

PREDATORY SYSTEMS RIVALRY AND PREDATORY AFTERMARKET CONDUCT

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The expression “systems rivalry” refers to either of two related types of conduct in which a seller who enjoys “competitive advantages”¹ when selling a particular product (say, X) may engage:

- (1) altering his product X in a way that he would not have perceived to be at least normally profitable *ex ante* had he not believed that the alteration might deter independent firms from producing complements (Y) of X or might reduce the profits such firms could earn by producing such complements because the independents’ original complements would be incompatible with his new variant of X and it would be costly and/or time-consuming for them to produce a new complement that was compatible with the new X (perhaps in part because the producer of X kept secret features of his new variant of X that one would have to know to design a variant of Y that would be compatible with it)
- (2) keeping secret attributes of a new variant of X that he would have found profitable *ex ante* to introduce even if independent complement-producers would immediately have been as well-placed to produce complements to the new product-variant as they were to produce complements of his original product-variant when he would not otherwise have perceived it to be profitable *ex ante* to keep these attributes secret in order to increase the cost or time such independent complement-producers might need to produce a complement that was compatible with his new variant.

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¹ In my terminology, the firm that is privately-best-placed to supply a particular buyer—that would find it inherently profitable to supply that buyer on terms that would render it inherently unprofitable for any rival to beat his offer—is said to have a competitive advantage when dealing for the patronage of the buyer in question. The firm that is privately-best-placed to supply a particular buyer may have a competitive advantage in relation to that buyer because it enjoys a marginal-cost advantage and/or a buyer-preference advantage when dealing for that buyer’s patronage—because the marginal (incremental) cost it must incur to supply that buyer is lower than the marginal (incremental) cost its closest competitor for that buyer’s patronage must incur to supply the buyer in question and/or because the relevant buyer prefers the privately-best-placed firm’s product to the product of the firm that is privately-second-placed to supply it.

According to the two highly-respected economists who coined the expression “systems rivalry”—Janusz Ordover and Robert Willig²—both of these types of systems rivalry are always predatory and hence prohibited by § 2 of the Sherman Act.³

“Aftermarkets” are markets in which firms sell replacement-parts, maintenance services, and repair services for durable machines. The Supreme Court appears to believe that it is Sherman-Act violative (presumably because it is predatory) for any durable-machine manufacturer who has a competitive advantage in the supply of (aftermarket) replacement-parts, maintenance services, or repair services for its durable machine to refuse to sell the replacement-parts he manufactures himself to buyers of his machine or independent service providers, to refuse to allow any independent replacement-part manufacturer he licenses to sell the parts it makes to such parties, or to obligate his machine customers to purchase their replacement-parts and repair-and-maintenance services from him.⁴

This Article examines the economic functions of both systems rivalry and the various kinds of aftermarket conduct described above. It establishes the following four basic conclusions:

- (1) both types of systems rivalry and all the allegedly illegal types of aftermarket conduct can perform the same set of functions;
- (2) all the previously-listed types of systems rivalry and aftermarket conduct can be predatory and hence Sherman-Act violative—in particular, will be predatory and illegal under the Sherman Act if their perpetrator’s *ex ante* perception that they would be at least normally profitable was critically affected by his belief that they might for an illicit reason (see Part II) tend to deter the independent complement-producer or independent supplier of aftermarket parts and services from continuing to sell an existing alternative to the perpetrator’s product or from introducing a new variant of the perpetrator’s basic product; and

² See Janusz Ordover and Robert Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L. J. 8, (1981).

³ Sherman Antitrust Act, 26 STAT. 209 (1890) (codified as amended at U.S.C.A. §§ 1-11 [1994]).

⁴ See *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451 (1992). Although the Court did not explicitly address this issue, its position appears to imply that the Sherman Act would also prohibit a durable-machine manufacturer who has a competitive advantage in the supply of aftermarket replacement-parts to refuse to license others to manufacture replacement-parts for his machines.

- (3) all the previously-listed types of systems rivalry and aftermarket conduct may be Sherman-Act violative though not predatory if their perpetrator's *ex ante* perception that they would be at least normally profitable was critically affected by his belief that they might induce an independent complement-producer to sell its business to him; and
- (4) there is good reason to believe that in the vast majority of instances in which sellers engage in systems rivalry or the types of aftermarket conduct that have been subjected to antitrust attack, their behavior has been neither predatory nor illegal under the Sherman Act.

The Article contains three parts. Part I delineates the Sherman Act's test of legality, defines the concept "predatory conduct," and explains why all predatory conduct violates the Sherman Act's test of legality.

Part II delineates the functions that systems rivalry can perform, examines the circumstances in which it will and will not be predatory and/or prohibited by the Sherman Act, discusses the contrary position of Ordover and Willig, describes the structure and content of the arguments one would have to make to prove and disprove that particular acts of systems rivalry violated the Sherman Act, and comments on the two major federal antitrust cases that deal with systems rivalry.

Part III delineates the functions that the allegedly-predatory and/or illegal kinds of aftermarket conduct can perform, examines the circumstances in which such conduct will and will not be predatory and/or Sherman-Act violative, discusses in some detail both the facts of and some opinions issued in the leading antitrust case that deals with the relevant kinds of aftermarket conduct—*Eastman Kodak Co. v. Image Technical Services, Inc.*,⁵ and analyzes the leading economist-written article on allegedly-illegal aftermarket conduct.⁶

⁵ *Id.*

⁶ See Carl Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 ANTITRUST L.J. 483 (1995).

I. The Sherman Act's Test of Legality, the Proper Definition of "Predatory" Conduct, and the Legality of Predatory Conduct Under the Sherman Act

Many academic lawyers—particularly those who know some economics⁷—and virtually all economists who have written about antitrust law⁸ proceed on the assumption that the American antitrust laws authorize the courts to regulate the conduct and practices the laws cover in the public interest, which the relevant scholars tend to equate with regulating the relevant conduct in the way that increases economic efficiency to the greatest extent possible.⁹ I disagree. In my judgment, a proper reading of the two leading American antitrust statutes (the Sherman and Clayton Acts¹⁰)—a reading that takes account of their text, their legal antecedents, the social histories that preceded their enactment, their legislative histories, and the overall structure of the legal regime in which they play a part¹¹—reveals that neither promulgates an economic-efficiency test of legality.

⁷ See, e.g., Frank Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263 (1981), ROBERT BORK, *THE ANTITRUST PARADOX* (1978), and Richard Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 STAN. L. REV. 1562 (1969).

⁸ See, e.g., Paul Joskow and Alvin Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L. J. 213 (1979).

⁹ In fact, many of the relevant scholars seem to assume (incorrectly) that there is no difference between the judicial rulings that would increase competition (in some ill-defined sense) to the greatest extent possible, benefit consumers to the greatest extent possible, and increase economic efficiency to the greatest extent possible. For a discussion of the differences among these three objectives and the reasons why judicial decisions that secure one of them to the greatest possible extent are unlikely to achieve the others to the greatest possible extent, see Richard S. Markovits, *Monopolistic Competition, Second Best, and THE ANTITRUST PARADOX: A Review Article*, 77 MICH. L. REV. 567, 580 (1979).

¹⁰ See the Sherman Antitrust Act, *op. cit. supra* note 3 and the Clayton Antitrust Act, 38 Stat. 730 (1914) (codified as amended at 15 U.S.C.A. §§ 12-27 [1994]). The text ignores the third major American antitrust statute—the Federal Trade Commission Act—because it has almost always been assumed to have promulgated the same tests of legality as the Sherman and Clayton Acts. See Federal Trade Commission Act, 38 Stat. 717 (1914) (codified as amended at 15 U.S.C.A. §§ 41-58 [1994]). (Admittedly, the Supreme Court has indicated that behavior that violates neither the Sherman nor the Clayton Antitrust Act may still violate the Federal Trade Commission Act. However, the Court has never produced an example of behavior that would violate the FTC Act without violating the Sherman or Clayton Act.)

¹¹ For a detailed discussion of the respective American antitrust laws' tests of legality, see Richard S. Markovits, *Some Preliminary Notes on the American Antitrust Laws' Economic Tests of Legality*, 27 STAN. L. REV. 891 (1975).

Since the antitrust legality of the conduct with which this Article is concerned is determined by the Sherman Act, I will focus here exclusively on the test of legality the Sherman Act should be interpreted to promulgate. The Sherman Act has two basic provisions. Section 1 prohibits “every contract, combination, or conspiracy in restraint of trade or commerce among the several states, or with foreign nations,” and Section 2 makes it illegal for anyone to “monopolize, or attempt to monopolize, or combine or conspire...to monopolize” any part of interstate or foreign commerce. In my opinion, correctly interpreted, these two provisions of the Sherman Act would be read to prohibit any¹² business act or practice whose profitability was perceived by its perpetrators *ex ante* to be “*ceteris paribus* critically increased” by (in reality, *ceteris paribus* critically inflated by)¹³ its tendency to increase the demand curve the relevant actor(s) faced or would face by reducing the absolute attractiveness of the offers against which the actor(s) must compete.

Obviously, the expression “*ceteris paribus* critically inflated” needs to be explicated. In my terminology, the private profits yielded by a choice are said to be “inflated” if they exceed the economic or allocative efficiency¹⁴ of the choice in question; the private profits of a choice

12 The coverage of the two basic provisions of the Sherman Act is very broad. In fact, the only kind of conduct they might not cover are unsuccessful attempts to enter into anti-competitive contracts. This conclusion reflects the fact that, unlike § 2, § 1 does not explicitly cover attempts, the Sherman Act is in part a criminal statute, the central government of the United States has never passed a general criminal attempt statute (which would prohibit attempting to do anything that would be criminal to succeed in doing), and the federal courts have always refused to read attempt provisions into criminal statutes that do not contain them even when their omission was clearly a drafting error. In my experience, antitrust lawyers believe that the courts would and should hold that unsuccessful attempts to enter into anti-competitive agreements violate § 2’s prohibition of attempts to monopolize while criminal lawyers believe that the courts would never and should never reach such a conclusion—would hold that the Sherman Act does not prohibit unsuccessful attempts to enter into anti-competitive agreements.

13 I have used the word “increased” and added the parenthetical to indicate that an investor’s QV investment can be predatory without his consciously focusing on the fact that its profitability was critically inflated (on the fact that a critical amount of the profits he anticipated it would yield him would have no allocative-efficiency-gain counterparts). All that is required is that the investor’s *ex ante* conclusion that his conduct was *ex ante* at least normally profitable be critically affected by his perception that it might increase his profit-yields in one or more ways that are relevantly distorting—*i.e.*, that cause the private profitability of the conduct in question to exceed its economic efficiency (regardless of whether he focuses on the fact that the profits in question are distorted). In one sense, the law could be said to condemn his act and him because what he did know should have led him to realize that he was making an inherently unprofitable and therefore presumptively economically inefficient choice because of the purely private strategic benefits it gave him.

14 The text that follows substitutes the term “allocative efficiency” for the conventional “economic efficiency” to remind readers that the concept is technical and that the fact that a choice increases allocative efficiency is neither

are said to be “critically inflated” if the choice is privately profitable despite the fact that it is allocatively inefficient;¹⁵ and the private profits of a choice are said to be “*ceteris paribus* critically inflated” by one of its effects or tendencies (or by one or more Pareto imperfections) if the effect or tendency (or imperfection[s] in question) would critically inflate the private profits of the choice in question if nothing else “distorted” those profits—*i.e.*, if nothing else caused them to diverge from the choice’s allocative efficiency (for example, if the economy were otherwise-Pareto-perfect).¹⁶

Now that I have defined the Sherman Act’s test of legality,¹⁷ I can define the general concept of predatory conduct and reach some general conclusions about the Sherman-Act legality of conduct that is properly deemed predatory. Since I anticipate that some readers will

a necessary nor a sufficient condition for either its consistency with our rights-commitments or its overall desirability if it is neither required by nor prohibited by our rights-commitments. These conclusions reflect the fact that the statement that a choice increases allocative efficiency implies only (1) that it makes somebody better off without making anyone worse off—if the expression “increasing allocative efficiency” is defined in a non-monetized and useless way—or (2) that it gives its beneficiaries the equivalent of more dollars than it takes away from its victims—if the expression is defined in the monetized way in which economists actually use it. See Richard S. Markovits, *On the Relevance of Economic Efficiency Conclusions*, 29 FLA. ST. L. REV. 1 (2002) and *A Constructive Critique of the Traditional Definition and Use of the Concept of “the Effect of a Choice on Allocative (Economic) Efficiency”*: *What Is Right and Why the Kaldor-Hicks Test, the Coase Theorem, and Virtually All Law-and-Economics Welfare Arguments Are Wrong*, 1993 ILL. L. REV. 485 (1993).

¹⁵ In my terminology, the profits yielded by a choice are said to be “deflated” if they are lower than the allocative efficiency of that choice. This “distortion,” “inflation,” “deflation” terminology is applied not only to the profits yielded by a choice but also to the private costs and benefits yielded by a choice. In particular, the private costs or private benefits of a choice are said to be distorted, inflated, or deflated if they respectively diverge from, exceed, or are exceeded by their allocative counterparts.

¹⁶ For an analysis of the ways in which Pareto imperfections—imperfections in seller competition, imperfections in buyer competition, externalities, taxes on the margin of income, chooser non-sovereignty, chooser non-maximization, and critically distorting buyer surplus—will cause allocative inefficiency of various types, see Richard S. Markovits, *The Causes and Policy Significance of Pareto Resource Misallocation: A Checklist for Micro-Economic Policy Analysis*, 28 STAN. L. REV. 1 (1976).

¹⁷ Somewhat surprisingly and highly regrettably, the federal courts have never explicitly defined the test of legality they believe the Sherman Act promulgates. However, by and large, the test I associate with the Act is consistent with the relevant judicial decisions. Nevertheless, I must admit that there are two significant exceptions to the preceding claim. First, the courts assert that the Sherman Act promulgates an objective test of legality (which focuses on the actual or objectively predictable effects of conduct) rather than the subjective test I have articulated (which focuses on the actor’s or actors’ *ex ante* perceptions of the effects of the relevant conduct). Second, the courts claim that a defendant’s conduct cannot violate § 2 of the Sherman Act unless (1) the defendant possessed monopoly power prior to committing the allegedly illegal act in question and (2) its commission of the relevant act or acts increased its monopoly power. My reasons for rejecting this second claim are discussed in the text following note 52 *supra*.

object to the idea of a “proper definition” of a concept, I should state at the outset that my belief in the correctness of the following definition of “predatory conduct” is based on its consistency both with the way in which the concept has been used in the economics and legal literature and with predatory conduct’s pejorative or sinister connotation. In any event, in my judgment, business conduct is properly said to be predatory if its profitability is *ceteris paribus* critically inflated by its tendency to reduce the absolute attractiveness of the offers against which the alleged predator has (predators have) to compete by driving an established rival out of part or all of its business, by inducing an established rival to relocate its (QV) investments¹⁸ farther away from those of the alleged predator’s projects, by deterring the entry of a potential competitor or the QV-investment expansion of an established rival, or by inducing an entering potential competitor or expanding established rival to locate its new QV investment farther away in product-space from the predator’s QV investments than that investor would otherwise have found profitable.

It may be useful to explain why the conduct I have defined to be predatory deserves to be condemned. In particular, business conduct that satisfies my definition of “predatory” should be condemned because it is maldistributive, *ceteris paribus* misallocative, and badly motivated. Such conduct is maldistributive because it injures innocent parties and benefits wrongdoers. The relevant innocent victims are the predator’s target, who sustains a loss not attributable to its absolute or relative allocative inefficiency, and the predator’s customers, who will lose more in the long run when the predation reduces the competition their best-placed supplier faces than they will gain in the short run from any price-reduction or other improvement in terms the predatory act entails. The relevant wrongdoer is the predator, who profits by committing acts that are both presumptively misallocative in the short run (because they are, by definition, inherently unprofitable [unprofitable but for the strategic advantages they generate]) and *ceteris paribus* misallocative in the long run as well to the extent that they are successful (because the

¹⁸ In my terminology, a QV (quality-or-variety-increasing) investment is an investment that creates a new or superior product-variant, a new or superior distributive outlet, or additional capacity or inventory (which increases the average speed with which the investor can deliver his product or service throughout a fluctuating-demand cycle).

reductions in QV-investment competition¹⁹ and price competition they will generate in the long run if they are successful will be misallocative on balance). As the preceding sentence indicated, predation also tends to be undesirable because it is misallocative on balance in both the short run and the long run. Indeed, although space-constraints preclude me from demonstrating this point here, an analysis that took appropriate account of the other relevant imperfections that are present in the system would reveal that the tendency that predation has to reduce competition in the long run is misallocative not only on the otherwise-Pareto-perfect assumptions that play a role in predatory conduct's definition but also on realistic assumptions about the Pareto-imperfectness of our economy.²⁰ Finally, predatory conduct is ill-motivated because, as I have just argued, it is presumptively-allocatively-inefficient conduct in which the predator would not have engaged but for his belief that it would enable him to secure purely private gains that would come at the expense of innocent rivals and buyers.

The illegality of predatory conduct under the Sherman Act should be apparent from the preceding articulation of the Sherman Act's test of legality and definition of the concept of predatory conduct. Predatory conduct could be described as one of the two basic types of conduct that can violate the Sherman Act. More specifically, (non-predatory) price fixing or its equivalents may²¹ or will violate the Sherman Act because a price fixer's *ex ante* perception that the conduct in question will generate at least normal profits is critically affected by his belief that the relevant conduct may reduce the absolute attractiveness of the offers against which the price fixer must compete by inducing his rivals to offer buyers objectively-less-attractive terms on

19 In my terminology, the concept "QV-investment competition" refers to the process in which the owners of QV investments in some (arbitrarily designated) area of product-space compete away the supernormal profits their QV investments in that area would otherwise yield by introducing additional QV investments into that area of product-space that raise the equilibrium level of QV investment in that area of product-space. The preceding sentence and my work in general do not refer to markets because I do not think that markets can be defined non-arbitrarily. See Richard S. Markovits, *On the Inevitable Arbitrariness of Market Definitions*, 2002 ANTITRUST BULL. 571 (2002).

20 See Richard S. Markovits, *The Causes and Policy Significance of Pareto Resource Misallocation: A Checklist for Micro-Economic Policy Analysis*, 28 STAN. L. REV. 1 (1976) and *The Allocative Efficiency and Overall Desirability of Oligopolistic Pricing Suits*, 28 STAN. L. REV. 45 (1976).

21 See note 12 *supra* for a discussion of the Sherman-Act legality of unsuccessful attempts to enter into anti-competitive contracts.

their existing products. Conduct that is properly called predatory will violate the Sherman Act because its perpetrator's perception that it is *ex ante* profitable is critically affected by a belief that the conduct may increase the perpetrator's profits by reducing the absolute attractiveness of the offers against which he will have to compete by inducing an established rival to withdraw or relocate a QV investment that was already established in the relevant area of product-space, inducing an established rival to forego making or to relocate its new QV investment in the predator's area of product-space, or inducing a potential competitor to forego executing or to change the location of a new entry into the predator's area of product-space.

II. Predatory and Allegedly Predatory "Systems Rivalry" Directed at Independent Suppliers of Traditional Complements

In the view of Janusz Ordoover and Robert Willig, both types of systems rivalry they distinguished are always predatory and hence Sherman-Act violative because both are always rendered profitable by their tendency to increase the profits of their perpetrator (here, the producer of X) by driving the independent producers of its complement (here, Y) out of business—*i.e.*, by their tendency to reduce the absolute attractiveness of the offers against which the complement-producing division of X's producer's organization must compete. Part II delineates the functions of systems rivalry, analyzes the Sherman-Act legality of different functional types of systems rivalry, explains why Ordoover and Willig's universal economic characterization and legal assessment of the practice are wrong, examines the implications of a correct understanding of the functions of systems rivalry for the structure and content of the arguments one should use to prove or disprove the Sherman-Act illegality of particular acts of systems rivalry, and comments in some detail on the opinions written in the two most important federal antitrust cases involving this practice.

A. The Functions of Systems Rivalry, the Sherman-Act Legality of Different Functional Types of Systems Rivalry, and the Correctness of Ordoover and Willig's Conclusions About the Practice's Predatory Character and Legality

Ordoover and Willig's conclusion that systems rivalry is always predatory is a non-starter. In the general case, rather than being harmed by the operation of independent producers of competitively-superior complements of X, a producer of X who also produces a complement for

X will profit from the operation of independent producers of X-complements to the extent that they are better-placed to supply buyers of X with complements to X than is X's producer himself. In particular, in the general case, such a producer of X will be able to profit from the operation of any such independent complement-producer by raising his price of X to take advantage of any more attractive deal an independent producer of X's complement (Y) offers X's buyers than X's producer could profitably offer them on Y. Admittedly, the extra profits that the operation of a better-placed independent producer of Y will enable X's producer to realize will be reduced to the extent that the relevant independent can itself convert its competitive advantages into operating profits. However, at least if X's producer continues to stand ready to supply X's buyers with Y at a price equal to the marginal cost X's producer has to incur to supply it to them, there is no way that in the general case the independent's production of Y can harm the producer of X.²²

I do not deny that, in some cases, systems rivalry will be profitable. In fact, I can think of eight reasons why a seller who either enjoys competitive advantages when selling some good X or would enjoy such competitive advantages if he introduced the new variant of X in question may find it profitable to engage in systems rivalry on X. However, unlike Ordover and Willig, who believe that systems rivalry is always predatory, I believe that only two of the eight functional types of systems rivalry that can be distinguished are predatory and that only these

²² Of course, to the extent that (1) the producer of X allows his competitive disadvantage in the supply of the relevant complement to grow through time (by using the personnel he would have originally assigned to producing Y in a way that increases the private opportunity cost to X of assigning them back to the production of Y and/or that decreases the relevant human resources' absolute proficiency at producing Y in circumstances in which they cannot be replaced at the later date with personnel whose use would be as cost-effective as was the original use of the original employees or by allowing plant and equipment to deteriorate) and (2) the independent complement producers are not perfect competitors, the operation of the independent complement producer(s) might cost X money at later dates. However, the producer of X will not allow his competitive position in relation to the supply of Y to deteriorate unless the losses he expects to sustain at later dates on this account are lower than the benefits he expects to reap earlier by getting out of the business of supplying the Y complement to his basic product X. Hence, even if in one sense the operation of one or more independent producers of Y does cost X's producer something in the long run, it will not really reduce his profits, all things considered.

two and perhaps one additional functional type of systems rivalry may violate the Sherman Act.²³

The first functional type of systems rivalry I will discuss is predatory—systems rivalry that is designed to deter a rival from introducing a new variant of X, or conceivably, to induce a rival to withdraw an existing variant of X by depriving that firm of the opportunity to make profits by producing complements of the perpetrator’s variant of X. More formally, systems rivalry that performs only this first function will be predatory because its perpetrator’s *ex ante* perception that it was at least normally profitable will be critically affected by his belief that it

- (1) might induce an independent complement-producer who also produced a variant of X that was competitive with X to withdraw that product or might deter an independent complement-producer from introducing a new variant of X
- (2) by depriving these parties of the profits they would otherwise have made by producing complements of X
- (3) in circumstances in which these profits
 - (A)(1) would have critically reduced the finance cost to them of continuing to produce one or more of their existing variants of X or of introducing one or more new variants of X and/or
 - (2) would have critically increased the operating profits the withdrawn or deterred QV investment would have generated because part of those profits would have been jointly yielded by the withdrawn or deterred investment in X and the investor’s X-complement-producing business and
 - (B) the withdrawal or deterrence of the QV investments of these firms might increase the profits of the perpetrator either
 - (1) because the investments in question would not be immediately replaced by QV investments made by other rivals of the perpetrator that would have had as negative an impact on the profit-yields of the perpetrator’s QV investments in the relevant area of product-space or
 - (2) because the perpetrator would replace his target’s withdrawn or deterred QV investment with a new QV investment of his own in circumstances in which the substitution of his new QV investment for the withdrawn or deterred QV investment of his rival would increase the total supernormal profits his organization generated.

²³ I should also note that this third functional type of systems rivalry will lead to a merger or acquisition that may violate the Sherman and/or Clayton Act for reasons that are unrelated to its having been generated by systems rivalry.

I do not doubt that a requisite subset of these conditions will sometimes be fulfilled. When they are, the relevant acts of systems rivalry will be predatory and hence proscribed by the Sherman Act. More specifically, when they are, the systems rivalry in question will be predatory because (1) the perpetrator's *ex ante* perception that it would be a least normally profitable would have been critically affected by his belief that it might reduce the absolute attractiveness of the offers against which he would have to compete when selling his basic product by inducing the withdrawal or deterring the execution of a rival QV investment and (2) this private benefit has no allocative counterpart.

The next two functions that systems rivalry can perform are closely related to the function just discussed. Indeed, they are so closely related that I can easily understand why someone might conclude that systems rivalry that would not have been committed but for its perpetrator's *ex ante* belief that it might perform either of these functions is also predatory and hence Sherman-Act violative. However, for reasons that will be discussed below, I think this conclusion is clearly mistaken in relation to both these functional types of systems rivalry.

The second function that systems rivalry can perform is to deter an independent complement-producer that did not originally produce a variant of X from introducing a new variant of X by depriving that firm of the opportunity to work with X in circumstances in which the experience of doing so might critically decrease the barriers to entry it faced²⁴ by enabling it to learn things about the attributes of X-like products that made them attractive to buyers or the production processes that would reduce the cost of producing products in the relevant category. Although systems rivalry might also be designed to deter in this way an independent complement-producer who already produced a variant of X from introducing a new variant of X or, conceivably, from continuing to produce an existing variant of X, the fact that such

²⁴ In the vocabulary I use elsewhere, the critical possibility is that the experience of producing a complement of X might reduce the sum of the profit-differential (Π_D) and risk (R) barriers to entry the relevant complement-producer faced when contemplating producing a variant of X where Π_D equals the difference between the weighted-average profit-rate that that relevant independent complement-producer's most privately attractive QV investment in the area of product-space in which X was located should be expected to yield *ex ante* (gross of capital costs) and the counterpart rate that the most supernormally-profitable QV investment in that area of product-space should be expected to yield over its lifetime and the R barrier equals the difference between the normal rate of return for the independent complement-producer's most-privately-attractive QV-investment option in that area of product-space and the normal rate of return for the most supernormally-profitable QV investment in that area of produce-space.

complement-producers are already producing a variant of X seems to me to make this possibility far less empirically significant. In any event, my conclusion that systems rivalry that is designed to deter rivals from introducing variants of the perpetrator's basic product in this way is never predatory does not reflect any belief that its perpetrator's *ex ante* perception that it would be at least normally profitable would never be critically affected by his belief that it might deter a rival from making a new QV investment (or, just conceivably, might induce a rival producer of an X variant to withdraw that product) for this reason. To the contrary, I suspect that the counterparts for the conditions under which the first functional type of systems rivalry would be predatory²⁵ will be fulfilled at least as often for this second functional type of systems rivalry as for the first. The reason why systems rivalry that performs this function will not be predatory on this account is that in this instance the private benefits the systems rivalry will confer on its perpetrator will have an allocative counterpart: the allocative-efficiency gains that result (or, more accurately, that would result in the otherwise-Pareto-perfect world whose existence the Sherman-Act test of legality presupposes) when we preserve the incentive of an economic actor to become more adept at designing and producing new products by allowing the actor to prevent others from discovering what he has learned by deterring them from working with his product. The American antitrust laws manifest this position, for example, by permitting employers or partners to limit their employees' or partners' ability to enter into competition with them (so long as the restriction is reasonable in time and space).²⁶ Admittedly, the producer of X might be able to accomplish the same result by conditioning his revelation of the relevant attributes of X to particular independent complement-producers on those firms' agreeing not to enter into the production of X. However, this technique would have two disadvantages even if such clauses would be upheld by the courts: (1) from the perspective of the producer of X, it might not in practice be possible to prevent the independent complement-producers who were supplied with

²⁵ The counterpart for condition (2) is "by depriving these parties of the knowledge they would have obtained about creating or producing an X-variant from the experience of producing complements of X." The counterpart for condition (3)(A) is "in circumstances in which the resulting increase in the (Π_D+R) barriers they faced would critically affect the profitability of their adding a QV investment to the area of product-space in which X was located (or maintaining a QV investment in that space)."

²⁶ See, *e.g.*, *United States v. Addyston Pipe & Steel Co.*, 85 Fed. 271, 280-82 (6th Cir. 1898).

the relevant information from selling it to others who would use it to facilitate their entry into the production of X and (2) from the perspective of the goal of increasing competition, it might not in practice be possible to prevent such clauses from being used to deter the entry of independent complement-producers who would have entered even if they had not learned things about the characteristics of X that it made its commercial supply profitable or the characteristics of the production process used to produce X that it made its use cost-effective by supplying complements of X. In any event, in terms of the formal definition of predation Part I articulated, the reason that systems rivalry that was designed to perform this second function will not be predatory on this account is that, although systems rivalry's performance of this function will increase its profitability, it will not inflate its profitability, given the otherwise-Pareto-perfect allocative-efficiency gains that will be generated by conduct that enables an actor to internalize the benefits generated by his product or production-process discoveries.

The third function that systems rivalry may perform for a producer of some product X is to deter an independent producer of a complement of X who did not previously produce a product that was competitive with X from producing a product that is competitive with X and/or possibly to deter an independent producer of a complement of X who did previously produce one or more products that were competitive with X from introducing another product that would be competitive with X or to induce such a firm to withdraw one or more of its existing alternatives to X by preventing such firms from learning the identity of X's customers or learning things about these customers (their special needs) that would reduce the barriers they would face when contemplating making a new QV investment or maintaining an old QV investment in the area of product-space in which the perpetrator's basic product was located. The analysis of the predatory character of systems rivalry whose perpetrators would not have found it normally profitable *ex ante* but for their belief that it might perform this function parallels the analysis of the predatory character of systems rivalry whose perpetrators believed *ex ante* that it might perform the second function listed above. The only possible difference relates to the allocative-efficiency case for allowing the producer of X to preserve any advantage he has because his actual or potential rivals do not have his customer-lists or his knowledge of his customers' special needs. In my judgment, the same allocative-efficiency argument for recognizing the legitimate proprietary interest of a producer in keeping secret his knowledge of advantageous

product and production-process attributes will be equally valid and forceful in relation to a producer's information about the identity and special needs of potential buyers of his product.

The fourth function that systems rivalry can perform might be said to belong to the same family of functions as the first three: increasing the perpetrator's profits by preventing an independent complement-producer from persuading the perpetrator's customers of his intelligence and reliability by proving itself to be a reliable source of supply of the complement to the perpetrator's basic product and thereby (1) deterring the independent complement-producer from making a new QV investment in the area of product-space in which the perpetrator's basic product is located, (2) inducing an independent complement-producer who already had a QV investment in this area of product-space to withdraw that investment, or (3) preventing an independent complement-producer who already had a QV investment in this area of product-space or who would in any event introduce a new QV investment into that area of product-space from reducing its competitive advantage or from securing a competitive advantage in relation to the perpetrator's original customers for his basic product X. In my judgment, systems rivalry that performs only this function would be predatory. Since no allocative-efficiency justification can be given for allowing the producers of X to prevent the independent complement-producer's combatting the imperfections in the information available to the perpetrator's customers that create a need for the independent to demonstrate its intelligence and reliability to them, systems rivalry that performs only this function will be predatory and hence Sherman-Act violative—*i.e.*, the profits that systems rivalry will generate for its perpetrator in this way will not only critically *increase* the practice's actual and *ex ante* perceived profitability but will also critically *inflate* its actual and *ex ante* perceived profitability.

The next three functions of systems rivalry do not belong to the same family as the first four. The fifth function I will discuss is enabling its perpetrator to reduce the losses he sustains because of his customers' proclivity to make purchases of X-complements that are not in their and his joint interest or reducing the cost to the perpetrator of accomplishing this objective. Some explanation is required. X's customers may choose to purchase complements to X whose use by them reduces X's producer's profits for either or both of two reasons. The first is that some of X's buyers are not sovereign maximizers. For example, if they have the opportunity to do so, some of X's buyers may choose to combine X with a low-price/low-quality complement Y

despite the fact that the cost-savings they thereby achieve are lower than the equivalent-dollar loss they sustain because the X-Y combination generates lower equivalent-dollar value for them than would the combination of X and a higher-quality complement. To the extent that the penny-pinching buyers in question attribute the poor performance of the X-Y combination to X, their choice may harm X's producer by reducing their future demand for X. Moreover, to the extent that these buyers communicate their mistaken evaluation of X to other potential buyers of X or to the extent that these other potential buyers of X observe the poor performance of the penny-pincher's X-Y combination themselves and attribute it to X, X's buyer's mistaken complement-purchase will also harm X by reducing the demand that other buyers have for X in the future. Second, even if none of X's customers' purchase of an inferior complement Y is mistaken from its own perspective, a decision by a buyer of X to increase its own profits by combining a cheaper, inferior complement with X may harm X's producer on balance if other buyers who would prefer to pay more for superior performance attribute the relatively poor performance of the X-Y combination used by the penny-pinching buyer of X to X rather than to the complement that that buyer combined with X. In both sets of circumstances, X's producer may therefore find it profitable to prevent its customers from purchasing inferior complements such as Y.

Admittedly, in some instances, the producer of X may be able to accomplish this objective in several ways other than by engaging in systems rivalry: by warning X's buyers of the associated risks, contractually obligating them to use complements with specified quality attributes, or requiring buyers of X to purchase their full requirements of (appropriate) complements from him or from sources he authorizes. Unfortunately, none of these strategies is foolproof or costless: the warnings may not be heeded by sovereign, maximizing penny-pinchers or by some buyers who are error-prone; the list of required complement-attributes may be costly to provide and difficult to comprehend; the requirement that complements of specified quality be used may in any event be costly or impossible to enforce; and the full-requirements tie-in may be both costly to enforce and (incorrectly) held illegal by the courts.²⁷ In some cases, then, the

²⁷ Although I know of no case dealing with a pure quality-control tie-in, the courts' doctrine that all tie-ins entered into by sellers who have "monopoly power" in the so-called "tying-product market" are *per se* illegal

most profitable way for X's producer to deal with his customers' relevant error-proneness and/or to the damage that their maximizing decisions may do to his reputation will be either (1) to make an otherwise-unprofitable alteration in X that renders the inferior Ys obviously incompatible with it and keep secret the information about X's alteration that would enable the inferior Ys' manufacturers to alter their products to render them compatible with the altered X or (2) to make an otherwise-unprofitable decision to keep secret an otherwise-profitable alteration in X to increase the time that independent complement-producers require or the costs they must incur to produce complements that are compatible with the new X.

Neither of these variants of systems rivalry is predatory or illegal. Neither manifests any attempt by the producer of X to monopolize the production of complements to his product (or the production of his product itself). In fact, for this type of systems rivalry to function, the producer of X need not even produce complements to X, though if he does not, he will want the producers of the complement to the new X that are compatible with it and whose use maximizes the joint gain he and his customers realize to be perfect competitors (at least at the stage at which they are negotiating for the right to supply the complements in question).

A sixth function that systems rivalry may perform is increasing the profitability of meter pricing. Meter pricing is the practice in which a seller of a durable good or idea makes its customers pay each time they use its good or idea. To see why such pricing may be profitable, assume that the relevant seller produces a differentiated, durable good X²⁸ whose equivalent-

implies that they would find many if not most quality-control tie-ins unlawful. But see *Broadcast Music v. Columbia Broadcasting System*, 441 U.S. 1 (1979).

²⁸ The text will focus on situations in which the metered good is a durable machine. Meter pricing can also be profitable when the "metered good" is a franchise idea—where the customers are owners of sales outlets that distribute a product or service the franchise-creator (say, McDonald's or Arby's) designed and advertised. In such cases, the "seller" (or the franchisor) is likely to use endproduct royalties or tie-ins in which the franchisee is required to buy his full requirements of one of the goods he distributes (say, potatoes, ketchup, hamburger meat) from the franchisor for more than its normal price. (In these cases, the tie-in may be performing quality-control as well as metering functions.) (Endproduct royalties may also be used when the seller's good is a conventional input or intermediate product—say, buttons—that the buyer uses to produce a conventional final good—say, shirts.) Meter-pricing tie-ins will tend to be more profitable than endproduct-royalty schemes to the extent that it is cheaper to enforce the full-requirements provision of the tie-in than to prevent final-sales-reporting fraud and to the extent that the tie-in also enables the tying seller to control the quality of the complementary inputs his customer uses. For a detailed analysis of meter-pricing tie-ins, see Richard S. Markovits, *The Functions, Allocative Efficiency and Legality of Tie-ins: A Comment*, 28 J. L. & ECON. 387, 393-94 (1985) and *Tie-ins and Reciprocity: A Functional, Legal (Competitive Impact), and Policy Analysis*, 58 TEX. L. REV. 1363, 1378-81 (1980).

dollar value to each of those buyers he is best-placed to supply varies with the frequency with which the buyer in question will use X. If the relevant seller could costlessly install and inspect a meter on X that could not be tampered with, there are a number of reasons why he might find it profitable to reduce the lump-sum fee he charges for X and require each of its purchasers to pay a meter rate each time the buyer uses X in addition to the reduced lump-sum fee. In particular, although the charging of such a *supra*-marginal-cost per-use price (meter rate) will reduce the seller's profits by deterring the buyer from using the machine as often as the seller would use it if the seller were vertically integrated forward into the buyer's business and as efficient at carrying out that business as was the buyer,²⁹ the switch from the outright sale of his durable product to such a meter-pricing arrangement may well increase the seller's profits on balance because it will tend to increase his profits

- (1) by obviating his incurring the cost of doing research into the frequency with which particular buyers would expect on the weighted average to use his machine and reducing the profits he loses because he overestimates the frequency with which particular buyers will use his product and hence charges them a price that results in his losing their patronage,
- (2) when the buyer or buyers in question are uncertain about the frequency with which they individually will use his machine, by shifting the risk that they will use it less often than they individually expect to use it on the weighted average from them to him (to the extent that he is less risk-averse than they are or to the extent that the metering arrangement removes more risk from them than it imposes on him because the overall usage of his machine will vary less than will its usage by each individual buyer)—a possibility whose salience can be traced to the fact that the risk costs a seller's customers will bear under their deal will reduce dollar for dollar the lump-sum fee they can profitably pay the seller for the right to purchase his product on the specified terms,

²⁹ *I.e.*, by reducing the sum of buyer and seller surplus (transaction surplus) the relevant transaction generated on this account. The amount of transaction surplus a seller will have to destroy to remove a given amount of buyer surplus through *supra*-marginal-cost pricing will be inversely related to the relevant good's transaction-surplus-maximizing (TSM) output (the output at which the relevant demand curve cuts the relevant marginal-cost curve from above) and the (absolute value of the negative) slope of the demand curve over the relevant range of output below the TSM output and directly related to the positive slope of the relevant marginal-cost curve over the relevant range of output below the TSM output. For an analysis of this issue, see Richard S. Markovits, *Tie-ins and Reciprocity: A Functional, Legal, and Policy Analysis*, 58 TEX. L. REV. 1363, 1376-78 (1980) and *Tie-Ins, Reciprocity, and the Leverage Theory*, 76 YALE L. J. 1397, 1416-23 (1967).

- (3) by reducing the loss he sustains
 - (A) because his potential customers underestimate the frequency with which they will use his product—because of pessimism that will reduce the lump-sum fee they are willing to pay *ex ante* to purchase the product outright below the total lump-sum *plus* per-unit charges they will willingly pay for using the product *ex post* when they realize how frequently it will be in their interest to use X—and
 - (B) because the seller underestimates the frequency with which his customers will use his product—because of pessimism that will cause the seller to charge them lump-sum fees that are lower than the lump-sum fees they would have been willing to pay (will cause the seller to offer terms that on this account will yield him lower profits than the meter-pricing system will generate), and

- (4) by reducing the cost to the seller of preventing or allowing buyer arbitrage—the costs and losses he incurs because his customers may find it profitable to use his machine to perform services for another potential buyer (by raising the cost to his customers of marginal uses of the machine, thereby lowering the difference between [A] the average per-use charge the seller is trying to secure from any buyer—the sum of the average lump-sum fee *plus* per-use charge for using the product—and [B] the cost the seller’s actual customers would have to incur to resell his machine’s services to others—the price he charges his customers for their marginal uses of his machine).³⁰

In some situations (at least if the law allowed them to do so), sellers who want to engage in meter pricing will find it more profitable to use so-called meter-pricing tie-ins rather than actual meters to effectuate such a scheme. If, for example, the buyer must use one unit of a complementary good (say, buttons) each time it uses the relevant (button-fastening) machine, the seller can practice meter pricing without using a meter by requiring any buyer of his basic product X to purchase its full requirements of the complementary good from him as well for a per-unit price that exceeds its normal market price. In effect, the difference between the

³⁰ Because the courts have tended to hold price discrimination illegal even when it is not sufficiently likely to reduce competition in the Clayton-Act sense to warrant the conclusion that it violates that Act, it is important to note that the profitability of meter pricing does not depend on its generating price discrimination. Thus, the preceding analysis implies that a seller may find it profitable to engage in meter pricing even if he has only one customer or even if all his customers are identical in all relevant respects. Admittedly, however, since the first and part of the third function of meter pricing listed above will be more important when different potential customers value the seller’s machine differently because they do not expect to use it the same number of times, meter pricing will tend to be more profitable when it produces results that are *ex post* discriminatory. For a case that illustrates the Supreme Court’s tendency to hold illegal price discrimination that almost certainly did not violate either the Sherman Act or the Clayton Act, see *Utah Pie Co. v. Continental Baking co.*, 386 U.S. 685 (1967).

contractual and market price for the complement is the meter rate. Such a meter-pricing tie-in will tend to be more profitable than the use of an actual meter (1) the greater the impracticability of maintaining a meter (think, for example, of maintaining a meter on a riveting machine), (2) the more expensive it is to construct, install, and inspect a meter, (3) the easier it would be to tamper with the meter and the more difficult it would be to detect such tampering, and (4) the cheaper it would be for the producer of X to alter the variant of the complement the producer of X supplies his customers to facilitate detecting customer violations of their full-requirements obligations by inspecting their inventories of X-complements or the X-complements they have actually used.

For two reasons, sellers who would find it profitable to use meter-pricing tie-ins might find it more profitable to engage in systems rivalry, and sellers who would not find it profitable to meter price through meter-pricing tie-ins might find it profitable to meter price through systems rivalry. First, the law-related cost of the systems rivalry might be lower than that of the meter-pricing tie-ins. This possibility reflects the fact that the courts have incorrectly concluded that in many situations meter-pricing tie-ins violate the American antitrust laws.³¹ Obviously, this possibility will be less relevant if systems rivalry is declared illegal, though it would continue to have some significance if it were more difficult for the State or private plaintiffs to win systems-rivalry cases than to win meter-pricing tie-in cases. Second, law-related costs aside, systems rivalry might be more profitable than meter-pricing tie-ins because it eliminates the possibility of buyers' cheating by substituting lower-priced complements purchased on the open market for the tied complement supplied by X's producer at a price that includes a meter charge.

The preceding discussion should have made clear that systems rivalry that is used to effectuate meter pricing is neither predatory nor illegal under a properly interpreted Sherman Act. As described, meter pricing is a lawful technique that a seller uses to best exploit a given demand/marginal-cost combination for his basic product X. Admittedly, when the seller of X produces its complement Y himself, it would be linguistically accurate to say that systems rivalry is designed to increase its perpetrator's profits by reducing the absolute attractiveness of the offers against which he has to compete when selling Y. However, this fact does not undercut my

³¹ See, *e.g.*, *International Salt Co. v. United States*, 332 U.S. 392 (1947).

conclusion that this functional type of systems rivalry is neither predatory nor Sherman-Act violative because the effect in question is ancillary to the perpetrator's legitimate effort to take advantage of his position on his basic product X.³²

The seventh functional type of systems rivalry I wish to discuss is related to the sixth in that both are designed to increase the profitability of its perpetrator's practicing *supra*-marginal-cost pricing on his basic product X. Systems rivalry can perform this seventh function when the basic good X is either an input or intermediate good against which substitution is possible or a final good that can be consumed in varying proportions with its complements by its final consumer. In either of these situations, systems rivalry may function by increasing the profits the producer of the basic good can realize by preventing his *supra*-marginal-cost pricing from inducing his customers to substitute complements Y of his product X for X. For expositional reasons, the text that follows will assume that the relevant product X is an input or intermediate good that is used by its purchaser in combination with a complement Y to produce some final good A.

I have already explained why a seller of some durable product X might find it profitable to charge a *supra*-marginal-cost meter-rate for using X. For similar reasons, sellers of non-durable products may also find it profitable to charge *supra*-marginal-cost prices for each unit of their product its purchasers buy (as opposed to charging them a lump-sum fee for the right to purchase as many units of the product in question as they wish at its marginal cost to the seller in question). As already pointed out, an obvious disadvantage of any such pricing scheme is its tendency to reduce the joint gains the relevant transactions yield the seller and buyer combined (and hence the maximum gain the seller can obtain) by inducing the buyer to use the machine less (to purchase fewer units of the relevant product) than would be in the joint interest of the seller and buyer involved. For example, when the product X is an intermediate product that is combined in variable proportions with some complement Y to produce a final good A, X's *supra*-marginal-cost pricing will reduce the quantity that is purchased below the jointly optimal level in two ways: (1) by increasing the marginal costs that X's buyers have to incur to produce

³² See Robert Bork, *The Rule of Reason and the Per Se Concept: Price Fixing and Market Division*, 74 YALE L.J. 789, 796-801 (1965).

their final product A and hence decreasing the number of units of A they produce and (2) by inducing X's customers to produce the output of A they do produce with fewer units of X and more units of Y than would be in their and the producer of X's joint interest (by inducing X's customers to substitute Y for X).

The producer of X who wishes to engage in *supra*-marginal-cost pricing on X can make no profitable price-alteration to prevent the first of the preceding two effects. However, it can profitably prevent the second effect (the jointly-inefficient substitution of Y for X) by using an appropriate tie-in to alter the prices of X and Y. Thus, if instead of selling X independently for the combination of a lump-sum fee and *supra*-marginal-cost per-unit charge, X's producer offers each of its buyers a tie-in that obligates X's producer to supply the buyer in question with the buyer's full requirements of X in exchange for the buyer's (1) paying the same lump-sum fee, (2) paying a lower per-unit price for X, and (3) purchasing its full requirements of Y as well from the producer of X for a price that exceeds Y's normal market price by the same percentage as the percentage by which X's price to this buyer under the tie-in exceeds its marginal cost to its producer, X will prevent its *supra*-marginal-cost pricing from reducing the profits he earns by inducing X's buyers to make jointly-unprofitable substitutions of Y for X: since under this arrangement the relative cost of Y and X to X's customers— (P_Y/P_X) where the prices in question equal their prices in the tie-in—will equal their relative cost to X—([the market price of Y if X does not produce Y himself]/ MC_X), Y's customer will find it least costly to produce its output of A with the same combination of X and Y that X's producer would use to produce that output if he were vertically integrated forward into the production of A and were equally efficient as his customer at producing A.

Before proceeding to the implications of this possibility for the profitability and legality of systems rivalry, three additional points should be made. First, the availability of this kind of tie-in will in general make it profitable for the producer of X to increase the extent to which he engages in *supra*-marginal-cost pricing—*i.e.*, the lump-sum fee in the most profitable tie-in for him to employ will tend to be lower than the lump-sum fee in the most profitable arrangement he could use to sell X independently. Second, if the buyer of X produces its product A by combining some input Z against which substitution is not possible with substitutable inputs X and Y, the producer of X will be able to prevent the substitutions his independent *supra*-

marginal-cost pricing of X would generate by reducing his per-unit price on X to its marginal cost and requiring X's purchaser to purchase its full requirements of Z from him for a price appropriately in excess of Z's conventional market price. Third, the profitability of these types of tie-ins will obviously depend *inter alia* on the cost to X's producer of preventing its buyers from cheating on their promise to purchase from him their full requirements of Y or Z for more than these inputs' conventional market prices.

How does this preventing-input-substitution argument relate to the profitability of systems rivalry? For two reasons, producers of an input (or final good) X against which substitution is possible might find it more profitable to use systems rivalry rather than full-requirements tie-ins to prevent his customers from buying some variant of Y or Z from other sources—*i.e.*, to substitute for the kind of tie-in just described either (1) systems rivalry *plus* independent sales of his own product X and some variant of a compatible Y (that he may or may not produce himself) at per-unit prices that are the same percentage above the respective products' marginal cost to the producer of X or (2) systems rivalry *plus* sales of X at a price equal to its marginal cost and sales of a compatible variant of Z (that he may or may not produce himself) at a price appropriately above the marginal cost X's producer must incur to supply that input. First, the courts might be more likely to declare the full-requirements tie-ins described above illegal despite the fact that they do not violate either the Sherman Act or the Clayton Act test of legality than they would be to declare the systems rivalry illegal. Second, the cost to the producer of X of altering that product in a way that precludes anyone but him or those he authorizes to produce variants of Y and Z that are compatible with X *plus* the extra cost to him of discovering and producing (or arranging for the production of) the relevant compatible variants of Y and Z may be lower than the cost to him of enforcing or failing to enforce his customers' agreements under the tie-ins not to purchase on the open market from someone else variants of Y or Z that are compatible with the original X. Systems rivalry that is engaged in by firms that believed that its *ex ante* profitability was rendered at least normal by its performance of this seventh function is neither predatory nor Sherman-Act violative for the same reason that systems rivalry of the sixth functional type discussed above was not predatory or Sherman-Act violative.

The eighth and final function of systems rivalry is in one respect related to the first: preventing one or more independent complement-producers from making money by supplying

complements for the perpetrator's product in order to induce one or more of the independents to sell out to the perpetrator (perhaps for a lower price than the independent's business would have been worth had systems rivalry not been practiced). Systems rivalry that functions in this way will be or could arguably be said to be proscribed by the American antitrust laws in two sets of circumstances. First, one might maintain that the positive-law doctrine³³ that interprets the Sherman Act to prohibit any firm from waging a "fight-to-the-death" in any way that gives it a private advantage over its opponent that does not reflect its allocative superiority to its opponent implies the Sherman-Act illegality of a manufacturer's inducing an independent complement-producer to sell its business to him (perhaps for less than the "fair market value" it would have had but for the practice of systems rivalry) by precluding the independent from making profits by supplying complements to the manufacturer's product—profits that in an otherwise-Pareto-perfect world would have equaled the allocative-efficiency gains the independent would have generated by supplying complements to the perpetrator's customers. The link between such a conclusion and the "unfair fight-to-the-death" doctrine is the fact that in the relevant situation systems rivalry would have enabled the manufacturer who employed it to "outbid" the target's original owners for the target's business for reasons that did not suggest that the contribution of the target's business to allocative efficiency would be greater if it were owned by the perpetrator than if it were owned by its original owners. In my judgment, this argument should succeed—if at all—only in those cases in which the perpetrator has purchased the target's business and would not have done so had he not engaged in systems rivalry. Moreover, even if one concludes that systems rivalry should be deemed to violate the Sherman Act in this set of circumstances, one could not say that it did so because it was predatory when these conditions were fulfilled. Second, systems rivalry that causes its target to sell its business to the perpetrator in circumstances in which the target would not otherwise have done so will be part of a sequence of behaviors that violates § 1 of the Sherman Act's proscription of contracts in restraint of trade and/or § 7 of the Clayton Act's proscription of mergers or acquisitions that are requisitely likely

³³ See *Union Leader Corp. v. Newspapers of New England*, 180 F. Supp. 125 (D. Mas. 1959), *aff'd in part and rev'd in part*, 284 F.2d 582 (1st cir. 1960), *cert. denied*, 365 U.S. 833 (1961).

to decrease competition³⁴ if the purchase of the relevant independent complement-producer would violate one or both of those statutes independent of whether the purchase price was too low or was reduced by the system rivalry. For such a conclusion to be justified,

- (1) the perpetrator of the systems rivalry must be producing complements of his basic product himself, indeed must be producing not only complements of his product X but complements of products that are competitive with his product and either
- (2) (A) the perpetrator's *ex ante* perception that the systems rivalry and subsequent acquisition or merger would be at least normally profitable must have been critically affected by his perception that it might increase the profits he realized when selling complements of his basic-good rivals' products by eliminating his target as a source of independent competition (the Sherman-Act condition of illegality) and/or
- (B) the substitution of the perpetrator for his target must have been requisitely likely *ex ante* to have injured complement-buyers by reducing the absolute attractiveness of the offers they would receive from their inferior suppliers (the Clayton-Act condition of illegality).³⁵

Of course, when these conditions are fulfilled, the merger or acquisition to which the relevant systems rivalry led would be illegal even if the systems rivalry were not the cause of its occurrence—*i.e.*, the systems rivalry would be irrelevant to the illegality of the conduct in question.

One final legal point needs to be made about systems rivalry that is designed to induce independent complement-producers to sell out to its perpetrator. In some circumstances, an independent complement-producer who has been induced to sell his business (perhaps at a distress price) to a buyer who has secured this outcome by practicing systems rivalry may be able to void this contract or conceivably (particularly when the sale-price was lower than the value the business would have had had the buyer not practiced systems rivalry) may be able to obtain damages equal to the profits the perpetrator's practice of systems rivalry enabled him to secure in this way—*i.e.*, may be able to force the perpetrator to disgorge these profits in a suit in restitution. I should say at the outset that since these possibilities relate to positive-law

³⁴ See § 7 of the Clayton Antitrust Act, *supra* note 10.

³⁵ For a discussion of the Clayton-Act test of legality, see Markovits, *op. cit. supra* note 11 at 852-53.

developments dealing with what the Restatement, Second, of Contracts describes as the imposition of “duress by threat,”³⁶ they would seem to be more likely to be triggered by a potential business-buyer’s threat to practice systems rivalry than by his taking advantage of his actual practice of systems rivalry. However, I do not think that in practice this distinction would turn out to be critical: the relevant threat could be found in the threat to continue practicing systems rivalry. However, the Restatement does contain provisions that suggest that the availability of these remedies will be limited in other ways that are important. In particular, the Restatement could be read to imply that these remedies would be available in the current context only if the practice of systems rivalry involved “a breach of the duty of good faith and fair dealing under a contract”³⁷ and/or a “threat” whose “effectiveness...[was] significantly increased by prior unfair dealing by the party making the threat.”³⁸ If this language were deemed to be crucial, these remedies would be available to an independent complement-producer who sold out only if the seller practicing systems rivalry had previously contracted with the independent to supply complements for his original product or encouraged the independent to enter into that business verbally by discussing his requirements and/or (better yet) by financing its entry. Admittedly, however, another provision of the Restatement that asserts that “[a] threat is improper if the resulting exchange is not on fair terms, and what is threatened is otherwise a use of power for illegitimate ends”³⁹ may suggest that the relevant remedies may be more widely available.

I have now listed and discussed the eight functions that systems rivalry can perform. Obviously, particular acts of systems rivalry may perform more than one of these functions simultaneously—for example, may both reduce the cost to a perpetrator of controlling the quality of the complements his customers combine with his product and deter an independent complement-producer from entering into the business of producing (some variant of) his basic

³⁶ Restatement, Second, of Contracts § 175.

³⁷ See *id.* at § 176(1)(d).

³⁸ *Id.* at § 176(2)(b).

³⁹ *Id.* at § 176(2)(c).

good by raising the cost of capital to the independent by depriving it of the profits it would otherwise have realized by supplying complements to buyers of the perpetrator's basic good. This reality is important because systems rivalry that performed both those functions would not be predatory or Sherman-Act-violative if its perpetrator believed *ex ante* that its performance of the quality-control-related function would make it at least normally profitable.

A summary is in order. Janusz Ordoover and Robert Willig believe that systems rivalry is always predatory and hence Sherman-Act violative because it is always rendered profitable by its tendency to drive independent producers of complements to its perpetrator's basic product out of business. I have shown (1) that systems rivalry can perform at least eight functions, (2) that its performance of only two of these functions could result in its being predatory, (3) that, even when systems rivalry does perform one or the other of these dubious functions, it may not be predatory or Sherman-Act violative because its perpetrator may also have believed *ex ante* that it would perform other functions that are legitimate to a sufficient extent to render the practice at least normally profitable on their account alone, but (4) that systems rivalry engaged in by a perpetrator whose *ex ante* perception that it would be at least normally profitable was critically affected by his belief that it might lead an independent complement-producer to sell its business to him may also violate the Sherman Act despite the fact that it should not be deemed predatory.

B. The Appropriate Structure of Sherman-Act Systems-Rivalry Litigation and an Analysis of the Two Most Important Systems-Rivalry Cases

1. The Appropriate Structure of Sherman-Act Systems-Rivalry Litigation

In my judgment, even if there were no antitrust laws, the percentage of instances of systems rivalry that would be predatory (and hence prohibited by our actual Sherman Act) would be extremely low. Nevertheless, because systems rivalry will sometimes be predatory, the practice should not be declared *per se* lawful under the Sherman Act.⁴⁰ Instead, claims that systems rivalry violates the Sherman Act should be evaluated on a case-by case basis.

⁴⁰ I recognize that the courts have taken a position on a related issue that implies it would be appropriate for them to declare practices that may in individual instances violate the Sherman Act *per se* lawful under that Act if they believe that the cost of identifying those cases in which the practice was illegal would be prohibitive (including the cost of error in the cost-calculation in question). More specifically, this conclusion would seem to be implied by the courts' claim that it is appropriate for them to declare *per se* illegal practices that they admit may not be unlawful in individual instances when they think it would be prohibitively expensive, all things considered, for them to

As Part II.A indicated, systems rivalry itself (as opposed to any mergers or acquisition to which it leads⁴¹) will be predatory and hence Sherman-Act violative in two sets of circumstances and may violate the Sherman Act in a third set of circumstances despite the fact that it would be incorrect to deem it predatory under those conditions. More specifically, systems rivalry will be predatory and hence Sherman-Act violative when its perpetrator's *ex ante* perception that it would be at least normally profitable was critically affected by his belief that it might increase his profits by generating one or more of the following four effects in one or more of the following two ways. The relevant four effects are:

- (1) deterring an independent complement-producer from making a new QV investment in the area of product-space in which the perpetrator's basic product was located that would raise equilibrium QV investment in that space to a level to which no other rival of the perpetrator would raise it, an outcome that would increase the perpetrator's overall supernormal profits regardless of whether he found it profitable to replace his rival's deterred QV investment with a QV investment of his own,
- (2) deterring an independent complement-producer from making a new QV investment in the above area of product-space in circumstances in which the deterred QV investment would be replaced by a QV investment made by another rival of the perpetrator if he did nothing to prevent that outcome and either
 - (A) the deterred QV investment would be replaced by a QV investment made by a rival of the perpetrator but that rival's "replacement" QV investment would lower the profit-yields of the perpetrator's QV investments in that space by less than they would be lowered by the deterred QV investments or
 - (B) the deterred QV investment would be replaced by a perpetrator QV investment whose substitution for the deterred QV investment would increase the perpetrator's overall supernormal profits,

execute case-by-case analyses (to adopt what is generally called a "rule of reason" approach). Although I believe that it would be perfectly legitimate and sometimes desirable for a legislature to declare *per se* illegal all instances of a defined type of conduct (in which the relevant actors do not have a moral right to engage) despite the fact that in some instances such conduct will have socially desirable consequences, I do not think that courts are authorized in effect to pass such legislation.

⁴¹ For a detailed analysis of the conditions under which horizontal mergers or acquisitions will violate the Clayton Act, see Richard S. Markovits, *Predicting the Competitive Impact of Horizontal Mergers in a Monopolistically Competitive World: A Non-Market-Oriented Proposal and Critique of the Market Definition-Market Share-Market Concentration Approach*, 56 TEX. L. REV. 587 (1978).

- (3) inducing an independent complement-producer who already had a QV investment in the area of product-space in which the perpetrator's basic product was located to withdraw that QV investment in circumstances in which the withdrawn QV investment
 - (A) would not be replaced by a QV investment made by another rival of the perpetrator if the perpetrator did nothing to prevent that outcome,
 - (B) would be replaced by a QV investment made by another rival of the perpetrator that would lower the profit-yields of the perpetrator's QV investments by less than they would have been lowered by the withdrawn QV investment, or
 - (C) would be replaced by a perpetrator QV investment whose substitution for the withdrawn QV investment would increase his overall supernormal profits, and

- (4) preventing an improvement in the competitive position of one or more independent complement-producers who already owned or would introduce one or more QV investments in the area of product-space in which the perpetrator's basic product is located to secure the patronage of buyers of the perpetrator's basic product whom the perpetrator was originally privately-best-placed to supply.

The two potentially predatory ways in which the perpetrator's systems rivalry could produce one or more of these effects are:

- (1) by reducing or eliminating the profits the independent complement-producer could realize by supplying complements to the perpetrator's basic product,
 - (A) critically increasing the cost the independent complement-producer would have to incur to secure the capital it required to finance the execution of the relevant new QV investment or the maintenance or operation of the relevant existing QV investment and/or
 - (B) reducing the amount of operating profits that would be yielded by the deterred or withdrawn QV investment in cases in which the systems rivalry reduced the amount of joint economies yielded by those investments and the complement-producing business of the relevant independent complement-producer and

- (2) by preventing the independent complement-producer from supplying complements of the perpetrator's basic good to the perpetrator's customers, precluding the independent complement-producer from improving his position in relation to those buyers by showing them that he is intelligent and reliable.

Systems rivalry will arguably violate the Sherman Act despite the fact that it will not be predatory when its perpetrator's *ex ante* perception that it was at least normally profitable was critically affected by his belief that—by reducing the profits the independent complement-

producer could realize by operating his complement-producing business—the systems rivalry would induce the independent complement-producer to sell its business to the perpetrator (perhaps at a price that was below the value it would have if the perpetrator had not engaged in systems rivalry).

In some cases, a private plaintiff or the State may be able to win civil or criminal Sherman-Act cases against firms that have engaged in systems rivalry by putting into evidence (1) internal memos written by perpetrator managers or employees that articulate the perpetrator's illegal motivation, (2) admissions by guilty personnel of the defendant who are trying to expiate their guilt or secure a better deal from a prosecutor, judge, or jury, (3) whistle-blowing testimony or recordings provided by innocent members of the defendant's organization, or (4) independent-complement-producer-supplied testimony about or recordings of prejudicial statements made by defendant-personnel, perhaps in the course of trying to induce the complement-producer in question to sell its business to the perpetrator possibly at a distress price. However, although the memos to which the above list refers are available more often than one might think (in part because of the difficulty of removing all traces of them from the hard-drive of the perpetrator's computer system), some of the other types of evidence just listed may not be sufficiently persuasive even when they are available. Thus, the testimony of many guilty personnel is undercut by the suspicion that they may be lying to secure a better outcome for themselves, the testimony of some innocent whistle-blowers will be undercut by the fact that they are disgruntled or fired employees, and the testimony of independent complement-producers is undercut by their financial stake in proving that the defendant has violated the law.

For this reason, in order to establish its *prima facie* case, the State or a private plaintiff will often have to rely on other kinds of evidence. To save space, I will focus this discussion of the other kinds of evidence that the State or private plaintiff might use to establish the requisite probability that all the factual predicates of its Sherman-Act case were true on the factual predicates for two of the claims that such parties might make:

- (1) the claim that a defendant's systems-rivalry was predatory and hence Sherman-Act violative because his *ex ante* perception that it would be at least normally profitable was critically affected by his belief that it would benefit him in various ways by depriving one or more independent complement-producers of some or all of the profits they would otherwise have realized by supplying his customers with complements of his basic product, and

- (2) the claim that a defendant's systems rivalry violated the Sherman Act because his *ex ante* perception that it would be at least normally profitable was critically affected by the possibility that it might induce an independent complement-producer to sell its business to the perpetrator (perhaps for less than the fair market value it would have had but for the perpetrator's practice of systems rivalry).

To make out the first type of *prima facie* case just described, the State or a private plaintiff would have to establish the requisite possibility that all four of the following factual propositions were simultaneously true:⁴²

- (1) the relevant independent complement-producers could not prevent the systems rivalry from imposing a loss on them by using their resources to do something other than producing complements to the perpetrator's product;
- (2) the loss of the profits in question would increase the cost the relevant independent complement-producer would have to incur to finance the execution of its new QV investment or the continued operation of its existing QV investment in the relevant area of product-space and/or would reduce the operating profits that the QV investments in question would yield because some of those profits would have been jointly generated by the relevant QV investment and the supply of complements to the perpetrator's basic good;
- (3) any such increase in the cost of capital or any such decrease in operating profits might critically affect the relevant independent complement-producer's decision to make a new QV investment or maintain its existing investment in the area of product-space in which the perpetrator's basic product was located; and either
- (4) (A) one or more of the independent complement-producers who would be disadvantaged by the systems rivalry
 - (i) otherwise was or would have become an effective potential QV investor in the relevant area of product-space in that he would otherwise have raised total QV investment in that area of product-space to a level to which no other rival of the perpetrator would have raised it,
 - (ii) would otherwise have made a QV investment in the relevant area of product-space that would have lowered the profit-yields of the perpetrator's QV investments in that area of product-space by more than they would otherwise have been lowered by the rival

⁴² I recognize that the current legal practice appears to require the establishment of the requisite probability that each necessary condition for liability is separately fulfilled. However, this practice is clearly unjustified.

QV investment that would replace the independent complement-producer's QV investment the perpetrator's systems rivalry would deter, and/or

- (iii) would otherwise have maintained an existing QV investment in the relevant area of product-space that lowered the profit-yields of the perpetrator's QV investments in that area of product-space by more than those profit-yields would have been lowered by any rival QV investments that would replace the investments the perpetrator's systems rivalry induced the relevant independent complement-producer to withdraw if the perpetrator did not deter such a rival QV investment by making an additional QV investment of his own or
- (B) the systems-rivalry perpetrator would himself replace any such rival QV investment his systems rivalry deterred or induced to be withdrawn, and his substitution of his own QV investment for the deterred or withdrawn QV investment would increase his total supernormal profits.

Of course, even if the State or the private plaintiff established such a *prima facie* case, the defendant could still exonerate himself by

- (1) putting in evidence that reduces the probability that these four factual predicates would be simultaneously true below the level necessary to establish his criminal guilt or civil liability,
- (2) establishing that the systems rivalry in which he engaged would have been at least normally profitable even if it did not benefit him in the alleged way because of its performance of one or more of the legitimate functions Part II.A delineated, or
- (3) establishing that he believed *ex ante* that the systems rivalry in question was rendered at least normally profitable by its performance of legitimate functions (though this belief proved to be wrong *ex post*).

I will now elaborate on the evidence that one would have to submit to establish three of the facts that the State or a private plaintiff would have to prove to make out its *prima facie* case. I will begin with the fact articulated in item (4)(A)(i) in the preceding list: the evidence that would be relevant to determining whether an affected independent complement-producer would have been an effective potential QV investor in the area of product-space in which the perpetrator's basic product was located had the perpetrator not engaged in systems rivalry. This issue would be relatively simple to resolve if the Justice Department's first articulated approach

to determining the effectiveness of a potential QV investor⁴³ were correct. According to this approach, a potential competitor will be effective if and only if it is one of the three best-placed potential entrants to the relevant area of product-space.⁴⁴ If a version of this position that focused on potential entrants and potential expanders together—*i.e.*, on potential QV investors—rather than on potential entrants alone were correct, one could determine whether a given independent complement-producer would have been or would have become an effective potential QV investor in the relevant area of product-space had the perpetrator not practiced systems rivalry by determining whether that firm was or would have become one of the three best-placed potential QV investors in that area at some relevant point in time had the perpetrator not engaged in systems rivalry. Unfortunately, however, the Justice Department’s old approach to this issue is not only highly inaccurate but also far too crude to be defensible, even given the cost and inaccuracy of the data one would need to determine the effectiveness of a potential entrant or expander with some precision. The statement that a potential entrant or expander is effective implies that, during the relevant time-period, the firm in question would make a QV investment in the relevant area of product-space that would raise total QV investment in that area to a level that it would otherwise not reach during the relevant period. If the current number of QV investments in the relevant area of product-space⁴⁵ equals or exceeds the number of QV investments that would deter anyone from making a new QV investment in that space in the relevant time-period, no potential entrant or expander will be effective. If the current number of QV investments in the relevant area of product-space is lower than the number that will deter anyone from making an additional QV investment in that area of product-space, those potential expanders and entrants whose potential-QV-investor rank⁴⁶ is equal to or lower than the number

43 Department of Justice Conglomerate Merger Guidelines, 2 Trade Reg. Rep. ¶¶ 4490-95 (1984).

44 I mention this assumption because, in my experience, many lawyers seem to believe that it represents a highly reliable rule of thumb.

45 For simplicity, I am assuming that all QV investments in any given area of product-space will have the same size.

46 The potential QV investor of rank n is the firm that is in a position to make the n th most profitable QV investment that could be introduced into the relevant area of product-space where the profits in question equal the

of additional QV investments that would yield their maker at least normal profits will be effective (at least if there is no tie for the last position).⁴⁷ This conclusion implies that, even in a static situation, one would not be able to determine whether a particular complement-producer would have been an effective potential QV investor in the area of product-space in which the perpetrator's basic product is located had the perpetrator not engaged in systems rivalry solely from the potential-QV-investor rank it would have had under those circumstances. One would need to know as well the number of additional QV investments that would have to be made in the relevant area of product-space to preclude anyone from being able to execute a new QV investment that it would perceive *ex ante* to be at least normally profitable. Moreover, since the real world is not static, even this account underestimates the amount of evidence that one would have to introduce to prove or disprove the effectiveness of the relevant independent complement-producers as potential QV investors in the area of product-space in which the perpetrator's machine was located. In particular, since both (1) the number of additional QV investments that would have to be made to render unprofitable any further QV investment in the relevant area of product-space and (2) the potential-QV-investor rank of various firms will vary through time, the relevant evidence will consist not only of short-run but also of longer-run data on these factors. In short, in order to establish the requisite probability that but for the systems rivalry an independent complement-producer would or would not have been or would or would not have become an effective potential QV investor in the relevant area of product-space, the State (private plaintiff) and the defendant would have to put on evidence about (1) the number of additional QV investments that would be profitable in the relevant area of product-space at different points in time and (2) the potential-QV-investor rank that the relevant independent complement-producers originally had and would have had at different points in time if the perpetrator had not engaged in systems rivalry. Even if one could establish with certainty

contribution the relevant investment would make to the total amount of supernormal profits yielded by the investor's organization.

⁴⁷ If there is no tie but the $(n+1)$ -ranked potential QV investor would invest if the n th-ranked potential QV investor did not, I would still say that the n th-ranked potential investor was effective because its QV investment would be more profitable and hence presumptively more allocatively efficient and more beneficial to the relevant buyers than the QV investment of the $(n+1)$ -ranked potential QV investor.

whether the relevant independent complement-producer's current potential-QV-investor rank would have been in the top three had the perpetrator not practiced systems rivalry, that demonstration would not establish whether the relevant complement-producer would have been an effective potential QV investor in the absence of such systems rivalry.

Fortunately, the elaboration of the next two factual predicates of the prosecutor/plaintiff's *prima facie* case on which we are now focusing will not be so complicated. The second such predicate on which some comment is necessary is the proposition that the perpetrator's systems rivalry reduced a relevant complement-producer's profits. In most cases, the prosecutor or private plaintiff will be able to establish that the perpetrator's systems rivalry imposed a loss on the relevant independent complement-producer by comparing the profits it actually realized on the activity it substituted for supplying complements of the perpetrator's basic product with the profits it had made in the past by supplying such complements, adjusted for any changes in the latter profits one should predict would have resulted had the perpetrator not practiced systems rivalry (for example, changes that would have resulted from increases or decreases in the demand for the perpetrator's basic product). Obviously, defendants may well dispute both of the profit-figures in question as well as the proffered adjustments to the profits the independent investor previously made by supplying complements to the defendant's customers.

The third factual predicate of the relevant *prima facie* case whose proof needs to be discussed is the claim that the defendant's systems rivalry increased the cost of relevant capital to a relevant independent complement-producer. In order to establish the extent to which the systems rivalry increased the cost of relevant capital to an independent complement-producer, the State or private plaintiff would have to put on evidence about the cost that that firm or its owners would have had to incur to obtain capital for maintaining existing QV investments or making new QV investments in the area of product-space in which the perpetrator's basic product is located by securing external financing (taking out loans, issuing bonds, or issuing additional common or preferred stock), by foregoing other capital expenditures, by selling assets, or by withholding dividends. Clearly, all this evidence may also be disputed by the defendant.

The second kind of Sherman-Act case I want to consider in the current context is one in which the claim that that defendant's systems rivalry violated the Sherman Act is based on the assertion that his *ex ante* perception that his systems rivalry would be at least normally profitable

was critically affected by his belief that it might induce an independent complement-producer to sell its business to the perpetrator by making that business less valuable to the independent than it was to the perpetrator without affecting the difference between the amounts by which their respective operation of this business would increase allocative efficiency if the perpetrator did not practice systems rivalry. To establish a *prima facie* case of this type without relying exclusively on confessions or admissions of illicit motivation, the State or private plaintiff would have to establish the requisite probability that the following three facts were simultaneously true:

- (1) but for the systems rivalry, the relevant independent complement-producer would not have sold its business to the perpetrator;
- (2) the systems rivalry reduced the profits the relevant independent complement-producer could realize by running its business; and either
- (3)
 - (A) this reduction in profits induced the independent complement-producer to sell its business to the perpetrator by lowering the value of the relevant business to its owner below its value to the perpetrator or perhaps
 - (B) the perpetrator made an offer to purchase the independent complement-producer's business for less than it would be worth if its owner were able to profit by taking advantage of its competitive advantages in supplying complements to the perpetrator's basic product—an offer that was rejected but would not have been made but for the defendant's practice of systems rivalry.

I have already elaborated on the evidence that one would have to adduce to establish the second of these conditions. Conditions (1), (3)(A), and (3)(B) could be established from historical evidence that the owners of the independent complement-producing business in question had in the past turned down one or more offers to buy it for specified prices, data on the price for which the business was actually sold to the defendant or the price that the defendant offered for the business in question after he practiced systems rivalry, data on those factors other than the perpetrator's practice of systems rivalry whose alteration might have independently caused the market value of the independent's business to have changed between the time at which the earlier offers had been received and the time at which the perpetrator's offer was made and perhaps accepted, expert-witness testimony on the value that the independent's business would have had at the time at which the perpetrator's offer was made if the perpetrator had not practiced systems rivalry, and/or evidence on the facts on which such independent valuations

would be based—evidence on (1) the weighted-average operating profits the business would be expected to yield through time if systems rivalry were not practiced and (2) the riskiness of the business under those conditions.

Of course, even if the State or private plaintiff established its *prima facie* case by putting on such evidence, the defendant might be able to exonerate himself in at least the following two ways:

- (1) by challenging the evidence the prosecution or private plaintiff used to establish that but for his practice of systems rivalry he would not have bought the independent complement-producer's business by demonstrating that this business would in any case have been worth more to him than to its original owner because he was in a position to improve the operation of the independent's business and would find it more profitable to do so than (say) to make a new QV investment in the independent's area of product-space and/or
- (2) by demonstrating that he believed *ex ante* that his systems rivalry would be profitable for legitimate reasons (perhaps by introducing internal memos to this effect or, more persuasively, by showing that the relevant systems rivalry was actually profitable for legitimate reasons).

Although the preceding discussion is far from comprehensive, I hope that it does present enough information about the structure and evidentiary basis of Sherman-Act systems-rivalry cases to convey at least a useful impression of the way in which such litigation would proceed.

2. Some Comments on the Two Major Federal Antitrust Cases Involving Allegedly-Predatory Systems Rivalry

The two best-known federal antitrust cases on systems rivalry are *Berkey Photo, Inc. v. Eastman Kodak Co.*⁴⁸ (henceforth *Berkey Photo*) and *California Computer Products v. International Business Machines Corporation*⁴⁹ (henceforth *IBM*). The relevant portion of the *Berkey Photo* opinion analyzed the legality of Eastman Kodak's decision to introduce a new camera without disclosing those of its attributes one would need to know to develop compatible photo-finishing equipment, to supply compatible photo-finishing services, or to create

⁴⁸ 603 F.2d 263 (2d Cir. 1979), *cert. denied*, 444 U.S. 1093 (1980).

⁴⁹ 613 F.2d 727 (9th Cir. 1979).

compatible film (though this latter fact did not play any role in the litigation). The relevant portion of the *IBM* opinion analyzed the legality of IBM's decision to create a new CPU in which the control function for the disk drive was integrated into the CPU itself without revealing the way in which this change altered the interface between the disk drive and its control function, thereby hindering independents from supplying compatible peripherals.

Although it appears that both product innovations would have been profitable even if they did not place independent complement-producers at a disadvantage, this conclusion leaves open the possibility that the defendants' respective decisions to keep secret the features of its product-change that independent complement-producers needed to know might still have been predatory or Sherman-Act-violative for some other reason. In my judgment, a proper understanding of the function(s) that the relevant decisions to withhold information performed implies that they were neither predatory nor illegal for some other reason. More specifically, I suspect that both Eastman Kodak's and IBM's decisions to keep their new product's relevant attributes secret were designed to increase their ability to practice meter pricing and, perhaps, in the case of Kodak, to increase its ability to control the quality of the complements that were combined with its product.

In Eastman Kodak's case, this conclusion is suggested by the following facts:

- (1) the value of Kodak's new camera to any buyer will increase with the number of times the buyer uses it;
- (2) Kodak could use tie-ins to implement a meter-pricing strategy by requiring its camera-buyers to purchase from it either all the photo-finishing services they buy to develop the pictures they take with the new camera at a price that exceeds the normal market price for photo-finishing services or all the film they use with the new camera for a price that exceeds the normal market price for film (in each instance, the difference between the contractual price and the normal market price for the tied "good" will equal the meter rate if the price in question is quoted per picture);
- (3) such tie-ins might well be held to violate the American antitrust laws, and their full-requirements provision would be difficult to enforce in any event;
- (4) if Kodak could preclude anyone else from supplying photo-finishing services or film for use with its new camera, it could practice meter pricing without using a tie-in by leaving camera buyers contractually free to buy film or photo-finishing

services from anyone and offering to supply such services or film to its camera buyers at a price above the normal market price for such services or goods; and

- (5) by keeping secret the attributes of its new camera that independent photo-finishing-equipment manufacturers, photo-finishers, and film manufacturers would need to know to produce compatible products or services, Kodak was putting itself in a position to practice meter pricing without using either a meter or a full-requirements meter-pricing tie-in.

It is also possible that Kodak was keeping the relevant attributes of its new camera secret to prevent its camera-customers from purchasing (usually inferior) complements from others whose use would lower Kodak's camera's performance, damage its reputation, and hence lower the profits Kodak could make by selling the camera.⁵⁰ In any event, the conclusion that this functional analysis suggests—*viz.*, that Kodak's decision not to reveal the relevant attributes of its camera was neither predatory nor Sherman-Act violative—is confirmed by the absence of any evidence suggesting either that the disadvantaged complement producers had any intention of entering the camera-production business or that Kodak had made any attempt to buy them out.

The same functional explanation seems likely to account for IBM's withholding information about its new product's characteristics. In IBM's case, the counterpart to the predicate that the value that a potential buyer places on a new camera *ex ante* will increase with the frequency with which he expects to use it is the fact that the value that a potential buyer of a new CPU places on this product *ex ante* will increase with the number of functions he anticipates using it to perform and hence with the number of peripherals he expects to use and actually will use in conjunction with it. This functional hypothesis and its associated corollaries that IBM's systems rivalry was neither predatory nor Sherman-Act violative is confirmed by the absence of any evidence suggesting either that the disadvantaged peripheral-manufacturers had any intention of entering into the mainframe or CPU manufacturing business or that IBM had made any attempt to buy them out. In short, I am confident that neither Kodak's nor IBM's practice of systems rivalry violated the Sherman Act.

⁵⁰ This possibility is suggested by evidence that Kodak was concerned about certain deficiencies of its new camera prior to introducing it. See Berkey Photo at 278.

Although the opinions in both of these cases reached the correct conclusion about the legality of the defendants' systems rivalry, their analyses of this issue were far from perfect. I will briefly touch upon five features of the opinions in question.

First, both opinions reiterate the current, mistaken positive-law (doctrinal) account of the elements of a successful claim of § 2 monopolization:

- (1) the defendant's possession of monopoly power in the relevant market and
- (2) the defendant's "willful acquisition or maintenance of that power" through acts that, even if "otherwise lawful, were unreasonably restrictive of competition."⁵¹

I will now explain why, if my interpretation of the Sherman Act is correct, neither of these alleged elements of a § 2 violation is actually a factual predicate of § 2 illegality.

A defendant's conduct can have violated § 2 of the Sherman Act even if he did not have monopoly power⁵² either before or after he committed the act being scrutinized.⁵³ On my

⁵¹ See IBM at 735-36. See also Berkey Photo at 271-76.

⁵² The courts have traditionally defined monopoly power to be "the power to control prices or exclude competition." See *United States v. E.I. duPont de Nemours & Co.*, 351 U.S. 377, 391 (1956). Although this formulation has the distinct advantage of implying correctly that there are two dimensions of a firm's monopoly power—its ability to raise prices above the competitive level (its monopoly control over price) and its ability to realize supernormal profits on its QV investments in the relevant area of product-space (its monopoly control over QV investment), it does not sufficiently operationalize either dimension of monopoly power. If I were to define a firm's monopoly power in a way that distinguished its monopoly power from any oligopoly power it possessed, I would define its monopoly control over price by the sum of the competitive advantages it enjoyed in its relations with those buyers it was privately-best-placed to supply and its monopoly control over QV investment by the sum of (1) the difference between the (Π_D+R) barriers it faced on its weighted-average QV investment in the relevant area of product-space and the (Π_D+R) barriers that would be faced by the potential QV investor that was just deterred from adding a QV investment to the relevant area of product-space and (2) the additional supernormal profit-rate it was able to realize on its QV investments in the relevant area of product-space because of the scale barrier that confronted the best-placed potential investor who was just deterred from adding a QV investment to the relevant area of product-space (where the scale barrier "S" refers to the amount by which the additional QV investment in question would have reduced the supernormal profit-rates yielded by the average QV investment in the area of product-space in question). In practice, courts have tended to assume that a firm's monopoly power increases monotonically with its market share. Even if, contrary to fact, markets could be defined non-arbitrarily, one would not be able to predict either dimension of a firm's monopoly power from its market share. Not surprisingly, neither the Berkey Photo opinion nor the IBM opinion manifests any awareness of the foregoing complexities. For a demonstration of the inevitable arbitrariness of market definitions, see Richard S. Markovits, *On the Inevitable Arbitrariness of Market Definitions*, 2002 ANTITRUST BULL. 571 (2002).

⁵³ Although the standard formulation does not indicate whether the defendant must possess monopoly power before or after his commission of the suspect act(s) and I suspect that the courts believe that pre-act possession is required, the text will address both possibilities.

account, post-act possession of monopoly power is not a predicate of the crime of monopolizing or attempting to monopolize because the Sherman Act condemns unsuccessful as well as successful attempts to monopolize. I am not sure why the courts believe that pre-act possession of monopoly power is an element of the crime of monopolization. Neither of the two possible explanations that occur to me can bear scrutiny. Thus, this conclusion cannot be justified by arguing that firms that do not already have monopoly power will not aspire to secure (additional) monopoly power in some way that would violate the Sherman Act because such firms cannot possibly secure monopoly power in some such way. To see why this proposition is unsupported, think of a firm that has no monopoly power because of the competition it faces from a particular rival who is better-placed to compete for its customers than any organization that could replace it would be. Such a firm might very well be able to secure monopoly power by killing the management of its rival, blowing up the rival's plant and equipment, or eliminating the rival in some less dramatic way. Similarly, I don't see how one can justify the claim that no firm that does not already possess monopoly power in some area of product-space can secure (additional) monopoly power in a way that would violate the Sherman Act by arguing that (1) any such attempt would be expensive and (2) firms that did not already have monopoly power in the relevant area of product-space could not finance the necessary illegal campaign. I agree with the first of the above two premises and will ignore the fact that a firm that has monopoly control over price in some area of product-space may not be realizing any supernormal profits from its QV investments in that area of product-space because it has no monopoly or oligopoly control over QV investment in that area of product-space. However, even this acknowledgment and concession are insufficient to make the preceding argument work because a firm that violates § 2 by engaging in an expensive campaign of predation need not finance that campaign with supernormal profits it has earned in the area of product-space it is attempting to monopolize. Such a campaign can be financed equally cheaply from the normal profits the predator is earning in the relevant area of product-space, from the normal or supernormal profits it is earning in other areas of product-space, and/or from retained earnings and can sometimes be financed equally cheaply from the proceeds of asset-sales or from external sources.

I have no basic objection to the courts' formal statement of what they take to be the second element of the crime of § 2 monopolization: "the willful acquisition or maintenance of ...

[monopoly] power.” Indeed, at least if this element were reformulated to include unsuccessful willful attempts to acquire or maintain monopoly power, it would articulate in a more abstract form the more operationalized position I have taken on the meaning of § 2’s proscription of “monopoliz[ing] or “attempt[ing] to monopolize.” My objection to the courts’ articulation of this element of a § 2 violation is to their claim that this requirement can be satisfied not only by a demonstration that the suspect act(s) was or were independently prohibited by the Sherman Act but also by a demonstration that the act(s) in question though “otherwise lawful, were unreasonably restrictive of competition.” I do not purport to grasp exactly what the courts mean by “unreasonably restrictive of competition.” However, in my view,

- (1) with the possible exception of otherwise-unprofitable acts that are designed to induce someone to sell out his business to a perpetrator by depriving their target of profits it would otherwise have earned by supplying complements to the perpetrator’s product in circumstances in which this sale would not otherwise have violated the Sherman Act or Clayton Act, all acts that can justify the conclusion that their perpetrator has violated § 2 are themselves predatory and illegal on that account and
- (2) this exception cannot be said to involve conduct that is “unreasonably restrictive of competition” unless it resulted in a sale of the independent’s business to the perpetrator that violated the Clayton Act—in which case, the exception would make no difference.

The second feature of the *Berkey Photo* and *IBM* opinions on which I want to comment relates to their conclusion that the product-changes on which the cases focused were profitable independent of any consequences those changes had for the conduct or survival of various independent complement-producers.⁵⁴ I agree with the courts’ apparent belief that—if this conclusion is correct—it defeats the claim that the product-changes were themselves predatory and hence Sherman-Act violative (at least if one assumes that the conclusion that the product-changes were independently profitable implies that they were more profitable than any alternative changes the defendants could have made to their products). However, although the courts did not explicitly address this issue, they seem to think that the independent profitability of the product-changes also establishes the legality of the defendants’ decisions to keep secret

⁵⁴ See *Berkey Photo* at 278 and *IBM* at 744.

various attributes of their new products. As we have seen, this conclusion is incorrect when the choice to keep this information secret would have been perceived *ex ante* to be less-than-normally profitable but for its tendency to deter independent complement-producers from making new or maintaining old investments in the area of product-space in which the perpetrator's basic product is located by raising their finance-costs, depriving them of certain joint economies, and/or preventing them from demonstrating their intelligence and reliability to the perpetrator's customers.

The third feature of the *Berkey Photo* and *IBM* opinions I wish to discuss relates to their claim that the antitrust laws allow firms or actors that have made some valuable discovery (say, of a product-attribute that buyers will value, of a production-process-attribute that will render a production-process that incorporates it more cost/effective, or of the identity of economic actors who will want to purchase a particular product at a price that will enable its producer to profit by supplying them) to keep that information to themselves in order to increase allocative efficiency by maintaining the incentives of potential discoverers to make the relevant discoveries.⁵⁵ Although I agree with this description of the law, I have two related objections.

The first is an aside. The *IBM* opinion's discussion of this issue implicitly assumes that any discovery that an economic actor would find profitable to make if he could keep it secret would be allocatively efficient for him to make. In fact, in our actual, highly-Pareto-imperfect world, this assumption is incorrect: even if any discoverer could keep his discoveries secret, the profitability of all kinds of discoveries would be distorted. More relevant in the current context, even on the above assumption, the profitability of creating new products or discovering that particular known product-attributes would be profitable to supply consumers would be inflated so that marginally-profitable and some more-than-marginally-profitable efforts to make discoveries of these kinds will be allocatively inefficient.⁵⁶

⁵⁵ See *IBM* at 281-83 for a lengthy discussion. See also *Berkey Photo* at 744.

⁵⁶ For an explanation, see Richard S. Markovits, *On the Economic Efficiency of Using Law to Increase Research and Development: A Critique of Various Tax, Antitrust, Intellectual Property, and Tort Law Rules and Policy Proposals*, 39 HARV. J. ON LEG. 63, 78-99 (2002).

The second objection is far more salient in the current context. Although this distinction probably was not relevant to the *IBM* case, the *IBM* court's general discussion of the allocative-efficiency justification for allowing discoverers to keep secret knowledge they discovered fails to distinguish between (1) keeping secret information one has discovered about some product or production-process attribute in order to prevent others from using that information to create a product or production process that has the attribute in question and (2) keeping such information secret to reduce or eliminate the profits the others can realize by producing complements of the information-holder's products or to prevent independent complement-producers from demonstrating their intelligence and reliability to the information-holder's customers by precluding them from supplying such complements to the buyers in question in order to prevent the relevant others from (A) developing products that are competitive with the information-holder's products but that do not possess the attribute in question and (B) producing these products through a process that was not influenced by any information they obtained by observing the perpetrator's operation.

The fourth feature of the *Berkey Photo* and *IBM* opinions I want to discuss is their analysis of the functions performed by the systems rivalry they considered. In fact, I should really have written instead "their failure to analyze the functions that systems rivalry in general can perform or the functions that the particular acts of systems rivalry with which they were concerned did perform." In part, this deficiency of the opinions reflects the two courts' conclusion that the product-changes in question were profitable independent of their consequences for the survival or behavior of any independent supplier of complements for the defendants' original basic product, and, in part, it reflects their failure to examine the possibility that a firm's decision to keep secret the attributes of a new product might be predatory or Sherman-Act-violative because they were designed to induce their target to sell his business to the perpetrator by precluding him from engaging in acts of supply that (on the antitrust laws' otherwise-Pareto-perfect assumption) would have been equally profitable and allocative efficient regardless of the independent profitability of the defendant's decision to create and introduce the new product.

The fifth and final aspect of these two opinions I want to discuss is the overbreadth of their conclusion that systems rivalry is never predatory or Sherman-Act-violative for that reason

or because it induced a target complement-producer to sell its business to the perpetrator by preventing the target from profiting by actualizing the potential contribution it could make to allocative efficiency by supplying complements of the perpetrator's product. Although, as I have already indicated, the acts of systems rivalry involved in *Berkey Photo* and *IBM* were almost certainly neither predatory nor Sherman-Act-violative because they were designed to induce an independent to sell his business to the perpetrator, as I have also already indicated, some instances of systems rivalry are predatory and Sherman-Act violative on that account, and some that are not predatory may violate § 2 for the second reason listed above. These courts' apparent belief to the contrary is at least partially caused by their failure to consider the functions that systems rivalry can perform.

III. Predatory and Allegedly Predatory "Aftermarket" Conduct Directed at Independent Suppliers of Replacement-Parts and Repair-and-Maintenance Services

Producers of durable machines sometimes require some or all of their customers to purchase replacement-parts and/or repair-and-maintenance services through them. If such producers produce replacement-parts themselves, they may refuse to sell them to independent service organizations. If they license others to produce replacement-parts, they may prohibit their licensees from supplying anyone but themselves. In addition, producers of such goods may keep attributes of their machines and/or of replacement-parts that are compatible with their machines secret to make it more difficult for unlicensed producers to produce compatible replacement-parts. Part III analyzes the functions and predatory character of such aftermarket conduct, examines the legal implications of its economic conclusions, discusses in some detail the facts of and various opinions written in the leading Supreme Court case on aftermarket conduct, and comments on the most important economist-written article on the functions, allocative efficiency, desirability of prohibiting, and (perhaps) Sherman-Act legality of the above types of aftermarket conduct.

A. The Functions, Predatory Character, and Antitrust Legality of the Allegedly-Predatory Types of Aftermarket Conduct

Economists and courts seem to believe that the kinds of aftermarket conduct described in the preceding paragraph function differently from the behaviors that they designate "systems

rivalry.” In fact, however, the above types of aftermarket conduct perform the same eight functions as does “systems rivalry.” The following nine facts should make this conclusion self-evident:

- (1) replacement-parts and repair-and-maintenance services are complements of machines just as film and developing services are complements of cameras and peripherals and software are complements of a mainframe;
- (2) the performance of a machine may be affected by the quality/compatibility of the replacement-parts and repair-and-maintenance services with which it is “combined” just as the performance of a camera may be affected by the film and developing services with which it is combined and the performance of a computer system may be affected by the peripherals or software with which it is combined;
- (3) the frequency with which a buyer uses the machine (and hence the value of the machine to him) will increase (perhaps proportionately) with the amount of replacement-parts, maintenance services, and repair services the machine-buyer buys;
- (4)
 - (A) if the P/MC ratio for a machine’s replacement-parts is higher (lower) than the P/MC ratio for the repair-and-maintenance services for the machine, the buyer of the machine will spend less (more) on replacement-parts and more (less) on repair-and-maintenance services for any given total expenditure on those things than would the machine manufacturer if it used the machine itself and supplied itself with the relevant parts and services as well and
 - (B) this difference will reduce the profits the machine producer realizes by selling the machine to independent buyers;
- (5)
 - (A) if the ratio of the cost to a machine’s purchaser of a marginal use of the machine to the cost to the machine’s manufacturer of the purchaser’s using the machine is different from the ratio of the cost to the machine’s purchaser of having the machine repaired or maintained to the cost to the machine’s manufacturer of maintaining or repairing the machine or hiring someone else to do so, the machine’s purchaser will choose a combination of machine-use and machine repair-and-maintenance services that is different from the combination that the machine manufacturer would choose for any given total cost and
 - (B) this difference will reduce the profits the machine manufacturer realizes by selling to independent buyers the machine or a combination of the machine, replacement-parts for the machine, and repair-and-maintenance services for the machine;

- (6) when independent replacement-part manufacturers and independent repair-and-maintenance-service providers might introduce a new QV investment into the area of product-space in which the machine manufacturer's machine is located, the above kinds of aftermarket conduct might deter them from doing so by
- (A) raising the cost to them of the capital they would require to make the QV investment in question by depriving them of the profits they would otherwise be able to earn by producing replacement-parts or supplying repair-and-maintenance services for the perpetrator's machine (profits they could use to finance the QV investments in question),
 - (B) reducing the operating profits any such new investment would yield them by precluding it from generating joint profits with the investment the firm made in its replacement-part and repair-and-maintenance business,
 - (C) increasing the Π_D and R barriers they face by depriving them of the opportunity to learn something either about producing the desirable machine and/or about attributes of the machine that would make it more attractive to potential buyers by depriving them of the opportunity of studying the machine when producing replacement-parts for it or servicing it,
 - (D) increasing the Π_D and R barriers they face by depriving them of the opportunity to learn the identity and special needs of the machine's various customers, and/or
 - (E) increasing the Π_D and R barriers they face by depriving them of the opportunity to convince the perpetrator's customers of their intelligence and reliability;
- (7) when independent replacement-part manufactures and independent repair-and-maintenance-service providers already have a QV investment in the area of product-space in which the perpetrator's machine is located, the above kinds of aftermarket conduct might induce them to withdraw that QV investment (or deter them from renewing that QV investment) in one or more of the five ways in which it might deter them from making a new QV investment (*e.g.*, by raising the cost of the capital they would require to operate or renew an existing QV investment);
- (8) when independent replacement-part manufacturers and independent repair-and-maintenance-service providers already have and will maintain one or more QV investments in the area of product-space in which the perpetrator's machine is located or will in any event introduce one or more new QV investments into that area of product-space, the above kinds of aftermarket conduct might worsen their competitive positions in relation to the perpetrator's customers in one or more of the last four of the five ways in which such conduct might deter them from making new QV investments in the relevant area of product-space or induce them to withdraw a QV investment they already have in that area of product-space; and

- (9) by depriving independent replacement-part manufacturers or independent repair-and-maintenance providers of some or all of the profits they would otherwise have earned by supplying the perpetrator's customers, the above kinds of aftermarket conduct might induce them to sell their replacement-part and/or service businesses to the perpetrator (perhaps at a price below the value that these businesses would have had had he not engaged in the aftermarket conduct being scrutinized).

It should therefore also not be surprising that the conclusions Part II reached about the possible predatory character and Sherman-Act illegality of systems rivalry apply *mutatis mutandis* to the listed kinds of aftermarket conduct as well. In particular, the following conclusions about the antitrust legality of the types of aftermarket conduct that have been subjected to Sherman-Act attack are justified:

- (1) the relevant types of aftermarket conduct will be predatory and Sherman-Act-violative on that account if and only if their perpetrator's *ex ante* perception that they would be at least normally profitable was critically affected by his belief that
 - (A) by reducing or eliminating the profits that an independent replacement-part manufacturer or an independent repair-and-maintenance-service provider earned by supplying the perpetrator's customers, the aftermarket conduct in question might deter the independent from making a new QV investment in the area of product-space in which the perpetrator's machine was located or might induce the independent to withdraw an existing QV investment in that area of product-space or
 - (B) by preventing an independent replacement-part manufacturer or an independent repair-and-maintenance-service provider from supplying the perpetrator's customers and thereby preventing the independent from demonstrating its intelligence and reliability to these buyers, the aftermarket conduct in question might deter the independent from making a new QV investment in the area of product-space in question, might induce the independent to withdraw an existing QV investment in that area of product-space, and/or might preserve the profit-yields of the perpetrator's QV investments in that area of product-space by preventing an independent who made a new QV investment or continued to operate his old QV investment in that area of product-space from improving his competitive position in relation to the perpetrator's customers by demonstrating his intelligence and reliability to them;
- (2) the relevant types of aftermarket conduct may violate the Sherman Act though they will not be predatory if they induce an independent replacement-part

manufacturer or repair-and-maintenance-service provider to sell his business to the perpetrator;⁵⁷ and

- (3) although this proposition reflects nothing more than my theoretically informed, unsystematic empirical observations, in my judgment, even if the relevant-types of aftermarket conduct were not covered by the antitrust laws, the vast majority of instances of such conduct would not violate the Sherman Act because their *ex ante* perpetrator-perceived (and *ex post* actual) profitability was guaranteed by their performance of one or more legitimate functions such as
 - (A) increasing the private cost-effectiveness of a machine manufacturer's efforts to control the quality of the replacement-part and service complements of his machine,
 - (B) increasing the private cost-effectiveness of a machine manufacturer's efforts to practice meter pricing or prevent its customers from combining two or more of uses of its machine, replacement-parts, and repair-and-maintenance services in proportions that do not maximize their and his joint profits, and
 - (C) enabling the machine manufacturer to keep to itself information it discovered about machine-attributes that would be profitable to supply, production processes that would be profitable to use, and customers whom it would be profitable to supply.

In short, both the economic and the legal analysis of the relevant types of aftermarket conduct are identical to their systems-rivalry counterparts. However, I need to respond to two arguments that have been made in the aftermarket-conduct context that have not been made in systems-rivalry cases (though counterpart arguments could have made in the systems-rivalry context).

First, some observers have argued that a defendant in an aftermarket-predation case will not be able to defend himself by establishing that his conduct was rendered profitable by the legitimate functions it performs if he allows some of his customers to service their own machines. Indeed, some of these observers believe that this fact warrants the conclusion that a machine producer who allows one or more buyers to service the machines they buy from him must be behaving predatorily: if the relevant choices are not performing a legitimate function, they must be performing an illegitimate function. In reality, the fact that a machine manufacturer

⁵⁷ As before, any such merger or acquisition might violate the Sherman Act or the Clayton Act independent of whether it was induced by the type of aftermarket conduct in question.

allows some of his customers (usually large, sophisticated buyers) to service the machines they buy from him is perfectly consistent with the legitimacy of the restrictions he imposes on other buyers (and on the independent parts-producers he asks to sell exclusively to him the parts he designs). Thus, the fact that the machine manufacturer is not worried that large sophisticated buyers will improperly service the machines they buy from him or will use improper replacement-parts is perfectly compatible with his being concerned that other buyers will make parts and service decisions that may be mistaken from those buyers' perspectives and will be detrimental to him even if they are unprofitable for the buyers in question. Similarly, the fact that a machine manufacturer does not want to charge meter prices to his large, sophisticated buyers (1) because they are not pessimistic about the frequency with which they will use the machine, (2) because the machine manufacturer knows the value of his machines to such buyers (both because he would have a better understanding of such buyers' operations even if he did not research them and because the scale of such buyers' purchases makes it cost-effective for the machine manufacturer to do additional research into their operations that provide him with useful information about the value of the relevant machines to them), (3) because such buyers are not more risk-averse than the machine manufacturer is and are not more uncertain about the value of the machines to them than the machine manufacturer is about his total sales, and (4) because economies of scale make it cost-effective for the machine manufacturer to enforce against such buyers prohibitions on their using the machines to provide services to other potential buyers of the machines is perfectly compatible with the machine manufacturer's finding it profitable for legitimate reasons to charge meter prices to other, smaller, less-sophisticated buyers who may be pessimistic about the frequency with which they will use the machine, about whose needs the machine manufacturer may be less well-informed, who may be more risk-averse and more uncertain about the value of the machine to them than the machine manufacturer is, and whose possible practice of arbitrage may be more troublesome. In short, the fact that a machine manufacturer allows some of his buyers to service the machines they buy from him does not justify the conclusion that its relevant aftermarket-practices are illegitimate.

Second, some observers argue that the fact that a machine manufacturer has at one time allowed some independent service organizations to service his machines (regardless of whether he trains them himself) implies that his decision to remove the independents' authorization to

provide such services must be predatory (at least if the independents cannot be shown to have provided disappointingly-low-quality services). This conclusion is also unwarranted. The machine manufacturer may have changed his mind for a variety of non-predatory reasons:

- (1) the machine manufacturer's ability to supply the relevant repair-and-maintenance services may have increased through time;
- (2) the machine manufacturer's need to engage in meter pricing may have increased through time as the attributes of his customers or his customers' businesses or business environments change; and/or
- (3) the machine manufacturer's original business judgment may have been mistaken for reasons that are unrelated to the performance of the independent service organizations.

Of course, as we saw in Part II,⁵⁸ if the machine manufacturer cannot explain his decision to cut off an independent parts-manufacturer or service-provider whom he had previously allowed to supply his customers or *a fortiori* whom he had previously encouraged to enter into this business, these firms might have a legal right to void any contract they make to sell their business to the machine manufacturer or, conceivably, might have a legal right to collect damages equal to the profits the machine manufacturer made because its aftermarket conduct induced them to sell their business to him.

B. A Discussion and Critique of the Leading Supreme-Court Case on the Relevant Types of Aftermarket Conduct

The leading Supreme Court case on allegedly illegal aftermarket conduct is *Eastman Kodak Co. v. Image Technical Services, Inc.*⁵⁹ (henceforth *Kodak-ITS*). After describing the conduct that was alleged to be illegal in this case, this subpart presents what I take to be the proper analysis of that conduct's legality and comments on the majority and dissenting opinions in the case. These opinions are illuminating not just because they make many of the mistakes this Article has pointed out but also because they reveal or suggest the tendency of "bad law" to

⁵⁸ See the text accompanying notes 36-39 *supra*.

⁵⁹ 504 U.S. 451 (1992).

deter lawyers from making the arguments that would enable conscientious, non-defensive judges to correct their mistakes.

I will start by presenting the facts of the case. Beginning in the 1980's, Eastman Kodak allowed independent service organizations (ISOs) such as Image Technical Services (ITS) to repair and service Kodak's high-volume photocopiers and micrographic equipment. Starting in 1985, Kodak reversed course and adopted various policies devised to make it more difficult for ISOs to supply purchasers of Kodak copiers and micrographic equipment with repair-and-maintenance services. In particular, to achieve this result, Kodak (1) stopped selling replacement-parts to ISOs, (2) required the independent manufacturers of replacement-parts for Kodak machines (so-called original equipment manufacturers—OEMs) to sell such parts only to Kodak, (3) pressured Kodak-machine owners that were allowed to service their own machines not to resell replacement-parts to ISOs, (4) pressured independent distributors of Kodak replacement-parts to supply them only to Kodak-machine buyers—*i.e.*, not to sell them to ISOs, and (5) refused to sell replacement-parts to some buyers unless they agreed to purchase their repair-and-maintenance services from Kodak as well. As a result of this change in Kodak policy, ISOs (A) found it more difficult, more expensive, or impossible to obtain replacement-parts for Kodak machines, (B) lost profits, and (C) in some instances exited. Concomitantly, at least some of the customers of the affected ISOs were put in a position in which their best option was to purchase machine-services from Kodak in deals that were less attractive than those they had previously struck with an ISO. The ISOs sued, alleging that Kodak's tying its sales of replacement-parts to the buyer's purchase of repair-and-maintenance services was a violation of § 1 of the Sherman Act (was a contract in restraint of trade) and that all the policies just described constituted attempts to monopolize in violation of § 2 of the Sherman Act (in my terms, were predatory).

The Supreme Court case was an appeal by Kodak of a Court of Appeal's decision⁶⁰ overturning a District Court grant of summary judgment in Kodak's favor.⁶¹ In the Supreme

⁶⁰ Image Technical Services, Inc. v. Eastman Kodak Co., 903 F.2d 612 (9th Cir. 1990).

⁶¹ Image Technical Services, Inc. v. Eastman Kodak Co., 1988 WL 156332 (N.D. Cal. 1988).

Court's judgment, the correct response to the summary-judgment motion turned *inter alia* on the answer to the following questions:

- (1) Could a reasonable trier of fact find that replacement-parts and repair-and-maintenance services were separate products (whose joint sale constituted a [possibly illegal] tie in)?
- (2) Could a reasonable trier of fact find that Eastman Kodak had market power over the so-called tying product (the replacement-part) even if one assumed (as the Court believed one had to in the context of this appeal) that Kodak had no monopoly power in the high-volume-photocopier and micrographic-equipment markets—a question made relevant by two antitrust doctrines (the doctrine that tie-ins are *per se* illegal if and only if the tying seller has market power over the so-called tying product and the doctrine that a seller cannot have attempted to monopolize in violation of §2 [cannot have engaged in predation] unless it possessed market [monopoly] power in the market it had allegedly attempted to monopolize prior to engaging in the allegedly illegal conduct)?
- (3) Could a reasonable trier of fact conclude that Kodak's conduct represented an attempt to maintain its monopoly control over its parts and strengthen its monopoly control over services? and
- (4) Could a reasonable trier of fact conclude that Kodak did not have valid business reasons for all the conduct that would otherwise be found to violate § 1 or § 2 of the Sherman Act?

The Supreme Court answered all these questions in the affirmative and therefore upheld the Court of Appeals' reversal of the District Court's grant of summary judgment in Kodak's favor.

I believe that the Supreme Court should have responded to this case in the following way. First, the Court should have noted that no OEM or ISO that was disadvantaged by Kodak's allegedly illegal aftermarket conduct was currently producing high-volume photocopiers or micrographic equipment. Second, it should have stated that in light of this fact Kodak's conduct would have been predatory if and only if Kodak's *ex ante* perception that its allegedly illegal aftermarket conduct was at least normally profitable was critically affected by its *ex ante* belief that—by depriving one or more OEMs or ISOs of some or all of the profits they would otherwise have been able to earn by supplying replacement-parts and repair-and-maintenance services to Kodak's customers (which profits they might have used to enter into the high-volume photocopier or micrographic-equipment manufacturing business), by depriving one or more such firms of the possibility to earn profits in this way that might have been jointly generated by its

aftermarket operations and its production of high-volume photocopiers and micrographic equipment, and/or by depriving one or more such firms of the opportunity to convince Kodak's customers of the firm's intelligence and reliability in the course of supplying them with aftermarket goods or services—such conduct (1) might deter one or more OEMs or ISOs from producing high-volume photocopiers or micrographic equipment, (2) might worsen the competitive position of any such firm that did enter into the business of producing such machines in relation to Kodak's customers, and/or perhaps (3) might induce an OEM or ISO to sell its business to Kodak. Third, the Court should have held that, since the ISOs' complaint did not allege that these conditions were fulfilled, the possibility that they might have been fulfilled cannot justify dismissing Kodak's motion for summary judgment and should therefore have reinstated the District Court's grant of summary judgment to Kodak. Fourth, in dicta, the Court might have pointed out that, since there is no reason to believe that any ISOs were contemplating entry into the relevant machine-manufacturing businesses or that Kodak had attempted to buy the business of any disadvantaged OEM or ISO, Kodak's conduct was probably designed to perform one or more of the following legitimate functions:

- (1) increasing the cost-effectiveness of Kodak's efforts to prevent its products' reputation from being harmed by his customers' purchase of inferior or improper replacement-parts or repair-or-maintenance services,
- (2) enabling Kodak to implement a meter-pricing system on Kodak's basic machines without using physical meters, full-requirements meter-pricing tie-ins, or endproduct-royalty schemes by putting it in a position to charge *supra*-marginal-cost prices for its replacement-parts and repair-and-maintenance services by precluding ISOs from undercutting such prices (since both the value of the machine to a given buyer and the amount of replacement-parts and repair-and-maintenance services that any buyer would purchase would increase [proportionately?] with the frequency with which the buyer used the machine); and
- (3) putting Kodak in a position to coordinate the *supra*-marginal-cost-pricing respectively of replacement-parts, repair-and-maintenance services, and machine-uses to prevent buyers from making jointly-privately-unprofitable substitutions of one or more of these things for the other.

Fifth, again in dicta, the Court might have stated that the claim that Kodak's conduct was designed to perform one or more of these three preceding legitimate functions is not undermined

by either the fact that Kodak allows some buyers to service the machines it buys from Kodak or the fact that at an earlier date Kodak allowed ISOs to service its machines.

I will now turn to the actual opinions written in the Supreme Court in *Eastman Kodak v. ITS*. In particular, I will articulate thirteen objections to Blackmun's opinion for the Court and/or Scalia's dissent.

First, both Blackmun and Scalia accept the incorrect doctrine that an actor cannot violate § 2 of the Sherman Act unless, prior to committing the allegedly-violative conduct, it had monopoly power in the market in which the alleged attempt to monopolize took place.⁶² For reasons that this Article has already explained, actors can violate § 2 of the Sherman Act even if they did not possess monopoly (or oligopoly) power in the relevant area of product-space prior to committing the allegedly illegal act.⁶³

Second, neither Blackmun nor Scalia seems to understand that there are two dimensions of a firm's monopoly power in any area of product-space and that a firm that has no monopoly or monopoly *plus* oligopoly control over QV investment in an area of product-space (that, as a result, earns just a normal rate of return on its QV investments in that area of product-space) may still have monopoly control over the price it charges for the products in question (may still have competitive advantages when selling those products to particular buyers).

Third, at least Scalia seems to be making the mistake (unfortunately common in the antitrust area) of assuming that the extent to which a producer has monopoly control over his products' price depends solely on the buyer-preference advantages he enjoys (the so-called "interchangeability" of his and his rivals' products).⁶⁴ In fact, the seller's buyer-preference advantage is only half the story. A seller's competitive advantage is equally dependent on his marginal-cost advantage or disadvantage: a seller whose product is strongly preferred by a buyer he is best-placed to supply may have only a small competitive advantage when dealing for the patronage of that buyer because his closest rival for that buyer's patronage may have a marginal-

⁶² *Id.* at 481 (Blackmun, J. for the Court) and 488 (Scalia, J., dissenting).

⁶³ See the text following note 53 *supra*.

⁶⁴ See *Kodak-ITS* at 2090: "the market is composed of products that have reasonable interchangeability."

cost advantage that almost completely offsets the best-placed seller's buyer-preference advantage.

Fourth, at least Blackmun⁶⁵ and probably Scalia⁶⁶ seem to misunderstand the conditions under which a machine manufacturer will have competitive advantages in supplying replacement-parts and repair-and-maintenance services for its machines that are in a meaningful sense independent of the competitive advantages it has when selling its machine to the buyers in question. Thus, although Blackmun recognizes that the switching costs of changing from one machine to another may make it profitable for a machine buyer who has not protected himself against post-machine-purchase increases in the price or decreases in the quality of machine-manufacturer-supplied replacement-parts and repair-and-maintenance services to purchase those goods and services from his machine-supplier at *supra*-competitive prices (regardless of whether these aftermarket terms come as a surprise to the buyer in question), he does not seem to realize that sophisticated buyers can protect themselves against such developments (A) by purchasing warranty coverage from the manufacturer, (B) by renting or leasing rather than buying the machine, (C) by purchasing long-term replacement-part and service contracts from the machine-manufacturer at the same time that he purchases the machine, (D) by securing a contractual commitment from the machine manufacturer that he will support independent suppliers of the relevant aftermarket goods and services or at least not hinder the entry of such independent sources of supply, and/or (E) by securing a contractual commitment from the manufacturer that he will be offered aftermarket products and services on the same terms offered new machine-buyers.⁶⁷ Blackmun also does not seem to realize that the extent to which a buyer is locked in will vary with the remaining economic life of his machine or that the buyers involved in the *Kodak-ITS* case were precisely the kinds of large, sophisticated buyers who would be likely to

⁶⁵ *Id.* at 2085-86.

⁶⁶ *Id.* at 2097-99.

⁶⁷ This list is taken from Carl Shapiro's excellent discussion of this issue in Carl Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 ANTITRUST L.J. 483, 488-90 (1995).

prevent their suppliers from engaging in opportunistic aftermarket conduct in one or more of the above ways.

Fifth, as Carl Shapiro points out,⁶⁸ neither Blackmun nor Scalia seems to have realized that a decision prohibiting durable-machine manufacturers from engaging in the kinds of aftermarket conduct that were the subject of *Kodak-ITS* would not protect the relevant machine's buyers from their suppliers' aftermarket opportunism. So long as the machine manufacturer is uniquely able to supply replacement-parts, it can exploit any opportunities its customers did not manage to eliminate contractually by raising the prices of the parts it controls.

Sixth, both Blackmun and Scalia accept the incorrect doctrine that tie-ins that involve a tying product over which the tying seller has monopoly power are *per se* illegal (allegedly because they always or virtually always violate the Sherman Act and it will be cost-ineffective to identify the few exceptions). As I have demonstrated elsewhere both exhaustively and exhaustingly⁶⁹ and as this Article's discussion of complement-quality control, meter pricing, and jointly-unprofitable-substitution-preventing pricing manifests, tie-ins can perform a wide variety of legitimate functions, and there is sound reason to believe that the vast majority of tying agreements entered into by sellers who have monopoly power over the so-called tying product violate neither the Sherman Act nor the Clayton Act.

Seventh, Scalia's discussion of tie-ins contains many incorrect assumptions about whether tie-ins that perform various functions do violate the tests of legality the American antitrust laws actually promulgate. Specifically, Scalia incorrectly assumes that tie-ins designed to evade price controls, tie-ins that implement meter-pricing systems, and so-called "full-line forces" (which reduce the amount of buyer and seller surplus combined [transaction surplus] a

⁶⁸ *Id.* at 492.

⁶⁹ See Richard S. Markovits, *The Functions, Allocative Efficiency, and Legality of Tie-Ins: A Comment*, 28 J. LAW & ECON. 387 (1985); *Tie-Ins and Reciprocity: A Functional, Legal (Competitive Impact), and Policy Analysis*, 58 TEX. L. REV. 1363 (1980); *Tie-ins, Leverage, and the American Antitrust Laws*, 80 YALE L.J. 195 (1970); and *Tie-Ins, Reciprocity and the Leverage Theory (the Non-Leverage Functions of Tying Agreements)*, 76 YALE L.J. 1397 (1967).

seller has to destroy to remove a given amount of buyer surplus through *supra*-marginal-cost pricing) all violate the antitrust laws' tests of legality.⁷⁰

Eighth, Scalia's discussion of tie-ins incorrectly assumes that tie-ins can be credited with performing certain legitimate functions whose performance can in fact be secured at least as cost-effectively without using tie-ins. In particular, Scalia appears to assume incorrectly that tie-ins are the most cost-effective means a seller can use to induce buyers to pattern their purchases in a way that enables the seller to take advantage of economies of joint production and distribution⁷¹ (when in fact the seller can achieve the same result at least as cheaply by offering to supply the relevant two products together more cheaply than he would sell them separately).

Ninth, Scalia asserts that a rule declaring *per se* illegal all tie-ins arranged by sellers that have monopoly power in the so-called tying-product market is justified because of the following two assumed facts: (1) tie-ins used by sellers who have monopoly power over the tying product are highly likely to be illegal—*i.e.*, are (A) highly likely to enable their employers to extend their monopoly power from the so-called tying-product market into the so-called tied-product market and (B) highly unlikely to be rendered profitable by their ability to perform such legitimate functions as assuring quality-control and concealing price competition—and (2) those tie-ins that involve such tying products that are not illegal—*e.g.*, that would be rendered profitable solely by their performance of such legitimate functions—are extremely difficult to identify.⁷² Neither of these two factual assumptions is correct. Certainly, Scalia gives no reason whatsoever to believe that the fact that a tying seller has monopoly power over the tying product implies that his tie-in cannot perform the same legitimate functions that Scalia acknowledges tie-ins that do not involve such goods can perform—indeed, would not be rendered profitable by their performance of such functions even if they did not increase their employer's profits in any other way.

⁷⁰ Kodak-ITS at 487 (Scalia, J., dissenting). These assumptions appear to be shared by the majority. See *id.* at 461 (Blackmun, J. for the Court).

⁷¹ *Id.* at 489 (Scalia, J., dissenting).

⁷² *Id.* at 487 (Scalia, J., dissenting).

Tenth, Scalia seems to assume that (1) a conclusion that a tie-in will increase its employer's ability to "extract monopoly rents from its consumers" would count for or guarantee its illegality and (2) tie-ins between machines on the one hand and replacement-parts and/or repair-and-maintenance services on the other would not increase their employer's ability to extract such rents.⁷³ The first of these propositions is false: the antitrust laws do not prohibit firms from taking full advantage of their competitive advantages—*i.e.*, from converting buyer surplus into seller surplus—even when they end up realizing supernormal profits (economic rents?) by doing so. The second of these propositions is also false: as I argued earlier, meter-pricing tie-ins and *supra*-marginal-cost-pricing-coordinating tie-ins can both increase the ability of their employer to extract profits from customers they are best-placed to supply by taking better advantage of their (legitimate) competitive advantages.

Tenth, the Blackmun majority opinion incorrectly asserts that Kodak's quality-control justification for its conduct is substantially undercut (1) by its willingness to allow some buyers to service the machines they have brought⁷⁴ and (2) by its assertion that "consumers are knowledgeable enough to lifecycle price"⁷⁵—*i.e.*, to estimate accurately the expenditures they would have to make under different pricing regimes on replacement-parts and service over the lifetime of a machine. I have already explained why the first of these claims is exaggerated.⁷⁶ The second incorrectly assumes that buyers who know how often a machine will have to be repaired or serviced will also be able to accurately evaluate the quality of service providers.

Eleventh, the majority opinion incorrectly rejects the contention that Kodak's policy might be designed to reduce its inventory-costs. The majority rejects this contention on the ground that such costs depend only on breakdown rates, which "should be the same whether Kodak or ISOs perform the repair."⁷⁷ This argument assumes a fact that may not be accurate

⁷³ *Id.* at 499 (Scalia, J., dissenting).

⁷⁴ *Id.*, at 484.

⁷⁵ *Id.*

⁷⁶ See the text two paragraphs after note 57 *supra*.

⁷⁷ Kodak-ITS at 484-85.

and ignores the possibility that, even if Kodak's estimate of weighted-average-expected breakdown-rates would not be affected by the operation of ISOs, its certainty about the breakdown-rates might be.

Twelfth, although I do not think that the particular "free-riding" argument that Kodak made to justify its allegedly illegal aftermarket conduct can bear scrutiny, Blackmun's response that this argument is legally irrelevant and "has no support in our case law"⁷⁸ might be read to reject a related argument that is correct and has received support in the case law. Some elaboration is required. Kodak claimed that its aftermarket conduct was justified by its ability to enable Kodak to protect its investment in its business from ISOs who had failed to enter the equipment and parts markets. There is no justification for this claim. As I have already shown,⁷⁹ unless the conduct that prevents independents from supplying complements to Kodak's machines perform one or more of the functions this Article has delineated, Kodak will if anything profit by allowing ISOs to supply such services to those of Kodak's machine-customers to whom they were better-placed to supply such services than was Kodak. The variant of Kodak's free-riding argument that—as we have seen⁸⁰—is both correct and supported by the case-law is one that is related to the ISOs' entering into the business of producing Kodak's high-volume photocopiers, micrographic machines, or replacement-parts for these products (or conceivably helping someone else to enter into these businesses). In particular, Kodak does have a judicially-recognized legitimate stake in preventing ISOs from supplying services to Kodak's customers if in the course of doing so the ISOs would obtain information that Kodak discovered about (1) the relevant durable-machine or replacement-part product-attributes that can be profitably supplied to buyers, (2) relevant-durable-machine or replacement-part production processes whose use will increase the cost-effectiveness of a producer's operations, and/or (3) the identity and special needs of economic actors to whom the relevant machines and replacement-parts can be

78 *Id.* at 2092.

79 See the text of the paragraph that contains footnote-number 22, the first paragraph of subpart II.A.

80 See the text accompanying and following notes 24-26 *supra* and the text accompanying notes 55-56 *supra*.

profitably sold because, on the otherwise-Pareto-perfect assumption on which the antitrust laws operate, allowing a discoverer to keep such information secret will tend to increase allocative efficiency by enabling the discoverer to internalize to himself the allocative-efficiency benefits his discovery generated (by providing potential discoverers allocatively-efficient incentives to make the discoveries in question). To the extent that Blackmun's reaction to Kodak's incorrect free-riding argument were intended to apply to this free-riding argument as well, they are incorrect.

Thirteenth and finally, neither Blackmun's opinion for the Court nor Scalia's dissent manifest any understanding of the various functions that the relevant sorts of aftermarket conduct can perform for their perpetrator. Neither opinion makes appropriate reference to any of the functions I have delineated. Moreover, Blackmun's assumption that Kodak's claim that its decision to increase its price for services was coupled with a decision to decrease its price for its machines and replacement-parts implied that it must be charging subcompetitive prices for its machines and replacement-parts⁸¹ reveals that Blackmun had no comprehension of the reasons why Kodak would find it profitable to adopt such a pricing strategy.

In one sense, this last criticism is unfair because Kodak's lawyers never explained why their client had engaged in the conduct in question⁸²—indeed, never even suggested as the Court suspected that it was lowering its machine prices and raising its aftermarket prices to increase its sales by helping buyers finance their initial purchases⁸³ (an account that does not work since Kodak could have achieved the same result by selling its machines on an installment plan). However, if one focuses not on the Justices' opinions in this case in isolation but on the body of antitrust law the Court has developed as a whole, the Court's failure to grasp the actual function of the aftermarket conduct involved in this case and to properly assess its legality really is its own fault: I suspect that the reason that Kodak's lawyers did not explain what was going on to the Court and perhaps did not ask their clients the questions that would have enabled them to

81 See Kodak-ITS at 2085.

82 *Id.* at 472.

83 *Id.* at 478 and 478 n.26.

understand the functions of the relevant behavior themselves was their correct perception that the Court was unwilling to rethink its incorrect conclusion that meter pricing and *supra*-marginal-cost-pricing coordination was prohibited by our antitrust laws—a thoughtless conclusion that (as I have already indicated) is manifest in Scalia’s dissent and various cases that dissent cited.

The most disturbing feature of the opinions in *Eastman Kodak Co. v. Image Technical Services, Inc.* is not so much the errors just listed or the dubious discussions to which these errors led⁸⁴ but the fact that the opinions manifest the tendency of doctrinal errors to deter lawyers from making the correct arguments that might lead the Justices to correct their mistakes: in this case, to induce the defendant’s lawyers to substitute a weak inventory-cost argument⁸⁵ and a poorly formulated and probably inapplicable “prevent ISOs from free riding on the defendant’s capital investment” argument⁸⁶ for the argument that should have won the day—*viz.*, the argument that (1) the conduct that was alleged to be illegal was devised to enable the defendant in question not only to protect its product’s quality-reputation but also to enable it to practice meter pricing or coordinate its *supra*-marginal-cost pricing of two or three “products” and that (2) the antitrust laws do not prohibit firms from preserving their competitive advantages or exploiting them more fully by using fancy pricing techniques such as meter pricing and (jointly-suboptimal-substitution-preventing) “coordinated *supra*-marginal-cost-pricing” because, (perhaps dubiously and certainly contestably) like our intellectual property laws, our antitrust

⁸⁴ Thus, the premise that market power is a prerequisite for the *per se* illegality of ties-ins or the predatory character of any kind of conduct led the Court to go on to make the independently incorrect assertion that market power can be inferred from market share (*id.* at 464), to conclude (see *id.* at 746) probably correctly that information (see *id.* at 475-76) and switching costs can give rise to market power in the supply of replacement-parts, at least if buyers have failed to negotiate replacement-part and service terms when making their machine-purchase (though as Scalia points out [see *id.* at 497] this conclusion seems to undercut the significance of the market-power requirement in cases involving the replacement-part and service-related behavior of machine manufacturers who service their own machines), and to assert incorrectly that decisions about whether to place two products in the same market can be based exclusively on their “interchangeability” (see *id.* at 482—incorrectly because the competitiveness of two products depends on differences in the marginal cost of producing them as well as on buyer preferences for one relative to the other) or on the cross-elasticity of demand between them (see *id.* at 469 and 470—for an explanation of why this contention is wrong, see RICHARD S. MARKOVITS, *MONOPOLY, MERGERS, AND MARKETS* 218-22 (unpublished book manuscript, 2003).

⁸⁵ Kodak-ITS at 483.

⁸⁶ *Id.*

laws are based on the premise that it is socially desirable to allow commercial discoverers and innovators to exploit the demand/marginal-cost combinations they face. When mistakes chill the presentation of the arguments that would reveal them, they tend to be self-perpetuating. Part of the reason I wrote this Article is to break this cycle of error.

C. A Critique of Carl Shapiro’s Analysis of the Functions, Consequences, and Legality or Desirability of Prohibiting the Kinds of Aftermarket Conduct Attacked in *Kodak-ITS*

The leading economist-written article on aftermarket conduct is Carl Shapiro’s article *Aftermarkets and Consumer Welfare: Making Sense of Kodak*.⁸⁷ This article contains a great deal of useful analysis, much of which Shapiro developed himself.⁸⁸ However, this subpart will concentrate on ten deficiencies of Shapiro’s study that are salient in the context of this Article.

First, Shapiro never explains whether he is making a legislative proposal or generating conclusions that he believes should also guide courts in the application of existing law to the relevant types of aftermarket conduct. I suspect that this omission (at least what I regard to be an omission) reflects Shapiro’s belief that the American antitrust laws authorize the courts to regulate the conduct those laws cover in the public interest. As I have already indicated,⁸⁹ this is the view of virtually all economists who analyze antitrust law and (somewhat more surprisingly) of the vast majority of lawyer-antitrust-law scholars who know some economics. I consider this position to be clearly wrong.

Second and relatedly, Shapiro never articulates the test or tests of legality that the American antitrust laws that cover the relevant types of aftermarket conduct should be interpreted to promulgate.

Third, Shapiro assumes that the behavior in question should be regulated in the way that would most promote (allocative) “efficiency and consumer welfare.”⁹⁰ If Shapiro means by

87 63 ANTITRUST L.J. 483 (1995).

88 For some examples that I incorporated into this article, see the text accompanying notes 67 and 68 *supra*.

89 See the text at notes 7-8.

90 Shapiro, *op. cit. supra* note 87 at 484.

“consumer welfare” the welfare of the buyers directly affected by the conduct in question—in *Kodak-ITS*, the purchasers of the relevant machines, replacement-parts, and repair-and-maintenance services,⁹¹ he has failed to explain how he would resolve the many cases in which the decision that would be most allocatively efficient would not be most beneficial to the buyers they directly involved.⁹² Moreover, regardless how he resolves this issue, I see little reason to believe that the behavior in question should be regulated in the way that would maximize allocative efficiency, maximize the relevant buyers’ welfare in their capacity as buyers, or maximize some function in which these are the only two considerations that play a role.⁹³

Fourth, Shapiro does not present a comprehensive analysis of the various functions that the relevant types of aftermarket conduct can perform for its perpetrators. The only functions to which he makes reference are the function I term “increasing the private cost-effectiveness of the perpetrator’s practice of meter pricing” and “preventing jointly-unprofitable substitutions of one product for another.”

Fifth, Shapiro appears to have a limited understanding of the functions that meter pricing performs—assumes that the practice’s only functions are to prevent “inefficient substitution”⁹⁴ (substitution that is against the joint [equivalent-dollar] interest of the seller and buyer in question) and to implement a strategy of price discrimination. Indeed, Shapiro seems to assume that meter pricing is essentially and inevitably linked to price discrimination.⁹⁵ I have shown

⁹¹ This interpretation is supported in context by his subsequent references to “consumer injury” (*id.* at 485) and to “whether consumers ultimately stand to benefit from the Kodak [legal] decision” (*id.* at 492).

⁹² The allocative efficiency of a decision reflects its impact not only on the buyers directly affected but also on everyone else whom it affects—*inter alia* on other buyers and on other individuals in their capacities as business owners, business employees, and victims and beneficiaries of externalities. Particularly in an economy that is Pareto-imperfect, there is no reason to believe that the decision that maximizes allocative efficiency will be most beneficial to the buyers it directly affects in their capacity as buyers of the products involved.

⁹³ For an explanation, see Richard S. Markovits, *On the Relevance of Economic-Efficiency Conclusions*, 29 FLA. ST. L. REV. 1 (2001).

⁹⁴ Shapiro, *op. cit. supra* notes 87 and 6 at 495.

⁹⁵ *Id.* at 498-500.

that meter pricing performs a large number of functions for its perpetrator⁹⁶ and that its profitability does not depend on its generating discriminatory outcomes.⁹⁷ For reasons I have already indicated,⁹⁸ Shapiro's linking of meter pricing and hence any aftermarket conduct that facilitates its practice to price discrimination is rendered particularly unfortunate by the courts' tendency to declare price discrimination illegal even when it does not contravene the applicable antitrust laws.

Sixth, given Shapiro's failure to articulate the existing antitrust laws' tests of legality and to analyze the full range of functions that the relevant kinds of aftermarket conduct can perform, it is not surprising that he fails to analyze the circumstances in which such conduct will and not violate the Sherman Act.

Seventh, given Shapiro's failure to analyze the possible functions of the relevant types of aftermarket conduct, it is not surprising that he fails to analyze the allocative efficiency either of most of the functional types of such conduct or of the allocative efficiency of prohibiting firms from engaging in these functional types of aftermarket conduct.

Eighth, Shapiro's claim that "[e]conomic theory provides no general guidance as to whether price discrimination increases or decreases overall efficiency"⁹⁹ is incorrect. Economic theory reveals that price discrimination will tend to misallocate resources in at least three ways:

- (1) by increasing the allocative transaction costs the seller generates in the course of designing and implementing his pricing strategy (when doing research into the highest price that different buyers would be willing to pay, when informing his salesmen of the results of that research, when charging different customers different prices, and when taking steps to prevent arbitrage),
- (2) by causing consumption-optimum misallocation (when the good in question is a final good) and production-optimum misallocation (when the good in question is an input)—*i.e.*, by creating a situation in which somebody could have been made better off without anyone's having been made worse off had the units of the

⁹⁶ See the text at notes 28-32 *supra*.

⁹⁷ See the text at note 31 *supra*.

⁹⁸ *Id.* at note 30.

⁹⁹ See Shapiro, *op. cit. supra* note 87 at 499.

relevant final goods or inputs that were produced been allocated differently among their potential users—by creating a situation in which different buyers face different relative prices on pairs of goods among which they choose,¹⁰⁰ and

- (3) when the good in question is not a production-process discovery, by exacerbating our tendency to devote too many resources from the perspective of allocative efficiency to the creation of quality and variety and not enough resources from that perspective to the discovery of allocatively-less-expensive ways of producing existing goods and to the production of additional units of existing goods.¹⁰¹

Ninth, although Shapiro's distinction between the deadweight losses monopoly supposedly generates by causing the monopolist to produce too few units of his product from the perspective of allocative efficiency¹⁰² and the kind of inefficient-substitution misallocation on which he focuses,¹⁰³ his analysis of the latter type of misallocation is vitiated by his implicit assumption that the relevant private costs and benefits are not distorted by the Pareto imperfections the economy contains.

Tenth and finally, Shapiro's otherwise superb analysis of the lock-in possibility is marred by his claim that the extent to which a buyer of a durable machine who has not protected himself contractually from opportunistic aftermarket conduct by his supplier will be locked in will be reduced if the buyer can sell his old equipment and replace it with another brand.¹⁰⁴ If the potential buyer of the relevant firm's used machine is as well-informed as the machine's original purchaser about its manufacturer's aftermarket plans, the original purchaser will not be able to mitigate the extent to which he is locked in by selling his used machine to someone else.

¹⁰⁰ For an explanation, see Richard S. Markovits, *The Causes and Policy Significance of Pareto Resource Misallocation: A Checklist for Micro-Economic Policy Analysis*, 28 STAN. L. REV. 1, 5-6 and 9-10 (1975).

¹⁰¹ See Markovits, *op. cit. supra* note 56 at 89-96.

¹⁰² I say "supposedly" because in an otherwise-Pareto-imperfect world in which the monopolist's production withdraws resources from the production of other goods produced by imperfect competitors who do not engage in perfect price discrimination, the production and/or consumption of the monopolist's good and this other good may generate externalities, *etc.*, the monopolist may not produce too few units of his output. See Markovits, *op. cit. supra* note 100 at 17-27.

¹⁰³ See Shapiro, *op. cit. supra* note 87 at 495 and 505-11.

¹⁰⁴ *Id.* at 490, note 14.

In short, although Shapiro's analysis of aftermarket conduct contains a great deal of merit, it also suffers from several deficiencies that this Article's analysis illuminates. In my judgment, some of these deficiencies can be traced to the fact that Shapiro is not legally trained and some, to the fact that—like most contemporary economists—he has not been trained to appreciate the relevance of allocative-efficiency conclusions or the proper way to generate such conclusions in a highly-Pareto-imperfect world.

CONCLUSION

Although the business practices called systems rivalry and aftermarket conduct have received a considerable amount of attention in the academic literature and some attention in the courts, no-one has noticed that these superficially different types of behavior perform the same set of functions. This Article establishes the following three positive conclusions:

- (1) in highly specific situations, both of these practices will be predatory and Sherman-Act-violative on that account and may be prohibited by the Sherman Act for another reason—*viz.*, because they have been designed to induce their target to sell out to their perpetrator by preventing the target from making profitable sales that would be as allocatively efficient as profitable on the American antitrust laws' otherwise-Pareto-perfect assumption;
- (2) both types of conduct can also perform a wide a variety of legitimate functions; and
- (3) there is abundant reason to believe that, in the vast majority of instances, both types of conduct are neither predatory nor prohibited by the American antitrust laws.

In the course of establishing these results, the Article also criticizes (1) the analysis that led two highly regarded economists—Janusz Ordover and Robert Willig—to reach the incorrect, contrary conclusion that systems rivalry is always predatory, (2) some aspects of the functional, impact, policy, and legal conclusions that another highly regarded economist—Carl Shapiro—reached about the relevant types of aftermarket conduct, and (3) various judicial opinions written in the major federal antitrust cases that deal with these phenomena. The Article concludes with the somber thought that the mistakes the Justices of the Supreme Court made in their opinions in the Court's major aftermarket-conduct case and in various other opinions on which the former opinions relied may be self-perpetuating in that they will tend to deter defendant counsel from

informing the courts about the actual functions of such conduct and the conditions under which it will be predatory and/or illegal—indeed, may even tend to deter defendant counsel from engaging their clients in discussions that could enable the relevant lawyers to understand such conduct themselves.