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ANTITRUST AND THE INTERNET STANDARDIZATION PROBLEM

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III. Antitrust and Standards

Antitrust law protects competition and the competitive process, by preventing certain types of conduct that threaten a free market. For example, antitrust prohibits competitors from agreeing on the price they will charge. n89 It prohibits certain "predatory" practices designed to exclude competitors from the market, and it places certain limits on the behavior of firms with market power. n90 While there is some disagreement as to the original or proper goals of antitrust law, the dominant approach to antitrust law today is the "economic" or "social welfare" model. n91 This approach takes the purpose of the antitrust laws to be promoting aggregate social welfare by ensuring that markets work efficiently and (to the extent possible) without government interference.

The antitrust laws regulate business conduct in three basic ways. First, section 7 of the Clayton Act prohibits mergers and asset acquisitions where the effect of the acquisition may be substantially to lessen competition in a relevant market. n92 Second, section 2 of the Sherman Act prohibits monopolization, judicially defined as acquiring or maintaining market power through anticompetitive conduct, as well as at- [*1067] tempts to monopolize. n93 Third, section 1 of the Sherman Act prohibits agreements, usually between competitors, which unreasonably restrain trade. n94 The Clayton Act's prohibition on mergers does not concern us here, but both sections of the Sherman Act are important in understanding the antitrust rules likely to be applied in the Internet software industry.

A. Monopolization by Standard-Setters

Section 2 of the Sherman Act prohibits "monopolization." Significantly, courts distinguish between monopoly itself, which is perfectly legal, and monopolization, which is not. n95 In the words of the most influential court case on the subject, "it does not follow because [a defendant] had such a monopoly, that it 'monopolized' the ingot market: it may not have achieved monopoly; monopoly may have been thrust upon it." n96 Evidently, something more than market power is required for antitrust condemnation under section 2. That "something more" is the acquisition or maintenance of monopoly through anticompetitive conduct, as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident. n97 "Anticompetitive conduct" as defined by the courts may be shown in a variety of ways, notably by proving that that alleged monopolist has engaged in some form of conduct that itself violates some other provision of the antitrust laws (tying, resale price maintenance, etc.) in an

effort to monopolize. n98 In addition, unilateral conduct that is legal under most circumstances may be considered anticompetitive conduct sufficient to prove monopolization when engaged in by a party with market power. n99 Thus, under current law, monopolists face greater [*1068] restrictions on their unilateral conduct under section 2 than do other competitors.

The peculiar economics of software (and particularly Internet software) markets present a real problem for section 2 analysis. The problem has three components. First, applying section 2 to a standardized software market with a single dominant firm arguably does not fit very well with existing precedent. The factors discussed in Part I above will tend to drive an unregulated software market to monopoly, at least where the standard adopted is proprietary. While in the ordinary case control of a market by a single firm may raise section 2 concerns, in this case the monopolist may have some legitimate claim that its monopoly has been "thrust upon it" and is therefore not illegal under the rule of *United States v. Aluminum Company of America (Alcoa)*. n100 Courts have generally exculpated antitrust defendants whose major offense was possessing an inherent or "natural" monopoly. Thus, the owner of the only newspaper in a small town, n101 the only football team in a medium-sized town, n102 and even the owner of the only facility currently capable of making a certain product n103 have defeated antitrust claims against them on the grounds that their monopolies were "natural."

In most markets, this hands-off rule has been tempered by greater antitrust scrutiny of the natural monopolist's attempts to maintain its dominant position. Thus, even a regulated electric utility with a monopoly conferred in part by government franchise violated the antitrust laws when it denied access to power transmission to towns that wished [*1069] to buy their power elsewhere. n104 Antitrust also seeks to limit the ability of a natural monopolist to extend its monopoly into other competitive markets, by what is sometimes referred to as "monopoly leveraging." n105 But in a standardized market such as Internet software, once the tipping effect gives a particular company a monopoly, that monopoly is likely to be quite durable. While it will not hold a monopoly position forever, a company in such a position can keep its market power for sometime with a relative minimum of effort--and without engaging in anticompetitive conduct designed to maintain or extend market power. This is particularly true if, as Cheesbrough and Teece suggest, large companies already in the market have an advantage in future standards competitions because consumers will expect them to prevail. n106 As the law now stands, courts will not act against a firm that obtains monopoly power without acting anticompetitively. n107 Antitrust scrutiny of such a company is likely to be limited to the fringes, policing certain minor aspects of a defendant's conduct rather than attacking the defendant's dominant position itself. This seems to have been the fate of the government's notorious action against Microsoft its conduct in the operating systems market. n108 [*1070]

A second problem with applying section 2 to dominant firms in the software industry is one of remedy. Even were the courts to reverse the long-standing rule and conclude that durable monopoly can and should be attacked by antitrust regardless of how that monopoly was obtained, it is not at all obvious how to go about applying the antitrust laws to such a monopolist. Antitrust offers three basic remedies to private plaintiffs--treble actual damages, attorneys' fees, and injunctive relief against anticompetitive conduct. n109 Injunctive relief seems inappropriate here, where by hypothesis there is no anticompetitive conduct to enjoin. The only injunction one can imagine being relevant--one imposing an

affirmative duty on a monopolist to predisclose and license its standards--has repeatedly been rejected by Congress and the courts. n110 Treble damages and attorneys' fees are a powerful incentive to private plaintiffs. n111 But what are a plaintiff's actual damages? If the plaintiff is a competitor upset that it did not get the dominant position now held by the defendant, the measure of its injury is simply the revenue it lost by not itself being able to charge consumers a supra-competitive price. It is hard to imagine a court accepting such a damage theory, even if we set aside the probably insuperable problem of proving antitrust injury. n112 Consumers might fare better; they could claim that the dominant [*1071] firm had used its market power to overcharge them and that the measure of their injury is the extent to which the price of the dominant firm's good exceeds its cost. But accepting such a claim is tantamount to declaring ongoing judicial price regulation of the entire industry, something the antitrust laws have historically been loath to do--and with good reason. n113

Government regulators have an additional remedy in their armory--they can seek structural relief against a defendant. n114 Such relief might include an order divesting certain assets, the division of the company into separate operating groups, or even a flat prohibition against a company participating in a given market (say, an order barring Microsoft from competing in the market for applications programs). n115 Yet even this drastic remedy seems futile in the face of the relentless economics of standardization. n116 Suppose that antitrust regulators obtain structural relief against the dominant software provider in a market--that they break it up into several pieces, or even bar the dominant player from the market entirely. What then? The analysis undertaken in Part II suggests that the firms that remain in the industry (and new entrants attracted by the potential to set the next-generation standard) will compete for a time, but that such competition will end with most of the participants driven out of business and the market settling on a new standard (offered by a new dominant company). Perhaps the antitrust process will begin again at that point, n117 but it is hard to see that anything has really been accomplished, particularly given that both interim standards competition itself and enforcement of the antitrust laws involve significant social costs. n118

There are two other possible remedial benefits to section 2 enforcement. First, it may be that the existence or threat of section 2 actions will be sufficient to deter anticompetitive conduct by standard-setters. [*1072] However, it is not at all clear why section 2 enforcement efforts directed at durable monopolies obtained through normal competitive means would be effective in preventing anticompetitive conduct. It seems at least as likely that such actions would deter reasonable, pro-competitive conduct.

Second, obtaining structural relief against the owners of standards will temporarily (though not permanently) solve the problem of the durable monopoly, by replacing it with a new standards competition. Whether or not this is a good thing depends on whether creating such a new standards competition is more efficient than remaining in a durable monopoly. Certainly such antitrust enforcement would temporarily reduce price-cost ratios, though it would have to be applied regularly. If timed properly, such relief could also benefit newly-developed, technologically superior products, by allowing them to compete immediately in a new standards competition. Structural relief would increase wasteful competition to set the new standard, however, since standards competitions would occur more frequently. n119 Further, it is not clear that such antitrust-induced standards competitions would produce an efficient product choice,

since the fear of future antitrust action might deter investment in new standard-setting. Whether such relief is worth the significant costs it would require is doubtful.

There is a final, more conceptual problem with applying section 2 to dominant firms in markets characterized by standardization. Historical quibbles notwithstanding, n120 antitrust law today is fundamentally about enhancing competition. The classic statement of this rule is that the Sherman Act protects competition, not competitors. n121 At least in the long run, the one thing section 2 of the Sherman Act cannot do in an industry such as this is enhance competition. Monopolists who acquire their power through the work of market forces rather than [*1073] anticompetitive conduct will continue to do so as long as the market forces push in that direction. If the end result of antitrust action is a market which is dominated by a different company, but which is otherwise no more competitive than it was before the courts intervened, it is reasonable to question the point of the enterprise in the first place. n122

For these reasons, I think that if antitrust is viewed as a weapon to be used against entrenched monopolies relying on a product standard, it is doomed to failure. n123 It does not follow from this, however, that section 2 should play no role whatever in Internet software markets. Standards do not last forever; they are periodically replaced by newer and presumably better standards. This is especially true in the context of the Internet, where the relevant standards competition sometimes seems to change on a monthly basis. As discussed above, the period during which a new standard is set is frequently one of vigorous competition between potential standards. While such competition is in some senses inefficient--parties may engage in wasteful rent-seeking n124 in order to capture the dominant position, and consumers of unsuccessful standards may be stranded n125 --it can also have a valuable market-disciplining effect. At least in theory, competition to set standards should ensure that the "best" standard available at the time is the one that is selected. n126 [*1074]

Because de facto standard-setting is a high-stakes game--the winner gets a durable monopoly for several years, and the losers get nothing--participants in this competition may be expected to try to tip the balance in their favor. n127 Many of these efforts will fall under the category of vigorous competition, something the antitrust laws seek to promote. For example, companies may compete to offer their product earlier, with more and better features, or at a lower price, in an effort to convince a critical mass of consumers to adopt it. But companies may also engage in potentially anticompetitive actions in an effort to become the market leader. n128 Because the value of being a leader in a standardized market is sufficiently high, for example, this may be a case where such normally problematic antitrust theories as predatory pricing and monopoly leveraging actually make economic sense.

Predatory pricing (pricing a product below marginal cost in an effort to gain market share) is alleged with much greater frequency than it actually occurs, a fact which has inclined courts and commentators against it. n129 The normal problem with predatory pricing claims is that a firm will not price below costs unless it expects to be able to "recoup" its losses with supracompetitive pricing later. n130 In a market with low barriers to entry, this strategy is unlikely to work, since once the predator raises its price, new entrants will compete and drive the prices back down. To the extent that standardization effects create a significant barrier to entry in software markets once a market standard has been established, they may make recoupment (and therefore predation) more likely. n131 Certainly, the conventional

explanation why both of [*1075] the main competitors in the Web browser market have offered their products to the public for free is in order to capture browser market share. n132

However, rent-seeking during the competition period may counterbalance this effect to some extent. For example, if ten firms each know that victory in a standards battle will allow them to reap significant supracompetitive profits, each will have a similar incentive to predate. This "competitive predation" may drive up the costs each firm would have to incur to prevail, reduce the market penetration value of pricing below cost, and therefore make predation less desirable to the firm. n133 The current market battle over Web browser standards may be an example of such competitive predation, with both parties giving away their key software in an effort to capture market share and, eventually, the standard. n134 If, as Professor Farrell concludes, a standards competition between two proprietary technologies, both of which may be priced predatorily, should nonetheless tip the market towards the long-run superior technology, n135 there is reason to be concerned about predation in this context only to the extent that it is asymmetric--that is, only if for some reason one firm is much better situated to survive a predatory [*1076] pricing battle. In cases of symmetric competitive predation, where both firms have sufficient resources to engage in the competition, it is hard to see how consumers will be harmed by the outcome of the competition.

Symmetric (or even slightly asymmetric) competitive predation presents another, more practical problem for antitrust enforcement--the problem of knowing whom to sue. Take the Microsoft-Netscape browser battle as an example. Which of these companies is the dangerous monopolist who must be stopped? The immediate answer from those schooled in the operating system market may be: Microsoft. But it is Netscape, not Microsoft, that has an 85% market share today, and it would seem odd to prosecute a fringe competitor in such a market. n136 People interested in the industry can spend hours debating who will win this competition; perhaps that fact alone should incline antitrust enforcers against acting at all.

Alternatively, it is possible that giving away browsers is seen by both Microsoft and Netscape as an entry into a market which will eventually be composed of a suite of programs, for many of which the companies could charge. On this theory, the browser battle is really directed at the so-called "intranet" market--internal corporate networks using Internet-compliant technology. n137 Microsoft's recent market approach, for example, seems to involve embedding Internet applications deeply within its server operating systems, thus linking these two markets more tightly. n138 Since Microsoft currently does rather better at maintaining market share for operating systems than it does for Web browsers, some might call this an effort to leverage its monopoly into a new market. n139

Monopoly leveraging as an antitrust theory is in a position similar [*1077] to predation. The whole idea of leveraging has been criticized by some commentators on the grounds that monopolists could obtain the same profits from their existing market as they could from the market they sought to enter. n140 However, leveraging from a traditional to a standardized market may make economic sense, because obtaining control at the proper time can result in a durable monopoly, something that may not be possible in other markets with lower barriers to entry. n141 An example of such leveraging may be at work in the Web browser market, where Microsoft managed to convince the largest private online service provider, America Online, to feature Microsoft's Internet Explorer browser as its primary Web software. In return, Microsoft offered AOL preferred placement on all future versions of the Windows 95 desktop.

n142 Alternatively, Microsoft might be portrayed as seeking to capture the Web browser market in order to shore up its control of the personal computer operating systems market. This latter theory is also a claim of leveraging, albeit a more subtle one: on this view, Microsoft wants to capture the browser market to ensure that its operating system monopoly is not outflanked by a new generation of computer operating systems integrated into Web browsers. n143 [*1078]

During the period of competition to set a standard, antitrust can in theory serve a valuable role as market referee. By ensuring that the standards competition is resolved on the merits of the competing products, rather than on the basis of power leveraged from other contexts, this form of antitrust scrutiny would promote social welfare at least to some extent. This "refereeing" may take the form of actions to enjoin particular acts of leveraging in circumstances where it is anticompetitive. Alternatively, it could take the much more drastic form of structural relief, blocking leveraging by removing the defendant from one of the markets entirely. n144 The market may still be locked into a new standard, but at least it will be the best possible standard. n145

However, even this more limited use of section 2 faces practical problems. Like merger analysis under section 7 of the Clayton Act, it is extremely time-sensitive. The time to prevent anticompetitive conduct designed to influence a standards competition is when the conduct occurs, not after the standard has already been set. In the fast-paced world of the Internet, where the definitions of the market seem to change almost monthly, n146 well-timed action is especially important. Unfortunately, antitrust cases are notoriously slow, and the more complex the industry, the slower they seem to be. Microsoft was investigated for years before a complaint was even filed; n147 the government's prosecution of IBM went on for 13 years before being dismissed during trial. n148 And section 2 enforcers lack even the procedural advantages enjoyed by their counterparts in merger enforcement: pre-merger notification and approval rules n149 and a relatively clear set of guidelines to apply. n150 As a result, antitrust in the computer industry frequently seems to be looking backward rather than forward, focusing on the last [*1079] generation's monopolist rather than the next generation's. Unless this problem can be overcome--and it is hard to see how to do so n151 --the practical utility of section 2 in this industry may be limited even during the standard-setting period.

B. Antitrust Treatment of Standard-Setting Organizations

Not all privately-set standards result from the success of a single firm in market competition. As discussed in section II above, an alternate means of standard-setting is for potential competitors to get together, perhaps at a trade association meeting or in a group convened specifically for this purpose, and agree on a single technical standard that they will each use. Group standard setting has some obvious advantages over de facto standard setting. Notably, the end result of a group standard-setting process is that a number of different companies can compete to sell products implementing the standard, thereby offering the hope that at least some competition will occur in the market. Group standard setting may also promote competition in the development of improvements to the standard, since each of the competitors may seek advantage over the others by improving the design in ways compatible with the basic interface specifications. n152

Unfortunately, section 1 of the Sherman Act, which prohibits conspiracies in restraint of trade, poses a potentially significant barrier to standard-setting organizations. Private group standard setting necessarily involves getting

competitors together over a period of time to discuss the technical details of their current products and their plans for the future. Section 1 historically has been quite hostile to this form of information exchange among competitors, viewing it (with some justification) as a likely means for facilitating a cartel. n153 A series of early [*1080] cases held that the exchange of price information by competitors is highly suspect, and may even be illegal per se under section 1. n154 Even the exchange of non-price information, such as would have to occur in a standard-setting organization, has been held illegal in certain cases where it may have anticompetitive effects. n155 And one court considering standard-setting bodies in the computer software industry has held that any evidence suggesting that the purpose or effect of such a group is to give its members an advantage over competitors creates a genuine issue of fact for trial under the rule of reason, despite serious questions about whether the standard had or was likely to acquire any market power. n156 The result has been a reluctance among at least some groups to engage in formal standard-setting for fear of antitrust liability. n157

Automatic condemnation of standard-setting organizations under section 1 is unwarranted. n158 While exchanges of information between competitors do pose a risk of cartel facilitation in certain circumstances, [*1081] particularly where the industry is already concentrated, those risks are significantly ameliorated in the Internet software context for three reasons. First, the exchange of information can provide procompetitive benefits the market would not otherwise provide, by allowing a number of different firms to produce and market competing products compatible with a single standard. n159 To the extent that this makes the market for the standard more competitive, it will reduce the price of the standard and therefore facilitate its wider adoption. n160 Indeed, in certain industries the need for standardization is so great that it is impossible to compete effectively without group standardization efforts. n161

Second, the risk to competition posed by such an information exchange--that the participating companies will band together to raise prices and restrict output--is much less disturbing if the alternative to group standard-setting is a de facto monopoly, rather than robust competition. Finally, the setting of voluntary product standards does not carry with it the same danger of capture and exclusion that inheres in prohibitory standard-setting organizations (those with the power to bar a product from the market directly), of the type that were at issue in *Allied Tube* and similar cases. n162 The Internet Engineering Task Force (IETF), which sets technical interface standards for the communications functions of the Internet, is an example of a group standard-setting organization which is clearly necessary and which historically has posed little or no danger to competition, since it traditionally has not adopted proprietary private standards. n163

There is some indication in the caselaw that courts interpreting [*1082] section 1 will be flexible in their treatment of standard-setting organizations. n164 In one early information-exchange case, *Maple Flooring Mfgs. Ass'n. v. United States*, the Supreme Court held that a trade association that exchanged information in order to promote product standardization acted reasonably and therefore lawfully, even though the association distributed some general price data. n165 The Court distinguished *American Column & Lumber*, discussed above, n166 on the ground that in that case much of the information exchanged could only be used for anticompetitive purposes, while in *Maple Flooring* there was a legitimate purpose for the exchange, and the association took some steps to prevent the disclosure of unnecessarily detailed information. n167 Further, more recent cases such as *Broadcast Music, Inc. v. Columbia Broadcasting System* n168 have allowed even joint price setting in circumstances in which the collaborative action

was necessary to facilitate market exchange, and thus create opportunities for trade that would otherwise have been lost. n169 This arguably bodes well for collective action by competitors in a standards-driven industry, since they can argue that the alternative to joint standard-setting is likely to be monopoly. This more flexible treatment of standardization efforts must continue if group standardization is to be a viable alternative. In short, in this particular context, the best thing the antitrust laws can do to promote [*1083] competition is not to interfere with industry cooperation. n170

Again, however, it does not follow that antitrust has no role in this area. Two types of joint standard-setting activity in particular may raise antitrust concerns. First, some standard-setting organizations restrict access to the standard to members of the organization. In industry terms, the standards are "closed" rather than "open." n171 This restriction may be problematic if the membership of the organization is only a subset of the full industry, since access to the standard may be critical to competition. Such a partially-closed group may be able to limit effective competition in the industry to competition between members of the group. n172

Antitrust treats such claims of exclusion from private groups in one of two ways. First, closing the group might be viewed as a horizontal group boycott or concerted refusal to deal with competitors. While the parameters of the antitrust prohibition against group boycotts are far from clear, n173 the Supreme Court's decision in *Northwest Wholesale* is instructive. There, the plaintiff sued a wholesale purchasing cooperative that had denied it membership (and accompanying discounts on products purchased in bulk by the cooperative). The Court nominally applied a per se rule condemning the joint refusal to deal, but in fact engaged in a rule-of-reason type of inquiry, seeking to determine the [*1084] importance of membership to effective competition and whether "the boycotting firms possessed a dominant position in the relevant market." n174 The rule against group boycotts has also been applied (again under the rule of reason) to the New York Stock Exchange, a body which is at least in part a standard-setting organization. n175

Alternatively, antitrust might treat access to a standard-setting organization (or at least its interface standards) as an "essential facility." Under this doctrine, the owners of facilities that are essential to effective competition must make them available to competitors on nondiscriminatory terms. Thus, the railroads which collectively owned the only railroad switching yard in St. Louis at the height of the railroad era were required to give all railroads access to the yard on equal terms. n176 Similarly, regulated local telephone monopolies must interconnect all long distance carriers on substantially equal terms. n177 A similar claim that membership in a standard-setting organization (or at least access to its work product) was essential to competition in a networked industry arguably would guarantee a "level playing field" for all competitors.

It is not clear which of these two legal theories would apply in the case of the Internet. The essential facilities doctrine has been roundly criticized as overbroad. Professor Areeda called it "an epithet in search of a limiting principle." n178 And the vast majority of essential facilities claims are rejected by the courts, even in circumstances where control over a facility confers a substantial advantage upon a competitor. n179 [*1085] Further, a decision to apply the essential facilities doctrine to standardized industries would offer no way to distinguish group standards from individual standards, and therefore could dramatically expand the scope of antitrust intervention in the market. n180 Group boycott claims, by contrast, do attempt to distinguish concerted action to boycott a competitor (which is subject to section 1 scrutiny) n181 from unilateral refusals to deal (which are generally legal). n182 However, recent cases

such as Northwest Wholesale suggest that the law of group boycotts is converging with the rule on essential facilities, and that a group boycott will not amount to a section 1 violation unless the plaintiff has been denied effective access to the market. n183 Further, vigorous application of the antitrust laws to require access to standards groups may discourage group standard-setting altogether, since companies may be unwilling for a variety of reasons to discuss their product plans with certain competitors. n184

While the issue is not free from doubt, the use of antitrust doctrine to compel access to a standard-setting organization should probably be rare. n185 Not every organization which attempts to set industry standards [*1086] must be open to all members. n186 This does not mean that standard-setting organizations should never be forced to open their doors, however. While there are good reasons to limit the use of the essential facilities doctrine, efforts to control a highly standards-driven market which appear likely to succeed may well be appropriate cases for application of the doctrine.

A second type of anticompetitive behavior by participants in a standard-setting organization may be more amenable to antitrust treatment in certain circumstances. That behavior is the "capture" of a standard-setting group by a particular participant. In the context of Internet software markets, the most likely means of capturing a standard is by the strategic use of intellectual property rights. n187 Two examples should suffice.

In 1992, the Video Electronics Standards Association (VESA) adopted a computer hardware standard called the VL-Bus standard, which governs the transmission of information between a computer's CPU and its peripheral devices. n188 Each of the members voting to adopt the standard, including Dell Computer Corporation, was required by VESA rules to affirm that they did not own any patent rights which covered the VL-Bus standard. n189 Dell's representative did in fact make such a statement. Nonetheless, Dell asserted a patent against other VESA members for using the VL-Bus standard eight months later, after the VL-Bus standard had been widely adopted. By working to adopt as a group standard a technology Dell allegedly knew was proprietary, n190 [*1087] Dell could obtain the help of its competitors in establishing a standard which it would ultimately be able to control. While the VL-Bus standard has little to do with the Internet, and indeed is no longer in common use even in PC design, the problem is instructive because the IETF has historically required the same agreement by participants not to assert intellectual property ownership of Internet standards. n191

The second example involves a common standard for file exchange of graphics over the Internet--the "GIF" standard. n192 No official group set GIF as a standard; rather, after it was released by Compuserve in 1987, GIF was apparently free for all to use and was gradually adopted by a number of Internet users (as well as developers of extension programs) during the late 1980s and early 1990s. Unisys Corporation obtained a patent in 1986 which arguably covers the compression algorithm used by the GIF standard (the LZW patent). Unisys kept largely silent about the patent while the GIF standard gained market share--whether intentionally or because they were unaware of the GIFLZW overlap is unclear. n193 In 1994, it asserted the patent against Compuserve and others who transferred graphics over the Internet using the standard. n194 Unisys' actions with respect to the LZW patent were arguably intended to have an effect similar to Dell's. Though Unisys made no affirmative representation that the standard was not

proprietary, its silence during the crucial period of standards competition allowed it to take a more mature industry by surprise.

The competitive harms of this form of capture are relatively clear. [*1088] Not only does the capturing party end up with exclusive control over the market standard, converting a group standard-setting process into a de facto one, but the capturing party can use the group standard to achieve a dominant position it could not have attained in an open standards competition. Had Unisys or Dell announced up front that the standards they were backing were proprietary, it is unlikely that the affected industries would have chosen those standards. At the very least, those standards would have faced stiffer competition than they did. n195

The most likely avenue of antitrust attack against such capture does not involve section 1 at all but rather is an attempted monopolization claim under section 2. n196 Attempted monopolization has three elements--intent to monopolize, anticompetitive conduct in furtherance of that intent, and a dangerous probability of success. n197 Assuming the failure to disclose relevant intellectual property rights was intentional and not an oversight, the first element should be easy to satisfy. n198 Efforts to capture an industry standard in any given case would constitute anticompetitive conduct precisely in the situation where those efforts are likely to threaten monopolization--that is, where the standard being set is one which will likely dominate the industry. n199 Market [*1089] power may be the necessary result of patent enforcement in some cases, while in others the patent owner's control over the market stems from a failure of information in the market, a failure which the patent owner herself has induced. n200 While the fact that the antitrust defendant does own intellectual property rights governing the technology suggests some caution in applying the antitrust laws, n201 the mere possession of an intellectual property right will not protect its owner from a charge of dominating a market by extending the scope of that right. n202 In the Dell case, the FTC entered into a consent decree in which Dell agreed not to assert its intellectual property rights in the VL-Bus. n203 To date, the Unisys case has not been litigated.

Of course, not all patents covering standards will necessarily be [*1090] anticompetitive. While one approach to standards is to require them to be intellectual property-free (IETF's approach, at least until recently), intellectual property can coexist with procompetitive standard-setting. For example, ANSI and other groups do not require that an intellectual property owner give up any claim to a standard, but merely that they license their intellectual property rights on a reasonable basis. Other examples of reasonable and even procompetitive uses of intellectual property in the standard-setting context are possible. n204 It is only in that subset of cases where the patent is used as a competitive weapon that concerns about market control are implicated. n205

Even where an act is anticompetitive, it is possible to argue that application of the antitrust laws is not warranted to the extent that nonantitrust legal principles can more effectively be brought to bear on the same conduct. n206 In the particular context of the Dell case, there are several possible alternatives to antitrust analysis. First, Dell's nondisclosure of its patent violated a rule of the standard-setting organization requiring disclosure of intellectual property rights. As a result, some commentators have argued that a breach of contract claim is the appropriate response to Dell's actions and that invoking antitrust is unwarranted. n207 [*1091] It is not clear that this argument has much force in the Dell case. First, not all of the parties injured by Dell's action were members of VESA, and non-members presumably lack standing

to sue for breach of contract. n208 Second, the damages for breach of such a contract may be limited in ways that mean Dell would not have to compensate even VESA members for the full value of the competitive harm they have incurred. n209 Finally, not all organizations have such a rule, and in some cases (such as the Unisys GIF standard) there is no contract at all.

Alternatively, it is possible that Dell could be liable to VESA or its members on some sort of fraud or misrepresentation theory. This is perhaps more promising than contract, in that it offers plaintiffs the possibility of recovering their actual damages. But a fraud theory must of necessity be based on some duty to the plaintiff, which would seem to preclude suits by consumers or by nonmembers of the group.

Perhaps a more likely approach is to try to solve the problem within the confines of intellectual property law. A rule requiring compulsory licensing in such cases would solve the problem, but intellectual property law has historically rejected compulsory licensing in most circumstances. n210 A final non-antitrust approach to the Dell problem is to apply the doctrine of equitable estoppel. There are a number of precedents suggesting that companies who fail to disclose a known patent to a standard-setting group may be estopped from later asserting that patent against members of the group once they have adopted the patented technology as a standard. n211 One such case even involves failure to assert a patent during a de facto standards competition, and is therefore potentially applicable to the Unisys GIF problem. n212 To the extent that equitable estoppel will prevent enforcement of intellectual property rights in such a situation, it would appear to accomplish the same goals as antitrust action. However, the uncertainty associated with this rule n213 suggests continued antitrust vigilance in this area, at least as a backstop.

FOOTNOTES

n89 15 U.S.C. <sect> 1.

n90 15 U.S.C. <sect> 2.

n91 In the last 40 years, a revolution has taken place in economic thought about antitrust. Led by the Chicago School, which emphasized allocative efficiency as the sole goal of antitrust law, see Robert H. Bork, *The Antitrust Paradox: A Policy at War With Itself* (1978); Richard A. Posner, *Antitrust Law: An Economic Perspective* (1976), this revolution has brought economic thinking to the forefront of virtually all antitrust analysis, whether or not the analyst subscribes to the particular tenets of the Chicago School. See, e.g., Symposium on PostChicago Law and Economics, *65 Chi.-Kent L. Rev.* 3 (1989). The basic model is economic efficiency, though whose welfare should be considered and how remains a point of debate.

Other models of antitrust include the populist view that big is intrinsically bad--for example, because it concentrates wealth, because it reduces product diversity, or because it concentrates political power. See, e.g., Walter Adams & James W. Brock, *The Bigness Complex: Industry, Labor and Government in the American Economy* (1986). A related view treats the antitrust laws as essentially an unfair competition statute designed to protect small businesses from the ravages of competition, even at the expense of higher prices.

The social welfare model is subject to economic criticism for ignoring second- and third-order misallocative effects by focusing entirely on the market at issue. See, e.g., Richard Markovits, *A Constructive Critique of the Traditional Definition and Use of the Concept of "The Effect of a Choice on Allocative (Economic) Efficiency": Why the Kaldor-Hicks Test, the Coase Theorem, and Virtually All Law-and-Economics Welfare Arguments are Wrong*, *1993 U. Ill. L. Rev.* 485.

n92 15 U.S.C. <sect> 18.

n93 15 U.S.C. <sect> 2.

n94 15 U.S.C. <sect> 1. Both section 1 and section 2 of the Sherman Act are notoriously vague, and their contours have been defined almost entirely by court decisions. While section 1 of the Sherman Act by its literal terms prohibits all restraints of trade, the

Supreme Court rapidly concluded that such a restriction was unworkable, and deemed the statute to cover only unreasonable restraints of trade. See, e.g., *Standard Oil Co. v. United States*, 221 U.S. 1 (1911).

n95 See *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir. 1979); *United States v. Alcoa*, 148 F.2d 416, 429-30 (2d Cir. 1945).

n96 *Alcoa*, 148 F.2d at 429.

n97 *Id.* at 429-30; *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447 (1993); *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966).

n98 See generally *Standard Oil Co. v. United States*, 221 U.S. 1 (1911) (conduct which itself violates the antitrust laws meets the "anticompetitive conduct" requirement).

n99 For example, in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985), the Supreme Court held that the defendant possessed market power in the market for ski facilities in the Aspen, Colorado area, and that it violated section 2 when it attempted to impose restrictive conditions on a "joint lift ticket" marketed with its sole rival in the area. The Court noted that while refusing to deal with a competitor is generally perfectly legal, see *Olympia Equip. Leasing Co. v. Western Union Tel. Co.*, 797 F.2d 370 (7th Cir. 1986), a dominant firm that has a history of dealing with its competitor may be obliged to continue to do so. This result is somewhat puzzling.

n100 148 F.2d at 429; accord *Grinnell*, 384 U.S. at 570-71; *American Tobacco Co. v. United States*, 328 U.S. 781, 786 (1946).

n101 See, e.g., *Union Leader Corp. v. Newspapers of New England*, 284 F.2d 582 (1st Cir. 1960).

n102 See *American Football League v. National Football League*, 323 F.2d 124 (4th Cir. 1963).

n103 See *Ovitron Corp. v. General Motors*, 295 F. Supp. 373 (S.D.N.Y. 1969). In that case, however, the court went on to hold that defendant Delco had gone beyond possession of a natural monopoly and had engaged in predatory pricing with the aim of maintaining and extending its monopoly power once potential competition arose. See *id.* at 378.

n104 *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973); see also *Ovitron*, 295 F. Supp. at 378 (predatory pricing by natural monopolist served to artificially maintain monopoly power, and therefore violated section 2).

n105 This effort was behind the consent decree breaking up AT&T in 1982. The government argued that AT&T's vertical integration allowed it to unfairly use the advantages of its entrenched local telephone monopoly to dominate the competitive market for long-distance service. *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983).

There is considerable controversy attending the idea of "monopoly leveraging." Commentators have disagreed sharply over whether such leveraging is ever economically rational. Compare Bork, *supra* note 91 and Posner, *supra* note 91 (both concluding that leveraging only redistributes among two markets the profits a company could have made from one market) with Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 *Colum. L. Rev.* 515 (1985) (given market imperfections, monopoly leveraging can increase profits) and with Richard Markovits, *An Ideal Antitrust Law Regime*, 64 *Tex. L. Rev.* 251 (1985). And at least one court has held that leveraging itself is not illegal, though it held open the possibility that the conduct described as leveraging could have anticompetitive effects which violated the antitrust laws in other ways. *Alaska Airlines v. United Airlines*, 948 F.2d 536, 549 (9th Cir. 1991).

n106 See Chesbrough & Teece, *supra* note 85, at 65-68.

n107 Arguably, there is nothing the courts should do about a company in this position. See *infra* notes 120-123 and accompanying text; see also Lopatka & Page, *supra* note 15, at 349.

n108 See *United States v. Microsoft*, 159 F.R.D. 318 (D.D.C.), *rev'd on other grounds*, 56 F.3d 1448 (D.C. Cir. 1995). In that case, the Antitrust Division challenged certain anticompetitive but minor aspects of Microsoft's sales and design policies. The District Court initially rejected the government's proposed consent decree with Microsoft on the grounds that it did not address the real issues with Microsoft's monopoly, but that decision was reversed by the D.C. Circuit on appeal. Most commentators have viewed the government's consent decree as ineffective. See, e.g., Kenneth C. Baseman et al., *supra* note 52, at 265.

n109 Clayton Act <sect><sect> 4, 16, 15 U.S.C. <sect><sect> 15, 26.

n110 See, e.g., 35 U.S.C. <sect> 271(d)(4) (patentee has the right not to license its patent); *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 284-85 (2d Cir. 1979) (monopolist in camera market is under no obligation to predisclose interface specifications of its new cameras to film makers, even though the result was to give monopolist temporary control over film market as well); United States Department of Justice and Federal Trade Commission, *Antitrust Guidelines for the Licensing of Intellectual Property* <sect> 2.2 (1995) (possession of market power does not impose an antitrust obligation to license intellectual property).

n111 Indeed, in the view of some commentators, the incentive to bring suit is too powerful. See, e.g., Thomas M. Jorde & David J. Teece, Innovation, Cooperation and Antitrust: Striking the Right Balance, 4 High Tech. L.J. 1 (1989) (suggesting plaintiffs be limited to actual damages for certain types of antitrust violations).

n112 Antitrust injury is a standing doctrine which requires antitrust plaintiffs to show that their losses reflect "injury of the sort which the antitrust laws were intended to prevent, and which flows from that which makes the conduct unlawful." *Cargill, Inc. v. Monfort of Colorado*, 479 U.S. 104, 109 (1986); *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 489 (1977). Unless a court were to interpret the antitrust laws as intending to put the plaintiff rather than the defendant in a dominant position, a showing of antitrust injury in this situation is extremely unlikely. Cf. *Brunswick Corp. v. Riegel Textile*, 752 F.2d 261, 267 (7th Cir. 1984) (antitrust claim not viable where "Brunswick is asking, as a main part of the remedy, for an order transferring ownership of the patent from Riegel to itself There is nothing discreditable in this ambition but we do not see how consumers can benefit from its achievement.").

n113 See supra notes 76-82 and accompanying text (discussing problems with government regulation of industry); see also Pierce & Gellhorn, supra note 44.

n114 Sherman Act <sect> 4, 15 U.S.C. <sect> 4; Clayton Act <sect><sect> 15, 16, 15 U.S.C. <sect><sect> 25, 26.

n115 For example, the consent decree in *United States v. AT&T*, discussed supra note 105, involved all three types of relief.

n116 See Lopatka & Page, supra note 15, at 349.

n117 Cf. James J. Anton & Dennis A. Yao, Standard-Setting Consortia, Antitrust, and HighTechnology Industries, 64 *Antitrust L.J.* 247, 263 (1995) (remedies in complex standard-setting cases might involve ongoing "regulatory"-style interventions in the market).

n118 See infra note 119 and accompanying text (identifying some such costs). See also *Alaska Airlines v. United Airlines*, 948 F.2d 536, 547-48 (9th Cir. 1991) (structural relief not appropriate in such cases).

n119 See Gifford, supra note 62, at 638-39.

n120 On the historical meaning of the Sherman Act, see, e.g., Adams & Brock, supra note 91; Victor H. Kramer, The Supreme Court and Tying Arrangements: Antitrust as History, 69 *Minn. L. Rev.* 1013 (1985); F.M. Scherer, Efficiency, Fairness, and the Early Contributions of Economists to the Antitrust Debate, 29 *Washburn L.J.* 243 (1990).

n121 *Brown Shoe Co. v. United States*, 370 U.S. 294, 320 (1962). Ironically, the Court made this statement only to disavow it, indicating that it was interested primarily in protecting small independent businesses, allegedly as a vehicle for promoting competition. Nonetheless, it is the statement and not the Court's holding that has survived to the present day. See, e.g., *Brooke Group v. Brown & Williamson Tobacco Co.*, 509 U.S. 209, 224 (1993) (applying the Brown Shoe language to restrict predatory pricing claims); Dratler, supra note 29, at 682.

n122 Cf. *Brunswick Corp. v. Riegel Textile*, 752 F.2d 261 (7th Cir. 1984). In Brunswick, Judge Posner treated the partially analogous case of a patent allegedly obtained by fraud and used to dominate a market. He concluded that the antitrust laws were not concerned with such fraud if the only effect was to give the patent to the wrong party, since "the power over price that patent rights confer is lawful, and is no greater than it otherwise would be just because the person exercising the rights is not the one entitled by law to do so." *Id.* at 265.

It is not clear that Judge Posner is right. In certain circumstances, who owns patent rights (or, more relevant for our purposes, which product becomes a market standard) may make a good deal of difference in terms of social welfare. See supra note 119 and accompanying text. Nonetheless, the general point remains that attacking a monopoly cannot be justified on the grounds that that monopoly is bad if the outcome of the attack is a new monopoly which is not any better.

n123 Of course, Schumpeterians and others who oppose any application of antitrust law to innovative industries because they do not believe in competition in such industries will not find this "failure" particularly troubling. See Ramsey Hanna, Note, Misusing Antitrust: The Search for Functional Copyright Misuse Standards, 46 *Stan. L. Rev.* 401, 424-25 (1994).

n124 "Rent-seeking" refers to the tendency of market participants to expend resources in an effort to capture supracompetitive profits. See generally Posner, supra note 91.

n125 See supra notes 59-60 and accompanying text.

n126 The "best" standard is somewhat tautologically defined here as the standard most preferred by consumers. Consumer preferences are complex things, and it may not be the case that the technically superior product will win the standards competition. See Dratler, supra note 29, at 718. Factors such as price, widespread availability, and ease of use will also influence consumer decisions.

n127 For discussion of the stakes in the current battle over Web browser standards, see Ramstad, supra note 23, at D8. According to the article, Microsoft chair Bill Gates "wakes up every morning thinking about browser market share."

n128 See Bar, *supra* note 19, at 243 ("This possibility of influencing the allocation of longterm returns makes de facto standards competitions such fertile ground for corporate strategy.").

n129 In *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589 (1986), the Supreme Court opined that "predatory pricing schemes are rarely tried, and even more rarely successful." Accord Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 *U. Chi. L. Rev.* 263, 268 (1981); Franklin M. Fisher, *Matsushita: Myth v. Analysis in the Economics of Predation*, 64 *Chi.-Kent L. Rev.* 969, 970 (1988); Wesley J. Liebeler, *Whither Predatory Pricing? From Areeda and Turner to Matsushita*, 61 *Notre Dame L. Rev.* 1052 (1986); John S. McGee, *Predatory Pricing Revisited*, 23 *J.L. & Econ.* 289, 295-97 (1980).

n130 See *Brooke Group v. Brown & Williamson Tobacco*, 509 U.S. 209, 224-25 (1993) (requiring proof that predator will not only acquire market power, but will be able to raise prices sufficiently to recover the losses it suffered during the period it priced below cost). In the Court's words, "Recoupment is the ultimate object of an unlawful predatory pricing scheme; it is the means by which a predator profits from predation. Without it, predatory pricing produces lower aggregate prices in the market, and consumer welfare is enhanced." *Id.* at 224.

n131 See Farrell, *supra* note 13, at 43 (predatory pricing strategies are common in marketplaces characterized by standards competition between proprietary technologies).

n132 See *supra* note 37 (discussing the browser market share battle); Peter H. Lewis, *Netscape Knows Fame and Aspires to Fortune*, *N.Y. Times*, March 1, 1995, at D1 (Netscape giving away certain versions of its browser software). More recently, Netscape has begun charging corporate users of its product; Microsoft still does not. See Froomkin, *Model*, *supra* note 10, at 29-30. While giving a product away for free certainly appears to be "pricing below marginal cost," generally accepted as a prerequisite for predatory pricing, standardization effects might make such giveaways economically rational (and legal), particularly if price discrimination is possible. In particular, since making its product the market standard rebounds to the benefit of all adopters of the product, a company engaging in such pricing may in theory be able to make up the revenues it has lost by giving away a product by charging a higher price in another segment of the market (whose value and therefore willingness to pay has been increased by broad adoption of the standard). Such price discrimination is possible only to the extent that the company can prevent arbitrage, however, which seems unlikely in this industry. See generally Markovits, *supra* note 107, at 304-305 (cost of avoiding arbitrage makes price discrimination allocatively inefficient).

n133 Besen and Farrell model such competitive predation in terms similar to the "dollar auction" familiar to economists. They conclude that firm expenditures to predate in standardized markets may fritter away most of the value of capturing the standard. See Besen & Farrell, *supra* note 31, at 120 n.6.

n134 See *supra* note 37 (discussing browser competition). While it is possible to define belowcost pricing in such a way that giving your product away does not meet the test, see *supra* note 132, by most definitions the conduct engaged in by Microsoft constitutes below-cost pricing.

n135 Farrell, *supra* note 13, at 43.

n136 See Dratler, *supra* note 29, at 735. Of course, the dynamics in this market are somewhat more complicated than suggested in the text. In particular, the browser market may be valuable to companies like Microsoft not just for itself, but for the control it confers over other, more lucrative markets (such as the next generation computer operating system market). Thus, it may be that in considering market power, we need to look at more than just browsers alone. See *infra* notes 142-143 and accompanying text (discussing the possibility of leveraging to or from the browser market).

n137 See John Markoff, *Microsoft Plans New Bid for Internet Control*, *N.Y. Times*, June 13, 1996, at C4.

n138 See Dratler, *supra* note 29, at 672; Peter H. Lewis, *New World Brought to You by . . .*, *N.Y. Times*, July 30, 1996, at C7; John Markoff, *Microsoft and the Web: Making Critical Mass Pay*, *N.Y. Times*, July 29, 1996, at D1-D2.

n139 Indeed, a Microsoft spokesperson seemed to acknowledge this goal in a recent statement. See John Markoff, *Tomorrow, the World Wide Web!*, *N.Y. Times*, July 16, 1996, at D1, D6.

n140 See Bork, *supra* note 91; Posner, *supra* note 91. These scholars argue that a monopolist has no incentive to leverage her monopoly, since any profits she can coerce out of the new market, she could also take from the existing market.

n141 Cf. Kaplow, *supra* note 105. Kaplow offers persuasive reasons why monopoly leveraging may be anticompetitive in markets characterized by imperfections, or which do not possess the simple one-for-one vertical substitutability assumed in the basic Chicago model. See also Roger D. Blair & Amanda K. Esquibel, *Some Remarks on Monopoly Leveraging*, 40 *Antitrust Bull.* 371 (1995) (leveraging which leads to significant market share, but not to monopoly, may still impose welfare losses).

n142 See Peter H. Lewis, *Microsoft Gets a Big Boost on Internet*, *N.Y. Times*, Mar. 13, 1996, at C1. More recently, Microsoft announced similar deals with AT&T, Netcom, and MCI. Laurence Zuckerman, *Browser Moves by Microsoft Make Even Netscape Blink*, *N.Y. Times*, Oct. 9, 1996, at C1.

There have also been allegations that Microsoft has attempted to leverage its market power in software operating systems directly into the Internet access market, by making it difficult for consumers to use software in a Windows environment to access

online services other than Microsoft's Network (MSN). The Justice Department investigated such complaints in 1995. See, e.g., James Gleick, Making Microsoft Safe for Capitalism, N.Y. Times Mag., Nov. 5, 1995, at 50; Michele Matassa, U.S. Investigates Microsoft's Handle on Internet, Austin Am.-Statesman, Dec. 5, 1995, at D1. More recently, however, the failure of Microsoft Network to make significant inroads against its competitors (and the fierce competitiveness of the related market for Internet service providers) has taken much of the steam out of these complaints.

n143 Some of Microsoft's recent actions, notably adapting its products to "embrace and extend" existing Internet standards and linking its OLE operating system technology to its browser, are consistent with this theory. See John Markoff, Microsoft Plans New Bid for Internet Control, N.Y. Times, June 13, 1996, at C4. Evidence that this is really what is going on might also be seen in Sun Microsystems' recent decision to make Java the core of a new computer operating system. See Ed Anuff, Windows Meet Java, 4.08 Wired 38 (Aug. 1996).

n144 Such a remedy was used to stop leveraging in the *United States v. AT&T* case, see *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), aff'd sub nom. *Maryland v. United States*, 460 U.S. 1001 (1983), and has occasionally been proposed as a remedy for Microsoft's alleged leveraging from the computer operating systems market to the applications program market.

n145 Cf. *Union Leader Corp. v. Newspapers of New England*, 284 F.2d 582 (1st Cir. 1960) for an example of a court judging such a competition.

n146 See Lewis, supra note 138, at C7.

n147 See Gleick, supra note 142; Gotts & Fogt, supra note 67, at 18.

n148 See Eleanor M. Fox & Lawrence A. Sullivan, Cases and Materials on Antitrust 202-203 (1988) (describing history of the litigation).

n149 Clayton Act <sect> 7A, 15 U.S.C. <sect> 18.

n150 United States Department of Justice Merger Guidelines (1992).

n151 The time spent in investigating and prosecuting a monopolization claim involves learning about the industry and the specific acts at issue, often from disgruntled competitors or consumers; investigating the company and the industry, which generally involves issuing Civil Investigative Demands (CIDs) to obtain pre-litigation discovery from the investigation target and third parties; evaluating the evidence and the case, and obtaining bureaucratic and political approval to proceed; preparing and filing the complaint and supporting evidence; preparing for and holding a court hearing; and, in some cases, investigating compliance and engaging in further enforcement. Even if some of these procedures could be compressed or done concurrently, it is hard to imagine that the process can be accelerated dramatically.

n152 As noted above, there are also potential problems with group standard setting, including the danger that one company will capture the standard-setting process and the problem of discouraging leapfrogging improvements. See supra notes 86-87 and accompanying text.

n153 Public standard setting is not subject to the same form of scrutiny because it falls within the antitrust immunity afforded state action and efforts to petition the state. See generally David McGowan & Mark A. Lemley, Antitrust Immunity: State Action and Federalism, Petitioning and the First Amendment, 17 *Harv. J.L. & Pub. Pol'y.* 293 (1994).

n154 See, e.g., *United States v. Container Corp.*, 393 U.S. 333 (1969); *American Column & Lumber Co. v. United States*, 257 U.S. 377 (1921); *Standard Sanitary Mfg. Co. v. United States*, 226 U.S. 20 (1912); *National Macaroni Mfrs. Ass'n v. FTC*, 345 F.2d 421 (7th Cir. 1965); *Milk & Ice Cream Can Inst. v. FTC*, 152 F.2d 478 (7th Cir. 1946).

n155 See *Eastern States Retail Lumber Dealers Ass'n v. United States*, 234 U.S. 600 (1914) (exchange of information supporting a boycott of competitors at trade association meeting violated section 1); cf. *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500 (1988) (describing standard-setting as an implicit form of product restriction); *National Soc'y of Professional Eng'rs v. United States*, 435 U.S. 679 (1978) (trade association rules cannot be justified under rule of reason except on grounds that they are procompetitive).

n156 *Addamax Corp. v. Open Software Found.*, 888 F. Supp. 274, 281, 284 (D. Mass. 1995). The court held that the OSF Unix standard presented a genuine issue of material fact with respect to the issue of monopsony power, despite the fact that the standard enjoyed virtually no sales in the UNIX market. *Id.* at 284.

n157 See S. Besen & C. Johnson, Compatibility Standards, Competition and Innovation in the Broadcasting Industry (1986) (discussing standards for AM radio broadcast).

n158 For concurring views, see Jack E. Brown, Technology Joint Ventures to Set Standards or Define Interfaces, 61 *Antitrust L.J.* 921 (1993); Jonathan T. Howe & Leland J. Badger, The Antitrust Challenge to Non-Profit Certification Organizations: Conflicts of Interest and a Practical Rule of Reason Approach to Certification Programs as Industry-Wide Builders of Competition and Efficiency, 60 *Wash. U. L.Q.* 357 (1982) (endorsing fact-specific rule of reason approach); Thomas A. Piraino, Jr., The Antitrust Analysis of Network Joint Ventures, 47 *Hastings L.J.* 5 (1995); David J. Teece, Information Sharing, Cooperation and Antitrust, 62

Antitrust L.J. 465 (1994). Some commentators have gone further, taking the position that cooperation between competitors should be encouraged in high-technology industries as a means of promoting innovation. See Jorde & Teece, *supra* note 111 (encouraging lenient antitrust treatment of joint ventures).

n159 See *supra* notes 83-85 and accompanying text.

n160 See Farrell, *supra* note 63, at 3.

n161 For example, Annalee Saxenian describes the detailed efforts that went into standardization in the semiconductor industry in Silicon Valley. Annalee Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* 49 (1994). Saxenian attributes the success of Silicon Valley and the failure of Route 128 in significant part to the existence of such a culture of cooperation in the former but not the latter.

n162 See *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988); *American Soc'y of Mech. Eng'r v. Hydrolevel Corp.*, 456 U.S. 556 (1982); *Radiant Burners v. Peoples Gas Light & Coke Co.*, 364 U.S. 656 (1961).

n163 There is a proposal pending in an IETF working group to revise this policy, allowing standards to be owned by private companies providing they offer licenses on "fair and reasonable terms." Mark Voorhees, *Internet Task Force Wakes Up to Reality of Intellectual Property*, Info Law Alert, Feb. 9, 1996 <<http://infolawalert.com/stories/020996a.html>>. For a general description of the workings of the IETF, see Froomkin, *A Model of International Law and Society*, *supra* note 10, at 16-22; Froomkin, *The Internet as a Source of Regulatory Arbitrage*, *supra* note 10, at 3; Borsook, *supra* note 10, at 110 (Oct. 1995).

n164 Section 1 analysis is in any event relying increasingly on a case-by-case, rule of reason approach, rather than the traditional rule that all horizontal restraints were illegal *per se*. See, e.g., Thomas M. Jorde & Mark A. Lemley, *Summary Judgment in Antitrust Cases: Understanding Monsanto and Matsushita*, 36 *Antitrust Bull.* 271 (1991) (citing cases); Piraino, *supra* note 158, at 8.

n165 *Maple Flooring Mfrs. Ass'n v. United States*, 268 U.S. 563 (1925).

n166 See *supra* note 154.

n167 *Maple Flooring*, 268 U.S. at 563; accord *Clamp-All Corp. v. Cast Iron Soil Pipe Inst.*, 851 F.2d 478 (1st Cir. 1988) *Addamax*, 888 F. Supp. at 282, 283 ("It is clear that the effects of market standardization on the computer industry are extraordinarily difficult to gauge The sheer complexity of the industry cautions against a *per se* analysis here.").

n168 441 U.S. 1 (1979).

n169 *Id.* at 23. Joint ventures with arguably procompetitive effects have also benefited from rule of reason scrutiny rather than *per se* condemnation. See, e.g., *SCFC ILC, Inc. v. Visa USA*, 36 F.3d 958, 964 (10th Cir. 1994); *Northrop Corp. v. McDonnell Douglas Corp.*, 705 F.2d 1030 (9th Cir. 1983); *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195 (2d Cir. 1981); see also 15 U.S.C. <sect> 4301 et seq. (providing special treatment to research, development and production joint ventures registered with the Department of Justice). Standard-setting organizations overlap to some extent in structure and purpose with joint ventures, such that antitrust treatment of joint ventures might be relevant in evaluating standards groups as well. See *Addamax*, 888 F. Supp. at 280-81 (treating standard-setting organization as a joint venture for antitrust purposes); Andrew Updegrove, *Forming and Representing High Tech Consortia: Legal and Strategic Issues*, 11 *Computer Law*, Mar. 1994 at 8.

n170 But see James J. Anton & Dennis A. Yao, *Standard-Setting Consortia, Antitrust, and High-Technology Industries*, 64 *Antitrust L.J.* 247, 248, 262-63 (1995) (arguing for antitrust review of the substantive merits of a group standard in some cases).

n171 Bar points to standards which are neither fully closed nor fully open, largely because some competitors have an information advantage over others. Bar, *supra* note 19, at 240. See also Lehr, *supra* note 10, at 121, 123 (most compatibility standards produce only partial interoperability).

One commentator distinguishes between nonpartisan "specification groups" such as the IETF, which "are primarily concerned with assuring the development of a usable, robust standard for the benefit of the industry generally," and "strategic consortia" formed by a subset of an industry to advance particular economic interests. Updegrove, *supra* note 169. Interestingly, Updegrove concludes that the impartial groups are longer lasting and more successful. *Id.* at 6. Of course, making such a determination requires some sort of benchmark for distinguishing between a non-partisan group and a strategically-dominated one, a benchmark which is hard to find in practice.

n172 See Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 *Rand J. Econ.* 70 (1985) (formal standard-setting risks manipulation by dominant firms in order to preserve dominance); Piraino, *supra* note 158, at 9 (suggesting that network joint ventures should be required to open their membership on nondiscriminatory terms).

n173 See, e.g., *Northwest Wholesale Stationers Inc. v. Pacific Stationery & Printing*, 472 U.S. 284, 294 (1985). For other statements of the confusion surrounding group boycott law, see Phillip Areeda, *Antitrust Analysis* 381 (2d ed. 1974); Lawrence A. Sullivan, *Handbook of the Law of Antitrust* 229-230 (1977).

n174 *Northwest Wholesale*, 472 U.S. at 294. Cf. *FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447 (1986) (applying a "quick look" rule of reason to an agreement by dentists to deny information to insurers). The Court in *Indiana Federation* held the agreement unlawful because the dentists failed to offer a procompetitive justification for their actions.

n175 See *Silver v. New York Stock Exchange*, 373 U.S. 341 (1963) (refusing to invalidate NYSE restrictions on membership, in part because the Exchange was already subject to heavy SEC regulation).

n176 *United States v. Terminal R.R. Ass'n*, 224 U.S. 383 (1912).

n177 *MCI v. AT&T*, 708 F.2d 1081 (7th Cir. 1983); see Mark C. Rosenblum, *The Antitrust Rationale for the MFJ's Line-of-Business Restrictions and a Policy Proposal for Removing Them*, 25 *Sw. U. L. Rev.* 605, 608-11 (1996).

n178 Areeda, *supra* note 173. See also McGowan, *supra* note 28 (arguing that essential facilities claims should be limited to natural monopoly situations). But see Farrell, *supra* note 63, at 8-9 (arguing that essential facilities claims may be justified in the circumstances of networked markets).

n179 See, e.g., *City of Anaheim v. Southern California Edison Co.*, 955 F.2d 1373 (9th Cir. 1992) (access to electric power transmission lines not essential); *Alaska Airlines v. United Airlines*, 948 F.2d 536 (9th Cir. 1991) (access to airline computer reservation system not essential); *Illinois ex rel Burris v. Panhandle Eastern Pipe Line Co.*, 935 F.2d 1469 (7th Cir. 1991) (natural gas pipeline facilities not essential, even though duplicating transportation system would have been infeasible); 3 Julian O. von Kalinowski, *Antitrust Laws and Trade Regulation* <sect> 19.05[3], at 19-124 (2d ed. 1995) (cataloguing essential facilities cases).

n180 See *supra* notes 100-23 and accompanying text (discussing limits on section 2 in the standardization context). But cf. Maureen A. O'Rourke, *Drawing the Boundary Between Copyright and Contract: Copyright Preemption of Software License Terms*, 45 *Duke L.J.* 479, 547 (1995) (arguing for application of essential facilities rule in the software industry when a software developer has market power).

n181 See *Klors, Inc. v. Broadway-Hale Stores*, 359 U.S. 207 (1959).

n182 See, e.g., *Data Gen. Corp. v. Grumman Sys. Support*, 36 F.3d 1147 (1st Cir. 1994). Some unilateral refusals to deal have been found to violate the antitrust laws under section 2, rather than section 1. See *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985).

n183 Cf. Robert Heidt, *Industry Self-Regulation and the Useless Concept 'Group Boycott'*, 39 *Vand. L. Rev.* 1507 (1986).

n184 See James B. Kobak, Jr., *Enforcers Focus on IP Issues*, Nat'l L.J., May 6, 1996, at B7, B10. One way to avoid this result would be to compel competitor access only to the standard itself, and not to the group producing the standard. See generally Reidenberg, *supra* note 13. This approach would have the advantage of requiring less government intrusion into the workings of the private group. Whether it would be effective, however, may depend on the complexity of the standards at issue and the potential for group members to obtain a lead time advantage before the standard is announced.

n185 One possible approach to take in order to limit such claims is to allow government but not private suits for violations of the antitrust laws by standard-setting organizations. For a more general proposal along these lines, see Edward A. Snyder & Thomas E. Kauper, *Misuse of the Antitrust Laws: The Competitor Plaintiff*, 90 *Mich. L. Rev.* 551 (1991).

n186 See *National Ass'n of Review Appraisers & Mortgage Underwriters v. Appraisal Found.*, 64 F.3d 1130 (8th Cir. 1995).

n187 In more traditional products markets, capture of standard-setting organizations sometimes takes the form of controlling the organization and using it to vote down a competitor's standard. This is what apparently happened in *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988), discussed *supra* note 88. That approach will not have the same effect in industries such as the Internet software market unless the capturing party has intellectual property rights in the dominant standard. Absent such rights, competitors will alter their products to comply with the winning standard. This may require some time and expense, but the expense will be well worth it to competitors if the lock-in effects of the standard are significant.

n188 See *In re Dell Computer Corp.*, No. 931-0097 (F.T.C. 1996).

n189 *Id.* Many standard-setting organizations, including the American National Standards Institute (ANSI) and Semiconductor Equipment and Materials International (SEMI) have similar rules. See AIPLA, *Testimony Before the Federal Trade Commission on Antitrust and Intellectual Property* (submitted October 1995).

n190 Whether Dell in fact knew this is a matter of some dispute. In her dissent to the Commission's proposed consent decree, Commissioner Azcuenaga claimed that there was "no evidence to support such a finding of intentional conduct." *Dell Computer*, *supra* note 190 (Azcuenaga, Comm., dissenting). A Dell spokesperson indicated that after the FTC investigation, the company was "revising its procedures to ensure that its employees are 'completely up to speed on all of our patent portfolios.'" Darlene Superville, *Dell to Drop Patent Claim to PC Design Feature*, *Austin Am.-Statesman*, Nov. 3, 1995, at C2.

n191 Network Working Group Request for Comments No. 1602, March 1994, <<http://ds.internic.net/rfc/rfc1602.txt>> To be sure, such an agreement is enforceable only against companies participating in the IETF process, or which offer their technology as a

standard. It is conceivable that a patent owner not affiliated with IETF could shut down the Internet by asserting its intellectual property rights against critical Internet standards.

n192 Competitors to GIF at the time included a standard called JPEG, which suffered from certain disadvantages relative to GIF. See Michael Console Battilana, *The GIF Controversy: A Software Developer's Perspective* (1996) available from mcb@cloanto.it. More recently, a number of developers have come up with a variant of GIF called PNG which does not use the compression technology covered by the Unisys patent. *Id.*

n193 Unisys spokespersons now claim that they acted against Compuserve as soon as they became aware that LZW was incorporated in GIF. See Battilana, *supra* note 194; Bob O'Leary, Unisys Clarifies Policy Regarding Patent Use in On-Line Service Offerings, message posted to cni-copyright listserv, Jan. 10, 1995, at 10:50 a.m.

n194 See Pat Clawson, An Open Letter to Our Colleagues in the Online Communications Community, message posted to cyberia-1 listserv, Jan. 3, 1995, at 1:00 p.m.

n195 Indeed, the future of the GIF standard is unclear. A number of software developers have stopped using the standard since Unisys' announcement. It may be that the (presumably public domain) PNG standard will replace GIF.

n196 The FTC's claim against Dell was not for violation of either section of the Sherman Act, but rather was brought under section 5 of the FTC Act, which gives similar powers to the Commission. See *FTC v. Sperry & Hutchinson Co.*, 405 U.S. 233 (1972).

n197 *Spectrum Sports v. McQuillan*, 506 U.S. 447 (1993).

n198 Even where intent is in question, as it apparently was in the Dell case, an antitrust claim might be worth pursuing. An actual intent to monopolize is difficult to prove, and in some cases can be inferred from conduct. See, e.g., *Handgards, Inc. v. Ethicon, Inc.*, 743 F.2d 1282, 1293 (9th Cir. 1984); cert. denied, 469 U.S. 1190 (1985); *William Inglis & Sons Baking Co. v. ITT Continental Baking Co.*, 668 F.2d 1014, 1027-28 (9th Cir. 1981), cert. denied sub nom. *ITT Continental Baking Co. v. William Inglis Baking Co.*, 459 U.S. 825 (1982); see also Dratler, *supra* note 29, at 686 ("It is therefore the means of excluding rivals, not the underlying intent, that really matter.").

n199 See Kobak, *supra* note 184, at B7, B9 ("a deliberate effort to sandbag competitors into adopting a standard which would then be used to exclude the same competitors from the market seems easy to condemn under monopolization and attempt-to-monopolize principles . . ."). While such a determination is speculative, the same can be said of any attempted monopolization case. Factors such as the collective market share of members of the standard-setting organization or the past success of group standards may be evidence of likelihood of successful monopolization.

By contrast, Henry Perritt, Jr. distinguishes the situation in which an intellectual property owner merely encourages the adoption of its standard by an independent agency, without any misrepresentations or intent to deceive. Absent such conduct, benefitting from a standard-setting body's decision does not seem to create a section 2 case. See Perritt, *supra* note 43, at 36870.

n200 Where information is imperfect, markets based on that information will be imperfect also. Those in possession of the information can use their knowledge to the advantage of their competitors or consumers. See Mark R. Patterson, *Product Definition, Product Information, and Market Power: Kodak in Perspective*, 73 *N.C. L. Rev.* 185 (1994).

In the context of patents and standard-setting organizations, it is useful to distinguish two different sets of circumstances. Where the party in question possesses a patent application, it would be virtually impossible for competitors to acquire information about this potential intellectual property right, except from the patent applicant herself. Where a patent has been issued, on the other hand, it is possible for the standards group to search the patent literature themselves to ensure that no patents cover the proposed standard. However, such a search is costly and imperfect, and will therefore not necessarily prevent the patent owner from using lack of information to her advantage.

n201 See, e.g., Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 *Harv. L. Rev.* 1813 (1984).

n202 See, e.g., *Int'l Salt Co. v. United States*, 332 U.S. 392 (1947). In light of this, it is somewhat surprising that the Antitrust Division has taken a position in favor of allowing intellectual property ownership of group standards by a member of the group. In a series of negotiations regarding rules promulgated by the European Telecommunications Standards Institute (ETSI), the United States put substantial pressure on ETSI to back down from its original rule requiring disclosure and nondiscriminatory licensing of member intellectual property rights embodied in ETSI standards.

To be sure, this approach has precedent in some earlier U.S. cases condemning patent pools and cross licenses. See *United States v. New Wrinkle*, 342 U.S. 371 (1952). Further, there were apparently some legitimate complaints about the reciprocity of the ETSI licensing provisions. See Allen N. Dixon, *The ETSI Complaint and the European Commission's Communication on Standardization* (Working Paper, 1995); Cortien Prins & Martin Schiessl, *The New Telecommunications Standards Institute Policy: Conflicts Between Standardisation and Intellectual Property Rights*, 8 *Eur. Intell. Prop. Rev.* 263 (1993). Nonetheless, the Division's approach seems at least to be in some tension with the FTC's arguments in the Dell case, in which the government opposed efforts by one party to use intellectual property rights to capture group standards with market power. For discussions of the evolving ETSI rule on intellectual property rights, see Epstein, *supra* note 69, at 873-76; Raymond T. Nimmer, *Standards, Antitrust and Intellectual*

Property, in Intellectual Property Antitrust 1995 (P.L.I. Intellectual Property Antitrust Practice Course Handbook Series 1995); Shurmer & Lea, *supra* note 83, at 391-96.

n203 See *In re Dell Computer Corp.*, No. 931-0097 (F.T.C. 1996).

n204 For example, Eolas Technologies owns a patent which allegedly covers the technology of embedding executable content in the World Wide Web, and which (if valid) would allow it to control the production of "applets" by Sun and others. Eolas has agreed to license the patent royalty-free to any company which will adopt a particular open applications program interface (API). In effect, Eolas is using its potential control over the applet market to force the industry to an open rather than a closed set of standards. See Michael Doyle, *Proposing a Standard Web API*, Dr. Dobb's J., Feb. 1996.

n205 In rare cases, a rule precluding patents on standards might be found to be anticompetitive. In *American Soc'y of Sanitary Eng.*, 106 F.T.C. 324, 328-29 (1985), the FTC alleged that a standard-setting organization could not refuse to consider revising its standards to include a new product solely on the grounds that that product was patented. The case was settled by consent decree. It is significant that the standard in question was inclusive rather than exclusive, and so allowing the complainant's product to be included would not have restricted the rights of other members to make use of other technology covered by the standard. Nonetheless, the case should serve as a caution for rules such as IETF's requiring participants to relinquish their intellectual property rights.

n206 On this point, see McGowan, *supra* note 28; see also Penelope Prevolos, *Litigation in the Interface: Connecting to Essential Facilities* <<http://www.portal.com/recorder/prevolos.html>> (antitrust is a "blunt instrument" to be used only when other alternatives are insufficient). The doctrinal value of this argument is not clear. Federal law does not ordinarily defer to state law remedies, except in certain highly specialized constitutional circumstances not relevant here. On the other hand, to the extent that the argument is over the desirability of extending antitrust to a particular type of cases, the fact that there are non-antitrust ways of dealing with those cases is certainly relevant.

n207 See AIPLA Comments, *supra* note 191.

n208 Restatement (Second) of Contracts <sect> 302 (1981) distinguishes between intended beneficiaries, who may enforce contracts, and incidental beneficiaries, who generally may not. Non-members of VESA presumably fall within the latter category.

n209 Contract damages are ordinarily conceived as "expectation damages." In this case, the expectancy is somewhat speculative, since it is difficult or impossible to predict what would have happened if the patent had been disclosed. In such a circumstance, one might envision a remedy of restitution, under which the defendant disgorges its profits to the group. Restitution is a remedy that is doctrinally available in contract law, despite its tension with contract theory. See generally Doug Laycock, *Modern American Remedies* 553-57 (1994). However, even a restitutionary remedy is, in theory, insufficient to compensate society for the loss it suffers from anticompetitive pricing, since the cost to society from such pricing exceeds the benefit obtained by the defendant. This excess loss is referred to as the "deadweight loss" from monopoly.

n210 See Robert P. Merges, *Contracting Into Liability Rules: Institutions Supporting Transactions in Intellectual Property Rights*, 84 Cal. L. Rev. (forthcoming 1996).

n211 See *Stambler v. Diebold, Inc.*, 11 U.S.P.Q.2d 1709, 1714-15 (E.D.N.Y. 1988), *aff'd*, 878 F.2d 1445 available in *Westlaw No. 89-1045*, 1989 WL 50518 (Fed. Cir. 1989) (unpublished); *Potter Instrument Co. v. Storage Technology Corp.*, 207 U.S.P.Q. 763, 766 (E.D. Va. 1980), *aff'd*, 641 F.2d 190 (4th Cir. 1981); see also *Wang Lab, Inc. v. Mitsubishi Elec. Am. Inc.*, 29 U.S.P.Q.2d 1481, 1495-96 (C.D. Cal. 1993) (equitable estoppel claim raised triable issue of fact). The Fourth Circuit did not reach the equitable estoppel issue in *Potter*, but indicated in dictum that it would be inclined to find such an estoppel. 641 F.2d at 192. Estoppel from misleading silence is possible, but rare, under Federal Circuit precedent. See *Jamesbury Corp. v. Litton Indus. Prods.*, 839 F.2d 1544, 1553-56 (Fed. Cir. 1988) (minority opinion).

n212 See *Stryker Corp. v. Zimmer, Inc.*, 741 F. Supp. 509 (D.N.J. 1990).

n213 For example, the Federal Circuit has never adopted it in the context of standard-setting, and it is not clear that it would apply to copyright as well as patent cases.