COMMENT

ATARI GAMES V. NINTENDO: DOES A CLOSED SYSTEM VIOLATE THE ANTITRUST LAWS?

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Table of Contents

INTRODUCTION 29
I. THE NINTENDO CRAZE 31
A. The History of Home Videogames 31
B. Nintendo's Patent and Its Licensing Practices 32
II. AN ECONOMIC ANALYSIS OF THE PRACTICES 34
A. The Economic Harm of a Monopoly 34
B. The Economics of a Closed System 39
C. Does the Lock-out Patent Change Anything? 53
III. WHAT THE COURTS MIGHT SAY 55
A. The Closed System 56
B. The Trademark Restriction 61
C. The Exclusive Outlet Restriction 64
IV. A CONSUMER'S PERSPECTIVE 67
APPENDIX 70

INTRODUCTION

As I rushed through the malls this past Christmas, I noticed a new store, one that would not have been possible just a few years ago. It was a Nintendo boutique. I was permitted only to gaze longingly at the games and accessories on display before being pulled away to shop for the things I would actually buy, but I thought it would be fun to return someday and purchase the system and perhaps a few cartridges and accessories.

So, I must admit that my perspective on the Atari v. Nintendo[1] suits will not be that of an unaffected observer, but rather that of a potential

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consumer. Like millions[2] of others, I am directly concerned with the price and quality of the cartridges that are available for play on the Nintendo system.

As a consumer, what should I think of the allegations by Tengen and its parent, Atari Games, that Nintendo has been artificially restricting the supply of games through the use of a lock-out chip?[3] Should I be convinced by Nintendo's response that the lock-out chip ensures that each game I buy will be of the highest quality?[4]

As a lawyer, I should also find the answers to these two questions important. Courts have noted that the antitrust laws are designed to protect competition and the consumer.[5] Therefore, the answers to the consumer's questions should largely answer the question of whether the lock-out chip and Nintendo's ancillary licensing practices violate the antitrust laws.

To analyze these issues, I will discuss the background facts and the nature of Nintendo's patent and its licensing practices in Section I. In Section II, I will discuss the economic effects of the patent and licensing system and how they might or might not enhance societal wealth. In Section III, I will discuss the results of Section II in terms of the legal analysis that the courts have employed in considering alleged antitrust

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1. There are three suits involved: two between Atari Games Corp. and Nintendo that have been consolidated: Atari Games Corp. v. Nintendo of Am., Inc. (N.D. Cal. filed Dec. 12, 1988) (No. C-88-4805-FMS) and Nintendo of Am., Inc. v. Tengen, Inc. (N.D. Cal. filed Feb. 2, 1989) (No. C-89-0027-FMS) (Tengen is a wholly owned subsidiary of Atari Games Corp.); and one suit between Atari Corporation (not formally related to Atari Games Corp.) and Nintendo: Atari Corp. v. Nintendo Co. Ltd., (N.D. Cal. filed Jan. 30, 1989) (No. C-89-0824-FMS), *cited in* Abramson, *Atari v. Nintendo, Another Collision of Patent and Antitrust Policies*, THE COMPUTER LAW., Apr. 1989, at 24, 29 n.1. Atari Games produces primarily game software and its subsidiary, Tengen, Inc., produces Nintendo Entertainment System (NES)-compatible game cartridges under license from Nintendo. This analysis focuses primarily on the *Atari Games v. Nintendo* suits.

2. According to one source, Nintendo Entertainment Systems will be in place in 19 million homes by the end of 1989. *See* Shao, Dunkin & Cole, *There's a Rumble in the Videogame Arcade*, BUS. WK., Feb. 20, 1989, at 37, 37 [hereinafter *Rumble in the Arcade*].

3. *See* Second Amended and Supplemental Complaint at 5-6, Atari Games Corp. v. Nintendo of Am., Inc. (N.D. Cal. filed Sept. 7, 1988) (No. C-88-4805-FMS) [hereinafter Atari's Complaint].

4. *Cf.* First Amended Complaint at 6, Nintendo of Am., Inc. v. Tengen, Inc. (N.D. Cal. filed Feb. 2, 1989) (No. C-89-0027-FMS) [hereinafter Nintendo's Complaint].

5. *See, e.g.*, Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 488 (1977); Robert's Waikiki U-Drive, Inc. v. Budget Rent-A-Car Sys., Inc., 732 F.2d 1403, 1408 (9th Cir. 1984).

violations. Finally, in Section IV, I will conclude with some thoughts on how a consumer might view these practices.

I. THE NINTENDO CRAZE

A. The History of Home Videogames

The Nintendo Entertainment System (NES) is not the first system intended to bring the excitement of the videogame arcade into the living rooms of America.[6] The NES spearheads the second such attempt. To understand Nintendo's behavior in structuring its foray into the American market, it is helpful to review the first such attempt.[7]

The first attempt began sometime in the late 1970s and reached a peak in 1983 with $3 billion in sales.[8] Two years later home videogame sales had plunged to $100 million.[9] Nintendo, and others, attribute the fall to "a flood of cheap, poor-quality game cartridges."[10] This statement implies that the first foray into home videogames failed due to some combination of a lack of profit in production and distribution because of low prices caused by the very competition that the antitrust laws are designed to foster, and a lack of demand by the consuming public because the game cartridges were of poor quality.[11]

A second and more probable reason for the fall is that the original machines and software were simply not up to the quality of arcade machines, or that of the NES.[12] Thus, it was not that the game cartridge was of poor quality. Rather, it was that even a good quality cartridge, containing software that fully used the original base unit's capabilities, became boring rather quickly.[13]

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6. Adler, Rogers, Brailsford, Gordon & Quade, *The Nintendo Kid*, NEWSWK., Mar. 6, 1989, at 64, 66 [hereinafter *The Kid*]; McGill, *A Nintendo Labyrinth Filled with Lawyers, Not Dragons*, N.Y. Times, Mar. 9, 1989, at A1, col. 3 [hereinafter *Labyrinth*].

7. Nintendo claims that it is trying to avoid the pitfalls which waylaid the first attempt. *See, e.g.*, Rogers, *The Other Guys: Zapped or Be Zapped*, NEWSWK., Mar. 6, 1989, at 66, 66 [hereinafter *Zapped*]; *Labyrinth*, *supra* note 6.

8. *See, e.g.*, *The Kid*, *supra* note 6, at 66.

9. *See id.*

10. *Rumble in the Arcade*, *supra* note 2, at 37; *see also* Nintendo's Complaint, *supra* note 4, at 5-6, ("Stores ultimately became flooded with low quality, poorly performing video game cartridges which led to massive consumer disenchantment, plummeting demand and unsaleable game inventories.").

11. One source even suggests that demand curves are not uniformly downward sloping and that low prices alone can reduce demand. *See Labyrinth*, *supra* note 6, at D23, col. 5 (quoting Sean McGowan, analyst, Balis Zorn Gerard).

12. *Cf.* Nintendo's Complaint, *supra* note 4, at 5.

13. *Cf. The Kid*, *supra* note 6, at 66 ("Sales for the whole industry...fell to $100 million [in 1985], by which time virtually every kid owned a video game and had exhausted its limited repertoire of tricks.").

Despite the collapse of the first attempt, in 1985 Nintendo began to test the American market with its more sophisticated machine, the NES. To avoid a glut of game cartridges, Nintendo installed a lock-out chip in its base unit and in each cartridge. Use of the lock-out system means that only game cartridges specifically created for use with the NES will work with the NES.[14] To ensure an adequate supply of games, Nintendo has licensed 36 software producers to create games for its system[15] and currently has over 100 titles.[16]

Sales of the NES in the United States have increased steadily each year, giving Nintendo 74% of an estimated $2.3 billion in sales in the United States' home videogame market in 1988.[17] Nintendo projects sales in the market to reach $3.4 billion in 1989, with Nintendo having a 77% share.[18]

B. Nintendo's Patent and Its Licensing Practices

In 1985 Katsuya Nakagawa applied for, and in 1989, was granted a patent for the lock-out system used on the NES.[19] Nakagawa assigned the patent to Nintendo Co. Ltd., the parent company of Nintendo of America, Inc.[20] The patent covers only the lock-out system itself.[21] The patent does not cover the base unit or the game cartridges, or the combination of the two to create home videogames.

To create the lock-out system, Nintendo starts with a lock-out microprocessor and a program.[22] This pair is placed into the circuitry of both the base unit and the cartridge. When the cartridge is inserted into the base unit, the lock-out microprocessors exchange a timed sequence of signals. If the timing and the signals match those the lock-out microprocessors have been programmed to receive, the base unit will load and run the game stored on the cartridge. If the signals stop or fail to match, then the game stops.[23]

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14. In computer systems, when the software for a computer is only available from the hardware manufacturer, the system is referred to as a closed system.
15. Nintendo's Complaint, *supra* note 4, at 6; *see also Rumble in the Arcade, supra* note 2, at 37 ("34 licensees"); *Labyrinth, supra* note 6, at D23, col. 2 ("39 software development companies in the United States and Japan"); Schmitt, *Atari Tests Technology's Antitrust Aspect*, Wall St. J., Dec. 14, 1988, at B8, col. 3 ("about 30 software companies").
16. *See Zapped, supra* note 7, at 67.
17. *See Rumble in the Arcade, supra* note 2, at 37.
18. *Id.*
19. *See* Nintendo's Complaint, *supra* note 4, at 21; *see also* Abramson, *supra* note 1, at 24, 25, 29 n.11.
20. *See* Abramson, *supra* note 1, at 29 n.11.
21. *Id.* at 26.
22. *Id.* at 25.
23. *See* Atari's Complaint, *supra* note 3, at 5-6.

In addition to the patent on the lock-out system, Nintendo also claims copyright protection for the program that runs the microprocessors and for the timed sequence of signals that the programmed microprocessors generate.[24]

Prior to December 1988, a software producer that wanted to publish games for the NES had to take a license from Nintendo.[25] No one had broken the lock-out system, and only Nintendo-manufactured cartridges would work with the NES. The form license: (i) requires licensees to market the programmed cartridge under the Nintendo trademark, (ii) restricts the number of titles that each licensee can publish in a year, (iii) gives Nintendo unilateral control over how many cartridges of each title a licensee can sell, (iv) prohibits sales of the resulting product outside the United States, and (v) prohibits licensees from converting NES-compatible games to run on competitors' machines for a period of two years (the exclusive outlet restriction).[26]

The situation changed in late 1988, when Atari Games announced that it had "reverse engineered" the lock-out device and began shipping NES-compatible game cartridges programmed by its subsidiary Tengen to toy stores throughout the United States.[27] At virtually the same time, Atari Games sued Nintendo alleging that Nintendo's lock-out system and its licensing practices violated the antitrust laws.[28]

Nintendo responded by suing Tengen (Atari Games' subsidiary) alleging violations of the Lanham Act, violations of the Racketeer Influenced and Corrupt Organization (RICO) Act, breach of contract, and unfair competition. Nintendo has since amended its complaint to add a cause of action for patent infringement.[29] Atari Corporation (not formally related to Atari Games Corporation) has also filed an antitrust action

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24. *See id.* at 10.

25. *See* Answer to Second Amended Complaint at 4, Atari Games Corp. v. Nintendo of Am., Inc. (N.D. Cal. filed Oct. 23, 1989) (No. C-88-4805-FMS).

26. *See* Atari's Complaint, *supra* note 3, at 7-8. Nintendo admits in its answers that the licenses do contain these restrictions. Answer to Second Amended Complaint at 4, Atari Games Corp. v. Nintendo of Am., Inc., (N.D. Cal. filed Oct. 23, 1989) (No. C-88-4805-FMS). The court relied on four terms of the license agreement in enjoining Nintendo from initiating patent infringement lawsuits against retailers marketing Atari Game's compatible cartridges: prohibition on sales outside the United States; the exclusive outlet provision; the requirement that a licensee buy the programmed cartridge from Nintendo; and the output restriction on titles. *See* Order Granting in Part and Denying in Part Preliminary Injunction at 4-5, Nintendo of Am., Inc. v. Tengen, Inc. (N.D. Cal. March 9, 1989) (No. C-89-0027-FMS). For a more complete description of the license terms, see Abramson, *supra* note 1, at 24.

27. *See, e.g.*, Abramson, *supra* note 1, at 24; *Labyrinth*, *supra* note 6, at D23, col. 3.

28. Complaint, Atari Games Corp. v. Nintendo of Am., Inc. (N.D. Cal. filed Dec. 12, 1988) (No. C-88-4805-FMS), *cited in* Abramson, *supra* note 1, at 29 n.1.

29. Nintendo's Complaint, *supra* note 4, at 21-22. The court found this case and the Atari Games case related and the proceedings have been joined.

against Nintendo.[30] In addition, a United States congressman has suggested that the Justice Department investigate Nintendo's practices for potential antitrust violations.[31]

Nintendo has justified the licensing practices and the use of a closed system by pointing to the collapse of the first home videogame market. "It was the only way we could assure that there would be consistent, quality software. We made a choice and it turns out that our choice was the correct one, to achieve the kind of success that we have."[32]

The decision was clearly a success for Nintendo, but that success may be at the expense of consumers. The next section considers this possibility by examining the likely economic effects of Nintendo's actions on the ordinary consumer.

II. AN ECONOMIC ANALYSIS OF THE PRACTICES

This section will begin by introducing the basic framework for economic analysis of antitrust issues. Once introduced, the framework will be applied to analyze the economics involved in three specific areas: the closed system, the specific licensing practices, and the patent. While this analysis will be somewhat superficial, the results will point to the questions that a court will need to answer to determine whether Nintendo's actions violate the antitrust laws. This analysis indicates that the patent on the lock-out system does not affect the determination of the antitrust question. Indeed, the analysis indicates that the patent is irrelevant to deciding the antitrust issues; the legality of using the patent to create the closed system depends entirely on whether the closed system is an antitrust violation.

A. The Economic Harm of a Monopoly[33]

To introduce the framework for the economic analysis of the closed system, the patent and the licensing practices, this discussion will

30. Atari Corp. v. Nintendo Co. Ltd., (N.D. Cal. filed Jan. 30, 1989) (No. C-89-0824-FMS), *cited in* Abramson, *supra* note 1, at 29 n.1.

31. Interview with Dan Siegel, Attorney, Irell & Manella, in Menlo Park (Dec. 14, 1989).

32. *Labyrinth*, *supra* note 6, at D23, col. 2 (quoting Howard Lincoln, Nintendo senior vice-president).

33. Courts and commentators have at times suggested various other justifications for the antitrust laws, including the distribution of wealth, a distrust of concentrations of private power, and a commitment to entrepreneurial opportunities. *See, e.g.*, United States v. Von's Grocery Co., 384 U.S. 270 (1966); Brown Shoe Co. v. United States, 370 U.S. 294 (1962); Fox, *The Modernization of Antitrust: A New Equilibrium*, 66 CORNELL L. REV. 1140, 1152-54 (1981). In general, to the extent that these goals favor small businessmen over large businesses, they do not provide much guidance in a suit between Atari Games and Nintendo.

compare two basic markets: a competitive market and a monopoly.[34] This comparison will reveal several ways in which a monopoly can reduce societal wealth.

A competitive market is generally characterized by a large number of sellers of similar size, marketing a homogeneous product.[35] Each of the sellers in such a market will try to expand her sales at the expense of her competitors by reducing her price or by adding things to her product that consumers value.[36] She will continue striving for additional sales until the cost of making a sale (including a reasonable rate of return) exactly equals the revenues she receives for the sale.

Put in economic terms, she will not make any additional sales if the marginal cost[37] of making that sale exceeds the price that she would receive from such sale. For example, if the marginal cost of making a sale[38] is $10, she will not sell to a consumer that is willing to pay only $9. After all, such a sale would generate a $1 loss for the seller, something she would rather avoid.

Each seller in the market will strive for additional sales so long as the proceeds from such sales exceed their cost. This continual competition for additional profitable sales yields the general rule that in a competitive market, price will roughly equal marginal cost.[39]

Some consumers may value the product at more than its price.[40] (Presumably, no one who values it at less than its price would buy it). But if any given seller tries to raise her price or adds features that consumers do not want (at least not at the price she is charging), consumers will turn to other sellers to supply their needs. Thus, competition yields a second general rule that in a competitive market, no single seller can profitably raise prices above the market price.[41]

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34. *See generally* R. BORK, THE ANTITRUST PARADOX 92-101 (1978); W. BOWMAN, JR., PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL 1-8 (1973); R. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 8-11 (1976).

35. A market may be competitive even in the absence of one of these characteristics. *See* P. AREEDA & L. KAPLOW, ANTITRUST ANALYSIS 42-45 (1988).

36. She might advertise more heavily, offer a superior warranty, produce the product in new colors or sizes, or otherwise improve or differentiate her product.

37. Marginal cost is the economic term for the cost of making one more sale. *See* P. AREEDA & L. KAPLOW, *supra* note 35, at 14-16.

38. This includes the cost of manufacturing and distributing the product and a reasonable rate of return.

39. *See* P. AREEDA & L. KAPLOW, *supra* note 35, at 16-18.

40. We refer to a consumer's subjective valuation above the price as consumer surplus. Thus, if our consumer would be willing to pay $10 for a widget, but only has to pay $7 because of competition in the market, we say that the consumer has $3 in consumer surplus.

41. *See* R. POSNER, *supra* note 34, at 8-9.

In a monopoly, the monopolist (by definition) has no effective competitors. Therefore, the monopolist can raise the price of his good without losing his sales to a (non-existent) competitor. Of course, he will sell fewer goods at higher prices because some consumers will not want the product at the higher price. The monopolist will balance these two factors, higher price with lower sales volume or lower price with higher sales volume, to determine the price that maximizes his profit.

Of course, the monopolist would prefer to sell at a high price to those consumers willing to pay it, and at a low price to those who are willing to pay only the low price.[42] But, generally, we assume that a monopolist will have to charge everyone the same price, that a drop in price to one more purchaser will apply to all sales and not just the additional sale.[43] Thus, each reduction in price results in revenue from additional sales generated by such price reduction, but decreases the revenue the monopolist receives from those sales he could have made at a higher price.

For example, assume that four consumers would be willing to pay $5 for the monopolist's product, a fifth would pay $4.50, a sixth would pay $4, and a seventh would pay $3. If the monopolist can sell his product *at only one of these prices,* his options are to sell four products for total revenue of $20 (4 x $5), five products for $22.50 (5 x $4.50), six products for $24 (6 x $4), or seven products for $21 (7 x $3). The marginal revenue attributable to the sale of the fifth product is $2.50[44], the sixth product is $1.50, and the seventh product is a loss of $3.

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42. Price discrimination refers to selling a product to two consumers with a different price/marginal cost ratio for each sale. *See, e.g.,* Baxter, *Legal Restrictions on Exploitation of the Patent Monopoly: An Economic Analysis,* 76 YALE L.J. 267, 281 (1966). When the marginal costs of the two sales are the same, then a difference in price alone would change the price/marginal cost ratio. For that reason, courts sometimes refer to the practice of charging different consumers different prices as price discrimination. *See, e.g.,* O. Hommel Co. v. Ferro, 659 F.2d 340, 346-47 (3d Cir. 1981), *cert. denied,* 455 U.S. 1017 (1982).

43. The seller may try to develop schemes to enable him to price discriminate. What the seller wants is some method to meter a consumer's subjective valuation of the product. The maximum price that a consumer would be willing to pay for a product is known as the consumer's reservation price. For example, the quantity of punch cards used on a computer demonstrates how much use a consumer is making of the computer and may be an effective measure of the consumer's subjective valuation of the right to use the computer. So instead of charging each consumer a monopolistic price for the computer, a seller might market the computer at or near marginal cost and then require the consumer to purchase all of his punch cards from the seller at a monopolistic price. *Cf.* International Business Mach. Corp. v. United States, 298 U.S. 131 (1936).

44. The marginal revenue for each sale can be defined as:
MR=P2+[(P2–P1) x Q1] where:
MR=marginal revenue
P2=new price
P1=old price
Q1=quantity of sales at P1

If we assume that a monopolist will not make a sale that reduces his profit, then he will not make a sale unless his marginal revenue from such sale exceeds the marginal cost of making it.[45]

Therefore, if our monopolist has a marginal cost for the fifth, sixth and seventh products equal to $2, the monopolist will not make the sixth sale. The sixth sale would be unprofitable to him because it would cost $2 to make while he would receive only $1.50 in marginal revenue. In contrast, if the market for these products were competitive, then the price would fall to marginal cost ($2), and all seven consumers would purchase the product.

From this analysis emerges a general rule concerning monopolies: a monopolist will reduce output until his marginal revenue and his marginal cost are equal.[46] A more general case is set out in Figure 1 (see Appendix for figures).

As shown in the graph, under competitive conditions, price will equal marginal cost, with the resulting output, Qc. Under uniform pricing monopoly conditions, output will be set at the point at which marginal revenue and marginal cost are equal. This output, Qm, will be less than Qc with a resulting price, Pm, higher than the competitive price, Pc.

The reduction in output and the resulting higher price has two effects that the consumer should consider. First, at the higher price, those consumers who purchase the product will pay more for the product than they would have paid in a competitive market, transferring wealth from consumer to monopolist. If the antitrust laws are designed to protect consumers,[47] then the antitrust laws might be enforced to prevent such transfers.[48] In addition, this transfer can generate real economic loss,

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Plugging the values into the equation:
MR=$4.50+[($4.50–$5) x 4]
MR=$4.50+[(–$0.50) x 4]
MR=$4.50–$2.00
MR=$2.50.

Note that marginal revenue can also be calculated by subtracting the total revenue from the sale of four products from the total revenue for the sale of five:
MR=$22.50–$20=$2.50.

45. *See* R. POSNER, *supra* note 34, at 10.

46. *See* P. AREEDA & L. KAPLOW, *supra* note 35, at 14-16.

47. *See supra* note 33.

48. Some economists do not consider the transfer itself a cognizable economic loss because the wealth still exists, it has merely been transferred. *See, e.g.*, R. BORK, *supra* note 34, at 106; W. BOWMAN, *supra* note 34, at 10. Their argument necessarily entails the premise that a dollar received from the government in the form of a welfare payment is the same as a dollar received from a customer for work well done. That premise is very controversial. However, even accepting the argument that transfers are not in and of themselves objectionable, enforcement of the antitrust laws to preclude such transfers would still promote economic efficiency when the cost of preventing such transfers

either through the expenditure of resources by the government to reverse the transfer[49] or through the expenditure by a would-be monopolist to position himself so as to recover monopoly profits.[50] Both of these expenditures would be real economic losses because a party would expend scarce resources in dividing existing wealth, rather than using the resources to generate additional wealth. Alternatively, if the possibility of monopoly profits is tied to something socially valuable, such as new invention, the lure of monopoly profits might attract the capital necessary to fund the research leading to new invention.

Second, some consumers who would have paid the competitive price will not pay the monopoly price, and will turn to substitutes or do without the product. The unmet demand of these consumers is marked DWc in Figure 1 and is referred to as a deadweight loss. It represents consumer surplus not transferred to the monopolist.[51] Instead, the consumer surplus is dissipated in two ways. First, because the output is lower, some resources that would have been used in a competitive market to produce the product will become idle or will be put to use in ways less valuable to society.[52] Second, consumer substitution generates real economic loss because consumers will turn to more expensive goods to satisfy their desires.[53] For example, assume that widgets cost $5 to make, but are priced at $7 because of a widget monopoly. Some consumers may switch to gidgets that cost $6 to make, but are priced at $6 because of competition. Because the marginal cost represents the value of the resources that go into a product, a consumer switching to gidgets uses $6 in resources when, in the absence of the monopoly, $5 in resources would have sufficed.

Thus, monopoly can impose significant costs on society in three ways: (1) the costs of taxing and redistributing unwanted transfers; (2) the

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through the antitrust laws is lower than the cost of taxing and redistributing the transfer on an ongoing basis after the fact, assuming such a tax and redistribution scheme were to be used.

49. The windfall profits tax can be seen as a device to recapture monopoly profits. The corporate income tax might also be justified as a second best solution to imperfect antitrust enforcement, but the costs of the corporate income tax that can be attributed to any one monopoly, such as Nintendo's, is likely to be very small.

50. In Figure 1, the monopolist receives monopoly profits of MP-LP. LP represents the profits that would have been made at a competitive output. A monopolist would be willing to expend up to MP-LP to recover the monopoly profits. *See* R. POSNER, *supra* note 34, at 11-14; Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807, 811-12 (1975); Tullock, *The Welfare Costs of Tariffs, Monopolies, and Theft*, 5 WESTERN ECON. J. 224 (1967). If the amount of the transfer is greater than the transaction costs of organizing to oppose the transfer and a forum is available that can prevent the transfer, presumably consumers will expend up to the amount of the transfer to organize and oppose it.

51. *See* R. BORK, *supra* note 34, at 101; R. POSNER, *supra* note 34, at 10-11.

52. *See* R. BORK, *supra* note 34, at 101.

53. *See* R. POSNER, *supra* note 34, at 11.

expenditure of resources on capturing a bigger share of the current societal wealth; and (3) the misallocation of resources because of the difference between the price and the cost of a monopolized product. The next two sections will examine the closed system, the licensing practices and the patent involved in the *Atari Games v. Nintendo* suit to see which of these three societal costs are imposed.

B. The Economics of a Closed System

From a consumer's perspective, a closed system means that if a consumer buys hardware (the base unit in this case) from a manufacturer, then he must buy all his software from that same manufacturer (or from a source approved by the manufacturer) as well. Economically, the base unit and the cartridges, along with the necessary peripherals, are complements—each is required to create the final product, an interactive videogame.[54] Thus, if a consumer wants the end product, he will have to buy at least one of each: a base unit and a cartridge.[55]

1. *THE ECONOMICS OF COMPLEMENTS.*

The economic analysis of complements suggests that for fixed ratio inputs,[56] a closed system presents no greater antitrust concerns than an open system. With fixed ratio inputs, market power[57] with respect to one of the inputs enables the monopolist to recover a full monopoly profit on the end product.

To illustrate this concept, consider a market where left and right shoe are produced and sold independently.[58] To produce a pair of shoes (the end product) requires, generally, one left shoe and one right shoe (the inputs). The inputs have a fixed ratio of one to one. In this imaginary world, producing and selling either a left or right shoe costs $5. Assume further that there are 1000 consumers who uniformly value a

54. Note that some substitution between cartridges and base units is possible. A group of families might get together and buy one base unit for all of their kids. Of course, because only one or two people can play at a time (and because it is a lot more fun to play than to watch), such substitution has limits.

55. The base unit generally comes with one game cartridge and a set of joysticks. A consumer buys additional cartridges and "controllers" sold independently. *See, e.g., The Kid, supra* note 6, at 67.

56. Fixed ratio inputs means that the end product requires a certain fixed proportion of each input. *See, e.g.*, W. BOWMAN, *supra* note 34, at 70.

57. Nintendo has market power if it can earn higher profits by charging more than the competitive price. *See* United States Steel Corp. v. Fortner Enter., Inc., 429 U.S. 610, 620 (1977).

58. I am indebted to Professor William Baxter for this example.

pair of shoes at $15 for the first pair and at $0 for all subsequent pairs.[59] If the market is competitive, price will equal marginal cost, and each shoe will sell for $5. Consumers will pay a total of $10 for each pair of shoes. The $5 difference between price ($10) and value ($15) of a pair of shoes is consumer surplus.

On the other hand, assume a shoe company, United Shoe, has a monopoly (perhaps due to a series of patents) on the production of both left and right shoes. To maximize its short-run profits, United Shoe will price each pair of shoes at $15. Pricing below $15 reduces income without increasing sales, and at a price above $15, consumers will switch to the next best substitute. Thus, with a monopoly on the production and sale of both shoes, United Shoe, by pricing each pair at $15, will recover $15 per pair instead of $10. United Shoe is converting the $5 in consumer surplus into monopoly profits.

Even assuming that the monopoly only reaches right shoes, and left shoes are produced and sold competitively (at $5 each), United Shoe can price the right shoe at $10, yielding a total price per pair to consumers of $15.[60] Thus, United Shoe can, by monopolistically pricing the right shoe alone, recover the same monopoly profit available to it as monopolist of the production of both shoes.

Even relaxing the unrealistic assumption of a step function demand curve, a monopolist of one input can achieve as much monopoly profit as can a monopolist of the end product so long as the ratio of inputs in the final product remains constant and the other inputs are sold at a competitive price. With fixed ratio inputs, if one seller monopolizes two of the inputs, the harm to society is no greater than it was when the seller had a monopoly in only one of the inputs.[61]

Thus, given that Nintendo has a monopoly in the sale of the base units,[62] if the base unit and the cartridges are fixed ratio inputs, a second monopoly in cartridges (controlled by Nintendo) imposes no greater

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59. Such a demand curve is known as a step function demand curve because after the first 1000 pairs of shoes, the demand for a shoe "steps" down from $15 to $0.

60. The left shoes, priced competitively, will each sell for $5. To maximize its profits, United Shoe will price each right shoe at $10 ($15-$5). Again, pricing below $10 will reduce income without increasing sales, and pricing above $10 will drive consumers to substitution.

61. *See, e.g.*, W. BOWMAN, *supra* note 34, at 70-76; R. POSNER, *supra* note 34, at 173. Note that the situation changes if two different sellers each have a monopoly on one of the inputs. If the two monopolists cannot come to some agreement distributing monopoly profits, each may price his input to recover the full monopoly profit on the end product. This double monopoly mark-up will increase the price of the final end product over the single monopoly mark-up price, and significantly increase the resulting societal loss. *See, e.g.*, W. BOWMAN, *supra*, at 72.

62. Nintendo has a 75-80% share of the base unit market. *See, e.g.*, *The Kid*, *supra* note 6, at 67. Nintendo also has the largest library of software for home videogames. *Id.* at 67.

societal costs. However, the analysis of monopolies in fixed ratio inputs cannot be applied directly to the Nintendo case because the input ratios are not fixed. With one base unit, any number of game cartridges may be used to produce any number of interactive videogames—the game cartridges and the base unit are non-fixed ratio units.

2. *PRICE DISCRIMINATION AND NON-FIXED RATIO INPUTS.*

Given its monopoly in one input, the base unit, the question for Nintendo is how best to capture the area under the demand curve. Figure 2a illustrates a hypothetical demand curve for the NES, and the output and price under competitive conditions (see Appendix for figures).

Under the assumed cost and demand curves and under competitive conditions, 8 million base units would be sold at a price of $100. Nintendo would receive no monopoly profits, only a reasonable rate of return included in the $100 price. If the assumed curves were correct, consumer surplus would total $1.6 billion.

The first option for Nintendo to capture some part of this consumer surplus would be to exploit its monopoly in the base unit by reducing the supply of base units and raising their price. Nintendo would let anyone produce game cartridges for its system (an open system). Competition in the cartridge market would drive the price of cartridges down to near marginal cost, somewhere around $10.[63] Figure 2b depicts the economic effects of monopolistic pricing of the base unit.

To maximize its profits, Nintendo could have reduced production to 4 million units and raised the price of the base unit to $300. If the assumed demand curve is correct, consumer surplus would be reduced to $400 million, Nintendo would have converted $800 million of the consumer surplus under competitive conditions into monopoly profits, and the remaining $400 million of the consumer surplus under competitive conditions would become deadweight loss.

A second option, the one actually taken, would be to use its market power in the NES to control the production and sale of the cartridges. The lock-out system perfectly implements such an extension. With a patent on the lock-out system, Nintendo can limit the production of cartridges and maintain their price significantly above a competitive level. Nintendo can do this unilaterally by setting the price of the blank cartridge[64] equal to the profit maximizing (monopolistic) price of the

63. The $10 figure is the current price for cartridges on an open system such as the old Atari. *See Zapped, supra* note 7, at 67.

64. Nintendo unilaterally sets blank cartridge prices under the license terms. *See* Atari's Complaint, *supra* note 3, at 7; *see also* Abramson, *supra* note 1, at 24 & n.9.

programmed cartridge less the marginal cost of programming the cartridge. The base unit can then be priced competitively and the monopoly profits recovered through sale of the blank cartridges.[65]

Nintendo may have had any number of reasons to prefer monopolistic pricing of the cartridges rather than of the base units. Some of these reasons are consistent with a consumer's interest; some of them are not. What Nintendo might hope to achieve by monopolistic pricing of the cartridges is illustrated in Figure 2c.

Nintendo no longer takes one shot at recovering its monopoly profits, as in Figure 2b. Instead, it charges a monopoly price for each cartridge it sells. Assuming that the number of cartridges that a consumer purchases exactly correlates with the consumer's reservation price, monopolistic pricing of the cartridges generates the stair-step pricing curve shown in Figure 2c, in which the price over marginal cost a consumer pays depends on the number of cartridges that the consumer buys. Thus, if a consumer purchases the NES and 5 cartridges, she will pay $100 (5 x $20) over marginal cost. If a consumer purchases the NES and 20 cartridges, she will pay $400 over marginal cost. In comparison, with monopoly pricing on the base unit, a consumer pays the monopolistic mark-up ($200 under the assumptions of Figure 2b) only once regardless of how many cartridges that consumer buys.

Figure 2c was constructed assuming that the number of cartridges a consumer purchases perfectly coincides with the value of the system to that consumer.[66] This assumption is unlikely to be true because some consumers may enjoy just a few games, but value those at well over marginal cost, while others may enjoy many, but value each additional game at only slightly over marginal cost. The number of cartridges that the average consumer purchases is likely to have some relation to her reservation price, but is probably not an exact predictor.

In determining the effects of monopolistic pricing of the cartridges as the extent to which the number of cartridges purchased predicts a consumer's reservation price, Figures 2b and 2c represent the two paradigm cases: if the number of cartridges purchased has no relation to the consumer's reservation price, then monopolistic pricing of the cartridges will result in the deadweight loss, consumer surplus and

65. Note that if the result in the case requires Nintendo to remove the chips or to grant royalty-free licenses, then Nintendo will lose some portion of the monopoly profits they were planning to recover, transferring the wealth from Nintendo to those consumers that have already bought the base unit.

66. Thus, if a consumer values the end product (the home videogames) at $20 more than marginal cost, he will purchase one additional cartridge. If he values the end product at $40 over marginal cost, he will purchase two additional cartridges. A consumer who values home videogames at $400 over marginal cost would buy 20 cartridges.

monopoly profit shown in Figure 2b, and be no different than monopolistic pricing of the base unit. If the number of cartridges purchased were an exact indicator, then Figure 2c would be accurate.

Despite the fact that the assumption of perfect prediction underlying Figure 2c is almost certainly incorrect, Figure 2c remains valuable because it identifies the direction of the shift that will occur in deadweight loss, consumer surplus and monopoly profits as the number of cartridges purchased becomes a better and better indicator of the consumer's reservation price. As the number of cartridges purchased becomes a better indicator of reservation price, both consumer surplus and deadweight loss are reduced, while monopoly profits grow.

Thus, Nintendo (to some extent) can use the cartridges as a device to price discriminate—to measure the value of the end product to the consumer and to charge the consumer a total price close to that value. If the purchase of game cartridges perfectly coincides with a consumer's subjective valuation, as in Figure 2c, then consumer surplus would be only $76 million (down from $1.6 billion under competition and $400 million with monopoly pricing of the base unit); deadweight loss would be $4 million (down from $400 million with monopoly pricing of the base unit);[67] and monopoly profits would be up to $1.52 billion (up from $800 million with monopoly pricing of the base unit).

By comparing the two paradigm cases, one can identify the proper lines of inquiry within the economic framework identified in section A.[68] This monopoly generates costs for society by (1) necessitating government expenditures to tax and redistribute disfavored transfers of consumer surplus (likely to be small since a special Nintendo tax seems unlikely); (2) enticing expenditures by Nintendo to increase its monopoly profits and to better recover the consumer surplus; and (3) misallocation of resources due to differences between price and cost (represented by the deadweight area).[69] In looking at the societal costs of monopoly in this case, the relevant comparison is between monopoly pricing of the base unit and monopoly pricing of the cartridges, with the other input priced at marginal cost.[70] As compared to the monopolistic pricing of the base

67. Note that Nintendo could sell the first cartridge at marginal cost, perhaps including it in a package with the base unit. If it did so, then deadweight loss would be converted to consumer surplus, eliminating any deadweight loss and increasing consumer surplus to $80 million under the assumptions in Figure 2c.

68. *See supra* text accompanying notes 46-53.

69. *See supra* text following note 53.

70. It is the use of monopoly power to restrain competition that antitrust laws are designed to prevent. *See, e.g.*, Christofferson Dairy, Inc. v. MMM Sales, Inc., 849 F.2d 1168, 1174 (9th Cir. 1988). Determining whether Nintendo has done anything that restrains competition requires a comparison of the economic effects of what it could legally do (unilaterally set the output and price of the base unit) and what it has done (used its

unit, monopolistic pricing of the cartridges generates both economic losses and economic gains.

Monopoly pricing of the cartridges generates real economic losses in the form of resources that are expended to tax and redistribute the transfer in consumer surplus and in resources expended by Nintendo to enable it to control the sale of the cartridges (basically the costs of obtaining and enforcing its patent). At the same time, monopoly pricing of the cartridges produces an economic gain by reducing deadweight loss, permitting resources to be allocated to their most valued use.

One additional factor affecting societal wealth, not considered under the static demand curves presented in the figures above, is that the demand curves for the product may be different initially or may develop differently under the two pricing schemes. If consumers are uncertain or unaware of the true value of the NES to them, they might prefer to pay a small up-front cost until they can find out if and how much they like playing the NES, rather than have to pay the entire monopolistic mark-up at the outset. Once they know they like it, they might be willing to buy more game cartridges, even though each game cartridge carries a monopolistic mark-up. Thus, by pricing the NES at marginal cost and monopolistically pricing the cartridges, Nintendo may also be increasing the demand for the final product (NES entertainment) by permitting people to try it before having to pay a monopolistic mark-up.[71]

While this increase in demand would likely have developed eventually through consumer exposure to the NES either from advertising by Nintendo or from playing on a friend's machine, the trying-it-first alternative is likely to get more people interested in the game sooner than would word of mouth or advertising. It might also provide considerable advertising savings because people would presumably need less media encouragement.

On the other hand, under the closed system, Nintendo decides which games will and which games will not be available for play on the NES. If Nintendo guesses wrong as to which games are more valuable to society, then the demand for the product under a closed system may be less than it would be under an open system.[72] Because Nintendo's

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market power in the base unit to control the sale of cartridges). Of course, if Nintendo has used its market power in the base unit to restrain competition, then the court can take steps to reduce or eliminate Nintendo's market power in the base unit. *See, e.g.*, Standard Oil Co. v. United States, 221 U.S. 1, 77-78 (1911).

71. *Cf.* International Business Mach. Corp. v. United States, 298 U.S. 131 (1936) (requirement that lessee operate leased machines only with cards supplied by lessor was unlawful tie even where purpose and effect of tie was to protect goodwill of the lessor since less restrictive alternatives were available).

72. *Cf. Labyrinth, supra* note 6, at D23, col. 6. Evidence in the market for personal computers suggests that consumers prefer open systems. *See, e.g.*, Gelfond, *IBM's Micro*

returns are determined by the demand, Nintendo has every incentive to pick those games providing the greatest demand. However, Nintendo's decision to go with a closed system does not necessarily indicate a higher societal value with a closed system as compared to an open system. After all, Nintendo would be willing to trade off the higher demand of an open system against lower demand for a closed system because it can recover more of the closed system demand.

Thus, the closed system may shift demand (as compared to the demand under monopoly pricing of the base unit) either up or down, depending on the relative magnitudes of the increase due to the lower up-front costs and the decrease due to Nintendo's inability to correctly predict consumers' desires. Because the area under the demand curve for a product provides a rough estimate of its societal value, this shift in demand changes the value of the NES to society and societal wealth.

Thus, the closed system may generate economic gains by reducing deadweight loss and by increasing the demand for the NES today. It may generate economic losses by (possibly) requiring government expenditures to tax and redistribute the consumer surplus transferred to Nintendo, by requiring expenditures by Nintendo to create and defend its closed system, and by decreasing demand for the NES.

If the antitrust laws should be used solely to promote wealth creation,[73] the court should weigh the gains and the losses. Only if the losses outweigh the gains should the closed system be illegal. If the antitrust laws should be used to prevent transfers of wealth from consumer to monopolist,[74] then the amount of consumer surplus transferred would be an additional loss to weigh into the balance.

At this level, economic analysis can provide no certain answer. We cannot tell without a detailed analysis of the demand and cost curves the respective amounts of the demand shift, the deadweight loss saved, and the consumer surplus transferred, nor do we know the amount that Nintendo has spent (and is spending) to obtain and enforce its patent and licensing practices.

This analysis suggests that, at the very least, closed systems, even where the manufacturer has market power, should not be *per se* illegal. Rather, the necessity of a detailed factual inquiry points to consideration

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Channel Gets a Little Respect, BUS. WK., Mar. 20, 1989, at 156, 156-58; Helm, *Can Apollo Stop Hurtling Toward Earth?*, BUS. WK., Feb. 27, 1989, at 108; *Microsoft Hedges Its Bets*, BUS. WK., Feb. 27, 1989, at 46.

73. *See supra* note 33.

74. Since all monopolies transfer some wealth, such a position entails a partial return to the notion of no-fault monopoly of cases such as United States v. Aluminum Co. of America, 148 F.2d 416 (2d Cir. 1945).

under the rule of reason.[75] However, this analysis has assumed that Nintendo is using a closed system solely to price discriminate.[76] Both sides have expressed other reasons to justify or condemn this particular method of creating a closed system.

3. *NINTENDO'S JUSTIFICATIONS OF ITS PRACTICES.*

Nintendo has suggested that the lock-out system and the licensing restrictions are designed to protect "(i) the intellectual property and trade secrets of Nintendo Co. Ltd. ("NCL") and Nintendo of America ("NOA"), (ii) all the rights and benefits enjoyed by each licensee of NOA, (iii) the goodwill and favorable reputation enjoyed by NOA, and (iv) the goodwill and favorable reputation enjoyed by each licensee of NOA."[77] Nintendo also asserts that the lock-out system and the licensing practices ensure the quality of cartridges playable on the NES.[78]

Two justifications can be drawn from these somewhat vague statements. Both relate back to lessons learned from the collapse of the first home videogame market. Nintendo and others believed that the first market became "flooded with low quality, poorly performing video game cartridges" which eventually destroyed it.[79] Looking at the various justifications offered in light of this sentiment, the lock-out system appears to be intended to avoid two things: cheap cartridges and poor quality cartridges.

As for cheap cartridges, Nintendo might argue that when the price of a cartridge drops to near marginal cost, a producer of good quality software cannot earn sufficient return to cover the producer's investment in creating the software. Perhaps imitations are made that replicate the look and feel of the game, yet do not violate the producer's copyright in the game. These close imitations drive the price the creative software producer can charge down to marginal cost before he can recover his initial investment in creating the product. Because the creative publisher does not recover his investment, he will eventually be driven out of business, leaving the imitators with no one to imitate and society with poor quality games.

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75. For the differences between *per se* rules and a rule of reason inquiry, see generally Broadcast Music, Inc. v. Columbia Broadcasting Sys., 441 U.S. 1 (1979).

76. If the marginal cost of each sale is the same, such metering is a type of price discrimination. *See supra* note 42.

77. *Nintendo Claims 'Lock Out' Device Has Bona Fide Uses*, 1989 COMPUTER INDUS. LITIGATION REP. 8894, 8895.

78. *Id.*

79. Nintendo's Complaint, *supra* note 4, at 5-6; *see also Rumble in the Arcade*, *supra* note 2, at 37.

This justification raises two questions: one concerning economic results, the other concerning whether the courts or the legislature should properly decide the issue. Economically, this justification raises the factual question of whether Nintendo's maintenance of monopolistic returns to producers actually increases the quality and the quantity of videogames. While the question is easily stated, it may prove nearly impossible to answer.[80]

If Nintendo did not have market power, then the court could accept Nintendo's decision concerning the proper incentive to its licensees as an accurate proxy for the level of incentive that would create the greatest societal benefit.[81] After all, Nintendo would not give the software producers any more than what Nintendo felt was necessary to obtain high quality software.[82] As a general rule, Nintendo is likely to be a much better judge than Congress of how much incentive is required.

The only trouble is that Nintendo is a monopolist. As a monopolist, Nintendo may decide to share some of its monopoly profits for a second reason: to discourage its licensees from doing anything that might disturb the monopoly.[83] Because the licensees are sharing a part of the monopoly profits, they may refrain from taking steps that increase competition for Nintendo. For example, they might refuse to create versions of their programs for use with Sega or Atari Corporation's base unit (even in the absence of the two year exclusive outlet term in the license).[84] Giving these potential competitors an incentive not to compete may increase Nintendo's market power, its ability to charge a higher price, and thereby increase the societal costs (or benefits)[85] of Nintendo's monopoly.

Because the court cannot rely on Nintendo to act in a manner consistent with the interests of consumers, the court would have to decide if these increased costs are justified by the increase in consumer welfare

80. Economists have been arguing for years about whether the monopolistic returns of the patent system increase societal wealth. *See, e.g.*, W. BOWMAN, *supra* note 34, at 15-16; Baxter, *supra* note 42, at 267-75.

81. *See* Continental T.V., Inc. v. GTE Sylvania, Inc., 433 U.S. 36, 56 & n.24 (1977); Business Electronics Corp. v. Sharp Electronics Corp., 485 U.S. 717, 725-28 (1988); Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 44-45 (O'Connor, J., concurring); R. BORK, *supra* note 34, at 290.

82. *See, e.g.*, R. BORK, *supra* note 34, at 290.

83. *Cf.* United States v. Masonite Corp., 316 U.S. 265, 281 (1942) (fixing prices and abandoning competition may provide more profit than maintaining competition).

84. Note that all the licensees, except Atari Games and Tengen who are trying to capitalize on their reverse engineering of the lock-out system, like the licensing restrictions. *See Labyrinth, supra* note 6, at D23, col. 4 (quoting Robert Holmes, chief operating officer, Acclaim).

85. Recall that the cost-benefit question was an empirical question left undecided. *See supra* text accompanying notes 74-75. In addition, the closed system might be desirable to enable Nintendo to subsidize software production if the copyright system provides an inadequate incentive to invest in software production.

from higher quality videogames. Given the difficulty of answering that question,[86] the court may simply find against the party who bears the burden of proof[87] or may refuse to consider it by finding that Congress, and not Nintendo (or the courts), should determine if additional returns to videogame publishers are warranted.[88]

As for the second justification, that of preventing poor quality cartridges, Nintendo is arguing, in a sense, that Nintendo knows best. If it can control the videogames available for play on the NES, consumers will value the NES more highly. Nintendo will arrange the playing cycle for consumers, letting them learn the tricks of each game before leading them to the next game.[89] Furthermore, Nintendo will eliminate poor quality games altogether, leaving a consumer free to pick up any NES cartridge with a reasonable expectation that the game will be fun.

Nintendo is arguing, essentially, that it is performing a certification function for consumers.[90] Nintendo is saying that consumers will value the system more highly if consumers only play games that Nintendo has approved. Requiring all NES-compatible cartridges to bear the Nintendo trademark enables Nintendo to communicate this approval to the consumer. This certification process, therefore, is critical to Nintendo's marketing scheme, or so Nintendo would contend.

Certainly, Nintendo's trademark, as is true of every trademark, is intended to identify the source of the goods and to assure consumers of a consistent level of quality.[91] If the only effect of the trademark requirement were to increase the value of the game to the consumer by providing information not otherwise available, then the trademark requirement would increase societal wealth and should be permitted.[92]

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86. *See supra* note 81.

87. The burden of proof may be crucial in a number of these areas. For that reason, establishing a *per se* illegal tie that places the burden on Nintendo may prove critical for Atari. *See infra* notes 137-55 & 161-75 and accompanying text.

88. *Cf.* Broadcast Music, Inc. v. Columbia Broadcasting System, 441 U.S. 1, 15-16, 19 (1979) (in upholding BMI's blanket licensing scheme, the Court noted that Congress, in the 1976 amendments to the Copyright Act, had approved of blanket licenses for other, similar situations, and had generally strengthened the rights of copyright owners to control public performances of their copyrighted works); *see also* Bonito Boats, Inc. v. Thunder Craft Boats, Inc., __ U.S. __, __; 109 S. Ct. 971, 975 (1989) (in striking down a Florida statute protecting boat hulls, the Court noted the careful balancing embodied in the patent laws between promoting invention and ensuring competition).

89. *See, e.g.*, Lazzareschi, *Lawsuits Against Nintendo Go to Heart of the Way Japan Competes*, L.A. Times, Mar. 19, 1989, § IV (Business), at 6, col. 6.

90. Nintendo's Complaint, *supra* note 4, at 6.

91. 3 L. ALTMAN, CALLMAN UNFAIR COMPETITION, TRADEMARKS & MONOPOLIES, § 17.01, at 2 (4th ed. 1983).

92. *See* 1A L. ALTMAN, *supra* note 91, § 4.53, at 2.

However, the certification is mandatory.[93] Either the game satisfies Nintendo and is marketed under their trademark, or it does not, in which case it is not marketed for use on the NES. If consumers really do value games approved by Nintendo more highly, then consumers should be willing to pay more for a cartridge with the Nintendo certification than they would for a cartridge without it, although not necessarily an amount comparable to the monopoly mark-up the game cartridges currently carry. And if consumers were willing to pay more, then videogame producers should seek the mark from Nintendo. Nintendo should not have to force videogame producers to take the trademark unless it is trying to extract the full monopoly mark-up, rather than simply the value of its certification.

Nintendo might respond by saying that consumers do not realize how much more they prefer games approved by Nintendo. Furthermore, Nintendo might say that to find out, consumers might have to buy a number of poor quality non-approved cartridges before making the connection. Some of these disgruntled purchasers might associate their dissatisfaction with the NES itself and quit buying cartridges altogether, rather than learning to buy only approved games.

But if consumers are unaware that some games play on the NES, yet are not made or approved by Nintendo, the proper course would seem to be to inform the public. To permit Nintendo to control the supply of game cartridges simply because consumers might not, in the end, know what is good for them runs directly counter to the scheme established by the antitrust laws.[94]

Basically, if Nintendo wants to share some of its market power with the producers of the software or to identify good quality games to consumers, Nintendo can license the use of its trademark separately from the right to sell NES-compatible games. But the mandatory nature of the license suggests that Nintendo's motives, and the likely effects, are not so salutary.

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93. *See* Nintendo's Complaint, *supra* note 4, at 6. The packaging requirements are spelled out in Appendix B of the licensing agreement. *See* Answer of Atari Games to First Amended Complaint, at Exhibit A, Nintendo of Am., Inc. v. Atari Games Corp. (N.D. Cal. filed July 20, 1989) (No. C-89-0027-FMS). The package will bear the name of the game, the software producer, and a notation that it is produced under license by Nintendo. In addition, the packaging will indicate that the game is for play on the Nintendo Entertainment System, and the licensee will affix the Nintendo Quality Assurance Seal to the package. *Id.* at 2.

94. *Cf.* National Soc'y of Professional Eng'rs v. United States, 435 U.S. 679, 693-95 (1978) (argument that competitive bidding will result in unsafe engineering works cannot be considered under a rule of reason inquiry since antitrust laws were established on the assumption that competition is best).

4. *ATARI'S COMPLAINTS ABOUT THE LICENSE.*

Atari has asserted that the mandatory nature of the trademark license, along with the output restrictions on both the quantity and the number of titles, and the exclusive outlet restrictions,[95] are all part of a plan by Nintendo to monopolize the home videogame industry.[96] Atari argues that the closed system and the licensing restrictions enable Nintendo to maintain or increase its market power by creating entry barriers that increase the costs for potential competitors seeking to enter the home videogame market.

Note that each restriction is formally structured as a vertical arrangement, that is the agreements are between manufacturers of complements. To the extent that these restraints are truly vertical, they pose little in the way of antitrust concerns.[97] In each case, the question we must ask is whether, despite their vertical appearance, they create horizontal effects.

For example, the trademark license restriction, given its mandatory nature, may limit consumer recognition of the actual source of the games that a consumer likes. For example, a consumer's favorite game for the NES may be RBI Baseball, a game written by Atari Games. But when the

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95. Exclusive dealing and exclusive outlet arrangements differ based on who, in the distribution chain, agrees to the exclusive restriction. For example, if a wholesaler agrees to sell only one manufacturer's products, the wholesaler is an exclusive dealer of the manufacturer; he has agreed to deal exclusively in the goods of that one manufacturer. Here, we have an exclusive outlet arrangement: the software publishers (the manufacturers) agree to sell their goods solely through Nintendo (the wholesaler). If Nintendo agreed to sell only software published by Tengen, then Nintendo would be an exclusive dealer for Tengen's products.

96. Atari's Complaint, *supra* note 3, at 7-8. Another restriction prohibits the licensees from selling the cartridges outside the United States. *Id.* at 8. This geographical restriction operates to eliminate potential competition between cartridge sellers in Japan and the United States. Equivalent restrictions in Japan limit the supply to consumers in the United States. This article will not address the antitrust implications of these restrictions to avoid getting into an extended discussion of the extraterritorial applications of the Sherman Act. Note that courts have reached differing conclusions on whether export prohibitions on patent licensees are a violation of the antitrust laws. *Compare* Brownell v. Ketcham Wire & Mfg. Co., 211 F.2d 121, 129 (9th Cir. 1954) (export limitation lawful) *and* American Optical Co. v. New Jersey Optical Co., 58 F. Supp. 601, 606 (D. Mass. 1944) (patent owner has right to make territorial restrictions including limits on foreign sales) *with* Extractol Process, Ltd. v. Hiram Walker & Sons, 153 F.2d 264, 267-68 (7th Cir. 1946) (patent owner whose licensee sold product to a foreign buyer has no infringement rights against that foreign buyer's use outside the United States).

97. *See* Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 56 & n.24 (1977); Business Electronics Corp. v. Sharp Electronics Corp., 485 U.S. 717, 724-28 (1988); Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 44-45 (O'Connor, J., concurring); R. BORK, *supra* note 34, at 290.

consumer looks at the cartridge, he sees Nintendo's name in bold letters and so associates his excitement with Nintendo, not Atari.

While on an individual level the impact may seem small, Nintendo markets over a hundred titles produced by some 36 licensees under the Nintendo trademark.[98] Each time someone thinks of the game they like best, chances are that it is the Nintendo name they remember and not the actual programmer.

This increases the costs for Nintendo's competitors in two ways. First, if a Nintendo licensee is also a potential competitor in the system market, it directly restricts consumer recognition of the licensee, as opposed to Nintendo, as someone whose products the consumer enjoys. Second, if a given software publisher produces a game that is compatible with both Nintendo and other base units, consumers may believe, erroneously, that the two games are not the same. For example, a consumer might believe that Nintendo RBI Baseball is not the same as Atari Games RBI Baseball manufactured for a competing system. These misled consumers, who are familiar with Nintendo, are more likely to stick with Nintendo because that is the name they know.

These concerns suggest that a hardware maker with market power should not be permitted to require software producers to market under the hardware maker's trademark. A separate and optional trademark license would not generate these costs for competitors but would effectively accomplish the legitimate information-providing function of a trademark.

The second major license restriction forbids licensees from adapting games approved under the license terms for use on other home videogame systems for two years.[99] Because the availability of high quality software is key to a competitor challenging Nintendo's market position, and because only a few really popular games come out each year, tying up the top games through the exclusive outlet restriction cuts off the competitor's supply of quality software and strikes to the heart of his ability to compete.[100]

To understand how this works, consider the nature of the market for software titles. Initially, software publishers create videogames for arcades. If a game has a successful run in the arcade, the designer will

98. *See, e.g., Rumble in the Arcade, supra* note 2, at 37; *Zapped, supra* note 7, at 67.

99. Two years is a long time for the computer market. For example, Super Mario Brothers was marketed with base units back in 1985 when the game first went on the market. Super Mario Brothers II went on the market in late 1988 or early 1989, three and a half to four years later. *See, e.g.*, Lazzareschi, *supra* note 89, § IV, at 6, col 6. Super Mario Brothers III went on the market in Japan at about the same time. (The product cycle is one step ahead in Japan because the system was introduced there three years earlier.) *Id.*

100. *See, e.g., Zapped, supra* note 7, at 67.

create a home version. Given an either-or choice between going with Nintendo alone (and its 75% market share) or producing for all the rest, many are going to choose Nintendo, even though Nintendo will use its monopsony power to extract concessions from the software publisher, in the form of lower royalties or undesired license restrictions (such as the exclusive outlet and trademark restrictions).[101] That choice leaves Nintendo's competitors with some older games, some less successful games, and some games that are merely approximate copies of the popular games.[102] It reinforces Nintendo's market power in its base unit and seems designed to limit Nintendo's competition.[103]

This arrangement closely resembles the network monopoly aspect of telephone service.[104] Network monopoly refers to the fact that the value of a phone to a user is directly related to how many people she can call when she picks up the phone, that is how many people are on the network. If she has a choice between a phone system that reaches 90% of the population and one that reaches only 10%, and prices are the same on a per call basis, she will most likely choose the former.[105] Other consumers will do the same. Eventually, the 10% of the population signed up for the second system will opt for service by the first, driving the second system out of business.

The situation between Nintendo and software publishers is similar. Each time a publisher decides to go exclusively with Nintendo, it becomes that much more likely that the publisher of the next hot game will too. This network effect means that Atari Corporation and Sega will find it very difficult to obtain the most popular games for their machines. While the availability of other software may mean that they are not driven from the market completely, they will never be able to effectively compete with Nintendo because Nintendo will always have the best games.

Therefore, because network monopoly effects are inherent in the market for home videogame production, Nintendo should be prohibited

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101. *Id.* A buyer with market power is known as a monopsonist. The economic effects of monopoly and monopsony are the same. R. POSNER, *supra* note 34, at 209.

102. *Cf. Zapped, supra* note 7, at 67.

103. *See, e.g.*, Oltz v. St. Peter's Community Hosp., 861 F.2d 1440 (9th Cir. 1988); Cass Student Adv. v. National Educ. Adv. Serv., 537 F.2d 282 (7th Cir. 1976); L.G. Balfour Co. v. FTC, 442 F.2d 1 (7th Cir. 1971).

104. Whereas the phone company is a monopoly selling services to consumers, Nintendo has monopsony power as a buyer of home videogame programs from software publishers.

105. This reflects the general case. Consumers might exist that value contact with the 10% more highly than contact with the other 90% (assuming that the two groups are mutually exclusive). However, this analysis assumes that the people to whom the consumer wants to speak are divided proportionally between the two systems.

from enforcing the exclusive outlet restrictions in the license. This does not mean that Nintendo has to operate an open system. A closed system, standing alone, does not create the network monopoly effects to any significant degree.[106]

The restrictions on the number of titles and the output of each title provide a method for Nintendo to prevent a recurrence of the "flood of cheap, poor quality game cartridges that killed the first video boom...."[107] The restriction on the number of titles seems designed to ensure that only the best games are approved for production. Such a quality check is likely to have little anticompetitive effect except when combined with the exclusive outlet restriction. If the publisher can market only five titles a year to 75-80% of the market, he will likely select the titles that were most popular in the arcade. Thus, the title restriction combined with the exclusive outlet provision ensures that only Nintendo gets the best titles each game publisher can offer.

The restriction on output prevents the flood and is one way to maintain the monopolistic pricing of the cartridges.[108] It should therefore be judged by the standards established for the closed system.[109]

C. Does the Lock-out Patent Change Anything?

Nintendo has alleged that Atari's manufacture and sale of blank NES-compatible cartridges infringes Nintendo's patent on the lock-out system.[110] While Nintendo may not generally use its patent to control the sale of non-patented articles (such as the blank cartridges),[111] under section 271 of the patent statute, Nintendo can control the sale of a non-staple article without misusing the patent.[112] Nintendo argues that a blank cartridge containing the lock-out chip is a non-staple article.[113] Nintendo concludes that, because the cartridge is a non-staple article,

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106. If a system is closed, the software publisher need only expend the relatively minor resources to convert to the format of the other systems. The software publisher will expend the resources whenever the sales on the new format will pay back the costs of conversion.

107. *Rumble in the Arcade, supra* note 2, at 37; *see also* Nintendo's Complaint, *supra* note 4, at 5.

108. Nintendo could also maintain the high price by setting the price of blank cartridges at the desired price less the marginal cost of incorporating the software.

109. *See supra* text accompanying notes 68-74.

110. *See* Nintendo's Complaint, *supra* note 4, at 21.

111. *See* Morton Salt Co. v. G. S. Suppinger Co., 314 U.S. 488, 493 (1942); Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 517 (1917).

112. 35 U.S.C.A. § 271(b),(c),(d) (West 1984 & Supp. 1989). A non-staple article is an article that has no commercial use except in connection with a patent. *See, e.g.*, Rohm & Haas Co. v. Dawson Chem. Co., 599 F.2d 685, 703-04 (5th Cir. 1979), *aff'd*, 448 U.S. 176 (1981).

113. Nintendo's Complaint, *supra* note 4, at 21.

Nintendo should be free to sue to enjoin the manufacture and sale of blank NES-compatible cartridges without violating the antitrust laws.[114]

The patent system functions as an incentive to produce innovations.[115] Without the protection afforded by the patent system, inventions placed on the market would be rapidly copied. The copies would force the price that the inventor could charge down to something approaching marginal cost. At that price, an inventor would never be able to recover his investment, in time and money, in creating the invention. Not only would he be unable to recover a significant fraction of the societal value of his invention, he would likely lose money on the entire venture.[116] To avoid this result, the Constitution provides for,[117] and Congress has adopted, the patent system.[118] The patent system provides certain rights that enable an inventor to recover a significant fraction of the societal value of his invention, thereby making invention a paying proposition.[119] The patent system, at the same time, sends the proper signals to the market so that people will invest in research according to the societal value of the expected results.[120]

In this case, the patent system should provide a return to the inventors approximating the societal value of their invention—the lock-out system. Thus, our inquiry begins with determining some measure of the societal value of the lock-out system.

Assume that a demand curve is created by drawing a line through the reservation price of each consumer for a certain good. The area under the demand curve will serve as an adequate definition of societal value. By comparing societal wealth before the lock-out system was invented and after the invention, the value of the lock-out system can be established. Societal wealth, pre-lock-out, is determined by drawing the demand curve for the NES[121] without the lock-out system. Societal wealth after the invention is determined by drawing the demand curve for the NES with the lock-out system. The societal value of the invention is the difference between these two—the difference between the area

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114. *Id.* at 22.

115. *See, e.g.*, Bonito Boats, Inc. v. Thunder Craft Boats, Inc., __ U.S. __, __; 109 S. Ct. 971, 975 (1989); Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 480 (1974).

116. *Cf.* Broadcast Music, Inc. v. Columbia Broadcasting Sys., 441 U.S. 1, 19 n.32 (1979) (protection of musical compositions under the copyright laws necessary because of public-good nature of the work).

117. U.S. CONST. art. I, § 8, cl. 8.

118. 35 U.S.C.A. §§ 101-294 (West 1984 & Supp. 1989).

119. *See* Patlex Corp. v. Mossinghoff, 758 F.2d 594, 599 (Fed. Cir. 1985).

120. *See generally* P. AREEDA & L. KAPLOW, *supra* note 35, at 169-73.

121. Since this paper analyzes only the antitrust implications of the patent as used in the NES, societal wealth as a whole need not be examined, but we can focus on the wealth effects of the patent as part of the NES.

under the with-lock-out demand curve and the area under the without-lock-out demand curve.

Is there any reason to expect that the societal value of the NES will be higher with the lock-out system than without it?[122] The lock-out patent enables Nintendo to establish both the closed system and the licensing restrictions. The societal value created by the patent is therefore the societal value created by the closed system and the licensing restrictions. As discussed above, these practices have uncertain effects on societal wealth.[123]

What really appears to be going on is that Nintendo is using the patent to recover not the societal value of the invention (which appears to be negligible), but the consumer surplus associated with the without-lock-out NES.[124] The patent allows Nintendo to recover more monopoly profits; all of the money spent to create the invention, to obtain the patent, and now to enforce it, is simply one of the costs imposed on society by the possibility of monopoly profits.[125] Instead of expending resources inventing new ways to create societal wealth, Nintendo has spent its resources inventing new ways to capture existing wealth.

The sole purpose of the patent is to enable Nintendo to enforce the licensing agreements. If the licensing agreements create net societal wealth, then the patent should be enforced. To the extent that the licensing agreements contain provisions that reduce societal value by restricting competition, a patent on the enforcement mechanism should not change the antitrust analysis.

III. WHAT THE COURTS MIGHT SAY

This preliminary economic analysis suggests that the antitrust analysis should focus on the closed system, the trademark tie-in, and the

122.There might be many situations in which a method of securing information stored in a computer would have societal value, such as securing secret information of the government.

123. *See supra* text accompanying notes 68-74.

124. Courts and commentators have noted that price discrimination to recover the societal value of the patented invention is desirable. *See* USM Corp. v. SPS Technologies, Inc., 694 F.2d 505, 512 (7th Cir. 1982), *cert. denied*, 462 U.S. 1107 (1983); *see also* Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813, 1875-78 (1984). Even to the extent that this is correct, it does not justify use of a patent to facilitate price discrimination to recover the societal value of a good other than the patented one. If the non-patented good is a strong complement (much of its societal value comes from use within the scope of the patent), then control over the non-patented good may be the least-cost method of controlling the use of the patent.

125. *See supra* note 49 and accompanying text.

exclusive outlet restriction. This section will examine how a court might analyze these three issues.[126]

A. The Closed System

Atari Games has alleged that the closed system violates the antitrust laws in two ways.[127] First, Atari alleges that Nintendo is using the lock-out system to monopolize the relevant market.[128] Second, Atari alleges that Nintendo has tied the sale of the NES hardware to the purchase of software produced by Nintendo and its licensees.[129]

To succeed in its monopolization claim, Atari must show that Nintendo has market power, that Nintendo has willfully acquired or maintained that power, and that Atari has suffered a causal antitrust injury.[130] Of course, prior to resolving the monopolization question, Atari must establish the market(s) that Nintendo is monopolizing.

For present purposes, we can focus on two markets: the home videogame market[131] and the market for software titles. Nintendo's 75 to 80% market share in each of these two fields should suffice to establish market power.[132] Also, because Atari is faced with a no-win choice—either be sued for patent infringement, accept an anticompetitive license, or do no business at all with 80% of the home videogame market—Atari has suffered causal injury.[133]

Thus, the first and third elements of the monopolization claim are easily satisfied. Atari's trouble will come in establishing the second element: willful maintenance of monopoly power. This element is established if the closed system *unreasonably* restricts competition in either the home videogame or the software acquisition market.[134] As

126. Since the case is pending in the Northern District of California, the discussion focuses to some extent on antitrust decisions from the Ninth Circuit.

127. *See* Atari's Complaint, *supra* note 3, at 5-7, 9, 13-14; *see also* Abramson, *supra* note 1, at 24, 27-28.

128. Atari has alleged four relevant markets: (i) the market for base units; (ii) the market for home videogames; (iii) the market for the manufacturing of NES-compatible cartridges; and (iv) the market for NES-compatible software. *See* Atari's Complaint, *supra* note 3, at 4-5.

129. *Id.* at 13-14.

130. *See, e.g.*, Christofferson Dairy, Inc. v. MMM Sales, Inc., 849 F.2d 1168, 1174 (9th Cir. 1988).

131. Atari will need to prove that sales of home videogames constitute a relevant market. Personal computers, arcade videogames, television, and many other forms of entertainment may be adequate substitutes for home videogames.

132. *See, e.g.*, Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 590 n.8, 596 n.20 (1985) (79.5 to 84.2% of the market sufficient).

133. *See, e.g.*, Zenith Radio Corp. v. Hazeltine Research, Inc., 395 U.S. 100, 120-21 (1969); Dairy Foods Inc. v. Dairy Maid Prods. Corp., 297 F.2d 805, 808-09 (7th Cir. 1961).

134. *Cf. Christofferson Dairy, Inc.*, 849 F.2d at 1174.

discussed previously, a closed system, standing alone, has uncertain effects on societal wealth.[135]

The court will actually need to quantify those economic effects. It will have to conduct a rule of reason inquiry into the gains and the losses to societal wealth occasioned by the closed system. Presumably, the court will then compare the gains and losses and rule accordingly.[136]

Atari's second claim is that the lock-out system effectively ties NES software to NES hardware. Tying describes a situation in which the purchase of a base unit from Nintendo forces the consumer to accept the software that Nintendo supplies.[137] While it is extremely unlikely that a consumer would demand hardware but not demand software to go with it or vice versa,[138] courts have examined closed computer systems as a tie of two products.[139]

A tie can create anticompetitive effects in the following way. A manufacturer, such as Nintendo, has market power over a product, here its base unit.[140] Nintendo does not fully exploit that market power with respect to the base unit, but instead uses some part of that market power

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135. *See supra* text accompanying notes 68-75. Despite this, courts have held such arrangements illegal when the tying product is patented. *See, e.g.*, International Salt Co. v. United States, 332 U.S. 392, 395-396 (1947); International Business Mach. Corp. v. United States, 298 U.S. 131, 136-38 (1936); *see also* Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 36 n.4 (1984) (O'Connor, J., concurring).

136. Or maybe not. *Compare Aspen Skiing Co.*, 472 U.S. at 605-11 (relying heavily on intent evidence) *with* Broadcast Music, Inc. v. Columbia Broadcasting Sys., 441 U.S. 1 (1979) (examining economic effects of the alleged violation).

137. *But see* A.I. Root Co. v. Computer/Dynamics, Inc., 806 F.2d 673, 677 (6th Cir. 1986) (no tie-in unless tied product bought at the same time as the tying product). The rationale for this rule seems questionable. The court cites White & White, Inc. v. American Hosp. Supply Corp., 723 F.2d 495 (6th Cir. 1983) for support. In *White & White, Inc.*, the court merely said that the tie had to be a condition of the original sale. 723 F.2d at 506. But a second sale can be conditioned on the original sale even if the second sale does not take place at the same time as the original sale. If A sells a tying product to B today on the condition that B buy the tied product tomorrow, the tie creates the same economic effect as requiring B to buy the tied product today. *See also* Kellam Energy, Inc. v. Duncan, 668 F. Supp. 861, 881 (D. Del. 1987) (a requirement that a purchaser of one item also accept a free option to purchase another is not a purchase of a tied product).

138. To be separate products for antitrust tying purposes, the Court has required that there be sufficient demand for one product separate from the other product that it would be efficient to sell the two products separately. *See* Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 19-22 (1984).

139. *See A.I. Root Co.*, 806 F.2d 673; Digidyne Corp. v. Data Gen. Corp., 734 F.2d 1336, 1341-44 (9th Cir. 1984), *cert. denied*, 473 U.S. 908 (1985) (White & Blackmun, JJ., dissenting). The original Supreme Court decision that restricted the right of a patent holder to control unpatented products dealt with a "hardware" maker's attempt to control the "software" that could be used on its patented hardware. Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917) (holder of patent on film projector tried to restrict films that could be shown on its patented projector).

140. Whether the base unit should be considered a separate product market is a difficult question. *See infra* text accompanying notes 144-149.

to induce consumers to accept a tie, buying cartridges from Nintendo and its licensees. This provides Nintendo with a substantial market share in cartridges. This market share in the second market, because of the network monopoly effects of a large library, raises the costs of entry for potential competitors in the first market and thereby increases and reinforces Nintendo's market power in the first market.[141] More market power leads to higher prices and more coercive ties that in turn may generate even more market power. The escalating spiral ends with Nintendo having a 100% share of both markets, and a library of games so large that no competitor can challenge its position.

A tying arrangement is illegal *per se* if: (1) there are two separate products and to obtain one (the tying product), the consumer must also agree to purchase the other (the tied product); (2) the seller has sufficient economic power with respect to the tying product to restrain competition appreciably in the tied product; and (3) the restraint affects a "not insubstantial" amount of commerce in the tied product.[142] Despite the *per se* label, the Ninth Circuit permits a defendant to demonstrate business justifications for an otherwise *per se* illegal tie-in.[143]

Nintendo's 75 to 80% market share, and estimated sales of 50 million cartridges at $25 to $40 per cartridge in 1989 alone, should satisfy the last two elements required to establish a *per se* illegal tie-in. However, Atari will have somewhat more trouble demonstrating the first element.

Ever since IBM unbundled hardware and software in 1969, hardware and software have been considered two separate markets.[144] But are they? No one buys software except to use with hardware; no one buys hardware except to run software.[145] They are complements; both are necessary inputs to the production of the final good, here an interactive

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141. *See* Grappone, Inc. v. Subaru of New England, Inc., 858 F.2d 792, 795-96 (1st Cir. 1988).

142. *See, e.g.*, Fortner Enterprises v. United States Steel Corp., 394 U.S. 495, 498-500 (1969); *A.I. Root Co.*, 806 F.2d at 675; *Digidyne Corp.*, 734 F.2d at 1338.

143. *See, e.g.*, Mozart Co. v. Mercedes-Benz of North America, 833 F.2d 1342, 1348-49 (9th Cir. 1987), *cert. denied*, 488 U.S. 870 (1988).

144. *See, e.g., A.I. Root Co.*, 806 F.2d at 676; *Digidyne Corp.*, 734 F.2d at 1338-39. *But see* Telerate Systems v. Caro, 689 F. Supp. 221, 234-35 (S.D.N.Y. 1988) (database and access terminal are single product because demand for one cannot readily be distinguished from demand for the other).

145. *Cf.* Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 43-44 (1984) (O'Connor, J., concurring) (question is whether anyone would purchase surgery without also purchasing anesthesia) (Three other Justices concurred in this approach to the question). Why isn't the question whether any consumers might buy anesthesia without in-hospital surgery? If the hospital is attempting to limit the availability of anesthesiologists to potential competitors, such as out-patient surgery, then the proposed question better identifies the use of a tie to enhance the market power in the first market, while the court's question identifies the use of market power simply to gain market power in the second market.

videogame.[146] Consumers value the end product—the combination of the two—not one or the other standing alone.

Yet, recent historical practice has been to market hardware and software separately.[147] Consumers buy them separately.[148] In addition, as non-fixed ratio inputs, some consumers will want more cartridges for a given base unit, while others will want fewer. If all that is examined is the product that consumers are truly purchasing (here, Nintendo entertainment), then no complements would ever count as separate markets; products such as gasoline and automobiles would be one product market. (Does anyone ever buy a car to use without gasoline?)

The relevant differences between anesthesia and game cartridges as complements are three. First, the demand for anesthesia, while it may vary depending on the size of the patient and the difficulty of the operation, is unlikely to be a good predictor of the consumer's reservation price for the final product (getting well), but the number of game cartridges purchased may bear a close relation to the consumer's reservation price for the end product (Nintendo entertainment).

Second, distribution efficiencies are likely to be higher in the case of anesthesia in that the demand for anesthesia will occur at the same time and in the same room as the surgery itself; further, the demand for anesthesia can be roughly determined at the outset, based on the nature of the surgery and certain physical characteristics of the patient, making a package sale convenient for both seller and consumer. In contrast, consumers need not purchase additional game cartridges at the same time and place that the base unit is bought. At the time the base unit is purchased, consumers may be unaware of their eventual demand for game cartridges, making them reluctant to commit to a package purchase of so many cartridges at the outset.

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146. Note that to transfer market power effectively from one to the other and back again, the products must be complements.

147. This is probably more a result of antitrust litigation filed by the Justice Department against IBM in the 1960s than any underlying market pressures. The Justice Department sought to force IBM to sell its hardware and software separately. The Justice Department felt that competitors to IBM's monopoly in mainframes were more likely to emerge if the potential competitors could enter the software market first and then jump into hardware once they had some feel for the business, or alternatively, could enter just the hardware market, rather than having to enter both at once. That the Justice Department proved to be wrong (no new competitors for IBM showed up) suggests that closed systems were not the relevant barrier to entry. *See generally* Paul, *With Dropping of US v. IBM Software Vendors Brace for Stiffer Competition*, Computerworld, Jan. 18, 1982, at 4, col. 1; Scannell, *Economist Sees "Wide Open Door" to Monopolies*, Computerworld, Jan. 18, 1982, at 9, col. 1; *Milestones in the US v. IBM Case*, Computerworld, Jan. 18, 1982, at 6, col. 1.

148. *Cf. Hyde*, 466 U.S. at 22-23 (focus on actual marketing practices to determine if products are separate) (five Justices concurred in this approach to the question); *Digidyne Corp.*, 734 F.2d at 1339.

Third, combining surgery and anesthesia may provide efficiencies to the extent that surgery expertise enables the hospital to select anesthesiologists more efficiently than could the patient. Nintendo may also be better than consumers at predicting the value of software because of its hardware manufacturing know-how. However, this seems less likely to be true than in the anesthesia case because the value of a particular game is likely to be much more idiosyncratic than the value of anesthesia: everyone will want the amount of anesthesia required for the operation plus some safety margin, whereas not everyone will want every game cartridge.

How a court should resolve this is far from clear.[149] But courts, without really evaluating the issue, have had little trouble treating hardware and software as two separate product markets.[150]

Assuming Atari can convince the court that the base unit and the cartridges are two separate products, Atari will be able to establish a violation of the *per se* rule against tying. Nintendo may still argue a business justification—that the tie actually increases societal wealth.[151] This business justification defense ensures that the tie has the sort of adverse impact the tying prohibition is designed to prevent.[152]

Nintendo will argue that the tie serves legitimate quality control/certification functions, and is the least expensive way of monitoring the quality of the games available for use on the NES.[153] Again, this basically turns on a comparison of the gains and losses in

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149. Note that the separability question for patent misuse may be different. The Federal Circuit has suggested that two products are separate for purposes of patent misuse if they can be patented separately. *See* Senza-Gel Corp. v. Seiffhart, 803 F.2d 661, 667-69 (Fed. Cir. 1986).

As discussed above, the Justice Department attacked IBM's bundling of hardware and software thinking that competition for IBM's mainframe might arise more easily if the system were open. In this case, even if the NES is a closed system, a company can enter either the hardware or software market independently. If it were not for the exclusive outlet restriction, a company could produce only base units and get existing game publishers to convert their games for use on the new base system. Game publishers can get their games to market without having to create their own base unit, for example, by taking a license from Nintendo.

150. *See* A.I. Root Co. v. Computer/Dynamics, Inc., 806 F.2d 673, 675-77 (6th Cir. 1986); *Digidyne Corp.*, 734 F.2d at 1341-43; *see also* Parts & Elec. Motors, Inc. v. Sterling Elec., Inc., 866 F.2d 228, 232-33 (7th Cir. 1988) (replacement parts market is separate from market for original motors). *But see* Telerate Sys., Inc. v. Caro, 689 F. Supp. 221, 234-36 (S.D.N.Y. 1988) (terminals and database are one market).

151. *See* Mozart Co. v. Mercedes-Benz of North America, 833 F.2d 1342, 1348-49 (9th Cir. 1987), *cert. denied*, 488 U.S. 870 (1988); Betaseed, Inc. v. U and I Inc., 681 F.2d 1203, 1220 (9th Cir. 1982).

152. *See Hyde*, 466 U.S. at 26-28, 40-42; Grappone, Inc. v. Subaru of New England, Inc., 858 F.2d 792, 795 (1st Cir. 1988).

153. *See Mozart Co.*, 833 F.2d at 1348-51.

societal wealth attributable to the closed system, discussed above,[154] that the court will have to conduct, based on a fairly detailed factual inquiry (despite the *per se* label). But by establishing a *per se* tying violation, Atari can shift the burden to Nintendo to prove that the closed system enhances societal wealth.[155]

B. The Trademark Restriction

Turning to the requirement that Nintendo's licensees agree, as a condition of being able to produce NES-compatible games, to market the cartridges under the Nintendo trademark,[156] this restriction will violate section 2 of the Sherman Act if it unreasonably restrains competition.[157] Again, the practice can be analyzed either under the test for monopolization or as a tie.

Under the monopolization test, Atari must show that Nintendo has market power, willfully acquired or maintained, and causal antitrust injury.[158] The relevant market is the purchase of home videogames from software publishers. The first and third elements are easily satisfied: Nintendo's market share should be sufficient to establish market power.[159] Furthermore, if the practice actually increases Nintendo monopoly power in the base unit market (by limiting consumer recognition of other manufacturers), then Nintendo should have stronger monopsony power[160] in acquiring software titles from companies such as Atari Games. With more monopsony power, Nintendo is likely to pay Atari less for Atari's software titles or to impose more severe restrictions on Atari's ability to undermine Nintendo's market share.

To succeed on its claim, Atari must also prove the second element: that Nintendo has willfully maintained this market power. This element requires a showing that the trademark requirement unreasonably restricts competition in the software acquisition market.[161] Nintendo will argue

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154. *See supra* text accompanying notes 68-74.

155. *Mozart Co.*, 833 F.2d at 1349.

156. Nintendo's Complaint, *supra* note 4, at 2.

157. *Cf.* Switzer Bros., Inc. v. Locklin, 297 F.2d 39, 46 (7th Cir. 1961) (patent license that required the licensee to use the patent holder's trademark was a *per se* illegal tie), *cert. denied*, 369 U.S. 851 (1962).

158. *See supra* note 130 and accompanying text.

159. Nintendo's 75-80% market share in home videogames should translate directly into a 75-80% market share in purchasing home videogames from software publishers.

160. A monopsony exists when there is only one buyer for a given product. Because of its 70-80% market share in the home videogame market, Nintendo has monopsony power in acquiring games from software publishers for use on the NES.

161. *See, e.g.*, Christofferson Dairy, Inc. v. MMM Sales, Inc., 849 F.2d 1168, 1174 (9th Cir. 1988).

that the trademark provides valuable information to consumers and therefore is procompetitive.[162] On the other side, Atari will point out that a separate license or a voluntary certification program could provide the same information and will argue that the mandatory nature of the restriction suggests that it is most likely a device to minimize consumer recognition of the trademarks of competitors.

A court will need to balance these two positions and determine if the likely effect of the mandatory use of Nintendo's trademark is to increase societal wealth by providing valuable information to the consumer, or if the restriction is more likely to limit consumer recognition of potential competitors of Nintendo, thereby increasing Nintendo's market power.

In terms of a tying analysis, the argument is that Nintendo is using its monopsony power in acquiring videogames for the home videogame market to force software publishers to agree to market the resulting cartridges under the Nintendo trademark.[163] This creates the harm of tying in the following manner: by broadening the number of products carrying the Nintendo trademark, Nintendo increases consumer recognition of the Nintendo trademark, and thereby decreases the likelihood that consumers will turn to home videogame products marketed under other trademarks. Increased consumer recognition of Nintendo's trademark presumably increases Nintendo's market power in the home videogame market. More market power in the home videogame market corresponds directly to more market power in acquiring software titles (the original tying market) because it gives Nintendo a bigger share of the market to offer software publishers. With increased market power in the title acquisition market, Nintendo can extract additional concessions from its software licensees..

To establish a *per se* illegal tie, Atari Games must show three elements: (1) that a consumer is forced to buy one (tied) product before the consumer can buy another (tying) product; (2) that the seller has

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162. For a discussion of the possible gains and losses to societal wealth occasioned by the restriction, see *supra* text accompanying notes 77-94.

163. To violate section 3 of the Clayton Act the tied products must be "goods, wares, merchandise, machinery, supplies, or other commodities...." 15 U.S.C. § 14 (1988); *see also* Moore v. Jas. H. Matthews & Co., 550 F.2d 1207, 1214 (9th Cir. 1977). A tie can violate section 1 of the Sherman Act as long as the effect of the agreement is to restrain trade. *Cf.* United States v. Loew's, 371 U.S. 38, 45 (1962) (requiring licensee to take a license to show bad films in order to obtain a license to show the good films was an illegal tie because it restrained trade); Northern Pacific Ry. Co. v. United States, 356 U.S. 1, 5-6 (1958) (to purchase or lease land, purchaser had to agree to ship all commodities produced on Northern Pacific's railroad; held to be an illegal tie). Atari does not allege a violation of the Clayton Act, but frames its tying claim under section 1 of the Sherman Act. *See* Atari's Complaint, *supra* note 3, at 12-14.

market power in the tying product; and (3) the tie affects a not insubstantial amount of commerce in the tied product.[164] The argument, as in the hardware-software tie, will focus on the first element: whether the trademark restriction is separable from the right to produce NES-compatible videogames.

Nintendo might argue that the trademark identifies the final product: the interactive videogame. Because the cartridge is a critical component of that end product, Nintendo must control the quality of the cartridge and market it under its trademark, so that the consumers associate the end product with its true source, Nintendo. Thus, the right to produce NES-compatible videogames and the trademark should not be considered two products. Nintendo can find support for its position in the cases that have held that a trademark and the product which is sold under it are really one product.[165]

These cases generally deal with franchise arrangements where the trademark is alleged to be the tying product. In each case, the court examines the nature of the franchise to determine if particular terms of the franchise agreement are separable from the trademark. For example, a franchiser might license his trademark on the condition that the franchisee purchase various supplies from the franchiser.[166] To the extent that a general rule can be drawn from these somewhat conflicting cases, it is that a trademark and the tied products are separate if the supply of the tied products by the franchiser is not essential to the quality of the end product.[167]

The question is how to apply this general rule to this case, where the trademark is not the tying product but the tied product. While the rule itself provides little direct help, the reasoning behind the rule may. The courts developed such a rule because of the function of a trademark: to identify the source of specific goods.[168] Thus, when a trademark

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164. *See supra* note 146 and accompanying text.

165. *See, e.g.*, Jack Walters & Sons Corp. v. Morton Bldg., Inc., 737 F.2d 698, 704 (7th Cir. 1984), *cert. denied*, 469 U.S. 1018 (1984); California Glazed Prods., Inc. v. Burns & Russell Co., 708 F.2d 1423, 1429-30 (9th Cir. 1983), *cert. denied*, 464 U.S. 938 (1983). *But see* Siegel v. Chicken Delight, Inc., 448 F.2d 43, 48-49 (9th Cir. 1971), *cert. denied*, 405 U.S. 955 (1972).

166. *See, e.g., California Glazed Prods., Inc.*, 708 F.2d at 1429 (to obtain license to use trademark, licensee agreed to buy Spectra-Glaze Compound and other special ingredients exclusively from the licensor); *Siegel*, 448 F.2d at 46 (to obtain right to operate under Chicken Delight trademark, franchisee had to agree to buy certain equipment, packaging supplies and mixes exclusively from franchiser).

167. *Compare California Glazed Prods., Inc.*, 708 F.2d at 1429 (trademark not separate from those ingredients critical to the end product, but suggests that the trademark is separate from non-essential ingredients) *with Siegel*, 448 F.2d at 49 (trademark and ingredients are separate products because it was not essential that the ingredients be purchased from the franchiser).

168. *See, e.g., California Glazed Prods., Inc.*, 708 F.2d at 1427-30; *Siegel*, 448 F.2d at 48-49.

identified the franchiser as the source of the key ingredients, the franchiser could require the franchisee to purchase those ingredients from the franchiser. An ingredient would be key if it provided the primary source of value for the product.[169]

Applying the same underlying purpose for trademarks to this case, the court should find the trademark and the right to manufacture NES-compatible videogames to be separable if the trademark does not properly identify the source of those elements generating the value of the videogame to the consumer. In this case, Nintendo provides the blank cartridge.[170] The software comes from the publisher. Both contribute a key element, but as discussed previously,[171] the vast majority of the value of the product comes from the software rather than the lock-out mechanism.[172] Because the primary value of a cartridge to a consumer is the software,[173] created by the licensee, not Nintendo, the right to publish NES-compatible games and the trademark should be separate products for the tying analysis.

Having established a *per se* illegal tie, the burden shifts to Nintendo to establish a business justification—that its restriction, despite its mandatory nature, is really just a source of valuable information for the consumer.[174] This will be particularly difficult to establish because a separate license or a voluntary certification could have provided the same information without the potential for anticompetitive effects.[175]

C. The Exclusive Outlet Restriction

The courts have analyzed exclusive outlet restrictions, in which a manufacturer agrees to sell through only one retailer in a given

169. *Cf. California Glazed Prods., Inc.*, 708 F.2d at 1429 (the incremental value associated with Spectra-Glaze blocks came from the Spectra-Glaze Compound and other key ingredients; therefore, the licensor could require the purchase of these elements from the licensor).

170. Or at least, it used to. Now it might come instead from Atari Games.

171. *See supra* text accompanying notes 121-25.

172. Actually, it is the combination of the software and the hardware that create the value of the NES. The point here is not to apportion the societal value of the end product between hardware and software, but that the lock-out system is not the source of that value; with removal of the locking system from both the cartridge and base unit, the game will play. But if the game software is removed all that remains is a blank screen.

173. Indeed, Atari alleges that consumers have been unaware of the existence of a lock-out chip. Atari's Complaint, *supra* note 3, at 6. This seems somewhat unlikely because most consumers probably realize that some cartridges only play on certain machines, just as software for the Apple Macintosh does not run on the IBM PC. This allegation may be factually accurate in that consumers may not realize it is the lock-out system specifically that renders other cartridges incompatible.

174. *See supra* text accompanying notes 97-98.

175. *Cf.* California Glazed Prods., Inc. v. Burns & Russell Co., 708 F.2d 1423, 1425 (9th Cir. 1983), *cert. denied*, 464 U.S. 938 (1983) (separate licenses for patent and trademark).

geographical area, under the rule of reason, because the manufacturer's interest in most of these cases is consistent with that of the consumer.[176] For a manufacturer without market power, price will be limited by competition from other brands. This competition requires the manufacturer to establish a system of distribution that gets the products to as many customers as possible as efficiently as possible.[177] An efficient distribution system maximizes the manufacturer's ability to compete with other manufacturers, enhancing interbrand competition.

In some situations, a manufacturer may decide to structure its distribution system so that there is only one seller of its products in a given geographical area (an exclusive outlet) to improve its competitive position against other manufacturers. An exclusive outlet arrangement can improve competitiveness in two ways.[178] First, it eliminates competition between two retailers who are trying to sell the same product to the same customers (intrabrand competition). Second, it can eliminate free-rider effects.[179]

A reduction in intrabrand competition can increase interbrand competitiveness as follows.[180] With intrabrand competition, a consumer can call ten stores in an area asking for Widget Model 201 and then go to the store that has the lowest price. This type of competition between stores selling exactly the same product tends to drive the margin for the retailer to a very low level. With interbrand competition, competing products will be similar but are likely to differ in material ways, so that consumers can compare the prices and features only on an approximate basis. Interbrand competition, therefore, does not drive the margins for the retailer down as uniformly as intrabrand competition. Therefore, by making a retailer an exclusive outlet in a certain geographic market and eliminating intrabrand competition, the manufacturer can raise the

176. *See* Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 56 & n.24 (1977); *see also* Business Electronics Corp. v. Sharp Electronics Corp., 485 U.S. 717, 725 (1988); Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 44-45 (1984) (O'Connor, J., concurring).

177. *See, e.g., Business Electronics Corp.*, 485 U.S. at 725; *Continental T.V., Inc.*, 433 U.S. at 52 n.19.

178. *See, e.g., Continental T.V., Inc.*, 433 U.S. at 54-55.

179. *Id.* Imagine two people, Bill and Paul, who do not like smoking. Bill spends two years and a substantial amount of money getting the city to pass an ordinance prohibiting smoking in office buildings. Assuming they work in the same city, both Bill and Paul get the benefit of the ordinance, but Paul did not have to pay anything for it. (Paul may have paid for it in one sense. If by not helping Bill, it took longer to pass the ordinance, then Paul suffered through a smoky work place for that much longer.) Because Paul received the benefit for free by relying on Bill's efforts, Paul is a free-rider. If there are a large number of anti-smokers in the city, then each might decide, like Paul, to let the others spend the time and money to get a non-smoking ordinance passed. The incentives for each to invest his own resources to obtain the ordinance is reduced by his perception of the possibility of successfully letting others get the ordinance passed.

180. *See id.*

margins for his retailers. Because the retailer makes a little extra income on each sale, she can be expected to more aggressively market the product and otherwise invest her efforts as a partner with the manufacturer.

By limiting free-riding, an exclusive outlet arrangement can increase the ability of the manufacturer to encourage the retailer to conduct intensive advertising campaigns or to provide after-sale service, both of which may be more efficiently provided by the local retailer.[181] Free rider problems limit a retailer's incentive to perform these functions. For example, consider the case where one retailer provides extensive advertising and after-sale service for a product. Another retailer, in the same geographic area, merely sells the item, advertising only in the yellow pages. Because the second retailer does not provide these services, his costs are lower and he can, therefore, sell the product at a lower price and still make a profit. Consumers might learn of the product through advertisements paid for by the first retailer and desire to buy the product. When they call around, they discover the lower price offered by the second retailer and, therefore, buy the product from the second retailer. Furthermore, when the product breaks, they turn to the first retailer to provide service under the manufacturer's warranty. Sales by the second retailer will cut into the sales of the first, making it unprofitable for the first to continue advertising and providing after-sale service. Thus, the second retailer can take advantage of expenditures by the first retailer to sell more products. If these services are more efficiently provided by the local retailer, then the manufacturer will use an exclusive outlet arrangement to eliminate the free-riding and to encourage the retailer to provide them.[182]

Generally speaking, exclusive outlet arrangements are usually established by a firm because they distribute a manufacturer's products more efficiently than a system without the exclusive outlet arrangements. Because they promote competition, courts generally find that they do not violate the antitrust laws.[183] As an exception to this general rule, the courts have found an exclusive outlet arrangement to be anticompetitive when the arrangement unreasonably deprives a competitor of access to the market or to a necessary source of supply.[184]

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181. *See id.*

182. *See, e.g., Continental T.V., Inc.*, 433 U.S. at 55; Bascom Food Prods. Corp. v. Reese Finer Foods, Inc., 715 F. Supp. 616, 622 n.11 (D.N.J. 1989).

183. *See, e.g.*, Aladdin Oil Co. v. Texaco, 603 F.2d 1107 (5th Cir. 1979); Golden Age Acceptance Corp. v. General Motors Corp., 597 F.2d 676 (9th Cir. 1979); Daniels v. All Steel Equip., 590 F.2d 111 (5th Cir. 1979); Packard Motor Car Co. v. Webster Motor Car Co., 243 F.2d 418 (D.C. Cir.), *cert. denied*, 355 U.S. 822 (1957).

184. *See* Cherokee Labs. v. Rotary Drilling Servs., 383 F.2d 97 (5th Cir. 1967), *cert. denied*, 390 U.S. 904 (1968); *see also* Mutual Fund Investors v. Putnam Mgmt. Co., 553 F.2d 620 (9th

Given the network monopoly nature[185] of the market for production rights to videogame software, the exclusive outlet arrangement should be found to be anticompetitive in this case. The exclusive outlet restriction limits access to software that Sega and Atari Corporation need for their game systems to compete with Nintendo's.

In short, the problem is that a software publisher is given an either-or choice between producing the game for Nintendo with 75 to 80% of the market, or producing the game for the others. Publishers of a hot game faced with this choice will most likely choose Nintendo. Atari Corporation and Sega are left with the not-so-hot games, the older games, and rough copies of the hot games, not the best weapons for challenging Nintendo's market position. The exclusive outlet becomes both a direct barrier to competition today and, by giving the NES the largest library of games, a source of market power for tomorrow.

Furthermore, the efficiencies usually associated with such vertical arrangements are absent here. There is no suggestion that Sega and Atari Corporation have been free-riding on Nintendo's advertising and warranty service. Nor is there any indication that the software publishers are sharing their market power with Nintendo to give Nintendo that extra margin so Nintendo will get out there and market aggressively.

Based on this preliminary analysis, a court should be skeptical of the need for the exclusive outlet arrangement. But assuming Nintendo can point to some potential efficiencies, the court will need to weigh these against the increase in Nintendo's market power likely to result from denying its competitors access to the hottest games.

IV. A CONSUMER'S PERSPECTIVE

As a consumer, I worry about high prices and poor quality. Considering the license agreements and the closed nature of the Nintendo system, I am troubled by three aspects of the arrangement.

First, I am uncertain about the advantages and disadvantages of the closed system. It may transfer significant consumer surplus from me to Nintendo, while only marginally reducing the deadweight monopoly

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Cir. 1977); Bascom Launder Corp. v. Telecoin Corp., 204 F.2d 331 (2nd Cir. 1953), *cert. denied*, 345 U.S. 994 (1953). Cases dealing with exclusive dealing face the same issues though viewed from the other side in the same way that monopoly and monopsony deal with the same issues. The cases follow a similar rule. *See, e.g.*, FTC v. Motion Picture Advertising Serv. Co., 344 U.S. 392, 395 (1953); Standard Oil Co. of California v. United States, 337 U.S. 293, 314 (1949); Standard Fashions Co. v. Magrane-Houston Co., 258 U.S. 346 (1922); Oltz v. St. Peter's Community Hosp., 861 F.2d 1440 (9th Cir. 1988); *cf.* Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 45 (1984) (O'Connor, J., concurring); Tampa Elec. Co. v. Nashville Coal Co., 365 U.S. 320, 333-35 (1961).

185. *See supra* text accompanying notes 104-06.

losses. Alternatively, the closed system may transfer only a slight amount of consumer surplus while significantly reducing the deadweight loss by making the system available to everyone who values it at its marginal cost or more.

However, I am fairly certain I do not like the two other aspects: the requirement that all games be marketed under the Nintendo trademark and the exclusive outlet restriction. By imposing these limitations, Nintendo appears to be using its market power in the base unit to create or increase barriers to competitors seeking to enter the base unit market. Higher barriers will likely create more market power for Nintendo. Increased market power will likely result in higher prices, either for the base units or for the cartridges.

Therefore, I would want the court to eliminate the trademark tie and the exclusive outlet restrictions. I would also want the court to closely consider whether the closed system serves primarily to transfer consumer surplus to Nintendo or to eliminate deadweight loss. If the court were to find that the closed system primarily transfers consumer surplus, then I would ask the court not to allow Nintendo to enforce the patent, permitting Atari Games and others to produce and sell functionally identical blank cartridges.

In response to such a ruling, Nintendo may decide to exploit fully its market power in the base unit, increasing the price of the base unit by approximately two hundred dollars. The deadweight losses incurred by switching from the cartridges to the base unit as the carrier of the monopoly mark-up may well exceed any short-term economic benefit from smashing Nintendo's monopoly on compatible cartridges.

Nevertheless, as a consumer, I may prefer the switch for two reasons. First, with access to all of the titles in Nintendo's library, Atari Corporation and Sega may become more effective competitors. Their increased effectiveness may mean that a significant price increase for Nintendo's base unit may prove unprofitable for Nintendo because consumers will not pay it. Instead, consumers will switch to the other systems. Furthermore, while Nintendo's market power may not be immediately reduced, a more level playing field for competition would more quickly erode Nintendo's market power than would the current market conditions. Indeed, under the current market, Nintendo's market power will most likely increase.

The second reason is more personal. Almost certainly, Nintendo will not change its pricing structure until after the trial. That gives me a few months yet (at least) to buy a base unit at current prices. If the *quid pro quo* for lower cartridge prices is a much higher base unit price, then I

will just buy a base unit now and hope for lower cartridge prices come judgment day.

APPENDIX

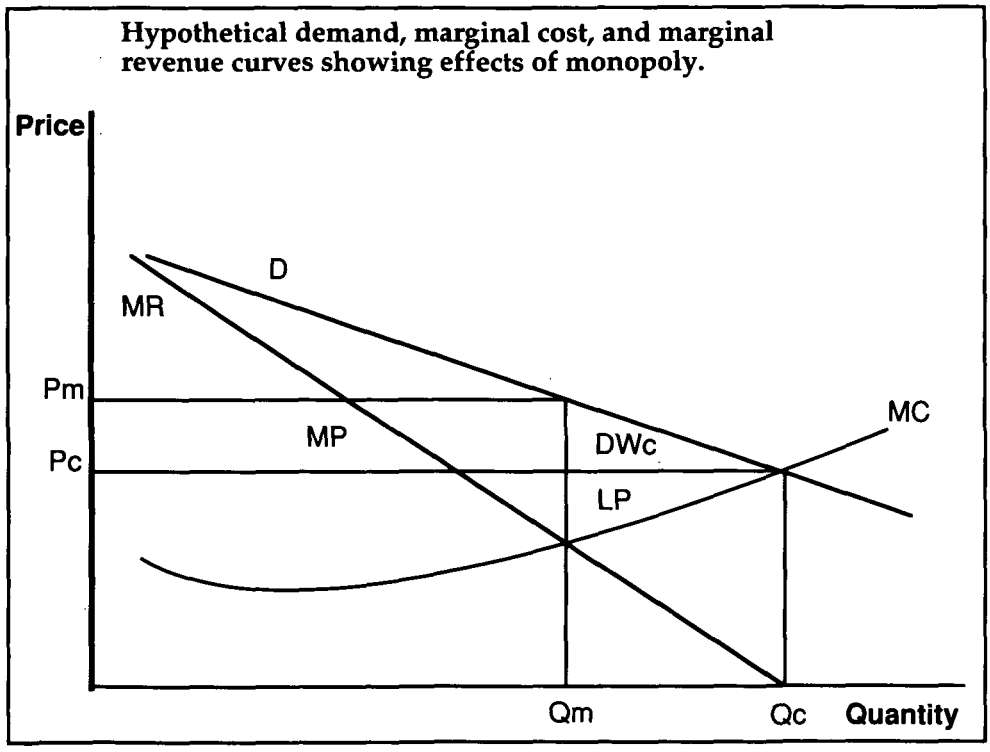

Figure 1

The triangular area labelled DWc represents the deadweight loss to society from the monopolistic pricing; the triangular area labelled LP represents the profits lost to the seller by monopolistic pricing; and the rectangular area labelled MP represents the additional profits gained by the seller by monopolistic pricing. The curve labelled D represents the demand cuve; the curve labelled MC represents the seller's marginal cost function; and the curve labelled MR represents the seller's marginal revenue function. *See, e.g.*, R. BORK, *supra* note 34, at 101; R. POSNER, *supra* note 34, at 10-11.

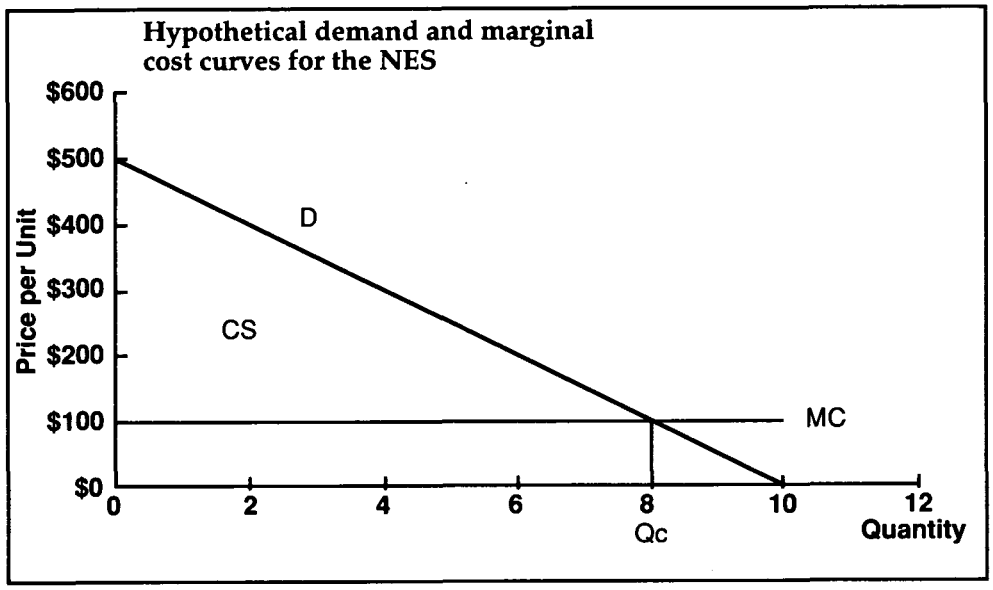

Figure 2a

The demand curve is known to match reality only in that Nintendo expects sales of 8 million units in 1989 at approximately $100 each. *See* Lazzareschi, *supra* note 89, § IV, at 1, col. 3, col. 6; *Labyrinth*, *supra* note 6, at D23, col. 2. Figure 2a assumes that the $100 figure is approximately marginal cost, and that marginal cost is constant at production quantities between 0 and 10 million (as shown by the curve labelled MC). The demand curve represents the value of the base unit to consumers with the marginal cost of the cartridges removed. Since the demand curve is hypothetical, each consumer's valuation is reduced by the marginal cost of the actual number of cartridges that the consumer would buy if the cartridges were priced at marginal cost. The triangular area between the demand and marginal cost curves represents the consumer surplus and is labelled CS in the graph.

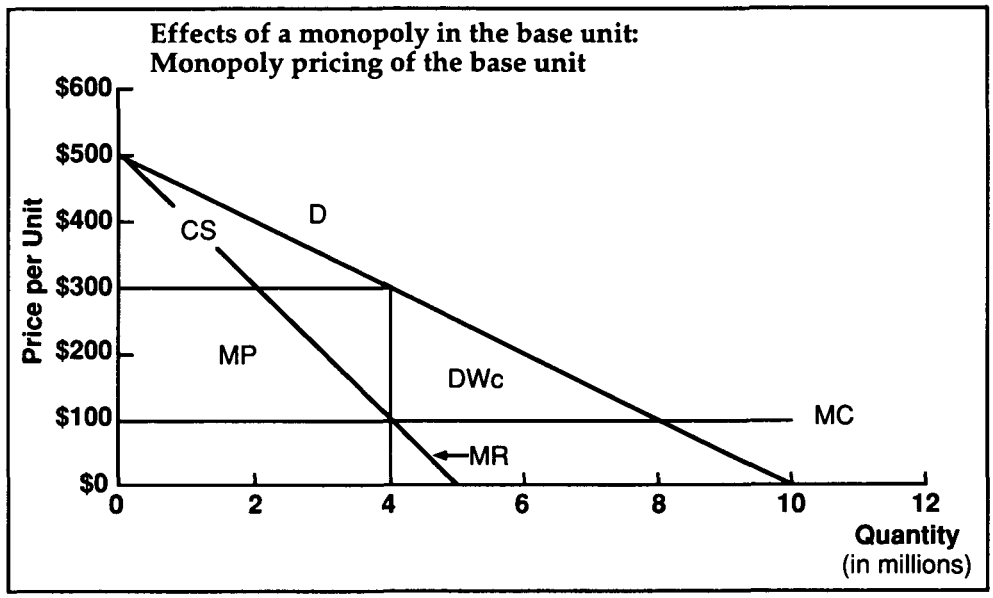

Figure 2b

The curve labelled MR represents Nintendo's marginal revenue function, the rectangle labelled MP represents Nintendo's monopoly profits from this scheme, and the trianlge DW represents the deadweight loss to society from this pricing scheme. The curves were designed so that the monopoly price was $200 over the competitive price. The $200 increase represents the approximate present value of the monopoly profits from the sale of 2.5 cartridges per year for four years to each base unit owner. *See The Kid, supra* note 6, at 64 (base units expected to be in 20 million homes by the end of 1989, 50 million cartridges expected to be sold in 1989). Game cartridges sell for between $25 and $40 each. *See Labyrinth, supra* note 6, at D23, col. 2. If the marginal cost of a cartridge is actually $10, see *supra* note 64, then the monopoly profit from the sale of a cartridge is between $15 and $30. Taking an average profit of $22.50, for 2.5 cartridges per year for four years, and discounting to present at an after-inflation discout rate of 5%, the net present value of the monopoly profits on the cartridges is $204.32.

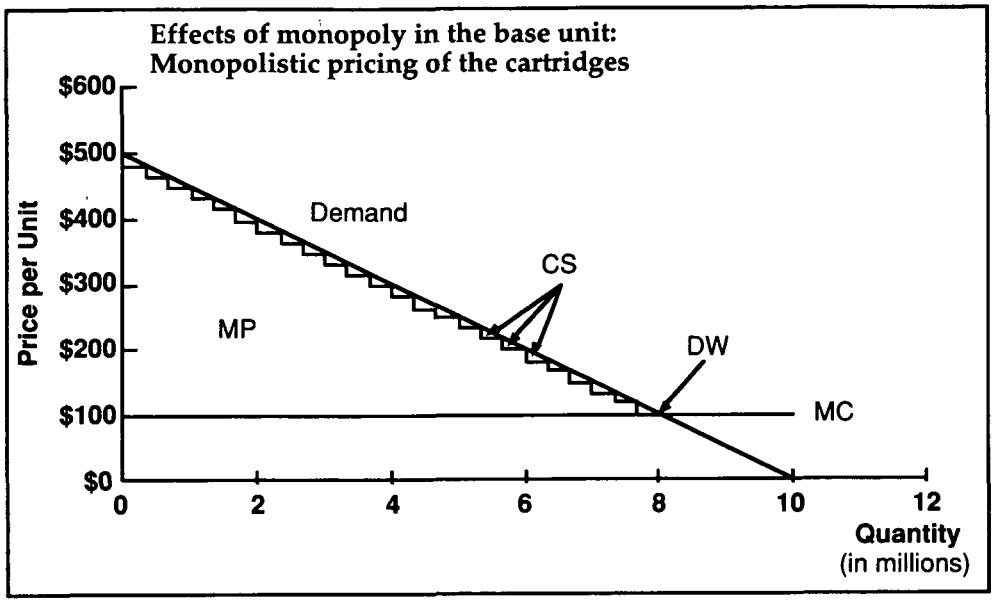

Figure 2c

This figure assumes that Nintendo sells the NES base unit at marginal cost and charges $20 over marginal cost for each cartridge. The demand curve assumes that the restrictions on cartridge production do not increase the value of the end product to the consumer. Arguments that the restrictions serve a certification or quality control function are considered in a later section. *See supra* text accompanying notes 77-94. The abbreviations are as previously defined for Figures 2a and 2b.