relevant market is the set of products consumers see as interchangeable with the putative monopolist's product in the geographic area in which consumers will buy those products.¹⁸ For example, suppose a monopolist raises the price of industry-anticipated top-grossing first-run films shown in San Jose, California. If consumers then travel to Menlo Park, California to see such films instead of paying the higher price in San Jose, Menlo Park is part of the relevant geographic market.¹⁹ Conversely, if consumers will not travel to Menlo Park, then Menlo Park is not part of the relevant geographic market. One can also ask whether industry-anticipated top-grossing first-run films form a relevant product market. If, in the previous example, consumers watch other first-run films instead of paying the extra price to see those which are "industry-anticipated top-grossing," then the relevant market includes all first-run films, not just the smaller subset.²⁰

Monopoly power in the relevant market—the first element of monopolization—is the power to control prices or exclude competition in the relevant market.²¹ This power can be inferred from such factors as market share, barriers to entry, and fragmentation of competition.²² A dominant share in a relevant market—considered alone without other factors—is enough to establish monopoly power.²³

The second prong of the monopolization offense is the "exclusionary act." Most²⁴ modern courts have adopted Areeda and Turner's redefinition of "exclusionary," which focuses on "the nature and consequences of a particular practice," instead of on subjective standards like "willful" or "purposeful."²⁵ Accordingly, "exclusionary" comprehends behavior which "not only (1) tends to impair the opportunities of rivals, but also (2) either does not further competition on the merits or does so in an unnecessarily restrictive way."²⁶

According to Areeda and Turner, the quantum of exclusionary *effect* required may "be marginal or even inconsequential" (at least in government equity suits to stop the exclusionary behavior).²⁷ The test, then, should be whether the exclusionary act "reasonably appear[s] capable of making a significant [or 'causally related'] contribution to creating or maintaining monopoly power."²⁸

Unlike Section 2, Section 1 reaches only situations involving collaboration to restrain trade.²⁹ It does not reach unilateral acts, such as monopolization, but prohibits all concerted acts that unreasonably "restrain" trade, which is a concept broader than (but still encompassing) the concept of "monopolizing" trade.³⁰ Thus, a single contract between two persons that creates a monopoly would violate both sections,³¹ while a contract which contains more anti-competitive features than pro-competitive features (without creating a monopoly) would only violate Section 1.³²

Once a plaintiff demonstrates a prima facie Sherman Act violation, the case may be rebutted if the defendant demonstrates a business justification for the exclusionary act (in a monopolization case) or for the anti-competitive features of a contract (in a restraint of trade case). "Business justifications" are the justifying pro-competitive features of a contract or a monopolist's unilateral course of conduct.³³ Such justifications must directly or indirectly enhance consumer welfare (i.e., increase competition in most cases) to such a degree that the enhancement outweighs the exclusionary or anti-competitive effect.³⁴ This balancing of the competition-enhancing effect of the business justification against the anti-competitive effect of the exclusionary act or restraint is called the "rule of reason."³⁵

B. Applicability of the Comparative Competitive Effects Test

Ambiguity arises when the rule of reason is applied to an intellectual property licensing strategy, since no clear point of reference exists. Where, in such a case, should the balance of competitive effects come out if a license restriction is to be legal? A patent, by definition, is a legal right to exclude competitors, necessarily having some anti-competitive effect, and potentially a dramatic one. So one cannot say that restrictions in a license "should be deemed unlawful whenever they have anti-competitive effects beyond what would result from a license or sale without those conditions. Such a test would invalidate virtually all license and sale restrictions"³⁶-a perverse result given that patent owners may legally impose relatively extreme anti-competitive effects on society by refusing to license.³⁷

Thus, the balance point-the line of legality-is not an unrestricted license. As the next section shows, however, those cases that allow a patent owner to refuse to license suggest the outermost limit of anti-competitive effect a patent may have. That limit, the line of legality, is the anti-competitive effect that flows from a refusal to license.³⁸ If the net effect of a licensing scheme is more anti-competitive than a refusal to license, it should be illegal.

III. Unilateral Refusals to License are Lawful

No court in the United States has ever held a patentee or copyright holder ("owner") liable for antitrust violations for refusing to license her intellectual property, unless that refusal was not unilateral.³⁹ Several cases have proclaimed that refusal to license is a core right of the owner.⁴⁰ In particular, *SCM v. Xerox Corp.* is often cited for its holding that "where a patent has been lawfully acquired, subsequent conduct permissible under the patent laws [such as exercising the 'right to exclude others from making the invention,'] cannot trigger liability under the antitrust laws."⁴¹

However, at first glance to many antitrust lawyers, this holding appears to conflict with cases in which plaintiffs have successfully gained access to a monopolist's property on the basis that the property is "indispensable to effective competition."⁴² The copyright and patent laws seem to give owners fewer rights than owners of other types of property (such as power grids or ski slopes, for instance), and monopolists' refusals to grant access to those kinds of property have been condemned under the antitrust laws.⁴³ Thus, the *SCM* analysis seems to give too much deference to intellectual property. Arguably, intellectual property owners should have no greater antitrust latitude to refuse to transfer their property than other owners.⁴⁴

Indeed, the *SCM* court's broad pronouncement goes too far, because some acts generally allowed under the patent laws, such as licensing with field-of-use or geographic restrictions, can nonetheless run afoul of the antitrust laws.⁴⁵ For refusals to license ("refusals to deal," in antitrust parlance), however, *SCM* states what is practically the law. A more explicitly reasoned case than *SCM*, with the same practical result, is *Data General Corp. v. Grumman Systems Support Corp.*⁴⁶

A. *Data General v. Grumman*: A Refusal to License is a Presumptively Valid Business Justification Defense to a Charge of Monopolization

Data General sued Grumman, its competitor in the market for servicing computers manufactured by Data General. Among other charges, it accused Grumman of copyright infringement because Grumman copied and used ADEX, software written by Data General and used to diagnose problems with Data General's newest computers, the "MV" line.⁴⁷ Grumman apparently copied the software because Data General refused to license ADEX, the use of which the jury found to be the critical attribute of an MV computer service vendor.⁴⁸

Grumman counterclaimed for antitrust violations, among them monopolization as prohibited by Section 2 of the Sherman Act.⁴⁹ It claimed, in essence, that use of ADEX was indispensable to effective competition in the market for servicing MV computers.⁵⁰ Evidence of Data General's market power in the market for servicing MV computers was powerful and undisputed.⁵¹ The only questions were, then, (1) whether Data General's refusal to license ADEX to its competitors in the service market was an exclusionary act, and (2) if so, whether it had a valid business justification for the refusal.⁵²

In analyzing these questions, the court first noted that "contractual behavior . . . is not immune from antitrust inquiry simply because it involves the exercise of copyright privileges."⁵³ In the end, however, the First Circuit panel held that "while exclusionary conduct can include a monopolist's refusal to license a copyright, an author's desire to exclude others from use of its copyrighted work is a presumptively valid business justification for any immediate harm to consumers."⁵⁴

The court's main rationale was that since the Copyright Act gives a copyright holder the exclusive right to transfer the work (or not), and since the Act reflects a legislative assumption that the Act itself gives authors a fair return on their creative labors, the courts

cannot abrogate that legislative assumption by allowing antitrust plaintiffs to demonstrate that the exercise of a particular copyright is an unreasonable restraint of trade (and thus more than a fair return).⁵⁵ In short, it is the special status of intellectual property as a Congressionally granted right, "in pari materia"⁵⁶ with the antitrust laws, that allows the monopolist patentee or copyright holder to ignore the supplications of her competitors.

This reasoning recognizes a long-standing dichotomy in treatment between licensing agreements or owners' actions that have "an anti-competitive effect beyond that implicit in the grant of the patent,"⁵⁷ and the refusal to license, disclose, or use a protected innovation, rights that are granted by the patent and copyright laws.⁵⁸

IV. The Comparative Competitive Effects Standard in Previous Cases and Established Doctrine.

We are thus left with the quandary that, even though "the patentee may withhold his patent altogether from public use,"⁵⁹ it does not follow that "he must be permitted to impose any conditions . . . he chooses upon any use" he ultimately allows of it.⁶⁰ What conditions, then, are proper?

The statement itself provides one framework. It implies that the most anti-competitive effect the law will allow from a patent flows from a refusal to license. Thus, any greater effect violates the antitrust laws. A patentee may always keep her intellectual property to herself, if that alternative is less anti-competitive than including a restriction in a license. Thus, if the net effect of a monopolist's licensing practices and restrictions for a given product, patent, or copyright is more anti-competitive than keeping it to herself, the scheme should be condemned under Section 2 of the Sherman Act. When individual license contracts have a greater anti-competitive effect than would be effected without them, then they should fall under Section 1.⁶¹

Examination shows this standard is consistent with, suggested by, and even used in previous cases, although those cases may not have applied it in order to invalidate a licensing arrangement. The most straightforward application of the comparative competitive effects standard was performed by the United States Court of Appeals for the District of Columbia Circuit in *United States v. Studiengesellschaft Kohle, m.b.H.*⁶²

A. *Studiengesellschaft*-The First Recognition of the Comparative Competitive Effects Test

Studiengesellschaft is noteworthy because, by reference to sound economics and previous case law, the District of Columbia Circuit anticipated the test referred to here as the comparative competitive effects test. The Court's prescient judgment was confirmed by later cases such as *SCM*⁶³ and *Data General*⁶⁴ that allowed refusals to license.

Studiengesellschaft involved a process for manufacturing aluminum trialkyls ("ATAs") discovered and patented by Dr. Ziegler.⁶⁵ The invention was not the ATAs, which were previously known, but a new method of producing them.⁶⁶ Because the new method was so much more economical than the prior art, ATAs made with older processes could not compete with those made with the new one.⁶⁷ Dr. Ziegler granted Hercules Incorporated a non-exclusive license to manufacture ATAs with his patented process in the United States.⁶⁸ Part of the agreement was a stipulation that any other licenses Ziegler granted in the United States would allow the licensees to make and use, but not to sell, ATAs made using the patented process.⁶⁹ Ziegler granted such licenses to large ATA users such as Conoco and Ethyl.⁷⁰

The United States brought suit, charging that the latter group of licenses violated the Sherman Act because they restricted sales of ATAs, which were not patented, and thus exceeded the scope of the process patent.⁷¹ The trial court ruled that the agreements violated both Section 1 and Section 2 of the Sherman Act.⁷²

The defendants appealed and the D.C. Circuit reversed.⁷³ Writing for a unanimous panel, Judge Oberdorfer wrote:

None of the anti-competitive effects of the challenged restriction found by the district court exceed the anti-competitive effects which the patent authorized. . . . As stated earlier, Dr. Ziegler lawfully could have licensed Hercules alone to practice the patented process. Such an exclusive license would . . . have effectively given Hercules a monopoly over the sale of ATAs, since no other process is now commercially competitive with the Ziegler process. *Exclusive licenses are tolerated because they normally threaten competition to no greater extent than is threatened by the patent itself.* . . . The prohibition on sales [in the licenses to Conoco, et al.] is thus a more narrowly tailored version of the exclusive license [Thus] the same considerations that lead courts to validate exclusive licenses lead us to approve the restriction at issue here.⁷⁴

Because the net effect of the licenses and the restrictions was less anti-competitive than an exclusive license (which would itself have been legal because its anti-competitive effect is equivalent to the patentee's refusal to license at all), the licensing scheme did not violate the Sherman Act. The court also suggested that the converse is true as well when it said, "This conclusion [of legality] might not follow if the restriction here caused or threatened anti-competitive effects not present in an exclusive license."⁷⁵

The *Studiengesellschaft* court's use of a comparative competitive effects test was later endorsed by Professor Turner in a talk he gave to the National Institute on Industrial and Intellectual Property.⁷⁶ Further, the court did not invent the idea from whole cloth. It was suggested by reference to cases and doctrines that illuminated the line between permissible and impermissible license restrictions before *Studiengesellschaft* was handed down, such as *Kobe, Inc. v. Dempsey Pump Co.*,⁷⁷ and *Hartford-Empire Co. v. United States*,⁷⁸ (and has been confirmed by later cases allowing refusals to license, such as *Data General*⁷⁹ and *SCM*.⁸⁰)

B. The Comparative Competitive Effects Standard is Consistent With Other Cases and Doctrines

The comparative competitive effects test is consistent with, and suggested by, *Studiengesellschaft* and other antitrust cases that have sought to distinguish between legal and illegal licensing behavior. The comparative competitive effects test also provides an economic rationale for a doctrine in one type of patent misuse⁸¹ case, tying. This doctrine provides that tying some kinds of products to a market power patent will bar enforcement of that patent.

I. Kobe, Inc. v. Dempsey Pump Co., a Case Still Referred to by the Federal Circuit, Shows an Analysis Consistent With the Comparative Competitive Effects Test

In *Atari Games Corp. v. Nintendo of America, Inc.*⁸², the Federal Circuit sought to illustrate the line between permissible and impermissible conduct by patentees. As summarized by the Federal Circuit:

[When a] patented product is so successful that it creates its own economic market or consumes a large section of an existing market . . . a fine line [may exist] between actions protecting the legitimate interests of a patent owner and antitrust law violations. . . .

. . . .

When a patent owner uses his patent rights not only as a shield to protect his invention, but as a sword to eviscerate competition unfairly, that owner may be found to have abused the grant and may become liable for antitrust violations when sufficient power in the relevant market is present. Therefore, patent owners may incur antitrust liability for enforcement of a patent known to be obtained through fraud or known to be invalid, where license of a patent compels the purchase of unpatented goods, or where there is an overall scheme to use the patent to violate antitrust laws.⁸³

The last clause may imply an incorrect idea, however. A "scheme to use the patent to violate antitrust law," is not in and of itself illegal. In addition to the "scheme," there must be some anti-competitive effects of the scheme, a tendency towards them, or a dangerous probability of them to violate the antitrust laws.⁸⁴ The decision cited for the last clause, however, was *Kobe, Inc. v. Dempsey Pump Co.*⁸⁵ Examining this case, it can be seen that there were anti-competitive effects of the licensing arrangement at issue. The result in *Kobe* is consistent with the comparative competitive effects test.

Kobe started with a patent pool between two pump companies, Rodless Pumps and "Old Kobe."⁸⁶ In 1932 Rodless was in financial difficulty, but it held rights from three of the four principal inventors in the hydraulic oil well pump field: Crum, Humphreys, and Scott.⁸⁷ Crum and Humphreys had gone out of business and conveyed their patents to Scott, Rodless's founder.⁸⁸ Old Kobe had wanted for several years to market a pump that infringed the Humphreys patent.⁸⁹ When Old Kobe found that Rodless held Humphreys's rights, it proposed that Rodless and Old Kobe consolidate their patents in a new corporation called Roko ("the first agreement").⁹⁰

The first agreement required the parties to assign "all of their patents and all future inventions or patents acquired [to Roko] for the 25 year" term of the agreement.⁹¹ It also effectively consolidated commercialization of these patents in Old Kobe, as Rodless stopped

manufacturing under the patents. Instead, Rodless simply derived the benefits of the agreement through its half ownership of Roko.⁹²

Meanwhile, Gage, the other principal inventor, and the only commercially viable competitor, was achieving success with his pump, the Alta Vista. Not content with eliminating competition from any potential licensee of Rodless, one year later Old Kobe bought Gage's patent rights for the Alta Vista. Old Kobe also obtained agreements from Gage to refrain from competition for 5 years, and to assign to Roko any patents relating to hydraulic pumps he might acquire in the next 10 years ("the Gage transaction").⁹³ From 1933 until 1948, Old Kobe had a monopoly on hydraulic oil well pumps, and used some of its monopoly rent to buy Roko every patent applicable to the product.⁹⁴

The *Kobe* court noted several factors in its restraint of trade analysis: that the parties to the pool were the only competitors that made rodless (hydraulic) oil well pumps;⁹⁵ that there were no substitutes for these hydraulic pumps in deep oil wells drilled at a non-perpendicular angle;⁹⁶ and that the pool bought rights to all patents applicable to the hydraulic oil pump business, while simultaneously restricting licenses only to Old Kobe.⁹⁷

The court reasoned: "Ordinarily patent pools . . . are not illegal in themselves. Agreements which require licensees to assign future inventions or patents are not in themselves illegal. Such agreements, however, which effect a restraint of trade or create monopolies . . . are violations of the law."⁹⁸

While there are probably many ways to conclude the *Kobe* pool was illegal,⁹⁹ the case serves to illustrate the point that, had Rodless and Old Kobe simply given each other non-exclusive cross licenses, the anti-competitive effect would have been much less than the effect of the first agreement. Yet non-exclusive cross licenses would still have allowed Old Kobe to market its pump, which was the only pro-competitive aspect of the first agreement.

Applying the comparative competitive effects test to the first agreement as it was actually drafted, one would put on the plus side of the ledger the pro-competitive effect of allowing Old Kobe, apparently more financially capable than Rodless, to enter the market and compete against Gage and Alta Vista. On the minus side one would put the anti-competitive features of the arrangement: the effective elimination of Rodless and any of its potential licensees as competitors, both in the market for pumps and pump innovation. Given that these events took place during the depression, and that probably little capital was available for fortifying Rodless, the minus side might not have been too great. After subtracting the minus side of the ledger from the plus side, the sum was very probably higher than the alternative state of competition under which Rodless and Kobe kept their patents to themselves, because (for different reasons) neither was in a position to successfully market products incorporating the patented innovation in competition with Gage. Thus, the net competitive effect of the first agreement was arguably more pro-competitive than if Rodless and Kobe had kept their patents to themselves (see Figure 3, *infra* p. 299, illustrating the net effect of the first agreement).

Similarly, the comparative competitive effects test can be applied to a hypothetical first agreement structured as a non-exclusive cross-licensing arrangement between Old Kobe and Rodless. The pro-competitive effects of allowing Old Kobe to commercialize its infringing pump would be diminished by the anti-competitive effects of the license and its restrictions.¹⁰⁰ The resulting quantum of competition would then be compared to the state of competition had each kept its patents to itself. Given that Rodless was financially unstable, the pro-competitive effect of Kobe's entering into competition with Gage would have outweighed any benefit derived from forcing Old Kobe to invent around the Humphreys patent-the result if Rodless refused to license. Thus a non-exclusive cross-licensing agreement would have been legal (see Figure 2).



Figure 2.

However, the Gage transaction was clearly unlawful. The pro-competitive effects were weak; neither Kobe nor Gage could compete in new ways as a result of the deal. On the anti-competitive side, Gage, Alta Vista, and any of their potential licensees were eliminated as competitors. Additionally, Old Kobe had the increased power to exclude competitors who infringed Gage's patents. The net competitive effect is decidedly more anti-competitive than if the parties had kept their patents to themselves-i.e., refused to license (see Figure 3). Thus, it can be seen that the comparative competitive effects test yields a result consistent with *Kobe*, a case still cited today by the Federal Circuit.



Figure 3.

2. Hartford-Empire-The Supreme Court's "Line of Legality"

In *Hartford-Empire Co. v. United States*,¹⁰¹ the Supreme Court addressed, and condemned under the Sherman Act, an infamous licensing arrangement—the glass patent pool of the early 20th century. The leaders of the glass industry pooled their patents on various types of glass-making machines and aggressively sought to obtain any patents that threatened the pool's dominance.¹⁰² The pool clearly violated the Sherman Act. When the Court sought to illustrate behavior closer to the line of legality, its analysis suggested the comparative competitive effects test.

The group used the pool to assign exclusive field-of-use licenses to its members, and included numerical glass production quotas in fields that had multiple licensees.¹⁰³ The total number of licensees in any glassware market was restricted "to prevent overstocking the glassware market and to 'stabilize' prices."¹⁰⁴ Because some remaining competitors used unpatented glass-making machines, the pool acquired control of patents covering other machines needed for use with the unpatented glass-making machines.¹⁰⁵ The result was that "automatic glass manufacture, without consent of the parties [became] difficult if not impossible."¹⁰⁶

Prices for glassware were "maintained,"¹⁰⁷ and the parties divided the spoils in the form of royalties.¹⁰⁸ Innovation "of glass making machinery [was] discouraged, . . . competition in the manufacture and sale or licensing of such machinery [was] suppressed, and . . . the system of restricted licensing [was] employed to suppress competition [and maintain prices] in the manufacture of unpatented glassware."¹⁰⁹

Whether this arrangement violated the antitrust laws is not even a close call. Under any test, including a comparative competitive effects standard, the pool was anti-competitive. The anti-competitive licensing restraints clearly could not have been effected if the defendants had kept their patents to themselves.

However, an observation by the Court in *Hartford* clarifies the line between pro- and anti-competitive technology transfer:

It is said, on behalf of Hartford [the defendant under whom the patents were pooled], that . . . in order to protect its legitimate interests as holder of patents for automatic glass machinery, it was justified in buying up and fencing off improvement patents, the grant of which, while leaving the fundamental inventions untouched, would hamper their use unless tribute were paid to the owners of the so-called improvements which, of themselves, had only a nuisance value.

The explanation fails to account for the offensive and defensive alliance of patent owners with its concomitant stifling of initiative, invention, and competition.¹¹⁰

This passage suggests behavior that is closer to the line of acceptable technology transfer. Hartford could not only have kept its innovation to itself, but it could have acquired (probably non-exclusive) rights necessary to continue to use the fundamental innovation without paying royalties.¹¹¹ Hartford crossed the line by making agreements with others that resulted in a greater anti-competitive effect than simply retaining and using its innovation. Had Hartford refused to license anyone (i.e., refused to create the pool), the excluded potential licensees (pool members who were also competitors or potential competitors) would have had a greater incentive to invent around each other's strongholds. Additionally, the pool could not have effected its geographic, product, and numerical restrictions if the members had practiced the patents themselves.

Moreover, the Court made clear that Hartford had no duty to use its patents. The Court struck down a part of the remedial decree that would have prohibited each former pool member from applying for patents it did not intend to use. The Court reasoned that while

"[t]he decree should restrain agreements . . . with th[e] object [of preventing] others from obtaining patents on improvements which might, to some extent, limit the return in the way of royalty on the original [inventions, a] patent owner is not in the position of a quasi-trustee for the public or under any obligation to see that the public acquires the free right to use the invention. He has no obligation either to use it or to grant its use to others."¹¹²

Thus, even those who had seriously abused the patent privilege in the past were entitled to keep their innovation to themselves in the future: "For example, if Ball or Thatcher [two defendants and members of the pool] should procure a patent on a bottle-capping machine or for a composition of glass, there is no reason to compel a license to Hartford or Hazel or anyone else.¹¹³ In the future, the defendants were only to refrain from agreements that would result in a greater anti-competitive effect."¹¹⁴

3. The Comparative Competitive Effects Test's Explanation of, and Application to, Tying Doctrine

Besides pools, another licensing arrangement commonly found to violate the Sherman Act is tying, in which a patentee or copyright holder conditions the sale of a patented or copyrighted product (the tying product) on the additional sale of some other product for which there are competitive sellers (the tied product).¹¹⁵ Tying can also be misuse in a patent or copyright case.¹¹⁶ The comparative competitive effects test is consistent with, and offers an economic rationale for, the rule in patent misuse cases: that "non-staples"¹¹⁷ may be tied without giving rise to a misuse defense. This legally consistent economic rationale suggests application of the test to antitrust cases involving tying.

The rule in patent law is that non-staple items may be tied to patents, but staples may not. "While [35 U.S.C.] §§ 271(c) and (d) will . . . permit a holder of a patented process to restrict the marketing by others of non-staple products, without patent misuse, the doctrine of patent misuse is recognized by Congress and allowed its full scope where the alleged misuse involves a staple article."¹¹⁸ "Staple products" are those which command a substantial, independent market of their own apart from the patented invention.¹¹⁹

Tying is prohibited because a monopolist can use tying arrangements to foreclose competitors' sales of the tied product, even where purchasers wish to buy the tied product from the competitors, and would do so in a competitive market.¹²⁰ However, if a tied product would not exist but for the patented invention (i.e., it is not a staple), the market for that product is no more foreclosed by tying that product to the patent than by a refusal to license. Either way, no other vendor has a chance to get into the business of making that non-staple article. Licensing with the tie, moreover, may give consumers a second source of the invention, a pro-competitive effect. Conversely, the patentee gets nothing that does not flow from her invention: without it, the tied market would not exist.

However, if the tied product does have a market of its own, separate from the patented invention (i.e., it is a staple), the effect of the tie on consumer welfare may well be worse than if the patentee had kept the invention to herself. The tie may impair competition by subsidizing the patentee's entry into the tied market on a basis that is unrelated to the patentee's efficiency in that market, but related instead to her efficiency in the tying (invention) market. Conversely, if the patentee keeps the invention to herself instead of licensing

with a tie, she is forced to internalize any comparative inefficiency to be paid for developing her place in the tied market. By tying she can more easily pass some of that cost to her licensees, resulting in a decrease in consumer welfare.¹²¹

The comparative competitive effects approach, utilized above, offers an economic rationale for the rule in patent law against tying staples. This rationale suggests that in an antitrust case where the transfer of intellectual property is tied to some other transaction, the comparative competitive effects test should be employed.¹²² To use the test effectively, however, one must ask questions regarding competitive effects, such as:

- What is the market power of the patented item?
- Does the tied item have a market other than with the patented item (i.e., is it a staple)?
- Is anyone foreclosed from a transaction in the tied market?
- Does the anti-competitive effect of the tying licenses exceed that of a complete refusal to license?

If the facts bear out that the anti-competitive effect of the tie(s) is (are) worse than no license(s) at all, any business justification raised by the defendant related to protecting her patent or copyright, or maximizing her reward for its innovation, should be swept aside. The patentee could protect her innovation better and less restrictively by refusing to license. Any reward gleaned from the tie, over and above that which she could have realized by keeping the invention to herself, should be deemed illegal monopoly rent.

V. An Application of the Comparative Competitive Effects Test to Hypothetical Facts: Pharmtec's Restricted License

By providing a clear "line of legality," the comparative competitive effects test can make complex rule of reason analyses easier in some circumstances, as illustrated by the following example.

A. Facts¹²³

Pharmtec, a pharmaceutical company, invented and has market power in drug A_0 , for which it is able to extract significant monopoly rent. There are competitive substitutes, however, in the market for A_0 . These are A_1 and A_2 . Market shares for A_0 , A_1 and A_2 are 85%, 10%, and 5%, respectively. Some doctors think A_1 or A_2 is more effective than A_0 .

A_0 is only effective in combination with drug C. C is comparatively easy to make, and many firms produce it, including Pharmtec, who holds about 35% of the C market, the largest share. Other significant competitors hold 20%, 15%, and 10%, respectively. The balance is held by many smaller competitors.

C must be individually optimized to work with any of A_0 , A_1 , or A_2 . Once production of C optimized for use with any of the three is started, an additional 18% of the original sunk cost is required to optimize some portion of the production for one of the other two. There will also be 18% higher marginal costs of production for either of the other two. Because of A_0 's high market share, most producers of C optimize their production for C_0 (C optimized for use with A_0). Some also divert some production to C_1 or C_2 if they identify marketing channels that justify the extra cost.

Pharmtec invents and patents compound B, which, if used in production of C, reduces the cost of producing C by 20%. A production line for C_0 that uses B in its process, however, must also use B in the production of C_1 or C_2 , or suffer a 38% cost penalty (instead of just the 18% penalty for changing the process when B is not involved). Pharmtec immediately starts using B in its production of all variants of C. Its 20% cost savings gives it a significant price advantage and higher profits than its competitors. Pharmtec's marketing projections indicate that using B in its production will increase its share of C significantly, perhaps by 30 to 50%.

Pharmtec fears, however, that its C competitors will agree with the makers of A_1 and A_2 (one of whom also makes C) to market A_1/C_1 and A_2/C_2 combinations as high quality, differentiated competitors to its own A_0/C_0 combination. Pharmtec's projections show this approach may erode its market power in A_0 . In such a scenario, Pharmtec knows that it may then be profitable for its competitors to

invent substitutes for B that, while not lowering costs of C_0 production as much as B, could lower costs of C_1 and C_2 production by a comparable amount, further reducing its market power in A_0 by lowering the cost of the A_1/C_1 and A_2/C_2 combinations. Use of B substitutes could further erode Pharmtec's market power in A_0 .

Pharmtec thus offers to license B to its competitors in the C market. The licenses provide that the licensees agree not to use B in any production diverted to C_1 or C_2 . Pharmtec tells potential licensees who object to the clause that a non-restrictive license would be prohibitively expensive. This is true, since Pharmtec knows the price for a non-restrictive license would have to factor in Pharmtec's projected loss of market share in A_0 .

Licensing with the restriction is the most profitable course for Pharmtec. Pharmtec's projections also show that widespread licensing of B with the restriction will significantly raise the price of the A_1/C_1 and A_2/C_2 combinations. These higher prices will result in an increase in its market power in A_0 that will more than offset the lost market share in C (as compared with keeping B to itself) that would result from the licensing scheme.

Pharmtec's licensing strategy proves effective. Because of A_0 's overwhelming market share and because of the price advantage B gives to any maker of C_0 , many makers of C take restrictive licenses to B. Some makers simultaneously cancel plans to start production of C_1 or C_2 because the higher price differential between C_0 and C_1 or C_2 (brought about by the general use of B in the industry) will make it harder to sell the latter two products. Others scale back production of C_1 and/or C_2 because of reduced demand at the higher price differential. Lower production volumes increase the unit costs of the A_1/C_1 and A_2/C_2 combinations.

B. Analysis

Applying the comparative competitive effects test in this situation has two major advantages. First, it overcomes a possible difficulty in proving market power—one necessary element of a tying claim. Second, the test provides a clear point of reference for a rule of reason monopolization analysis.

Whether Pharmtec has market power in B is difficult to prove. The restriction in the B licenses is the functional equivalent of a tie. The restriction compels some C producers to make C_0 exclusively, and thus sell exclusively in conjunction with Pharmtec's A_0 .¹²⁴ The issue of market power in B is not clear, however. Given the right market conditions (particularly a refusal to license B by Pharmtec), others might make substitutes for B. Thus, a licensee who breached the restriction might have difficulty making out the elements of a "per se" tying claim¹²⁵ or misuse defense.¹²⁶

The restriction on the license is also an exclusionary act; it further entrenches Pharmtec's market power in A_0 . In an antitrust challenge to the restriction, a court must weigh the pro- and anti-competitive effects of the restraint, possibly a difficult endeavor without a clear reference point for comparison. Pharmtec will argue that the anti-competitive effects of the restrictions are outweighed by the pro-competitive effects of the lower license cost to makers of C and increased consumer choice in sources of C. Pharmtec will also rightly assert that merely because the restricted license is more anti-competitive than an unrestricted license, it does not follow that the restriction violates the rule of reason.¹²⁷

The comparative competitive effects test provides the proper reference point for the rule of reason analysis. The net competitive effects of the licenses and the restrictions should be compared with the competitive effect of Pharmtec's refusal to license. Licensing B to competitors in the C market has a pro-competitive effect. However, the restriction has two anti-competitive effects. First, it enhances Pharmtec's market power in A_0 by raising the relative cost of the A_1/C_1 and A_2/C_2 combinations. Second, it decreases the incentives of other makers of C to invent around B in a way that would decrease Pharmtec's power in A_0 .

The deciding factor, however, is how the sum of these pro- and anti-competitive effects compares with the effects that would be caused by Pharmtec's refusal to license. Even considering the license's pro-competitive effects, the net effect of the restrictive license is more anti-competitive than if Pharmtec had refused to license B. The restrictive license entrenches Pharmtec's market power in A_0 and discourages innovation of B_1 or B_2 . A refusal to license, while increasing Pharmtec's share of C, and possibly A_0 in the short run, would ultimately have eroded Pharmtec's power in A_0 by encouraging differentiation of the A_1/C_1 and A_2/C_2 combinations and

encouraging innovation of B_1 and B_2 substitutes. Since the most anti-competitive effect the law will allow the patent to have flows from a refusal to license, the practice of placing the restriction in B licenses fails the comparative competitive effects test (see Figure 4).



Figure 4.

To summarize, licensing with the restriction is an exclusionary act that fails the comparative competitive effects test. The restrictive license augments Pharmtec's market power in A_0 , while a refusal to license would have decreased that market power or kept it the same. Because the license/restriction combination fails the comparative competitive effects test, business justifications relevant to Pharmtec protecting its patent or gaining its "just reward"¹²⁸ for its innovation should be swept aside. This restrictive licensing strategy violates Section 2 unless Pharmtec can demonstrate other pro-competitive justifications which compensate for the anti-competitive effects of the restriction.

VI. Conclusion

The comparative competitive effects test asks whether the restrictive license has or threatens to have anti-competitive effects greater than what the patentee could achieve through a decision either not to license or to grant an exclusive license for the intellectual property in question. Standing on its own, the test "has considerable merit."¹²⁹ The test also derives considerable support from long-standing cases and doctrine.

This article does not attempt to apply the standard to every possible licensing scenario, for two reasons. First, most antitrust analysis is fact-specific, and the legality of a given practice depends on the competitive effects it has or threatens to have. Second, we are in the midst of an economic revolution. In our transition from an industrial economy to an information economy, we have witnessed the ascendance of markets whose models were only dimly realized even 15 years ago.¹³⁰ An attempt to apply the standard to every possible scenario would be outdated as soon as it was completed.

As a guiding principle, however, the comparative competitive effects test offers much. As a general standard by which to measure licensing practices, it worked in industrial markets,¹³¹ and it is perhaps even more applicable in modern, technology-driven markets.¹³² The increasingly interdependent web of information-based industries expands the range of scenarios under which a license can be more anti-competitive than a refusal to license. The comparative competitive effects test can be a filter that highlights both the

1995, 1996 Dana W. Hayter.

† Trial Attorney, United States Department of Justice, Antitrust Division. The views expressed herein are my own, and are not purported to reflect those of the United States Department of Justice or any previous employer.

1. See, e.g., United States Department of Justice, Antitrust Division & Federal Trade Commission, *Guidelines for the Licensing and Acquisition of Intellectual Property* (Apr. 6, 1995), draft reprinted in 59 Fed. Reg. 41,339 (Aug. 11, 1994) [hereinafter *Licensing Guidelines*]; *United States v. Pilkington, PLC*, 1994-2 Trade Cas. (CCH) ¶ 70,842, 1994 WL 750645 (D. Ariz. 1994); *In re Silicon Graphics Corp.*, slip op. No. C-3626 (F.T.C. Nov. 14, 1995) (WESTLAW, FATR-FTC database).

2. See, e.g., Janusz Ordover & William Baumol, *Antitrust Policy and High-Technology Industries*, 4 OXFORD REV. ECON. POL. 13, 15 (1988); W. Brian Arthur, *Positive Feedbacks in the Economy*, SCI. AM., Feb. 1990, at 92 (explaining how conventional economics does not adequately explain high technology economies); Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986); Joseph Farrell, *Standardization & Intellectual Property*, 30 JURIMETRICS J. 35 (1989); Garth Saloner, *Economic Issues in Computer Interface Standardization*, 1 ECON. INNOVATION & NEW TECH. 135 (1990); Raymond Hartman et al., *Assessing Market Power in Regimes of Rapid Technological Change*, 2 INDUS. & CORP. CHANGE 317 (1993); see generally RICHARD A. D'AVENI & ROBERT GUNTHER, *HYPERCOMPETITION: MANAGING THE DYNAMICS OF STRATEGIC MANEUVERING* (The Free Press 1995).

3. Generally, a firm may refuse to enter into a transaction with a competitor only if there are legitimate competitive reasons for the refusal. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 604-10 (1985).

4. "Truly unilateral" in this context means that the patentee's decision is made for its own reasons, and is not a sham for acting in concert with another firm. See *International Wood Processors v. Power Dry, Inc.*, 792 F.2d 416, 429 (4th Cir. 1986) (holding patentee's termination of license in concert with competing licensee is not entitled to antitrust "exemption").

5. *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1208-1213 (2d Cir. 1981) (holding that unilateral refusal to license lawfully acquired patents is permitted under the patent laws, and thus cannot trigger liability under the antitrust laws); *Data General Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1187 (1st Cir. 1994) (holding that an "author's desire to exclude others from the use of its copyrighted work is a presumptively valid business justification for" refusal to license).

6. 15 U.S.C.A. §§ 1-7 (West 1996). See also the Clayton Act, 15 U.S.C.A. §§ 12-27 (West 1996). This standard is subject to one caveat and one limitation. The caveat is that the proposed standard is a test for illegality, not legality. Just because a plaintiff has not yet demonstrated that the defendant's licensing scheme fails this standard, it does not follow that the licensing scheme must necessarily be legal. See, e.g., *Palmer v. BRG of Ga., Inc.*, 498 U.S. 46, 49 (1990) (holding that term of license whereby parties agreed not to compete in Georgia was per se illegal); *International Wood Processors*, 792 F.2d at 427-29 (holding that a licensing scheme was really a conspiracy to eliminate plaintiff as a competitor). This standard provides only that if a scheme demonstrably fails the proposed standard, the scheme must be illegal.

One limitation is that although this standard is suggested for all licensing strategies, there is a possible exception for the strategy of selectively and unilaterally refusing to grant unrestricted licenses to some but not all requesting parties. Even if a monopolist's strategy of selectively licensing without significant restrictions has great anti-competitive effect, the strategy is difficult to attack in light of the existing refusal to license cases. See *supra* note 5 and *infra* note 40. One must wonder, though, assuming acceptance of the comparative competitive effects test outlined in this paper, what the result should be if a monopolist defeats its strongest competitors' incentives to innovate around its position by licensing them, while simultaneously refusing to license competitors who do not have that capability. Perhaps this concern prompted the *Data General* court's caveat that, "[w]ary of undermining the Sherman Act, however, we do not hold that an antitrust plaintiff may never rebut this presumption [of legality for a refusal to license], for there may be rare cases in which imposing antitrust liability is unlikely to frustrate the objectives of the Copyright Act." *Data General*, 36 F.3d at 1187 n.64.

7. 15 U.S.C.A. § 1 (West 1996).

8. See, e.g., *Licensing Guidelines*, *supra* note 1, Example 1 Discussion.

9. 15 U.S.C.A. § 2 (West 1996).

10. For an example of such a situation, see *infra* part V.

11. For an explanation of the rule of reason, and how the comparative competitive effects test aids it, see *infra* text accompanying notes 33-38.

12. See, e.g., *supra* note 6 (discussing per se cases).

13. 15 U.S.C.A. §§ 1-7 (West 1996). Sections 1 and 2 are the Act's key operative sections, the rest being largely jurisdictional or procedural.

14. Except for those tying cases where courts allow the defendant to show a business justification for its conduct, see *infra* note 122, this paper does not address per se violations, which are normally considered to be so plainly anti-competitive that the court performs no rule of reason analysis before condemning them. See, e.g., *United States v. Paramount Pictures*, 334 U.S. 131 (1948) (price fixing is illegal per se); *Palmer v. BRG of Ga., Inc.*, 498 U.S. 46 (1990) (holding that term of license whereby parties agreed not to compete in Georgia was per se illegal). If no rule of reason analysis is performed, of course, the comparative competitive effects test is not applied.

15. 15 U.S.C.A. § 2 (West 1996).

16. *High Tech. Careers v. San Jose Mercury News*, 996 F.2d 987, 989-90 (9th Cir. 1993) (citing *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966)).

17. *Syufy Enters. v. American Multicinema, Inc.*, 793 F.2d 990, 994 (9th Cir. 1986) (citing *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 394-95 (1956)), *cert. denied*, 479 U.S. 1031, 1034 (1987).

18. *Id.* at 994-996.

19. *Id.* at 994.

20. *Id.*

21. *High Tech. Careers v. San Jose Mercury News*, 996 F.2d 987, 990 (9th Cir. 1993) (citing *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 377 (1956)). The Tenth Circuit may require that plaintiffs demonstrate the power to control prices *and* exclude competition.

22. *Syufy*, 793 F.2d at 995.

23. See *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966) (holding that an 87% share of the relevant market, without more, is sufficient to establish monopoly power).

24. See *infra* note 26.

25. III PHILLIP AREEDA & DONALD F. TURNER, ANTITRUST LAW ¶ 626a, at 76 (1978).

26. *Id.* ¶ 626b, at 78. This formulation was adopted by the Supreme Court in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 605 n.32 (1985). Other courts have adopted it as well. See, e.g., *Trans Sport Inc. v. Starter Sportswear, Inc.*, 964 F.2d 186, 188-89 (2d Cir. 1992); *Illinois v. Panhandle E. Pipe Line Co.*, 935 F.2d 1469, 1481 (7th Cir. 1991); *Morgan v. Ponder*, 892 F.2d 1355, 1363 (8th Cir. 1989); *Oahu Gas Serv., Inc. v. Pacific Resources Inc.*, 838 F.2d 360, 370 (9th Cir.), *cert. denied*, 488 U.S. 870 (1988).

27. AREEDA & TURNER, ¶ 626c at 78.

28. *Id.* at 79.

29. Dart Drug Corp. v. Parke, Davis & Co., 344 F.2d 173, 182-183 (D.C. Cir. 1965).
30. United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 226 n.59 (1940) (stating that the offense "under Section 1 is legally distinct from that under Section 2 . . . though the two sections overlap in the sense that a monopoly . . . is a species of restraint of trade under Section 1").
31. Shapiro v. King, 125 F.2d 890, 892 (8th Cir. 1942).
32. See Gough v. Rossmore, 585 F.2d 381, 388-89 (9th Cir. 1978) (outlining rule of reason analysis of concerted activity under Section 1); see also Ruddy Brook Clothes, Inc. v. British & Foreign Marine Ins., 195 F.2d 86, 88-89 (7th Cir.), cert. denied, 344 U.S. 816 (1952).
33. Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451 (1992) (Section 2 monopolist); American Ad Management, Inc. v. GTE Corp., 92 F.3d 781, 791 (9th Cir. 1996) (Section 1 agreement).
34. Data General Corp. v. Grumman Sys. Support Corp., 36 F.3d 1147, 1183 (1st Cir. 1994).
35. See Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492, 497-98 (1988).
36. Donald F. Turner, *Basic Principles in Formulating Antitrust and Misuse Constraints on the Exploitation of Intellectual Property Rights*, 53 ANTITRUST L.J. 485, 490 (1985).
37. See United States v. Westinghouse Elec. Corp., 648 F.2d 642, 648 (9th Cir. 1981) (commenting on a similar argument, and stating that such a "theory [t]aken to its logical limits . . . would find almost every patent licensing agreement to be illegal").
38. See *supra* Figure 1.
39. See, e.g., International Wood Processors v. Power Dry, Inc., 792 F.2d 416, 427-29 (4th Cir. 1986) (holding patentee's termination of license in concert with competing licensee is not entitled to antitrust "exemption").
40. SCM Corp. v. Xerox Corp., 645 F.2d 1195 (2d Cir. 1981) (holding that a unilateral refusal to license lawfully acquired patents is permitted under the patent laws, and thus cannot trigger liability under the antitrust laws), cert. denied, 455 U.S. 1016 (1982); *Westinghouse Elec. Corp.*, 648 F.2d at 647 (drawing distinction between acts which expand the patent monopoly, and thus violate the antitrust laws, and refusal to grant licenses, which does not); Miller Insituform, Inc. v. Insituform of N. Am., Inc., 830 F.2d 606, 609 (6th Cir. 1987) (holding owner of lawfully acquired patent cannot be liable under Section 2 for refusing to license the patent), cert. denied, 484 U.S. 1064 (1988); United States v. Telectronics Proprietary, Ltd., 607 F.Supp. 753, 755 (D. Colo. 1983) (holding that the unilateral right to refuse to license is the essence of the patent monopoly).
41. *SCM*, 645 F.2d at 1206.
42. Olympia Equip. Leasing Co. v. Western Union Tel. Co., 797 F.2d 370, 379 (7th Cir. 1986), cert. denied, 480 U.S. 934 (1987). See also Penelope Preovolos, *Litigating in the Interface: Connection to "Essential Facilities,"* INTELL. PROP., March 1995, at 34 (quarterly supplement to THE RECORDER).
43. Otter Tail Power Co. v. United States, 410 U.S. 366 (1973) (power grid); Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585 (1985) (ski slopes).
44. See *Licensing Guidelines*, *supra* note 1, § 2.0(a).
45. See, e.g., Hartford-Empire Co. v. United States, 323 U.S. 386, 392-402 (1945) (holding system of licensing and pooling agreements with anti-competitive effect violated the Sherman and Clayton acts); Atari Games Corp. v. Nintendo of Am., Inc., 897 F.2d 1572, 1576 (Fed. Cir. 1990) ("[When a] patented product is so successful that it creates its own economic market or consumes a large section of an existing market . . . a fine line [may exist] between actions protecting the legitimate interests of a patent owner and

antitrust law violations."); *Data General Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1185 n.63 (1st Cir. 1994) (It is . . . well settled that concerted and contractual behavior [which] threatens competition is not immune from antitrust inquiry simply because it involves the exercise of copyright privileges."); *Digidyne Corp. v. Data General Corp.*, 734 F.2d 1336, 1341-44 (9th Cir. 1984) (holding Data General illegally tied the sale of copyrighted operating systems to the sale of CPUs), *cert. denied*, 473 U.S. 908 (1985); *International Wood Processors v. Power Dry, Inc.*, 792 F.2d 416, 427-29 (4th Cir. 1986) (holding patentee's termination of license in concert with competing licensee is not entitled to antitrust "exemption"); *Kobe, Inc. v. Dempsey Pump Co.*, 198 F.2d 416, 422-23 (10th Cir.) (holding system of licensing and pooling agreements with grant-back provisions having anti-competitive effect to be illegal under rule of reason standard), *cert. denied*, 344 U.S. 837 (1952); *Grid Sys. Corp. v. Texas Instruments Inc.*, 771 F.Supp. 1033, 1037 n.2 (N.D. Cal. 1991) (holding that tying multiple patent licenses can be per se illegal under Section 1, as well as an exclusionary practice under Section 2).

46. 36 F.3d 1147 (1st Cir. 1994).

47. *Id.* at 1152-54.

48. *Id.* at 1154, 1172.

49. *Id.* at 1156.

50. *Id.* at 1181-84; *see Olympia Equip. Leasing Co. v. Western Union Tel. Co.*, 797 F.2d 370, 379 (7th Cir. 1986), *cert. denied*, 480 U.S. 934 (1987).

51. *Data General*, 36 F.3d at 1182 n.60; *see also Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 464-479 (1992) (holding that Kodak's lack of market power in the market for equipment does not foreclose the possibility that it has market power in the market for service of its equipment).

52. *Data General*, 36 F.3d at 1182.

53. *Id.* at 1185 n.63.

54. *Id.* at 1187. *See supra* part II for the definition of "exclusionary act."

55. *Data General*, 36 F.3d at 1186-87.

56. *Simpson v. Union Oil Co. of Cal.*, 377 U.S. 13, 24 (1964); *United States v. Westinghouse Elec. Corp.*, 648 F.2d 642, 646-48 (9th Cir. 1981).

57. *USM Corp. v. SPS Technologies, Inc.*, 694 F.2d 505, 515 (7th Cir. 1982), *cert. denied*, 462 U.S. 1107 (1983).

58. Compare the cases cited *supra* note 40, (refusals to license) with those cited *supra* note 45 (other restraints).

59. *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 514 (1917). *See also supra* text accompanying notes 48-49.

60. *Id.*

61. This idea reflects the more familiar rule of reason analysis and the judgment that most individual license contracts are pro-competitive. *See Licensing Guidelines, supra* note 1, §§ 2.0(c), 2.3. Only where one party has market power or when the two parties to the license combined have market power is the license likely to create a problem. *See id.* at § 4.3.

62. *United States v. Studiengesellschaft Kohle, m.b.H.*, 670 F.2d 1122, 1127-38 (D.C. Cir. 1981).

63. *SCM, Inc. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981), *cert denied*, 455 U.S. 1016 (1982).

64. *Data General Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147 (1st Cir. 1994).

65. *Studiengesellschaft*, 670 F.2d at 1124.

66. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*

70. *Id.*

71. *Id.* at 1123, 1125.

72. *Id.* at 1125-26.

73. *Id.* at 1138.

74. *Id.* at 1135 (citations omitted) (emphasis added).

75. *Id.* at 1135-36.

76. This talk was published in Turner, *supra* note 36, at 490-91. Professor Turner endorsed the approach as "the most useful general test of restrictive conditions attached to a license or sale" of intellectual property. *Id.* at 491. However, he expressed the reservation that "it is not necessarily conclusive" because "it assumes that the patentee, assignee, or exclusive licensee would be capable of exclusive self-practice of the patent for all uses, and overlooks the possibility that the holder of the exclusive rights may be impelled to license even if certain restrictions were prohibited." *Id.* at 491, 490. The rare situation described by Professor Turner, where a patentee has enough market power to significantly impact competition with its licensing strategy but simultaneously too few resources to self-practice the patent for all uses it wishes to grant licenses for, can be mitigated by comparing the competitive effects of the licenses and their restrictions with the competitive effects of exclusive license to a hypothetical licensee that has such resources and the market power of the real patentee.

77. 198 F.2d 416, 94 U.S.P.Q. 43 (10th Cir.), *cert. denied*, 344 U.S. 837 (1952).

78. 323 U.S. 386 (1945).

79. *Data General Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147 (1st Cir. 1994).

80. *SCM, Inc. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981), *cert. denied*, 455 U.S. 1016 (1982).

81. For an explanation of patent misuse, see *infra* note 116.

82. *Atari Games Corp. v. Nintendo of Am., Inc.*, 897 F.2d 1572 (Fed. Cir. 1990).

83. *Id.* at 1576 (applying 9th Circuit law in appeal from preliminary injunction); see also *CVD Inc. v. Raytheon Co.*, 769 F.2d 842, 851 (1st Cir. 1985) (applying similar principles to trade secrets), *cert. denied*, 475 U.S. 1016 (1986).

84. See *supra* notes 24-26 and accompanying text.

85. 198 F.2d 416, 94 U.S.P.Q. 43 (10th Cir.), *cert. denied*, 344 U.S. 837 (1952).

86. *Id.* at 419-421.

87. *Id.* at 419.

88. *Id.*

89. *Id.*

90. *Id.*

91. *Id.*

92. *Id.* at 419-20.

93. *Id.* at 420.

94. *Id.*

95. *Id.* at 422.

96. *Id.* at 423.

97. *Id.* at 420.

98. *Id.* at 422 (citations omitted); *see also* *Cutter Labs. v. Lyophile-Cryochem Corp.*, 179 F.2d 80, 92 (9th Cir. 1949) (using almost identical language but holding for patentee).

99. For example, given that many of the transactions involved assignments or exclusive licenses, (*Kobe*, 198 F.2d at 420), the Clayton Act could also govern this pool. *See* AXINN, ET AL., ACQUISITIONS UNDER THE HART-SCOTT-RODINO ANTITRUST IMPROVEMENTS ACT § 4.01[5] n.32 (1995).

100. In this hypothetical case, the anti-competitive effects seem mostly related to Old Kobe's reduced incentive to invent around the Humphreys patent. This effect is not necessarily negative, however. Depending on the exact features of Humphreys's innovation, forcing Old Kobe to innovate around it could be dead-weight loss, if such innovation would merely duplicate Humphreys's innovation and add nothing new.

101. 323 U.S. 386 (1945).

102. *Id.* at 392-401.

103. *Id.* at 397-98.

104. *Id.* at 398.

105. *Id.*

106. *Id.*

107. *Id.* at 400.

108. *Id.* at 395-96, 399.

109. *Id.* at 400.

110. *Id.* at 407.

111. Licenses to blocking patents can be pro-competitive. *Licensing Guidelines*, *supra* note 1, § 2.3. These most often should be non-exclusive, however. Turner, *supra* note 36, at 492.

112. *Hartford-Empire*, 323 U.S. at 431-32.

113. *Id.* at 418.

114. *See id.* at 408-435 (discussing proper scope of the remedial decree).

115. *See, e.g.*, *International Salt Co. v. United States*, 332 U.S. 392 (1947); *Digidyne Corp. v. Data General Corp.*, 734 F.2d 1336, 1341-44 (9th Cir. 1984) (presuming market power from copyright and holding that Data General illegally tied the sale of copyrighted operating systems to the sale of CPUs), *cert. denied*, 473 U.S. 908 (1985). Most courts would not now presume market power from a patent or copyright in an antitrust case. *See, e.g.*, *Atari Games Corp. v. Nintendo of Am., Inc.*, 897 F.2d 1572, 1576 (Fed. Cir. 1990) (noting that market power is required for a licensing practice to violate the antitrust laws).

116. *See Morton Salt Co. v. G.S. Supiger Co.*, 314 U.S. 488 (1942) (holding that Morton Salt's tying of salt tablets to licensing of patented canning machines was misuse of the patent that barred its enforcement); *see also* 35 U.S.C. § 271(d)(5) (West 1996). Tying may be deemed misuse if "the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned." 35 U.S.C.A. section 271(d)(5) (West 1996).

Patent misuse is an equitable, affirmative defense to an action for infringement. *See, e.g., Morton Salt*, 314 U.S. 488. Because the patentee or copyright holder has engaged in some practice that impermissibly "expands the scope of his [statutory] monopoly," or is inconsistent with the "public purpose" of the grant, he will not be able to enforce his patent until the misuse is purged. *Lasercomb Am., Inc. v. Reynolds*, 911 F.2d 970, 975-77 (4th Cir. 1990). Historically, a rigorous antitrust analysis was not required, but some circuits now require such analysis. *See, e.g., Saturday Evening Post Co. v. Rumbleseat Press, Inc.*, 816 F.2d 1191, 1200 (7th Cir. 1987) (holding that copyright misuse must rise to level of antitrust violation to qualify as a defense to infringement). Others explicitly disavow such analysis in misuse cases. *See, e.g., Lasercomb*, 911 F.2d at 978 (granting a misuse defense to an infringer because a 99-year non-compete provision in a standard copyright license agreement used with other licensees was "violative of the public policy embodied in the grant of a copyright . . . regardless of whether such [a clause] amounts to an antitrust violation").

117. *See Robintech, Inc. v. Chemidus Wavin, Ltd.*, 628 F.2d 142, 149 (D.C. Cir. 1980) (holding that "staple products [are those which command] a substantial, independent market of their own apart from" the patented invention).

118. *Id.* at 148.

119. *Id.* at 149. For instance, the salt tablets in the *Morton Salt* case were staples. 314 U.S. 488.

120. *Cf. Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 16 (1984). The three elements of a per se antitrust tying claim are "(1) a tie-in between two products or services sold in different markets, (2) market power in the tying product, and (3) the tying arrangement affects a not insubstantial volume of commerce [foreclosure];" *Datagate, Inc. v. Hewlett-Packard Co.*, 60 F.3d 1421, 1423-24 (9th Cir. 1995).

Foreclosure, however, is not required as an element of tying as a misuse defense. 35 U.S.C. § 271(d)(5) requires only that the defendant demonstrate "the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned." Foreclosure is not mentioned. Note too that "[s]ection 271(d) relates only to . . . patent misuse as a defense to an infringement claim. . . . [A] full reading of the legislative record reveals that Congress rejected the extension [of this statute into the area of antitrust] despite . . . articulated support" for the idea. *Grid Sys. Corp. v. Texas Instruments, Inc.*, 771 F. Supp. 1033, 1037 n.2 (N.D. Cal. 1991). Thus, tying as a misuse defense seems based on the concern that a patentee who is using his patent to deny purchasers choice ought not appeal to a court of equity to enforce it.

121. I say "more easily" because, of course, many rational consumers will evaluate the cost of the tied combination and compare it with lower-utility substitutes for the invention combined with cheaper sources of the tied product. In theory, the patentee can get only one monopoly rent from her market power. Thus, if the patentee were forced to price her invention separately, and if all consumers made rational purchasing decisions, the patentee could simply raise the price of her invention. This would allow her to subsidize her

entry into the tied market at lower prices, and still pass the cost of that entry to her licensees.

This "one monopoly rent" argument, while undoubtedly describing behavior in some markets and by some consumers, must fail as a general empirical statement for at least two reasons. First, depending on the relative costs of the licensed item and the tied item, the additional costs of either predicting (without perfect information) the long-term cost of the tied combination, or measuring the cost of the less-perfect substitute combination, may mean that the patentee can get at least these extra costs as "undeserved" monopoly rent. Second, many consumers, unlike economists, do not rationally evaluate long-term costs of a tie and the probabilistic effects of imperfect information. Thus, those consumers will pay "undeserved" monopoly rent (especially at a low unit cost), again inefficiently subsidizing the patentee's entry into the tied market.

122. Tying can be a "per se" violation of Section 1 of the Sherman Act, *Datagate*, 60 F.3d at 1423, or monopolization under Section 2 of the Sherman Act. *Mozart Co. v. Mercedes-Benz of N. Am. Inc.*, 833 F.2d 1342, 1351 (9th Cir. 1987). Courts allow defendants to demonstrate business justifications in both kinds of cases (calling into question the "per se" label). *Id.* at 1348 n.5. Thus, the comparative competitive effects test is warranted and useful in both kinds of cases.

123. This fact pattern is complex. The issues it raises, however, such as network-effects markets and predicted, competitive product repositioning, are common in technology-driven, intellectual-property-intensive industries. See D'AVENI & GUNTHER, *supra* note 2, at 39-70; Arthur, *supra* note 2. Even old industries sometimes present very complex facts. See, e.g., *Hartford-Empire Co. v. United States*, 323 U.S. 386, 392-401 (1945) (summarizing facts from a 112 day trial resulting in a District Court opinion that included 628 findings of fact and a 16,500-page record). I hope to illustrate that the comparative competitive effects test can make such complex facts easier to parse.

124. Professor Areeda suggests that using one's market power to coerce transactions that have the practical effect of forcing exclusive dealing contracts or forcing licensees to reduce the amount of product they buy from a competitor can be viewed as tying. X AREEDA, *supra* note 25, 1752c at 282 (1996).

125. See *supra* notes 115, 120, & 122 for more information about "per se" ties.

126. See *supra* notes 116 & 120 for more information about tying as misuse.

127. See *supra* text accompanying note 36.

128. "[T]hat a particular transfer or method of exploiting patent rights increases the patentee's reward is hardly dispositive." Turner, *supra* note 36, at 489.

129. *Id.* at 490. The only published criticism of the idea seems to be a footnote in a PLI outline. John W. Schlicher, *The Law and Economics of Licensing Biotechnology Patent and Related Property Rights in the United States*, 235 PLI/Pat 333, 383 n.19 (1987) (available on Westlaw, JLR database). The elements of the test in his criticism are described in terms of a comparative *output* test, rather than a comparative competitive effects test. This suggests a rigid application of static market analysis that is particularly inappropriate in modern, technology-driven markets. See *supra* material referenced at note 2. See also Ramsey Hanna, *Misusing Antitrust: The Search for Copyright Misuse Standards*, 46 STAN. L. REV. 401, 422 (1994) (outlining the limitations of "static [economic] models" as applied to technology-driven markets).

130. See Arthur, *supra* note 2.

131. See, e.g., *Hartford-Empire Co. v. United States*, 323 U.S. 386 (1945); *United States v. Studiengesellschaft Kohle, m.b.H.*, 670 F.2d 1122 (D.C. Cir. 1981).

132. See *infra* part V.