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ANTITRUST INTENT

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ANTITRUST INTENT

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Abstract

Many legal rules turn on a party's state of mind – or *intent* – with respect to some action or consequence. Legal scholars have long debated the contours of such requirements and the sorts of proof required for them. Intent has been an especially controversial issue in antitrust law. This paper provides a theory of legal standards that explains the role of intent analysis in antitrust and in other areas of the law. We argue that intent requirements, and many other legal rules, can be understood by focusing on the goal of minimizing the expected costs from legal errors. After developing a positive theory of intent standards, we apply the theory to antitrust to show that it explains both the allocation of and proof requirements for the specific intent standards in antitrust doctrine. We then use the *Microsoft* case as a concrete study of the function of intent rules in antitrust.

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ANTITRUST INTENT

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I. Introduction

Many legal rules turn on a party's state of mind—or *intent*—with respect to some action or consequence. Legal scholars and jurists long have debated the contours of such requirements and the sorts of proof required for them.[1]

In recent years, intent has been an especially controversial issue in antitrust law. The controversy encompasses both the conspiracy (Section 1) and monopolization (Section 2) provisions of the Sherman Act, though the bulk of the controversy involves monopolization cases. Some scholars have urged courts to try to discover the monopolist's subjective intent by examining internal corporate memoranda and comments by officers of the firm.[2] Others have argued that the intent inquiry should play no role at all in

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[1] *See, e.g.,* Kenneth W. Simons, *Rethinking Mental States,* 72 B.U. L. REV. 463 (1992); John Shepard Wiley, Jr., *Not Guilty By Reason of Blamelessness: Culpability in Federal Criminal Law*, 85 VA. L. REV. 1021 (1999); Vic Khanna, *Is the Notion of Corporate Fault a Faulty Notion: The Case of Corporate Mens Rea*, 79 B.U. L. REV. 355 (1999); Richard J. Lazarus, *Mens Rea in Environmental Criminal Law: Reading Supreme Court Tea Leaves*, 7 FORDHAM ENV. L. J. 861 (1996); Michael S. Moore, *Causation and Excuses*, 73 CAL. L. REV. 1091 (1985); Paul H. Robinson, *A Brief History of Distinctions in Criminal Culpability*, 31 HASTINGS L. J. 815 (1980); Jeffrey S. Parker, *The Economics of Mens Rea*, 79 VA. L. REV. 741 (1993); Francis Bowe Sayre, *Mens Rea*, 45 HARV. L. REV. 974 (1932). For perhaps the earliest treatment of the intent issue in the context of antitrust law, *see* Alfred E. Kahn, *Standards for Antitrust Policy*, 67 HARV. L. REV. 28, 48-54 (1953)(discussing role of intent examination in rule-of-reason analysis).

[2] *See, e.g., See* United States v. Microsoft Corp., Civil Action No. 98-1232 (D. D.C.) & State of New York *ex rel.* Dennis C. Vacco, et al. v. Microsoft Corp., Civil Action No. 98-1233 (D. D.C.), cross-examination testimony of Franklin M. Fisher, Jun. 3, 1999, a.m. sess., trans. at

monopolization cases.[3] In a famous attempt to eliminate the intent inquiry from the monopolization case law, Judge Hand declared in *Alcoa* that "no monopolist monopolizes unconscious of what he is doing."[4]

This paper provides a theory of legal standards that explains and justifies the role of intent analysis in antitrust law. We argue that the structure of many legal rules can be understood by focusing on the goal of minimizing the costs from legal errors. Although we focus on antitrust law, the framework presented here is more general and is capable of explaining rules in other areas of the law.

Our theory rejects the two extreme normative positions on the role of intent—on the one hand, the view that intent should play no role in legal analysis, and, on the other hand, the view that intent should be determined for most purposes in antitrust law by a subjective inquiry. Our theory supports intent standards for antitrust quite similar to the doctrines courts are actually applying.

The argument below proceeds in two steps. First, we identify the legal standards applied in the antitrust case law, and, second, we present a theory that explains the standards.

As a general proposition, the case law suggests that plaintiffs must meet a higher burden with respect to defendant's intent under Section 2 of the Sherman Act than is typically required under Section 1. Under Section 1, plaintiffs generally must demonstrate only that the defendant intended to engage in the conduct that is asserted to violate the law.[5] Under Section 2, plaintiffs must produce evidence that is consistent with a specific intent to monopolize, in the sense that the overwhelming—perhaps the sole—purpose of the defendant's conduct is to reduce competition.[6] The Section 2 specific intent standard constrains courts from penalizing a dominant firm when its conduct involves a mixture of potentially pro-consumer and competition-restricting actions. This standard, as would be expected of any optimal proof standard, minimizes the costs of error in applying Section 2.

33-34 [hereinafter, Fisher Cross]; Daniel Gifford, The Role of the Ninth Circuit in the Development of the Law of Attempt to Monopolize, 61 NOTRE DAME L. REV. 1021, 1021-23 (1986) (specific intent evidence resolves ambiguities surrounding defendant's conduct).

[3] *See, e.g.,* FRANKLIN M. FISHER, JOHN J. MCGOWAN & JOEN A. GREENWOOD, FOLDED, SPINDLED AND MUTILATED: ECONOMIC ANALYSIS AND *U.S. v. IBM* 272 (Cambridge: MIT Press 1983). *See also* Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards and Microsoft,* 7 GEO. MASON L. REV. 617, 652 (1999).

[4] United States v. Aluminum Co. of America, 148 F.2d 416, 432 (2d Cir. 1945).

[5] *See* discussion *infra* II.B. As explained below, in some instances (such as an agreement to fix prices) proof of the *conduct* that violates the law very strongly suggests an *intent* that is antithetical to ordinary competition. Separate proof of such an intent, however, is not required.

[6] *See* discussion *infra* II.C.

Our use of the term *specific intent* here is not synonymous with *subjective intent*, although that is the sense in which the term is used at times in antitrust law and in other fields.[7] With a "subjective intent" requirement, the plaintiff must produce evidence that directly reveals the particular defendant's state of mind. We use *specific intent* here to describe an inquiry conducted on the basis of objective evidence, respecting the necessary consequences of actions. Rather than asking for direct evidence of what the defendant had in mind, the objective approach asks what can be inferred as a state of mind reasonably attributable to defendant in light of his conduct. Our framework implies that this *objective* specific intent standard, which generally is used in Section 2 cases, is the proper standard under Section 2.

We examine the *Microsoft* case[8] under the lense of our framework, as a concrete study of the function of intent rules in antitrust. Some scholars have argued that in high technology markets, where consumers face substantial costs in switching from a dominant product standard, courts should focus solely on the effects of the dominant firm's conduct, weighing in each case consumer benefits against competitive harms.[9] They reason that benign intent should not excuse firms in high technology markets, where "network effects" (additional market power that results because consumers are locked in to the dominant product) amplify barriers to competition.[10] Others have suggested that subjective intent evidence is especially relevant in this setting, and can be used to support liability for what might otherwise seem benign activity, again because of concern over heightened barriers to competition.[11] We reject both of these claims. We conclude that the existence of network effects tilts the case further in favor of the specific intent requirement, properly understood as an objective inquiry.

The error cost approach to legal standards also illuminates the reason that intent standards are used in tort law, criminal law, constitutional law, and elsewhere. Economic analyses of law have tended to ignore intent

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[7] In criminal law, for example, "specific intent" typically refers to what we call "subjective intent." *See, e.g.,* JOSHUA DRESSLER, UNDERSTANDING CRIMINAL LAW, §10.04 at 105-06 (New York: Irwin, 2d ed. 1995); WAYNE R. LAFAVE & AUSTIN W. SCOTT, JR., CRIMINAL LAW § 3.5 at 216-227 (St. Paul: West Pub., 2d ed. 1986).

[8] United States v. Microsoft Corp., 1998-2 Trade Cas. (CCH) ¶ 77,261 (D.D.C. 1998); *see also* United States v. Microsoft Corp., 147 F.3d 935 (D.C. Cir. 1998). For the Findings of Fact, *see* No. 98-1232 (D.D.C. 1998) (issued Nov. 5, 1999), <www.usdoj.gov/atr/cases/f3800/msjudgex.htm>.

[9] *See* Salop & Romaine, *supra* note 3, 651-665.

[10] On the theory of network effects, *see* discussion *infra* IV.A.

[11] *E.g.*, Fisher Cross, *supra* note 2.

doctrines, focusing on rules framed in terms of the actor's conduct.[12] Our framework extends the economic analysis of legal rules by providing a theory of the function of intent doctrines generally. So far as courts are free to tailor intent standards, they gravitate toward standards that minimize the expected cost of legal errors. While we do not argue that judge-made law invariably advances social welfare,[13] we do find that judicially-crafted legal standards respecting intent generally coincide with this objective.

Part II below sets out a framework for legal rules that defines and distinguishes "conduct" and "intent" standards, and applies that framework to show how the key doctrinal rules in antitrust can be broken down into conduct- and intent-based components. Part III develops the error-cost analysis of legal rules and uses it to provide a positive theory of intent standards in the common law. In the latter portion of Part III, we apply our theory of intent standards to antitrust law. Part IV applies the error cost framework developed in Part III to the issues generated by the *Microsoft* litigation. Part V extends our theory of intent standards to explain functionally similar rules in corporate, tort, and constitutional law.

II. Legal Standards in Antitrust Law

A. A Typology of Legal Standards

A *legal standard* sets forth the facts or conditions that must be proven or implied by the evidence for the plaintiff to win his case. Legal standards—or more accurately, components of such standards—can be separated into two categories.

One general type of legal standard, the *conduct standard*, describes the sort of conduct that must be demonstrated for the plaintiff to prevail. The best-known conduct standard in antitrust law is the *rule of reason* (or *reasonableness*) test, which requires proof that the competitive harms from the defendant's conduct outweigh any purported benefits to consumers from that conduct. The reasonableness test in antitrust law, like the negligence

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[12] *See* discussion *infra* note 89 and accompanying text (discussing failure to separate "specific intent" torts, such as assault, from intentional torts in the standard economic analysis of tort law).

[13] *See* John Goodman, *An Economic Theory of the Evolution of the Common Law,* 7 J. LEGAL STUD. 393 (1978); George L. Priest, *The Common Law Process and the Selection of Efficient Rules*, 6 J. LEGAL STUD. 65 (1977); William M. Landes & Richard A. Posner, *Adjudication as a Private Good*, 8 J. LEGAL STUD. 235 (1979); Paul Rubin, *Why is the Common Law Efficient?*, 6 J. LEGAL STUD. 51 (1977).

test in tort law, rests on a balancing of the social costs and benefits of the defendant's actions.[14]

The other major conduct standard observed in antitrust law, the *per se rule*, does not ask decision-makers to evaluate the balance of social costs and benefits.[15] Thus, under the rule of per se illegality for price-fixing, the defendant who participates in a cartel will be found in violation of the Sherman Act whether or not his conduct could be deemed reasonable.[16]

The second type of legal standard, an *intent standard*, determines liability in part by evidence concerning the defendant's state of mind. There are two intent standards in antitrust. Some claims require proof merely of the intent to carry out the conduct set forth in the complaint; these claims fall under a *general intent* standard. These claims require only that the defendant know that he is taking a particular action, not that he does so with the purpose of bringing about a particular (undesirable) result.[17] Other claims fall under a *specific intent* standard, requiring the plaintiff to prove that the defendant intended to harm competition. As discussed below, intent standards in antitrust are part of a larger group of intent standards in the law.[18]

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[14] One question is whether the proper objective is the maximization of consumer welfare or *total* welfare (the sum of consumer and producer welfare). The two come into conflict in the case of a "welfare tradeoff," such as the case of a merger that reduces productions costs and at the same time generates sufficient market power for the merged firm to raise its price. A consumer welfare objective would hold all such cases undesirable. A total welfare standard might approve such a merger, provided the efficiency gains outweigh the net loss in consumer welfare. For the case for using the total welfare standard in merger analysis, see Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968). Different constructions of the normative goal for antitrust can be important in many contexts. *See, e.g.,* Joseph F. Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare and Technological Progress*, 62 N.Y.U. L. REV. 1020 (1987). For the most part, however, our intent analysis is unaffected by the specific antitrust maximand.

[15] Courts have argued, in some cases, that this task (of balancing costs and benefits) has been performed already in framing the per se rule. For example, in United States v. Trenton Potteries, 273 U.S. 392 (1927), the Supreme Court suggested that the burdens of weighing the costs and benefits of price-fixing on a case-by-case basis were too high given that price-fixing is socially harmful in most cases, and thus a per se prohibition is justified.

[16] *E.g.*, United States v. Trenton Potteries, 273 U.S. 392, 398 (1927) ("[U]niform price-fixing by those controlling in any substantial manner a trade or business in interstate commerce is prohibited by the Sherman Law, despite the reasonableness of the particular prices agreed upon . . .")

[17] In some instances, a mistake of fact can preclude formation of the general intent necessary to criminal or civil liability. The intent needed for liability, however, is not eliminated by *all* mistaken beliefs. On the meaning of *general intent* in the criminal law, see, e.g., DRESSLER, *supra* note 7, §10.06 at 118-120; LAFAVE & SCOTT, *supra* note 7, §3.5(e) at 223-225.

[18] In Parts III and V we discuss intent standards and functionally similar rules in several other areas of the law. The general intent standard is similar to a standard that action be volitional in many areas of law. It can, however, impose serious burdens on antitrust plaintiffs, depending on the nature of the conduct to which it applies. *See* discussion *infra* part II.B.2.

Legal standards in antitrust and the common law generally should be viewed as combinations of conduct and intent standards. Consider again the per se rule, making those who engage in price-fixing conspiracies liable for violating the Sherman Act whether or not they can prove that their actions were economically reasonable. The per se rule is a combination of a per se conduct standard, since reasonableness of conduct is irrelevant under it, and an intent standard that requires proof only of general intent—that is, the intent to take part in a conspiracy.[19]

This typology of legal standards corresponds to the tests observed in the common law. Consider three examples from tort law: the negligence rule, the legal standard for trespass, and the cause of action for assault. The negligence rule includes a conduct standard that requires proof that the defendant's conduct is unreasonable—that is, the cost of avoiding foreseeable harm is less than the expected harm.[20] Since there is no need to prove specific intent to win a negligence suit, negligence requires no more than evidence indicating general intent.[21] Trespass doctrine is similar to negligence in its intent component but not in its conduct component—it does not require proof of unreasonable conduct or of a particular state of mind with respect to purpose or consequences, only proof that the defendant intended his conduct.[22] In this sense, the trespass rule is a combination of a

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The *specific intent* standard stands in place of a series of differentiated standards in other areas. Criminal law, for example, contains specific intent requirements that include the intention to bring about particular harmful consequences, the knowledge that an action almost certainly will have particular harmful consequences, and reckless disregard for the prospect that an action will have such harmful consequences. *See generally*, DRESSLER, *supra* note 7, §10.04 at 105-116.

[19] The intent standard here is general rather than specific because what is required is simply the intent to engage in the conduct that violates the law, not to engage in that conduct for a particular reason or with particular knowledge (e.g., to harm the victim). In conspiracy law, the conduct is, of course, agreement to do something. Agreement requires a certain mental state with respect to completion of the agreed conduct—an expectation on at least one party's part that they will bring about the agreed conduct. This does not, however, make the necessary intent required here a specific, rather than a general, intent. *See* discussion *infra*, note 38.

[20] The negligence standard holds the defendant liable if he fails to take care when the burden of taking care is less than the expected incremental losses. This standard is often referred to as the Hand formula, since Judge Learned Hand was the first to state it explicitly in a court opinion. *See* United States v. Carroll Towing Co., 159 F.2d 169 (2d. Cir. 1947).

[21] Negligence will not be found if an action is not volitional. So, for example, someone who injures another during an epileptic seizure will not be liable in negligence for the injuries unless, knowing of his condition, he voluntarily put himself in a position where the injuries were likely to occur. *See, e.g.,* PROSSER & KEETON ON THE LAW OF TORTS § 29 at 162 (W. Page Keeton, Dan B. Dobbs, Robert E. Keeton & David G. Owen eds., St. Paul: West Pub., 5th ed. 1984) [hereinafter PROSSER & KEETON].

[22] *Id*., § 13 at 73.

strict (or per se) liability rule and a general intent standard.[23] The legal standard for assault provides an example of a rule combining a reasonable conduct standard and a specific intent requirement. In an assault action, the plaintiff presents evidence indicating unreasonable conduct (the assault) and specific intent to cause harm.[24]

Although this framework suggests as many as four potential legal standards (see figure 1), we see only three in antitrust and the common law generally: strict or per se liability coupled with general intent, reasonableness coupled with general intent, and reasonableness coupled with specific intent. The per se rule of antitrust and the trespass doctrine of tort law are legal standards that combine a per se conduct rule with a general intent standard. In both cases, courts refuse to inquire into the reasonableness of conduct, and there is no requirement to present evidence indicating specific intent to harm. The negligence rule in tort law and the rule of reason test in antitrust both combine a reasonable conduct test with a general intent standard. The standard governing liability for assault (and also that for punitive damages)[25] is a reasonable conduct test combined with a specific intent standard. The missing standard—combining per se liability with specific intent respecting the conduct at the core of the action—is an unlikely combination because it would declare conduct punishable without any consideration of offsetting benefits, but then resist liability unless the defendant engaged in the conduct with a particular purpose or intended consequence.[26]

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[23] A reasonable mistake—a belief that you were walking on your own property or on property belonging to someone who had consented to your presence—will not defeat liability for trespass. However, absence of any intent to take the actions necessary to trespass—as with sleep-walking—would preclude the requisite general intent. PROSSER & KEETON *supra* note 21, §13 at 73.

[24] THE RESTATEMENT (SECOND) OF TORTS § 21 (1977) defines liability for assault as follows: (1) An actor is subject to liability to another for assault if (a) he acts intending to cause a harmful or offensive contact with the person of the other or a third person, or an imminent apprehension of such a contact, and (b) the other is thereby put in such imminent apprehension. Assault can be established without intent to harm, but recovery for such technical or innocent assaults is limited to nominal damages. *See, e.g.,* PROSSER & KEETON, *supra* note 21, § 10 at 43.

[25] *See, e.g.,* PROSSER & KEETON, *supra* note 21, § 2 at 9-10 (discussing specific intent requirement for punitive damages). The intent requirement for punitive damages is not limited to actual subjective intent to harm, encompassing as well evidence consistent with knowledge of likely harm or reckless indifference to its likelihood. We return below to the explanation of specific intent as a basis for increased penalties, *see* discussion *infra* note 121.

[26] We recognize, of course, that reasonable conduct can fall within the ambit of a *per se* rule. Obviously, that is the critical distinction between a per se rule and a rule of reason. But per se rules do not burden classes of conduct viewed as reasonable in the main. In that light, consider the decision that a shipowner in distress is liable for trespass to the dock owner whose property provides needed refuge. Even though seeking refuge in a storm is reasonable,

	Reasonable Conduct Test	**Strict Conduct Test**
General Intent	Negligence test Rule of reason	Trespass rule Price-fixing rule
Specific Intent	Assault rule Punitive damages rule	

Figure 1

Although a specific intent to cause harm increases the likelihood of harm, and is associated with a lower social value for the harmful act,[27] this does not imply a need for evidence on an individual's *subjective intent*. Under traditional tort doctrines, even where specific intent is a necessary element, it typically is inferred from evidence that does not purport directly to show an actor's state of mind. Without any testimony about what a defendant said he intended, courts routinely infer the specific intent to produce harmful consequences in settings where the probable harms are substantial and highly foreseeable while the cost of harm avoidance is small.[28]

To be sure, in some areas the common law does look at subjective evidence of intent. For example, criminal law sanctions often turn on such evidence—did the defendant, Henry, in fact intend to kill George or merely to frighten George when Henry fired the gun in George's direction? Without evidence of Henry's actual state of mind, we cannot be certain of

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the class of activity that encompasses it—making use of the property of another person when *you* think it appropriate rather than when the owner has consented—is not. *See* Vincent v. Lake Erie Transportation, 124 N.W. 221 (Minn. 1910).

[27] *See* Richard A. Posner, *An Economic Theory of Criminal Law*, 85 COL. L. REV. 1193, 1196-97 (1985) (destructive acts and coercive wealth transfers are undesirable because they create social costs that are not offset by social benefits).

[28] *See, e.g.*, Allen v. Hannaford, 244 P. 700 (Wash. 1926) (despite defendant's claim that gun was unloaded, and she therefore could not have had an intent to harm, court found defendant liable for assault); see generally, PROSSER & KEETON, *supra* note , § 10 at 46 (discussing intent requirement for assault, noting that it is sufficient that defendant's conduct intentionally produces an *apprehension* of immediate harm). Though the statement in the text suggests negligence—and an injury under the circumstances described surely would be negligence—courts often take the further step of inferring specific intent to harm in cases that can be characterized as involving extreme or "gross" negligence.

the character of Henry's action or of the dangers to be expected of Henry.[29] But this explanation only goes half way to justifying the use of subjective intent evidence; for in addition to knowing what such evidence adds to our evaluation of conduct, we also need to know the costs of obtaining and using it.[30] For now, it is enough to note that the costs and benefits associated with subjective intent evidence vary depending on the area of law and to a degree that legal standards eschew primary reliance on it. Indeed, the absence of a fourth cell in figure 1 suggests that intent analysis, objective or subjective, - plays a largely subsidiary role in the common law.

The final piece of the legal standards puzzle is the selection of standards of proof. The legal standard itself sets forth facts or conditions that must be proven, while the standard of proof establishes the degree of certainty that must be established to satisfy a decision-maker that the legal standard is met. A preponderance of the evidence standard, for example, requires the plaintiff to show that it is more probable than not that the defendant violated the legal standard. It follows from this that the "effective legal standard" can be thought of as the product of the conduct standard, the intent standard, and the standard of proof. The most stringent legal standard (unreasonable conduct combined with specific intent) coupled with the highest proof burden (beyond a reasonable doubt) puts the highest effective legal burden on the shoulders of the plaintiff. Our analysis below is an attempt to understand the legal standards in antitrust, but it will have implications for standards outside of antitrust and the allocation of proof burdens as well.

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[29] On the role of intent in the punishment of attempts, see GEORGE P. FLETCHER, RETHINKING CRIMINAL LAW 115-22 (Boston: Little, Brown 1978); Lawrence Crocker, *Justice in Criminal Liability: Decriminalizing Harmless Attempts*, 53 OHIO ST. L. J. 1057 (1992). The "subjectivist" theory that the defendant's intent is the controlling factor in the punishment of attempts (and offensive conduct generally) is attributed to John Austin, see 1 JOHN AUSTIN, LECTURES ON JURISPRUDENCE 523 (London: J. Murray, 4th ed. 1873). The explanation in text is phrased in terms of deterrence (or some other consequentialist end) as the goal for criminal law. That explanation fits our own priors as well as the contours of the law, but it is by no means essential to the requirement of subjective intent evidence in settings such as this. Jurists and commentators who embrace retributive or other nonconsequentialist goals also find state-of-mind evidence essential to gauge appropriate punishment in settings where the level of risk is ambiguous. Indeed, retributivist theorists, from Austin forward, have been the most vocal proponents of the subjectivist approach to punishment. For a recent statement of the retributivist view, see Sanford H. Kadish, *The Criminal Law and the Luck of the Draw*, 84 J. CRIM. L. & CRIMINOLOGY 679 (1994).

[30] We address these issues below, *see* discussion *infra* part III.A.

B. Section 1 Legal Standards

Ever since the Supreme Court's decision in *United States v. Standard Oil,*[31] it has been clear that the reasonableness standard applies as the default conduct rule in Section 1 cases. Courts generally have not focused separately on the intent standard for Section 1 cases. But, even without isolating that aspect of the legal standard for Section 1 liability, courts have made the default standard for intent in these cases fairly clear.

In the first Supreme Court case specifically to address the intent issue, *Nash v. United States*,[32] the Court rejected the claim that proof of a specific intent to restrain trade or to harm competition was required before a defendant could be found to have violated the Sherman Act. The defendant in *Nash* argued that the rule of reason test (which had recently been adopted by the Court in *Standard Oil*) was unconstitutionally vague as a criminal standard because no one could know with certainty what a court would conclude constituted reasonable conduct.[33] One possible route to cure that alleged failing would have been to require a specific intent to violate the law, a route taken by the Court to cure vagueness problems with other statutes.[34] The Court, through Justice Holmes, rejected this approach, declaring that the vagueness problem was of little concern as the law is "full of instances where a man's fate depends on his estimating rightly . . . some matter of degree."[35] Perhaps that is why Holmes' opinion in *Nash* was

[31] 221 U.S. 1 (1911).

[32] 229 U.S. 373 (1913).

[33] *Id.*, at 376.

[34] *See, e.g.,* Screws v. United States, 325 U.S. 91 (1945). The Court also later read a specific intent requirement into the Sherman Act for criminal liability, United States v. Gypsum, 438 U.S. 422 (1978). *Nash*, however, continues to define the standard for application of antitrust law in civil suits.

[35] *Nash*, 229 U.S. at 377. Holmes supported his assertion with a few examples:
"If a man should kill another by driving an automobile furiously into a crowd he might be convicted of murder however little he expected the result. . . . If he did no more than drive negligently through a street he might get off with manslaughter or less . . . And in the last case he might be held although he himself thought that he was acting as a prudent man should." 229 U.S. at 377.

Although the law now requires proof of specific intent in criminal antitrust actions (*see* United States v. Gypsum, 438 U.S. 422 (1978)), there was considerable merit in the defendant's position when *Nash* was decided. The rule of reason standard in antitrust is essentially a cost-benefit test, like the negligence standard in tort law. Courts have had no trouble accepting the position that a defendant can be civilly liable for negligence while failing to have the level of intent required under the criminal law. In other words, it is understood that fair-minded individuals—those who do not possess a criminal intent—may decide wrongly and fail to do what a reasonable person would do. Violation of a criminal standard traditionally requires a specific intent to cause a particular harm.

characteristically brief and uncharacteristically unpersuasive. Holmes did not have an easy task in justifying the reasonableness standard along with a general intent standard as a basis for criminal conduct. Section 1 is the result of Congress's effort to criminalize conduct that traditionally had been dealt with under contract law—specifically, the law governing contracts in restraint of trade. The standard approach in that common law restraint of trade doctrine was a reasonableness standard combined with a general intent standard. (On the common law of trade restraints, see, e.g., DONALD DEWEY, MONOPOLY IN ECONOMICS AND LAW 123-38 (Chicago: Rand-McNally 1959).) Applying that legal standard in a criminal statute, however, necessarily raised notice and vagueness issues. However, none of the available alternatives would have adhered to Congress' direction, made sense, and avoided questions about overreaching under the criminal law.

While the *Standard Oil* and *Nash* decisions made the rule of reason the default legal standard—with reasonableness as the default conduct rule and general intent as the default intent rule—under Section 1, the Supreme Court identified a class of price-fixing cases as exceptional. Much of the case law over the past seventy-five years has focused on locating the boundaries between the reasonable and per se conduct rules and between the cases where general intent will suffice and those where a specific intent is required.

Direct Price-fixing

In *United States v. Socony-Vacuum Co.*, the Supreme Court held that an agreement to fix prices is per se illegal.[36] Under the rule laid down in *Socony*, price-fixing is illegal even if the defendants do not have the power to carry out their price-fixing conspiracy.[37] The level of intent that must be shown under this rule corresponds to the general intent requirement of tort

[36] 310 U.S. 150 (1940). Under *Socony*, the plaintiff does not have the burden of proving that the defendants' conduct was unreasonable on economic grounds—nor, for that matter, can the defendant evade liability by showing that his conduct was economically reasonable. 310 U.S., at 213-14. For example, the defendant cannot evade liability by proving that a price-fixing conspiracy was necessary in order to avoid "ruinous competition", a claim advanced by railroads in some of the earliest antitrust cases. 310 U.S. at 220-21. For a sophisticated economic treatment of the "ruinous competition" argument, see LESTER G. TELSER, A THEORY OF EFFICIENT COOPERATION (Cambridge: Cambridge Univ. Press 1987); George Bittlingmayer, *Decreasing Average Cost and Competition: A New Look at the* Addyston Pipe *Case*, 25 J. LAW & ECON. 201 (1982); George Bittlingmayer, *Price-Fixing and the* Addyston Pipe *Case*, 5 RES. L. & ECON. 57 (1983); Mark F. Grady, *Toward a Positive Economic Theory of Antitrust*, 30 ECON. INQUIRY 225 (1992).

[37] *See Socony,* 310 U.S. at 224-26, n.59. This should be understood as an application of traditional conspiracy doctrine.

law: an intent simply to perform the conduct that violates the law, not to inflict some particular harm. Thus, what plaintiffs must show is evidence that defendants intended to make and carry out a price-fixing plan, not necessarily to make monopoly profits from price-fixing or to achieve some other purpose.[38] Even if the defendants comprised too small a share of the market to have a significant impact on the market price, and therefore could not rationally have thought they were going to make monopoly profits, they still may be found guilty of conspiracy under Section 1.[39] Even if the defendants' motives were demonstrably benign, they may be found in violation of Section 1.[40]

Like the intent standard for trespass in tort law, the intent component of the per se rule in antitrust requires only an intention to carry out the conduct charged in the complaint. As under trespass, the plaintiff need not show that the defendant intended to cause harm or to gain in any particular way. Trespass doctrine permits a defendant to avoid liability if he can show that his conduct was not voluntary, as in the case of someone thrown off of his horse on to the plaintiff's property. However, it is difficult to see how the involuntary-conduct defense could be applied in the Section 1 context. While participants in a price-fixing conspiracy need not have the power to carry out their scheme, each participant will have made a conscious decision to take part in the venture.

Although proof of conduct and general intent generally will carry the plaintiff's burden in a Section 1 case, those elements will not always be sufficient. The Court has created two exceptions to the per se rule against price fixing, one explicit and the other implicit. The explicit exception is that of *Broadcast Music, Inc. v. Columbia Broadcasting System, Inc. (BMI)*, which requires application of the reasonable conduct test in a case where the price-fixing agreement is essential for the introduction of a new product.[41] The implicit exception is that of *Continental T.V., Inc. v. GTE Sylvania,*

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[38] This example shows how the line between specific and general intent—and between general intent and no intent—changes with variation in the conduct defined by the law. Price-fixing requires an agreement to fix prices, so a knowledge that there is agreement and that the agreement is to fix prices constitutes the general intent with respect to this allegation.

[39] For example, the defendants in American Column & Lumber Co. v. United States, 257 U.S. 377 (1921) represented roughly one third of the hardwood market. They were found guilty of violating Section 1. However, it is unlikely that the defendants could have had a substantial influence on the market price of hardwood, given a market share of only one third. See, e.g., DONALD DEWEY, *supra* note 35, at 168.

[40] For example, the defendants in *Socony* claimed that they were trying to continue their compliance with the NIRA fair competition codes, even though the statute had been declared unconstitutional. See *Socony*, 310 U.S., at 241.

[41] 441 U.S. 1 (1979).

Inc.,[42] which requires application of the reasonable conduct test when the defendant restricts intra-brand competition in order to enhance inter-brand competition.[43] These exceptions create two points at which the per se conduct test yields to permit a reasonableness defense—though at both points the general intent standard remains.

Indirect Price-Fixing: Parallel Behavior and Facilitating Practices

Not all price-fixing fits the classic model of agreement in a smoke-filled room. In other cases, plaintiffs may find it extraordinarily difficult to prove that the parties intended to participate in a price-fixing plan. Some commentators have urged that such cases be judged by a different standard than applies generally to price-fixing, eliminating the requirement that a plaintiff prove intent.[44] By and large, however, courts have not followed that approach.

Perhaps the most important category of these cases are those involving "conscious parallelism," where one observes parallel pricing or output decisions by a group of competitors. For example, consider the case of several airlines simultaneously raising their prices on flights between California and New York. Although the legal standard was unclear before 1950, the modern cases state that the plaintiff generally must prove conspiracy.[45] The prevailing legal rule retains the general intent standard, imposing a burden on plaintiffs to show that the parties' actions provide clear evidence that they intended to fix prices through their agreement. Since showing similar or even identical prices is not necessarily enough to

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[42] 433 U.S. 36 (1977).

[43] *Sylvania* dealt with territorial restraints in a vertical relationship. The Court has never clearly said that the *Sylvania* defense applies to the horizontal setting, creating an explicit exception to the per se rule. However, in NCAA v. Board of Regents of the Univ. of Oklahoma, 468 U.S. 85 (1984), the Court referred to the *Sylvania* defense as a justification for applying the rule of reason test. *NCAA*, 468 U.S. at 103.

[44] This is the key implication of Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 STAN. L. REV. 1562 (1969). Posner argued that Section 1 of the Sherman Act should be interpreted in a manner that permits courts to find defendants guilty of price-fixing on the basis of circumstantial evidence with respect to agreement and intent. Well before Posner's influential article, Eugene Rostow argued for more aggressive reliance on circumstantial evidence in Section 1 cases. *See* Eugene V. Rostow, *The New Sherman Act: A Positive Instrument of Progress*, 14 U. CHI. L. REV. 567 (1947).

[45] *See, e.g.*, Matsushita Electric Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 597 n.21 (1986) ("Conduct that is as consistent with permissible competition as with illegal conspiracy does not, without more, support even an inference of conspiracy.") Of course, the plaintiff can still rely on circumstantial evidence. However, the circumstantial evidence must be of a sort that "tends to exclude the possibility" that the alleged conspirators acted independently. Monsanto Co. v. Spray-Rite Service Corp., 465 U.S. 752, 764 (1984).

discharge that burden,[46] the general intent standard here can provide a real stumbling block to success.

A similar problem arises in cases involving "facilitating practices;" information sharing arrangements that could be used to support a price-fixing conspiracy, such as agreements to share information on bids from customers or information on production and marketing costs. Although the issue in these cases has been referred to as one of choosing between a per se or rule of reason standard,[47] the rule in these cases, as in other price-fixing cases, is that any agreement to fix prices is presumptively unlawful—that is the per se rule for conduct coupled with the general intent standard.

The key issue in facilitating practices cases is not what conduct standard to apply but, rather, what counts as proof of intent and agreement to fix prices. Since a decision to share information could be strong or weak evidence that parties agreed to fix prices, the Court generally has required additional evidence of an intent to fix prices, separate from proof of the intent to share information or to engage in other challenged practices.[48] But in cases where the risk of the challenged practice developing into full-blown price fixing is especially high—where there is an oligopolistic market with relatively inelastic demand and the firms share information on current prices—the Court has inferred the necessary (general) intent from the evidence of conduct.[49]

Trade Restraints Generally

In addition to price-fixing through direct and indirect means, the Section 1 case law also deals with other concerted methods of restraining trade, such as group boycotts. These cases fall outside the per se rule that applies to price-fixing, being governed by the default standards for Section 1. Following *Standard Oil* and *Nash,* the general rule for Section 1 cases combines a reasonableness standard for conduct with a general intent standard.

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[46] Such pricing evidence is *consistent* with the possibility of an intent to fix prices, but in many settings it will not be so obviously consistent with that conclusion to the exclusion of other possible intentions as to *prove* that intent. For example, basing-point pricing schemes often result in identical prices (to several decimal places), yet it does not follow from this that there is a conspiracy with respect to price. *See* David D. Haddock, *Basing-Point Pricing: Competitive vs. Collusive Theories*, 72 AM. ECON. REV. 289 (June 1982).

[47] *See, e.g*, ERNEST GELLHORN & WILLIAM E. KOVACIC, ANTITRUST LAW AND ECNONOMICS 240-47 (West Pub. Co., 4th ed. 1994) (discussing legal standards applied to information sharing arrangements).

[48] Maple Flooring Manufacturers Assn. v. United States 268 U.S. 563 (1925).

[49] United States v. Container Corp. of America, 393 U.S. 333 (1969).

Two categories of Section 1 case law are illustrative. One concerns conduct that affects processes for price setting, but that should not be characterized as price fixing. For example, *National Society of Professional Engineers v. United States* involved a rule promulgated by the professional engineers' society prohibiting members from bargaining over price before accepting a contract.[50] The Supreme Court found the restriction sufficiently remote from a concerted effort to fix prices that it would not apply the per se rule, opting for the reasonableness rule instead.[51] Similarly, in *Chicago Board of Trade v. United States*,[52] the Court characterized the Board's "call rule" as a restriction on the period of price-setting rather than the actual prices.[53] The other set of cases involves group boycotts. In *Northwest Wholesale Stationers v. Pacific Stationery & Printing Co.*,[54] the Court announced that the rule of reason test applies generally to boycotts, with a possible exception for the case where the boycotting group has "market power or exclusive access to an element essential to effective competition."[55]

C. Section 2 Legal Standards

The Supreme Court's decision in *Socony* to apply the framework of conspiracy doctrine to price-fixing essentially fixed the conduct and intent standards at the core of Section 1. *Standard Oil* declared the rule of reason test as the default conduct rule for both Section 1 and Section 2 cases. However, there has been less clear guidance in Section 2 cases. The specific meaning of the reasonableness test applied under Section 2 has varied over time as Section 2 doctrine has developed,[56] and the courts have

[50] 435 U.S. 679 (1978).

[51] 435 U.S., at 692.

[52] 246 U.S. 231 (1918).

[53] 246 U.S., at 239.

[54] 472 U.S. 284 (1985).

[55] 472 U.S., at 296.

[56] One might think that application of the reasonableness test to Section 2 accounts for much of the difference in doctrinal clarity between Section 1 and Section 2. Typically a reasonableness test gives less guidance to courts than a per se rule; some judgments that are made through case-by-case application of a reasonableness standard commonly are internalized in a per se rule. *See, e.g.,* FREDERICK SCHAUER, PLAYING BY THE RULES: A PHILOSOPHICAL EXAMINATION OF RULE-BASED DECISION-MAKING IN LAW AND LIFE 12-14, 93-100, 137-45 (Oxford: Oxford Univ. Press 1991). This does not make one or the other necessarily a better rule, though it will give the per se test a more "rule-like" quality. Judgments respecting what is and is not reasonable will differ across time, circumstances, and decision-makers. However, even if we limit our focus to only those cases subject to the reasonableness test, both under Section 1 and under Section 2, it remains the case, as we

not provided clear, explicit direction on the intent standard in Section 2. In spite of this, the case law does reveal the contours of the intent standard courts have been using under Section 2.

Reasonableness and Alcoa

Any discussion of the legal standard under Section 2 must take *Alcoa* as the starting point, as Judge Hand's *Alcoa* opinion sought both to clarify and modify the legal rule of Section 2.[57] In an opinion that set the course for the modern legal standard under Section 2, Judge Learned Hand held that Alcoa violated Section 2 of the Sherman Act by its aggressive efforts to expand capacity, which had the effect of deterring entry by potential rivals. Under Hand's *Alcoa* doctrine, the operative conduct test under Section 2 is a reasonableness test that holds a defendant liable if the plaintiff establishes that the defendant has monopoly power in the market at issue, has engaged in conduct that has an exclusionary effect, and that the exclusion of others cannot be attributed to the defendant's good luck or superior skill, foresight, and industry. Translated into the terms of economists, the *Alcoa* doctrine requires monopoly power and proof that the anticompetitive harms of defendant's conduct outweigh its consumer benefits. The associated intent rule under *Alcoa* is a general intent test. Judge Hand did not think a specific

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hope to make clear in this part, that the Section 2 reasonableness test has evolved in a less direct, linear fashion than the Section 1 test.

[57] Before the *Alcoa* decision, the conduct standard under Section 2 was the *abuse* formula announced in *Standard Oil*. The abuse standard condemned conduct that would have violated Section 1 if engaged in by a group of firms. *Standard Oil*, 221 U.S. at 55 ("[H]aving by the first section forbidden all means of monopolizing trade . . . the second section seeks, if possible, to make the prohibitions of the act all the more complete and perfect by embracing all attempts to reach the end prohibited by the first section, . . . , even although the acts by which such results are attempted to be brought about or are brought about be not embraced within the general enumeration of the first section.") The abuse standard suggests that a monopolist violates Section 2 when he refuses to deal with a customer or supplier in a setting where such conduct would have the effect of foreclosing that customer or supplier from the market. For example, the monopolist newspaper in *Lorain Journal*, which was found in violation of Section 2 for refusing to deal with advertisers who gave business to a new, fledgling radio station, presumably would have violated the abuse standard. The Court failed to provide a clear statement of the associated intent requirement; however, the cases suggest that proof of specific intent was required. For example, in *Standard Oil*, the Court referred to the defendant's acquisitions as giving rise to the "prima facie presumption of intent and purpose to maintain the dominancy over the oil industry, not as a result of normal methods of industrial development, but by new means of combination . . ." 221 U.S., at 75.

intent to stifle competition was required, because "no monopolist monopolizes unconscious of what he is doing."[58]

There has been some debate over the appropriate characterization of the rule announced by Judge Hand. For example, Steven Salop and Craig Romaine have suggested that *Alcoa* announces a per se rule that applies to any exclusionary conduct by a firm with monopoly power.[59] This may be a fair description of the full implication of the *Alcoa* decision, since Judge Hand gave short shrift to Alcoa's efficiency arguments. However, if we take the *Alcoa* decision at face value, it is apparently announcing a reasonable conduct standard, not a per se standard:

> It does not follow because 'Alcoa' had such a monopoly, that it "monopolized" the ingot market: it may not have achieved monopoly; monopoly may have been thrust upon it. . . . Since the Act makes "monopolizing" a crime, as well as a civil wrong, it would be not only unfair, but presumably contrary to the intent of Congress, to include such instances. A market may, for example, be so limited that it is impossible to produce at all and meet the cost of production except by a plant large enough to supply the whole demand. Or there may be changes in taste or in cost which drive out all but one purveyor. A single producer may be the survivor out of a group of active competitors, merely by virtue of his superior skill, foresight, and industry. In such cases a strong argument can be made that, although the result may expose the public to the evils of monopoly, the Act does not mean to condemn the resultant of those very forces which it is its prime object to foster: finis opus coronat. The successful competitor, having been urged to compete, must not be turned upon when he wins.[60]

The Section 2 case law built on *Alcoa*'s foundation reflects this reasonableness approach, not the per se test Salop and Romaine would extract from Judge Hand's opinion. Moreover, the reasonable conduct standard adopted in *Alcoa* has survived into the existing Section 2 case law.[61] The common starting place for judicial analysis of monopolization claims under Section 2—the formulation given in *United States v. Grinnell*

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[58] *Alcoa*, 148 F.2d, at 432. Soon after the *Alcoa* decision, the Court in United States v. Griffith, 334 U.S. 100, 105 (1948), said that specific intent need not be proven in a monopolization case, provided there is evidence of success on the defendant's part.

[59] Salop & Romaine, *supra* note 3, at 650.

[60] 148 F. 2d, at 430-31.

[61] Our colleague, Joe Brodley, cautions that it is a mistake to take Hand's language in *Alcoa* at face value – especially his treatment of the efficiency issue – without recalling the durability of the monopoly at issue. This caution reinforces our understanding of *Alcoa* as applying a reasonableness test and also explains *Alcoa*'s subsequent treatment by other courts.

Corp.[62]—incorporates *Alcoa* by requiring proof of (1) monopoly power and (2) acquisition or maintenance of that power through means other than superior skill, foresight, and industry. The conduct, thus, must differ from ordinary competitive actions that might result in monopoly power.

Specific Intent in Section 2

The significant change in the legal rule since *Alcoa* is not its construction as a reasonable conduct standard but the inclusion of a specific intent component. The current Section 2 law suggests the plaintiff must prove that the defendant acted solely or primarily out of intent to gain or maintain monopoly power. As we noted earlier, courts have not routinely decomposed the legal test into a conduct component and an intent component. Thus, the requirement that the plaintiff must prove specific intent has to be understood as an inference drawn from the language and the holdings of the modern Section 2 cases.

Paradoxically, the Supreme Court's decision in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*[63]—a decision roundly criticized for suggesting an extremely plaintiff-friendly conduct standard[64]—provides perhaps the best evidence of the specific intent requirement implied in the modern Section 2 cases. To understand the Court's decision in *Aspen Skiing*, it is critical to keep sight of the procedural posture of the case. A jury had concluded that Aspen Skiing's decision to discontinue a joint marketing arrangement with its weaker competitor (Aspen Highlands) was motivated solely by its desire to "discourage its customers from doing business with its smaller rival."[65] The Supreme Court rejected Aspen Skiing's appeal because the company failed to present credible evidence that its actions were motivated by any pro-consumer or efficiency concerns. The only justifications offered by Aspen Skiing for its refusal to deal with its competitor were (i) the difficulty of monitoring the accuracy of the method used for allocating revenue between Aspen Skiing and Aspen Highlands and (ii) its desire to

[62] 384 U.S. 563, 570-71 (1966).

[63] 472 U.S. 585 (1985).

[64] *See, e.g.*, Alon Y. Kapen, Note, *Duty to Cooperate under Section 2 of the Sherman Act: Aspen Skiing's Slippery Slope*, 72 CORNELL L. REV. 1047 (1987); David M. Rievman, Note, *The Grinnell Test of Monopolization Sounds a False Alarm*: Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 28 B.C.L. REV. 415 (1987). In Olympia Equipment Leasing Co. v. Western Union Telegraph Co., 797 F. 2d 370 (7th Cir. 1986), Judge Posner treated the *Aspen Skiing* doctrine as largely limited to the facts of that case. *Id*., at 379 ("If [*Aspen Skiing*] stands for any principle that goes beyond its unusual facts, it is that a monopolist may be guilty of monopolization if it refuses to cooperate with a competitor in circumstances where some cooperation is indispensable to effective competition.").

[65] *Id*., at 610.

disassociate itself from the inferior services of its rival. However, both of these justifications were inconsistent with the evidence and with Aspen Skiing's own behavior in other markets. In other words, the Supreme Court held that Aspen Skiing had violated Section 2 because the evidence indicated that it had a specific intent to monopolize.

The Court's approval of a specific intent requirement in *Aspen Skiing* is especially evident when its decision is read together with the lower court's jury instruction:

> In considering whether the means *or purposes* were anti-competitive or exclusionary, you must draw a distinction here between practices which tend to exclude or restrict competition on the one hand and the success of a business which reflects only a superior product, a well-run business, or luck, on the other. . . .
>
> [A] company which possesses monopoly power and which refuses to enter into a joint operating agreement with a competitor or otherwise refuses to deal with a competitor in some manner does not violate Section 2 if valid business *reasons* exist for that refusal. . . .
>
> We are concerned with conduct which unnecessarily excludes or handicaps competitors. This is conduct which does not benefit consumers by making a better product or service available—or in other ways—and instead has the effect of impairing competition.[66]

This instruction is quoted approvingly in the Court's opinion.[67] Although the first quoted paragraph of the instruction seems to allow bad motives to substitute for bad conduct, the second paragraph makes clear that good motives will exculpate. Together, the instruction seems to make specific intent to monopolize an element of Section 2. If the Court had wanted to signal its preference for a different intent standard under Section 2, the jury instruction in *Aspen Skiing* provided a perfect opportunity. The Court's decision to forgo this opportunity—after quoting the jury instruction in full—suggests that the general intent rule of *Alcoa* and its immediate progeny is no longer the operative intent standard under Section 2.

Specific Intent versus Subjective Intent under Section 2

While the Supreme Court seems to have read the law as imposing a specific intent requirement, it apparently has not taken the further step of imposing a *subjective* intent requirement, one that rests on evidence purporting directly to describe the defendant's intent. Subjective intent standards in antitrust

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[66] *Id*., at 596-97 (emphasis supplied).

[67] *Id*.

would move beyond making inferences about intent from evidence of the actions taken by firms. The obvious source of additional evidence would be statements from defendants about the impact a given action would have on the competitive environment faced by the firm.

The problem with subjective intent evidence in this context is two-fold. First, it is difficult to obtain reliable evidence of subjective intent for a firm's business practices. The problem is not the well-understood point that entities such as corporations, as distinct from individuals, cannot form an intent.[68] Although that point is true for firms as it is for all groups, it is still useful to treat a group activity as purposive in many settings.[69] The problem, rather, is that in pursuit of that end, the comments made by individuals within a firm can be misleading if taken at face value as evidence of corporate intent, given the common practice of speaking in the language of war or of sports contests.[70]

Second, subjective intent evidence is often of relatively modest value. Where there *is* a real intent to do something illegal, well-advised firms are unlikely to provide much in the way of helpful evidence. Lawyers will routinely advise clients not to leave in their files any memoranda or statements suggesting a desire to eliminate competitors.[71] If antitrust plaintiffs were required to prove subjective intent through reference to statements that provided clear evidence of it, it would be the extraordinary case where any firm would retain "smoking gun" memoranda in their files.[72]

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[68] *See, e.g.,* Kenneth Shepsle, *Congress Is a "They" Not an "It": Legislative Intent as Oxymoron,* 12 INT'L REV. L. & ECON. 239 (1991).

[69] A similar understanding is integral to Lon Fuller's approach to legal interpretation. *See* LON L. FULLER, THE MORALITY OF LAW (New Haven: Yale Univ. Press, rev. ed. 1969). However, our point here can be illustrated by a simple example. Each member of a football team may have a different set of goals. One may want to be traded from his current team; others may be focused on attaining particular individual records. All of the players together, however, can be seen as sharing a purpose of winning. Individual behavior may not be perfectly congruent with this goal—largely because of the pull of other, divergent goals—but this is the central, shared goal toward which the players as a group strive. So too, despite the different individual interests pulling in diverse directions it is reasonable to see the various individuals in profit-seeking businesses as united in pursuit of making money.

[70] See RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 190 (Chicago: Univ. of Chicago Press, 1976) ("Especially misleading here is the inveterate tendency of sales executives to brag to their superiors about their competitive prowess, often using metaphors of coercion that are compelling evidence of predatory intent to the naive.").

[71] *E.g.*, Barry Wright Corp. v. ITT Grinnell Corp., 724 F. 2d 227, 232 (1st Cir. 1983) (noting that under a predation test based on intent, knowledgeable firms would refrain from an "overt description" of foreseeable anticompetitive consequences); A.A. Poultry Farms v. Rose Acre Farms, 881 F.2d 1396, 1402 (7th Cir. 1989) (J. Easterbrook); HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY §6.5a at 281 (St. Paul: West Pub. 1999).

[72] Certainly, as every plaintiff will argue, such memoranda could be the residue of a firm whose management is so oblivious to the wrongfulness of its intent to undermine market

Perhaps in response to these problems, the Supreme Court has suggested a preference for the objective approach to intent. Consider again the Court's analysis in *Aspen Skiing*. It is consistent with an objective approach to determining specific intent. Under an objective approach, the court infers specific intent on the basis of evidence indicating the absence of credible efficiency justifications for the monopolists's conduct. The Court necessarily took this approach in *Aspen Skiing* because the plaintiffs had no evidence of subjective intent. The lower court decision was based entirely on the defendant's inability to provide a credible efficiency justification.

The Court's decision in *Eastman Kodak*[73] provides another perspective on the specific intent requirement, one that permits us to approach the question from a starting point diametrically opposed to that in *Aspen Skiing*. In *Eastman Kodak*, the Court refused to grant summary judgment on the Section 2 claims, even though the Court acknowledged that "liability turns, then, on whether valid business reasons *can explain* Kodak's actions."[74] Eastman Kodak had several business reasons that *could explain* its actions, and yet the Court refused to grant summary judgment in its favor. One could argue that *Eastman Kodak* undermines the specific intent requirement, since the decision can be read as lowering the bar plaintiffs must clear to show specific intent from the standard defined by the Supreme Court in other Section 2 cases.[75] But the Court's disposition of the Section 2 claims in *Eastman Kodak* is better seen as an effort to implement the specific intent standard described in *Aspen Skiing*. The decision in *Eastman Kodak* recognizes that the test for specific intent cannot be whether any plausible efficiency justification can be conceived; for if that were the test, defendants almost never would lose. Plausible efficiency justifications are, after all, easy to generate.

The Court's opinion in *Eastman Kodak* implies that *credible* efficiency justifications—not those that are merely plausible—would suffice to defeat a finding of specific intent to undermine competition.[76] The plausible

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operations that they never consider the possibility that honest declaration of their intent to undermine competition would present legal problems. But there is little reason to expect that this would explain most cases. *See, e.g.*, POSNER, *supra* note 70, at 189-190 (discussing ambiguity of subjective intent evidence); HOVENKAMP, *supra* note 71, at 281.

[73] Eastman Kodak v. Image Tech. Servs., 504 U.S. 451 (1992).

[74] *Id.* at 483 (emphasis added).

[75] Indeed, in addition to the fact that *Eastman Kodak* seems to deviate from the objective approach to specific intent implicit in earlier antitrust cases, the decision apparently weakens intellectual property rights, some scholars have argued, by inviting an inquiry into the subjective intent behind a refusal to license. *See* David McGowan, *Networks and Intention in Antitrust and Intellectual Property Law*, 24 J. CORP. L. 485 (1999).

[76] 504 U.S. at 478-79.

efficiency justification is one that *could* hold under hypothetical conditions; the credible efficiency justification is one that seems likely to explain actions under the actual conditions. The *Eastman Kodak* decision fits the credible efficiency justification approach to an objective, specific intent standard. Although Eastman Kodak's efficiency justifications were arguably plausible, the plaintiffs had raised sufficient doubt as to their credibility to make summary disposition inappropriate under an objective, specific intent standard.[77]

Eastman Kodak's consistency with a specific intent requirement is clarified when other cases, in addition to *Aspen Skiing* and *Eastman Kodak* are examined. For example, the specific intent requirement is a clear implication of the Court's analysis of predatory pricing doctrine since *Matsushita Electric Industries Company v. Zenith Radio Corporation*.[78] *Matsushita*, *Brooke Group*,[79] and several important appellate court decisions such as *A.A. Poultry Farms v. Rose Acre Farms*[80] and *Barry Wright Corp. v. ITT Grinnell Corp.*[81] indicate that plaintiffs must present evidence of a specific intent to monopolize if they are to prevail in a predatory pricing case.[82] This is a direct implication of the "objective reasonableness" standard adopted in *Matsushita*. Under the *Matsushita* standard, a plaintiff in a predatory pricing case must present evidence suggesting that his claim is objectively reasonable in order to survive a motion for summary judgment. In the predatory pricing context, objective reasonableness requires evidence that the defendant could reasonably expect to recoup its losses from a predatory campaign.[83]

The recoupment test now firmly required under Section 2 doctrine is another way of stating the requirement that a plaintiff provide objective proof of a specific intent to undermine competition. The recoupment test demands that predatory pricing plaintiffs present evidence demonstrating that the defendant's price cuts would have been unprofitable if the price cuts did not have the effect of eliminating or reducing competition *and* that there was a reasonable basis to believe that defendant would be able to profit from the price cuts by virtue of the elimination (or dramatic reduction) of

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[77] 504 U.S. at 478-79.

[78] 475 U.S. 574 (1986).

[79] Brooke Group v. Brown &Williamson Tobacco Corp., 509 U.S. 209 (1993).

[80] 881 F.2d 1396 (7th Cir. 1989).

[81] 724 F.2d 227 (1st Cir. 1983).

[82] These cases, though consistent with this analysis, do not all address directly the nature of the evidence required to sustain plaintiff's burden on the intent issue. However, as we argue in the text, they construct an objective test for predation that effectively requires plaintiffs to show that the defendant had a specific intent to monopolize.

[83] *Matsushita*, 475 U.S. at 588.

competition.[84] Given such evidence, the proper inference is that the defendant had a specific intent to monopolize or, equivalently, to create effective barriers to competition.[85] In other words, the recoupment test of the modern predatory pricing case law effectively imposes a specific intent standard on plaintiffs that must be met by objective evidence.

III. Justifying Legal Standards

The core of our analysis consists of conduct, intent, and proof standards. Conduct standards typically come in one of two forms: per se (strict) liability or a reasonableness rule. Intent standards typically require either general or specific intent. Standards of proof usually require proof by a preponderance of the evidence or beyond reasonable doubt. The effective legal standards existing in any area of the law can be viewed as combinations of conduct, intent, and proof standards.

Generally the components of legal rules can be aligned along a continuum and grouped in different combinations,[86] but we have identified three rule types that represent the most important categories for antitrust and common law. These are (1) per se liability combined with general intent, (2) reasonable conduct combined with general intent, and (3) reasonable conduct coupled with specific intent. We show in this section how the selection of one or another of the rule types and proof standards—and especially the selection of intent tests—responds to particular constellations of the costs and benefits of information. The framework we propose for understanding the detailed structure of legal rules is error cost analysis.

A. Error Cost Analysis

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[84] *Matsushita*, 475 U.S. at 588-589; *Brooke Group*, 509 U.S. at 224.

[85] *See* Salop & Romaine, *supra* note 3, at 650 (discussing predatory pricing doctrine and purpose inquiry).

[86] Indeed, legal rules can be more or less flexible; they can give more or less "fixed" instructions to decision-makers. That is a commonplace, reflected in innumerable discussions of the differences between *rules* and *standards*, or *rules* and *principles*. *See, e.g.,* RONALD DWORKIN, TAKING RIGHTS SERIOUSLY 22-28, 72-80 (Cambridge: Harvard Univ. Press 1977); RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 590-93 (New York: Aspen Law & Bus., 5th ed. 1998); FREDERICK SCHAUER, PLAYING BY THE RULES: A PHILOSOPHICAL EXAMINATION OF RULE-BASED DECISION-MAKING IN LAW AND LIFE 12-14, 93-100 (Oxford: Oxford Univ. Press 1991); Louis Kaplow, *Rules Versus Standards: An Economic Analysis,* 42 DUKE L.J. 557 (1992); Duncan Kennedy, *Form and Substance in Private Law Adjudication,* 89 HARV. L. REV. 1685, 1687-1713 (1976). Professor Schauer in particular has emphasized that the variation in flexibility-versus-fixity is far more a matter of timing and of personnel assignments than of substantive decision—the variation primarily describes a choice between what concerns are considered subsumed *within* a legal rule and what instead are identified as matters to be weighed in its application.

Much of the commentary that explores the shape of common law and antitrust rules uses some form of deterrence analysis, asking how a legal rule can be framed to deter socially undesirable conduct.[87] Although sophisticated deterrence analysis is sensitive to the social costs of alternative rule designs,[88] giving the central place in the analysis to deterrence is potentially misleading, making it difficult to offer a theory of intent rules.

For example, the deterrence analysis used to explain the assignment of strict liability and negligence standards in tort law is unlikely to provide a good explanation of intent rules.[89] Indeed, under the deterrence analysis used to justify conduct rules in tort law, it would appear that general intent should always be sufficient to hold the defendant liable. The reason is simple: if we are trying to deter bad conduct, it should make no difference to us whether the defendant intended to carry out the act, or intended to hurt someone. As long as the defendant had a choice, and made a decision to act, simple deterrence analysis suggests that he should face the liability consequences of his act.[90]

In order to justify intent rules, and to explain the detailed structure of legal rules generally, we should focus less on the deterrence question and more on the operational properties and consequences of a conduct rule. Beyond the incentive effects of a conduct standard, the balance struck in crafting legal rules should attend to the social costs associated with rule application. Much of the structure of legal rules can be understood by focusing on a rule component's effect on expected error costs. Our

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[87] For an example of such an approach in the torts context, see WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW (Cambridge: Harvard Univ. Press 1987).

[88] *E.g.,* Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972) (providing a transaction-costs based theory of rule types).

[89] Consider, for example, the analysis in LANDES & POSNER, *supra* note 87. Because the core of their framework is the Hand formula for negligence, they give scant attention in this work to rules based on specific intent. Thus, their chapter on intentional torts examines as a class all torts involving intentional conduct (battery, assault, false imprisonment) in an economic model that does not require separate analysis for those torts involving specific intent (e.g., assault). LANDES & POSNER, *supra* note 87, at 149-89. Indeed, before reaching their discussion of remedies, Landes and Posner find little reason to distinguish intentional torts from unintentional torts. *Id*., at 159-60. Our approach implicitly asserts that specific intent rules are special in a sense that requires a different liability standard (not merely a different remedy, such as punitive damages). We aim in the text to provide a detailed justification for the legal tests adopted for various "specific intent" violations.

[90] For an early statement of this argument as a defense of the trespass rule, *see* OLIVER WENDELL HOLMES, JR. THE COMMON LAW 97 (Boston: Little, Brown 1881).

hypothesis, broadly, is that intent standards, and proof standards as well, are designed to minimize the expected error costs of a legal rule.

Error: Types and Costs

The easiest way to see the contribution of an intent standard to reducing expected error costs is by reference to the ideal application of a conduct standard. Under a reasonableness standard, error occurs when a court deems a defendant's conduct reasonable even though it actually was unreasonable (that is, the expected harms created by the defendant's conduct outweigh expected benefits). Similarly, error occurs under the reasonableness test when a court deems a defendant's conduct unreasonable even though it was in fact reasonable. The first type of error we will call a *false acquittal* (though obviously we are not focusing primarily on the application of criminal laws) and the second type a *false conviction*.

Error rates can be thought of, first, as the inaccurate application of a conduct standard, but error rates also can be thought of as deviation from an ideal. On that view, application of a per se or strict liability standard to a type of conduct that is generally reasonable can be grouped with false convictions—it will produce convictions (liability assessments) in a number of instances where the defendant's conduct was socially desirable.[91]

The expected error cost associated with a legal rule is the product of the probability of error and the cost of error. The cost of error can be attributed to several sources. Error can lead to *underdeterrence costs* if it causes actors to fail to comply with the reasonableness rule because they discount the likelihood of ever being held liable for unreasonable conduct. Error can also lead to *overdeterrence costs* if it causes actors to go beyond the

[91] This is a good point to confront a problem suggested by the literature on deterrence in tort law. Under the economic analysis of torts presented by Landes and Posner, strict liability and negligence lead to the same level of precaution (or forbearance) among potential injurers. LANDES & POSNER, *supra* note 87, at 64-65. Put another way, the strict liability and reasonableness standards lead to the same conduct. This suggests that we shouldn't be concerned at all with the errors generated by applying a strict liability standard instead of a reasonableness standard, because such errors are costless. This proposition is incorrect, however, for at least two reasons. First, if precaution or forbearance on the part of the potential *victim* is desirable, a reasonableness standard may be superior because it provides the appropriate incentives to potential victims. *See* LANDES & POSNER, *supra* note 87, at 69. Second, if the defendant's conduct provides substantial external benefits to potential victims, strict liability may be inferior to the reasonableness rule because it causes potential defendants to reduce the scale of their activities. *See* Keith N. Hylton, *A Missing Markets Theory of Tort Law*, 90 NW. U. L. REV. 977 (1996). For the most part, our analysis in the text focuses on the purpose of intent rules rather than the choice between strict (per se) liability and reasonableness tests.

reasonable level of precaution or forbearance in avoiding harms. A final error cost consists of *administrative* or *litigation costs*.

The structure of each legal rule should be such that the sum total of error costs are minimized. In many circumstances, selecting the appropriate intent standard is critical to this goal. Before turning to the contribution of intent standards, we review the relation of errors to incentives under a simple conduct standard such as the reasonableness test.

Incentive Effects of Error

In a world where courts are less than perfect, there are errors associated with every legal test. Replacing rule A with rule B means trading off the errors associated with A for those associated with B. It is important to know not only how many errors are associated with alternative rules but also the types of errors the alternative rules generate. We can distinguish two general types of error rates: *asymmetric* and *symmetric*. Rule A and B might have similar error rates, but different types. Rule A's errors would be symmetric if it generates roughly equal probabilities of false acquittals and false convictions. Rule B's errors would be asymmetric if its application generates larger numbers of false convictions than false acquittals (or vice versa).

The nature of error rates generated by a legal rule—and the change in rates that would occur if a different rule were adopted—can be surmised in many instances, though it will not always be obvious on the face of a rule. Consider the custom rule in tort law,[92] under which courts generally refuse to find a physician's conduct unreasonable (negligent) if he or she has complied with the customs of the medical profession. Given their lack of information on the science and practice of medicine, juries might deem more or less activity unreasonable than if they were perfectly informed as to the costs and benefits of alternative medical procedures. In other words, relative to an error-free regime, a shift to a reasonable conduct standard unconstrained by considerations of custom probably would generate a symmetrical increase in error types.[93]

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[92] As a rule, custom is relevant to, but not dispositive of, the determination of negligence. The medical profession, however, has received different treatment, with a physician's adherence to custom being treated effectively as conclusive evidence that he was not negligent in many jurisdictions. *See, e.g.,* PROSSER & KEETON, *supra* note 21, at 185-96; John McCoid, *The Care Required of Medical Practitioners,* 12 VAND. L. REV. 697 (1959).

[93] Alternatively, the jury might be inclined to decide against physicians who failed to take a particular precaution, which would generate an asymmetrical increase (relative to an error-free regime) in errors, leading to more false convictions than false acquittals. The argument for believing this would be the outcome is presented *infra* note 100 and accompanying text. Whether the reasonableness rule generates an asymmetrical or symmetrical increase in errors

Now consider the function of the custom rule in comparison to an unconstrained reasonableness inquiry (i.e., reasonableness divorced from custom). Such a rule change (again, from unconstrained reasonableness to the custom rule) probably would lead to a greater reduction in the number of false convictions than in the number of false acquittals. The change would lead to an asymmetric distribution of errors -- indeed, perhaps with a reduction in false convictions coupled with an increase in false acquittals.

The reason for the asymmetry in error types is that the likelihood of an error in favor of the defendant probably increases if he is judged by the customs of his profession. Medical customs are likely to be reasonable, and physicians are likely to comply with them. Given this, most false convictions will occur in the presumably rare cases when the physician complied with the custom and failed to convince the jury that he did.[94] Most false acquittals, on the other hand, will occur when the physician complied with a custom that was in fact unreasonable. If a non-trivial percentage of customs are outdated or insufficiently developed, this could generate a substantial number of false acquittals.

We can illustrate this point with a numerical example. Suppose malpractice disputes are drawn randomly from the population of physician-patient interactions (operations), at a rate of 1 out of every 10. Suppose 95 percent of doctors comply with the medical customs while 5 percent fail to comply. Suppose courts erroneously conclude that the physician failed to comply with custom when in fact she did in 1 out of every 20 cases. Finally, suppose 15 percent of medical customs are outdated. From a base of 10,000 operations, 950 malpractice disputes would occur involving doctors who complied with the standard, of which 807 involve doctors who complied with good (not outdated) standards, and 40 of those would result in false convictions. The same assumptions give rise to 142 cases involving doctors who complied with an outdated rule, and 135 false acquittals.

Of course, an asymmetric distribution of error types need not occur under the custom rule. For example, if all doctors comply with custom, and all customs are reasonable, then the only type of error that can occur is a false conviction. Our illustration adopts the assumption, which we regard as plausible, that the likelihood of an erroneous finding with respect to custom

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is not central to the argument we make in the text here. Our tentative assertion that the increase would be symmetrical is in part a simplifying assumption, and in part based on Holmes' view that an unconstrained reasonableness inquiry would leave the jury "oscillating to and fro" with respect to the negligence standard. *See* HOLMES, *supra* note 83, at 123.

[94] Another set of false convictions includes the case where physician (reasonably) deviated from the custom and failed to justify the deviation. But this is a very small group to begin with. For example, if only 5 percent of physicians deviate from custom, this is a small base from which to consider the rate of false acquittals. Given the likely insignificance of this component of error, we will exclude it from consideration here.

compliance is less than the likelihood that a particular custom will be outdated.

Our discussion of the custom example helps to clarify the meaning of "error probability" in our analysis. Generally, we are referring to the frequency of error in its complex, Bayesian sense,[95] taking into account changes in the underlying base-populations from which disputes are drawn. This is the sense that translates easily into statements about the numbers of false convictions relative to false acquittals. Thus, if a move from rule A to rule B generates a substantial increase in the likelihood that a particular defendant type (e.g., guilty defendants) will litigate, our conception of the probability of error takes into account the implications of such an increase for the numbers of false convictions and false acquittals. There is a simpler notion of error referring to the likelihood that a judge will make a mistake in a particular case. The frequency of false convictions will be a function of this simple error (judicial error) and the underlying distribution of defendant types. Asymmetries in simple error rates coupled with asymmetry in the distribution of defendant types can make the frequency of false convictions larger (or smaller) than one would surmise on the basis of an examination of the likelihood of judicial error in a particular case.

We want to emphasize two points about the relation between errors and incentive effects. The first is that whether a rule overdeters, underdeters, or deters optimally depends on the distribution of errors. By that, we mean the symmetry or asymmetry of errors first, but we also refer to the way errors increase or decrease in relation to the behavior to be sanctioned. The second is that even though error may lead to overdeterrence or underdeterrence under a reasonable conduct rule, the more likely effect is overdeterrence.

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[95] More formally, let P(G|I) be the probability that the court holds the defendant guilty even though he is innocent. Let P(G|N) be the probability the court holds the defendant guilty when he is guilty. Let P(I) be the probability that the defendant is innocent (or the share of innocent defendants in the pool of litigants reaching final judgment). Then the probability a conviction is false, P(I|G), is, using Bayes' theorem, $P(G|I)P(I)/[P(G|I)P(I)+P(G|N)(1-P(I))]$. P(G|I) corresponds to the "simple error" (or judicial error) described in the text. P(I|G) is the more complex notion of error referred to in the text. Note that if the shares of innocent and guilty defendants are the same (i.e., P(I) = 1/2), these two notions of error are identical. Thus, if the legal rule induces no asymmetry in the shares of guilty and innocent defendants in court, our complex and simple notions of error are equivalent; and the probability of judicial error tells us everything we need to know about the number of false convictions (and false acquittals). On Bayes' theorem and the law, see Laurence H. Tribe, *Trial by Mathematics*, 84 HARV. L. REV. 1329 (1971); David Kaye, *Probability Theory Meets Res Ipsa Loquitur*, 77 MICH. L. REV. 1456 (1979).

Incentive Effects of Error Under a Reasonable Conduct Standard: An Illustration

We will illustrate these points with the following example. Suppose the owner of a cricket field has to decide whether to raise his fence to prevent balls from flying over and injuring passers-by on adjacent streets. The fence is now at 12 feet, and the expected harm to passers-by is $301. The owner can raise the fence in one-foot increments at a cost of $50 per foot. The expected harm to passers-by for each fence height between 12 feet and 18 feet is:

Fence Height	12'	13'	14'	15'	16'	17'	18'
Expected Harm	$301	$250	$175	$100	$65	$40	$30

Now look at three versions of the possible effects of the owner's decision. In both the settings indicated by Figure 2 and Figure 3, the owner faces a legal rule that generates symmetric errors, though with different error rates across cases.[96] In the setting depicted in Figure 4, he faces a rule that generates asymmetric errors. The rules yield underdeterrence, optimal deterrence, and overdeterrence respectively (with the likely action indicated in bold).

Figure 2 reflects a judicial process that makes more errors as the fence height approaches the threshold between reasonable (15 feet) and unreasonable (under 15 feet), symmetrically distributed around the optimal point. The errors have the effect of diminishing the private gain from adding to the fence height once it is high enough to approach the reasonableness standard, yielding underdeterrence.

[96] The results in this section are consistent with the more formal treatment of uncertainty in Richard Craswell & John E. Calfee, *Deterrence and Uncertain Legal Standards*, 2 J. LAW, ECON. & ORG. 279 (1986). Note that in the example in the text, we are relying on the simple notion of error as the likelihood that a particular judge makes a mistake in applying the legal rule. The more complex Bayesian notion referred to in the text accompanying note 95 is unnecessary for this discussion.

Fence Height	12'	13'	**14'**	15'	16'	17'	18'
Expected Harm	$301	$250	$175	$100	$65	$40	$30
Social Savings	—	$1	$25	$25	-$15	- 35	- 40
Error Rate	.0	.2	.5	.5	.5	.2	.0
Expected Liability	$301	$200	$87.5	$50	$32.5	$8	.0
Private Savings	—	$51	**$62.5**	- $12.5	- $32.5	-$25.5	-$42

Figure 2

Figure 3, like Figure 2, addresses a setting with symmetric errors, with error rates altered only slightly from Figure 2. Yet, as Figure 3 shows, the variation in error rates around the optimal point suggests a different outcome. In this setting, although the return from actually achieving the socially optimal (reasonable) outcome is muted by errors, the owner's private savings from increasing the height of the fence induces optimal expenditures.

Fence Height	12'	13'	14'	**15'**	16'	17'	18'
Expected Harm	$301	$250	$175	$100	$65	$40	$30
Social Savings	—	$1	$25	$25	-$15	-$35	-$40
Error Rate	.0	.1	.4	.5	.4	.1	.0
Expected Liability	$301	$225	$105	$50	$26	$4	$0
Private Savings	—	$26	$70	**$5**	-$26	-$28	-$46

Figure 3

Figure 4 shows the effect of asymmetric errors. Symmetric errors can yield varied outcomes, but asymmetric errors push expenditures away from the optimum, in this case producing overdeterrence.

Fence Height	12'	13'	14'	15'	**16'**	17'	18'
Expected Harm	$301	$250	$175	$100	$65	$40	$30
Social Savings	—	$1	$25	$25	-$15	-$35	-$40
Error Rate	.0	.0	.0	.8	.4	.1	.0
Expected Liability	$301	$250	$175	$80	$26	$4	$0
Private Savings	—	$1	$25	$45	**$4**	-$28	-$46

Figure 4

Although we could equally well present a table showing asymmetric errors leading to underdeterrence, we have chosen this example for a reason. We think there is a greater probability that error in the application of conduct rules will result in overdeterrence.[97] This is due largely to the tendency for errors (simple errors) to be asymmetric, in the sense (suggested in Figure 4) that a potential defendant who fails to forbear or take a salient precaution is more likely, other things being equal, to have the error go against him than in his favor.[98] This effect can be amplified by the influence of litigation costs.

One can offer a simple explanation for the claim that errors will tend to go against the defendant who fails to take care, a defense that does not rely on the assumption that courts are inherently biased. Because of limited information on the social costs and benefits of certain conduct, courts are likely to put a great deal of weight on the absence of a particular precau-

[97] Note that this conclusion differs from that of Craswell & Calfee, supra note 96. Craswell and Calfee generate overdeterrence in cases where the error probability distribution has a low variance around the optimal level of care. This is certainly consistent with Figure 4. Moreover, if we interpret Craswell and Calfee's variance result as saying that overdeterrence is more likely *when almost all of the uncertainty is located in the region of the reasonableness threshold*, then it provides a powerful and sufficient reason for our conclusion. However, we emphasize a different reason in the text. Note also that we are assuming defendants are not judgment-proof, in which case they are unlikely to be deterred by the threat of litigation, *see generally* Steven Shavell, *The Judgment Proof Problem*, 6 INT'L REV. LAW & ECON. 45 (1986).

[98] The deterrence implications of this assumption are spelled out formally *infra* note 107.

tion.[99] That is, instead of trying to determine the optimal fence height as a starting point, courts tend to focus on the plaintiff's claim that the defendant failed to forbear or to take a particular precaution—that he failed to raise the fence a certain number of feet, to put netting over the fence, and so on. Ideally, a reasonableness determination would require a court to compare the cost of the forgone precaution to its social benefit (in terms of harm reduction). However, as neither the cost nor the social benefit can be measured precisely, courts are put in the position of making inferences. Unless there is concrete evidence that the cost of precaution is unusually high for the defendant (i.e., more than the defendant's word), the rational inference is that the defendant acted negligently. Thus, the structure of decision-making in courts should tend to produce more errors against than in favor of defendants who fail to take a salient precaution.[100]

We note that there is an alternative behavioral theory of error bias that, like the one presented here, does not assume an inherent preference for plaintiffs. The bias typically is explained by the fact that the decision-maker generally is choosing between imposing liability on a defendant who has insured or who otherwise is able to allocate some portion of his costs to others and a plaintiff who seems less able to do so (especially as his insurance option cannot be exercised retroactively).[101] An erroneous pro-

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[99] *See* Mark F. Grady, *Untaken Precautions*, 18 J. LEGAL STUD. 139 (1989).

[100] The outcome depends as well on other aspects of the court system's performance. *See, e.g.,* Mark Grady, *A New Positive Economic Theory of Negligence*, 92 YALE L. J. 799 (1983); Marcel Kahan, *Causation and Incentives to Take Care under the Negligence Rule*, 28 J. LEGAL STUD. 427 (1989). Grady and Kahan show that overdeterrence *may occur* (note that our claim in the text is stronger) if the court applies a negligence standard without reducing the defendant's damages by the amount that would have occurred even if the defendant had complied with the due-care standard. Put another way, if courts apply the causation standard rigorously, overdeterrence will not result. However, the causation requirement is not applied rigorously in all cases falling under a reasonable conduct standard. For example, in many negligence cases where causation is uncertain—e.g., medical malpractice actions for "lost chance of survival" where the plaintiff had more than a 50 percent chance of survival before the accident—courts award plaintiffs their full damages without reducing by the amount that would have been suffered in any event. *See, e.g.*, Herskovits v. Group Health Cooperative, 664 P.2d 474, 476-9 (Wash. 1983) (discussing "all or nothing" approach in majority of states).

[101] *See, e.g.,* PETER W. HUBER, LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES (New York: Basic Books 1988); RICHARD NEELY, THE PRODUCT LIABILITY MESS (New York: Free Press 1988); WALTER K. OLSON, THE LITIGATION EXPLOSION: WHAT HAPPENED WHEN AMERICA UNLEASHED THE LAWSUIT (New York: Dutton 1991). Although these books are not works of "cognitive science," their jury-bias arguments reflect hypotheses regarding common cognitive or decision biases. The empirical support for these theories is mixed, and largely anecdotal. Examination of tried cases reveals that plaintiffs lose more often in personal injury litigation than in commercial litigation, data that are inconsistent with a jury bias story. However, evaluation of these data is complicated by distortion in the selection of cases for

plaintiff finding will have implications for costs among a wider class of people, but these costs are apt to be minuscule in relation to the expenditures of the class so long as other legal fact-finders do not similarly err. An erroneous pro-defendant finding, however, will impose obvious costs on an individual whose distress is evident to the fact-finder.

Now consider the influence of litigation costs. In general, in a setting with legal error and costly litigation, the reasonableness (or, in this case, negligence) test can overdeter, underdeter, or optimally deter—all three outcomes are possible.[102] Litigation costs have conflicting effects on the incentives for precaution. On one hand, since litigation is costly for plaintiffs, the cost will prevent some victims from bringing suit,[103] which weakens the incentive for precaution.[104] On the other hand, since the defendant must pay to litigate as well, expected liability increases for potential defendants with the cost of litigation, which increases the incentive for precaution. In regimes with symmetric litigation costs for plaintiffs and defendants, the effect of litigation costs on deterrence is uncertain. In some areas of litigation, however, litigation costs are relatively low for plaintiffs and high for defendants. This occurs, for example, where defendant bears a heavier burden of producing information relevant to the litigation or where defendant has a greater stake in the outcome of the litigation (e.g., the defendant has reputation costs at stake or

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trial. *See, e.g.* Samuel R. Gross & Kent D. Syverud, *Don't Try: Civil Jury Verdicts in a System Geared to Settlement*, 44 UCLA L REV. 1 (1996). For a broad review of civil juries' operation, see *Developments in the Law—The Civil Jury*, 110 HARV. L. REV. 1408 (1997).

[102] Keith N. Hylton, *Costly Litigation and Legal Error Under Negligence*, 6 J. LAW, ECON. & ORG. 433 (1990).

[103] This reflects the assumption that plaintiffs will not bring suit when the cost of litigating exceeds the expected recovery, a standard assumption in the economic analysis of litigation, see, e.g, Keith N. Hylton, *The Influence of Litigation Costs on Deterrence Under Strict Liability and Under Negligence*, 10 INT. REV. L. & ECON. 161, 163 (1990). Whether this assumption is valid in all cases depends on plaintiffs' ability to generate settlements without the full investment in litigation costs. Suppose, for example, litigation occurs in two discrete stages. If the plaintiff can credibly threaten to go through the second stage, he may have an incentive to file suit in order to obtain a settlement after the first stage, even though the total cost of litigation (summing over both stages) is less than the expected final judgment. For a formal presentation of this argument, see Lucian Ayre Bebchuk, *A New Theory Concerning the Credibility and Success of Threats to Sue*, 25 J. LEG. STUD. 1 (1996). Of course, if the first stage expenses are sufficiently high, this outcome will not be observed. The discussion in the text reflects the view that taking account of settlements—while essential to a full understanding of incentive effects of legal rules—would complicate the analysis without changing the basic point.

[104] *See* Hylton, *supra* note 103.

risks follow-on litigation while plaintiffs do not). In such regimes, litigation costs are likely to generate overdeterrence.[105]

Thus, although overdeterrence is by no means guaranteed under a reasonable conduct rule, it is the more likely result in view of the probable asymmetry in simple errors (judicial mistakes).[106] Moreover, any overdeterrence associated with a reasonableness standard will tend to be exaggerated by various other potential factors, including general increases in error probabilities, asymmetric litigation costs burdening defendants, and assessment of legal damages in excess of the real social loss associated with the defendant's conduct.[107] *Damages exceed victim's loss*: Finally, it should be

[105] For example, under a regime in which the prevailing plaintiff shifts his litigation expenses to the defendant, overdeterrence is more likely. For discussion of the incentive effects of litigation cost apportionment rules, see Steven Shavell, *Suit, Settlement, and Trial: A Theoretical Analysis under Alternative Methods for the Allocation of Legal Costs*, 11 J. LEGAL. STUD. 55 (1982); Keith N. Hylton, *Litigation Cost Allocation Rules and Compliance with the Negligence Standard*, 22 J. LEG. STUD. 457 (1993).

[106] Some commentators argue that this is the prevalent pattern in litigation today. *See, e.g.,* HUBER, *supra* note 99; NEELEY, *supra* note 99; OLSON, *supra* note 99.

[107] Consider the following formal demonstration. Let x = the cost of taking care or forbearing, p = probability of loss to victim if injurer does not take care or forbear, q = probability of loss to victim if injurer does take care or forbear, $p > q$. Let v = loss to victim. Let θ = probability of an erroneous finding of liability.

Under a reasonable conduct test such as the negligence test, the injurer will be held liable whenever he fails to take care (or forbear) and $x < (p\text{-}q)v$. Now consider injurers for whom $x > (p\text{-}q)v$. In an error-free regime, such an injurer would never be held liable. Such injurers will be held liable only if courts make mistakes.

Now suppose the likelihood of a court making a mistake is zero if the injurer takes care or forbears (e.g., keeps his fence well above the reasonable height). Suppose also that the probability of error is positive at the threshold of reasonable conduct.

Consider the incentives of an injurer for whom $x > (p\text{-}q)v$. *Overdeterrence* occurs if such an injurer is induced by the threat of liability to take care. Will this ever happen? Such an injurer will take care if

$$x < p\theta v ,$$

which requires $(p\text{-}q)v < p\theta v$, or

$$(p\text{-}q)/p < \theta.$$

Since this is clearly possible, overdeterrence can occur. For example, suppose $p = 2/3$ and $q = ½$. Then overdeterrence will occur whenever θ is greater than 25 percent. If the probability of error is especially high near the threshold of reasonable conduct, then $\theta > 1/4$ may be a plausible assumption. Moreover, as this example suggests, *whenever precaution is not very productive*, in the sense that $(p\text{-}q)/p$ is close to zero, we are likely to get overdeterrence.

Litigation costs: If litigation costs are included in the analysis, the risk of overdeterrence increases substantially. Let c = injurer/defendant's litigation cost. In this case, overdeterrence occurs if

clear that if damages exceed the real social loss, overdeterrence can occur. Suppose the damage award is equal to $d > v$. Now overdeterrence occurs if $(p\text{-}q)v < p\theta(d + c)$. We will argue below that these factors are especially relevant in the antitrust context.

B. Tailoring Legal Rules to Reduce Error Costs

If we put to one side possible "political" preferences that might distort the the process,[108] legal rules should be designed to accomplish optimal deterrence or governance with the lowest possible error cost. Given the array of possible effects that errors in rule application can generate, how should conduct rules be tailored to minimize error costs?

Factors Affecting the Probability of Error

In a legal regime that minimizes error costs, we should expect rules to be designed in order to exploit environmental factors that constrain error costs. One such factor is the competence of the court to discern reasonable conduct. In the paradigmatic common law example of a reasonable conduct

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$$(p\text{-}q)v < p\theta(v + c),$$

or $[(p\text{-}q)/p][v/(v+c)] < \theta$, which is quite plausible. Again suppose $p = 2/3$ and $q = ½$. Litigants often spend a third or more of the amount at stake on litigation, so let us assume $c = v/3$. In this case, overdeterrence occurs when $\theta > 3/16$. On the one-third assumption, see JAMES S. KAKALIK & NICHOLAS M. PACE, COSTS AND COMPENSATION PAID IN TORT LITIGATION 69 (Santa Monica: RAND, 1986) (data showing defendant's litigation costs running at roughly one third of total compensation).

[108] Of course, as emphasized in the public choice literature, interest-group politics plays an obvious role in legislative decision-making. *See, e.g.*, JAMES M. BUCHANAN & GORDON TULLOCK, THE CALCULUS OF CONSENT: LOGICAL FOUNDATIONS OF CONSTITUTIONAL DEMOCRACY (Ann Arbor: Univ of Michigan Press 1962); DENNIS C. MUELLER, PUBLIC CHOICE II (Cambridge: Cambridge Univ. Press 1989); MANCUR OLSON, THE LOGIC OF COLLECTIVE ACTION (Cambridge: Harvard Univ. Press 1965). *See also* ROBERT DAHL, DILEMMAS OF PLURALIST DEMOCRACY: AUTONOMY VS. CONTROL 31-54 (New Haven: Yale Univ. Press 1982). The same influences are not at work—certainly not to the same degree—where judges are the relevant decision-makers. *See, e.g.,* Ronald A. Cass, *Judging: Norms and Incentives of Retrospective Decision-making,* 75 B.U. L. REV. 942 (1995). Judicial decisions might be seen as responding to the same politics as legislative decisions where judges are expected faithfully to implement legislative directives. *See, e.g.,* William M. Landes & Richard A. Posner, *The Independent Judiciary from an Interest Group Perspective,* 18 J. LEGAL STUD. 875 (1975). But it is reasonable to expect judges to lean more consistently toward judgments reflecting a balance of social costs and benefits, see, e.g., Richard A. Epstein, *The Indepen*dence *of Judges: The Uses and Limitations of Public Choice Theory*, 1990 B.Y. U. L. REV. 827.

rule, the negligence rule, courts have relied on the juries or judges applying common sense judgment to evidence in order to determine whether an actor was negligent. In the routine case this has not been seen as something beyond the competence of the court. For example, in the case of the fence around the cricket field, courts have considered themselves competent to determine whether the owner should raise the fence in order to cut down the risk of cricket balls hitting pedestrians. In order to make such an assessment the court needs information on the likelihood that balls will sail over a fence of a given height, the likely injuries to pedestrians, and the cost of raising the fence. In many settings, information such as this is easily discoverable—certainly, one would expect learning about these issues to develop over time in a land where cricket was common and where cricket pitches tended to be located near pedestrian walkways.[109] Those are the sorts of settings in which common law courts have tended to apply reasonableness standards.[110]

In other areas, common law courts are less well-suited to conduct the sort of open-ended inquiry associated with the reasonableness standard and generally have taken steps to guard against errors by altering that standard.[111] Again, consider the custom rule. In medical malpractice disputes, courts typically determine negligence by the physician's compliance with customs of the medical profession.[112] The custom rule is, as noted earlier, designed to avoid the errors that would result in a system that permitted juries independently to define reasonable medical practice in every malpractice case.[113]

Private information is a closely related, yet distinguishable factor that can be analyzed in the same manner. If the application of a reasonable conduct rule depends heavily on information held exclusively by one of the parties, an error-minimizing legal rule might include a proof standard (an evidentiary presumption) that would induce provision of the information. This is the role performed by doctrines such as *res ipsa loquitur* in tort

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[109] That does not, of course, mean that the application of a reasonableness rule in such context will be without controversy. As one approaches the dividing line between reasonable and unreasonable activity, fact-finders surely will have different intuitions about the exact location of that line.

[110] *See generally* HOLMES, *supra* note 90, at 123-127 (on the connection between common, daily experience and negligence law).

[111] In the limit case, disputes may be subject to a legal standard too open-ended—and involve individuals and interests too numerous and diffuse—to be suitable to judicial decision-making. *See* Lon L. Fuller, *The Forms and Limits of Adjudication*, 92 HARV. L. REV. 353, 394-404 (1978). *See also* James A. Henderson, Jr., *Judicial Review of Manufacturers' Conscious Design Choices: The Limits of Adjudication,* 73 COLUM. L. REV. 1531 (1973).

[112] PROSSER & KEETON, *supra* note 21, at 185-96.

[113] *See, e.g.,* McCoid, *supra* note 92.

law.[114] The *res ipsa* doctrine, in effect, creates a presumption of liability that can be overcome by the defendant only by revealing his private information regarding exculpatory evidence. Thus, *res ipsa* has the effect of replacing the reasonable conduct rule with a presumptive strict conduct rule, in order to give the defendant an incentive to reveal information to the court, thereby reducing the likelihood of error.

Influence of Intent Standards on Error

In addition to legal presumptions such as the custom rule and *res ipsa*, intent standards also influence error probabilities. Like the custom rule, the specific intent test may simultaneously reduce the overall likelihood of error and generate asymmetry in the distribution of errors. Consider, for example, the legal standard for assault, which requires proof of specific intent. Suppose courts were to instead apply to assault cases the more common tort standard combining the reasonableness test with general intent. Relative to an error-free regime, a reasonableness test coupled with general intent probably would lead to significant errors both in favor of the defendant and the plaintiff. Determining the reasonableness of an alleged assault is difficult, not because the relevant information depends on highly specialized knowledge (as is the case in determining reasonable medical practice), but because the reasonableness of actions that may put others in fear of bodily harm so often is highly dependent on nuances of context. The important though difficult-to-quantify aspects of expression that can be intermingled with alleged assaults exemplify this problem.[115]

The specific intent test, like the custom rule for negligence, may reduce the overall likelihood of error in this case, relative to the reasonableness

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[114] Under the *res ipsa loquitur* doctrine, plaintiffs are allowed to submit their negligence claims to the jury even though their evidence of negligence is largely or entirely circumstantial, see PROSSER & KEETON, *supra* note 21, at 242; Byrne v. Boadle, 159 Eng. Rep. 299 (Exch. 1863). Other tort law doctrines also have the effect of forcing defendants to produce evidence to absolve themselves of liability for negligence. For example, where two tortfeasors act concurrently, they are both jointly and severally liable, and the burden falls to each to limit his liability by apportioning the harm. *See* Kingston v. Chicago & N.W. Ry., 211 N.W. 913 (Wis. 1927); Summers v. Tice, 199 P.2d 1 (Cal. 1948).

[115] The connection between assaults and expression is apparent in many of the cases, including the earliest. For example, in Tuberville v. Savage, 86 Eng. Rep. 684 (K.B. 1669), the plaintiff put his hand on his sword and said that if it were not "assize -time" (i.e., if the judges weren't in town), he would not tolerate the defendant's language, *see* RICHARD A. EPSTEIN, CASES AND MATERIALS ON TORTS 67 (Boston: Little, Brown, 6th ed. 1995). The court rejected the defendant's claim that the plaintiff's conduct amounted to an assault, which justified his wounding the plaintiff. As in *Tuberville*, assault cases often force courts to draw a line between threatening words and threatening conduct. For a more detailed discussion of this issue, *see infra* text accompanying notes 202 and 203.

test. Moreover, it will almost surely cause a greater reduction in the probability of a false conviction than that of a false acquittal. The latter effect is easy to see: requiring specific intent biases the legal test in favor of defendants. The former effect, an overall reduction in the likelihood of error, is less certain. However, it may result if courts are more likely to reach the right conclusion (finding conduct unreasonable only when social costs outweigh social benefits) under the specific intent test than under a reasonableness test that requires the consideration of such ill-defined benefits as the value of expression.

Factors Affecting Error Costs

In some cases market (or social) factors have the effect of constraining or increasing the error costs associated with a legal rule. In such cases, error-minimizing courts will adopt rules that exploit the effects of constraining factors. For example, market or competitive pressures may constrain the costs associated with an error type.

Return to the custom rule in tort law. The custom rule prevents courts from applying a reasonableness test in areas outside of their competence, which reduces the probabilities of a false convictions and acquittals. However, the custom rule may increase the probability of a false acquittal, under plausible assumptions.[116] In spite of this, the cost of false acquittals under the custom rule will be constrained by other pressures if information about physicians' practices is reasonably available to potential patients (or other health care decision-makers). Under plausible assumptions about the availability of such information, physicians who adopted practice customs that were unreasonable (causing unnecessary harms to patients) would lose business to other physicians with better practices, and indeed the whole profession would lose business if it adhered to unreasonable customs. This would constrain the behavior of individual physicians to some extent and, over time, of the profession as a whole. Given these market pressures, the costs of false acquittals under the custom rule should be low relative to the costs associated with errors generated under a reasonableness test.

In contrast with this hypothetical, when an error associated with a particular reasonableness test generates a market advantage in favor of a particular type of defendant, it is safe to assume that the beneficiaries of the error will act to protect and to fully exploit their advantage, increasing the costs associated with the error. Given this potential, error-cost minimizing

[116] *See* discussion *supra* text at notes 92-94.

courts have limited the degree of protection provided by such rules, in order to dampen the acquisitive or "rent-seeking"[117] incentives of beneficiaries.

Nuisance rules in tort law and rules governing competition in the market have the potential to generate market advantages for their beneficiaries. In both settings, actions that harm an individual are protected as socially beneficial, even though it is possible that an opposite conclusion might be appropriate in a sub-class of cases. For example, nuisance law generally does not regulate aesthetic disturbances, such as invasions of claims to light and air.[118] An individual whose view of the beach has been blocked by a developer cannot maintain a nuisance action. If the rule were reversed, permitting nuisance claims for aesthetic disturbances, potential plaintiffs could gain the power to control future development in their communities by being the first to arrive. This would include the right to hold up potential defendants to pay off difficult-to-verify claims of aesthetic injury.

The costs associated with the creation of market advantages probably justify the early common law regarding the reasonableness of price competition. Courts generally refused to hold it unreasonable for one seller to undercut the prices of another seller.[119] In other words, courts established a per se rule in favor of price competition. This rule minimizes the errors against socially beneficial competition and does so at low cost, as there is no need for protracted litigation to establish the point. Suppose, however, courts had decided to adopt a reasonableness test. Many sellers faced with the prospect of harm from price competition would then have an incentive to bring suit, even if they were unlikely to receive compensation under the reasonableness test, so long as the expected value of the suit plus suit-induced price increases exceeded the cost of litigation. The burden of such litigation would fall primarily on those with the lowest costs (the obvious targets for suit). Under these conditions, the threat of expensive litigation could deter market entry by some low-cost sellers.

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[117] We will use the term "rent-seeking" with greater frequency in the remainder. Here we use the term to refer to self-interested efforts to gain or protect a social or market advantage. On rent-seeking generally, see GORDON TULLOCK, THE ECONOMICS OF SPECIAL PRIVILEGE AND RENT-SEEKING (Norwell, MA: Kluwer 1989); Anne Krueger, *The Economics of the Rent Seeking Society*, 64 AMER. ECON. REV. 291 (1974). Later in the text, we will focus on the rent-seeking incentives created by legal rules.

[118] *E.g.,* Fontainebleau Hotel Corp. v. Forty-Five Twenty-Five, Inc., 114 So. 2d 357 (Fla. App. 1959).

[119] WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND, Vol. 3, at 218-219.

Intent Standards' and Proof Rules' Effects on Error Costs

In an ideal world without error, a court could apply a reasonable conduct test to all cases without having to inquire into intent (beyond the general level) or into standards of proof. In such an ideal regime, the reasonableness rule could be applied in a manner that punishes and therefore deters only conduct that is socially undesirable. It follows from this observation that many peculiar features of the law may be designed largely to control error costs.

In a world where error has not been banished, an optimal framework of legal rules minimizes the overall expected cost of error by making tradeoffs among different types of error and different costs—tradeoffs that would be unnecessary in an error-free regime. For example, given a choice between two rules, one with a high probability of a false acquittal and the other with a high probability of a false conviction, error costs may be minimized by choosing the rule with the higher false acquittal rate if the cost of a false acquittal is smaller than that of false conviction. This is the justification we have offered for the custom rule in tort law.

Intent standards also can reduce error costs, partly as a direct result of their effect in reducing errors in rule application. Intent standards are most important when, in addition to reducing errors, they reduce errors with high costs, as where the error discourages especially valuable activities. Consider, for example, the legal standard for assault, which requires proof of specific intent. The assault standard can be justified on the ground that it reduces errors that discourage expression,[120] which the law has long treated as having special value. The legal rules governing assault and the custom defense are similar in that they both induce an asymmetry in errors that favors defendants. However, they are different in the sense that there are distinguishable error-cost arguments favoring each rule; while the custom rule can be defended on the ground that false acquittal costs are probably small, the assault standard can be defended on the ground that false conviction costs are probably large.[121]

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[120] *See supra* note 115.

[121] This is a good point to return to the punitive damages rule noted in Figure 1, *supra*. Our theory suggests that specific intent is required for punitive damages because that standard minimizes error costs. Given that they are potentially limitless, punitive damages are best reserved for conduct that is always socially undesirable, in the sense that the gain to the offender is unlikely to ever be greater than the victim's loss. *See* Keith N. Hylton, *Punitive Damages and the Economic Theory of Penalties*, 87 GEO. L. J. 421 (1999). Awarding punitive damages in cases outside of this category overdeters socially desirable conduct. In order to select out those cases in which the defendant's conduct is always socially undesirable, the specific intent test is probably far superior to the reasonable conduct test, *id*.

But intent standards can increase some types of error costs, depending on how they are implemented. Recall our earlier discussion of Henry firing a gun in George's direction.[122] If Henry is a fine marksman who enjoys startling his friends, he presents a far different risk of harm than if Henry is a less able shot who bears a grudge against George and was trying to kill him. For this reason, getting some sense of Henry's specific intent is helpful in determining the social risk presented by his conduct. On the other hand, suppose Henry, intending to kill George, aims and fires at a picture of George tacked against a tree in a desolate woods. In this case, Henry's intent is an unreliable measure of the social risk associated with his conduct. If, as we hypothesize, intent rules reduce expected error costs, the law generally should be constructed to avoid reliance on intent standards that can mislead, either adopting a different standard or insisting on a combination of intent and effect that mitigates risks posed by the intent standard alone.

Our two descriptions of Henry's adventures illustrate the difference between an objective and subjective conception of specific intent. It should be clear from this example that if we are concerned with deterring undesirable *conduct*, the objective standard is more reliable. The subjective standard is uncertain and only loosely connected to the regulation of harmful conduct, possibly excusing Henry after he fires directly at George and kills him, and possibly convicting Henry after he shoots the tree. [123] Such a standard has the potential to deter some socially desirable conduct, where there is a risk that a prosecutor or plaintiff can find evidence of a bad intent.

Minimizing error costs also provides the standard explanation for the burden of proof "beyond reasonable doubt"[124] in American criminal law. The reasonable doubt standard obviously increases the likelihood of a false acquittal if compared to the civil preponderance-of-the-evidence standard. Moreover, the reasonable doubt standard probably increases the overall likelihood of error.[125] However, under the prevailing view that the costs of

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at 455-458. Under this view, the specific intent test minimizes the potential error costs associated with punitive awards.

[122] *Supra* text accompanying notes 25-26.

[123] Whether Henry is excused will turn on the conclusion respecting his state of mind and the legal standard. If the standard is not intent to kill but reckless disregard for the possibility that Henry will kill George, Henry might be convicted on the first assumed state of facts. This result, however, is not a foregone conclusion.

[124] The Supreme Court has held that the due process clauses of the United States Constitution require proof "beyond a reasonable doubt of every fact necessary to constitute the crime. . . charged." In re Winship, 397 U.S. 358, 364 (1970).

[125] The preponderance standard permits courts to weigh the evidence according to its persuasiveness and to accept the most plausible account of the facts. Provided the trial

false convictions outweigh those of false acquittals, the reasonable doubt standard probably minimizes the total costs of error.[126]

C. Application to Antitrust

Antitrust provides a special and important case for the application of an error cost analysis of legal rules. Unlike most common law subjects, antitrust rules govern competing claims to the allocation of consumer or producer surplus from business activities. For these cases, competitive conditions—not only in the narrow sense of the presence or absence of short-run market power—play an important role in determining the costs of error.

Error Probabilities in Antitrust

Error probabilities in antitrust are determined by the same factors as observed generally, the competence of the court to apply a reasonableness test and the allocation of private information. To the extent a reasonableness standard requires a court to examine business records and determine whether a competitive decision was justifiable in light of business conditions, it pushes courts beyond their areas of expertise. Moreover, reasonableness standards that cannot be applied without detailed information exclusively within the hands of only one of the parties are likely to result in errors asymmetrically favoring the informed party.

The per se rule of antitrust is a response to competence and private information problems, especially the latter. Given the asymmetry in access to private information, a requirement on the part of plaintiffs or prosecutors to prove the unreasonableness of a pricing arrangement would give a virtually insurmountable advantage to defendants in price-fixing cases. The problem is not primarily, as some have argued, courts' inability to assess

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involves no issues outside of the competence of the court—including within that caveat the provision that the court is not affected by perceptual distortions or incentives that depart from an inclination to increase social welfare—this should produce the smallest number of errors.

[126] Two reasons can be offered for believing that false conviction costs are greater than false acquittal costs. The first is that the cost of criminal punishment is often unusually large, since it often involves the loss of liberty to the individual and the loss to society of the defendant's labor. The theory suggested in *In re Winship* is that the cost to the individual (in terms of reputational harm and potential loss of liberty) justify the assumption that false conviction costs outweigh false acquittal costs, see DRESSLER, *supra* note 7, at 54. We can suggest a second reason for believing false convictions are more costly than false acquittals: in a regime in which false convictions occur frequently, dominant coalitions will have an incentive to use the criminal laws to punish weak coalitions. This concern is reflected in the case law controlling the clarity of criminal statutes. *See* DRESSLER, *supra* note 7, at 31-35.

whether a defendant's reasonableness arguments were valid. It is fair enough to claim that pricing decisions often depend on considerations that are difficult for courts to assess, but that is not the crux of the inquiry in price-*fixing* cases. The greater problem is that, a reasonableness inquiry in this context would depend heavily on information in the hands of the defendants. In such cases, we should expect errors disproportionately favoring defendants, generating underdeterrence costs.

A more evident competence problem is raised by Judge Hand's application of the reasonableness test in *Alcoa*. Hand's approach requires a court to examine capacity expansion decisions to determine whether they were made *preemptively* to foreclose competition or *reasonably* to meet projected demand.[127] This standard asks judges to evaluate the basis for capacity decisions, to assess the business opportunities facing the industry and specific firms at the time capacity decisions are made. That asks judges to make decisions akin to those at times delegated to members of public utility regulatory commissions.[128] Even regulators who are quite familiar with the industries they oversee have difficulty making these sorts of judgments.[129] Judges, however, seldom have familiarity with the industries involved in monopolization cases. This makes errors especially likely.

Error attributable to the court's lack of competence may, as we have noted, work in favor of defendants or plaintiffs. Still, given that such error is likely to be most pronounced when the defendant's conduct is near the threshold of reasonable conduct, and the defendant did not forbear from some particular act alleged to be anticompetitive, the likely effect of such error is overdeterrence.[130] Indeed, in the antitrust context, the likelihood of

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[127] See the discussion of Judge Hand's analysis in *Alcoa*, *supra* text accompanying notes 58-61.

[128] We should note that there is reason to doubt that Judge Hand meant for his *Alcoa* test to be applied in this way. Judge Hand was generally quite resistant to tests that would have judges make such intrusive determinations. *See,e.g.,* Gregoire v. Biddle, 177 F.2d 579, 581 (2d Cir. 1949), *cert. denied*, 339 U.S. 949 (1950). *See generally* GERALD GUNTHER, LEARNED HAND: THE MAN AND THE JUDGE (Cambridge: Harvard Univ. Press 1994).

[129] *See, e.g.*, STEPHEN G. BREYER, REGULATION AND ITS REFORM 36-59 (Cambridge: Harvard Univ. Press 1982). For a general (sympathetic) overview of agency expertise, see James O. Freedman, *Expertise and the Administrative Process*, 28 ADMIN. L. REV. 363 (1976). A more critical look at agency expertise is Glen O. Robinson, *The Federal Communications Commission: An Essay on Regulatory Watchdogs*, 64 VA. L. REV. 169 (1978).

[130] *See* discussion *supra* notes 96, 97 and accompanying text. One might think this claim is inconsistent with our initial discussion of the custom rule. We noted in that discussion that errors may go in favor of the plaintiff or the defendant under an unconstrained reasonableness test. However, we were unconcerned in that discussion with determining whether an unconstrained reasonableness test (divorced from custom) presents a risk of overdeterrence; our concern then was whether the custom rule generated asymmetric errors. If we were to reconsider the effects of an unconstrained reasonableness inquiry in the malpractice context,

overdeterrence from such error is high for two additional reasons. First, litigation costs borne by defendants are likely to be large. The antitrust laws shift the litigation expenses of prevailing plaintiffs to defendants.[131] The issues adjudicated are complex; they relate to business decisions that frequently cannot be evaluated independent of a wealth of business records; and the potential costs of adverse decisions frequently are large.[132] Second, given that the risk of error is greatest when the court is reviewing procompetitive conduct that harms rivals, damages designed to compensate injured rivals will exceed the real social loss, since they do not include an offset for the benefits to consumers. Thus, in order to steer clear of the possibility of a monopolization suit under the *Alcoa* standard, firms will have an incentive to avoid capacity expansion investments, unless they can be defended with projections showing that the dominant firm intended to meet a growing residual demand that could not be satisfied by competitors.

Error Costs in Antitrust

Antitrust is unique largely in the sense that competition plays a central role in determining the costs associated with error. The error costs in antitrust are affected largely by two types of competition: *market restraints* and *rent seeking*. By market restraints, we mean competitive threats that prevent a party from exploiting advantages created by errors associated with a particular legal standard. By rent-seeking, we refer to incentives to protect, maximize and exploit advantages created by errors associated with a particular legal standard.

What are the costs associated with false acquittals and false convictions, and how are they affected by the competitive pressures such as market restraints and rent seeking? We consider this below.

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taking into account the arguments associated with figures 2-5, we would have to admit that there is a tendency toward overdeterrence, given the likelihood that a court would find a physician liable when his conduct approached the reasonableness threshold and he failed to take some particular precaution.

[131] Clayton Act § 4.

[132] The first two factors, complexity of issues and the need for business records, are unavoidable components of or "inputs" into the defendant's legal argument, and in this sense are directly related to defendant's litigation costs. The third factor, the prospect of a damaging adverse decision, increases (other things being equal) the defendant's willingness to pay for his legal defense.

False Acquittal Costs

False acquittal occurs if firms are held not to be liable although in fact they engaged in socially-harmful conduct—a conspiracy under Section 1 or monopolization under Section 2—where harm to consumers outweighs the social benefits. Whether we are considering Section 1 or Section 2 violations, false acquittals generate underdeterrence costs. Firms, aware of the likelihood that courts will err in their favor, will be less likely to take precautions or forbear from conduct that violates the Sherman Act. Under both Sections 1 and 2, underdeterrence costs take the particular form of *consumer surplus losses* that result from monopoly prices.

We will say more about this harm in a moment, but the very notion of this harm has an attractive property. Because the harm from false acquittal in antitrust cases typically is transmitted through excessively high prices and low output, several market forces combine to constrain false acquittal costs in antitrust. Consider the false acquittal costs associated with Section 1. These costs are constrained by the following *market restraints*: (1) entry, (2) competition from incumbent firms, and (3) strategic factors.

The effect of entry is easy to understand. A successful price-fixing cartel encourages firms on the sidelines to enter the market and offer the item sold by the cartel at a lower price. The ease of entry is critical to the degree of constraint associated with this factor.[133] In a market in which entry is easy, and likely to occur rapidly, the false acquittal costs associated with Section 1 are likely to be negligible. Of course, if entry is easy and rapid, the cartel is unlikely to be in place long enough or to have enough effect to be subject to suit. Still, entry must be seen within some parameter as constraining the operation of cartels and, hence, the costs of false acquittals.

Competition from existing firms provides another constraint on false acquittal costs under Section 1. If there are existing firms outside of the cartel that are operating in the same market, we should expect them to take advantage of the cartel's output-restraining policy in order to expand their businesses. This happened, for example, in response to formation of the OPEC cartel.[134] Of course, it would make little sense for a cartel to form in the presence of an obvious competitive threat. In OPEC's case, it took several years for production by non-OPEC nations to increase sufficiently to constrain OPEC's production and pricing flexibility.[135] False acquittal in

[133] George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44, 48 (1964).

[134] *See, e.g.*, ABBAS ALNASRAWI, OPEC IN A CHANGING WORLD ECONOMY 7, 24 (Baltimore: Johns Hopkins Univ. Press 1985).

[135] Indeed, as we were writing this paper, the OPEC cartel regained its stability, driving the price of oil to close to $30/barrel, *see Volte Face*, THE ECONOMIST, Jan. 29, 2000, at 79

such circumstances allows above-market returns—and associated consumer losses—during the time it takes other firms to offset the conspiracy-generated output reduction.

The more common scenario is one in which competition from incumbent firms can offset production cuts more swiftly. This is likely to lead to "limit pricing," a strategy of setting price in order to deter expansion by incumbents (or new entry).[136] Suppose the existing firms are selling the same goods, but in a geographically distinct market. They could sell the goods in the same market as the cartel operates, but—prior to the cartel's action—choose not to because transportation costs prevent them from offering a competitive price. Still, the existence of these firms puts a ceiling on the price the cartel can charge. If that ceiling happens to be above the joint-profit maximizing price for the cartel (because transport costs are extremely high relative to product value, for example), the ceiling will not constrain the cartel. However, if it is below the cartel's joint-profit maximizing price, it will force the cartel to lower its price to a level just below the ceiling. Although the cartel still operates, and still imposes losses in welfare on consumers, the losses are constrained by the threat of expansion or entry at any price above the ceiling.

The third factor constraining the underdeterrence costs associated with false acquittals are *strategic factors*. Price-fixing agreements are difficult to maintain, given the incentives of cartel members to cheat. In addition to this incentive, there is also the incentive on the part of cartel customers to induce instability. Cartel customers can induce instability through several methods. They can report cheating by one member to other members of the cartel, thus weakening the resolve of cartel members to stick with the price restraint.[137] Unless the cartel members have a means of checking on the validity of such reports, consumers have incentives to issue false reports of cheating as well. Alternatively, consumers can purchase through a single buying agent, altering the relationship into one of bilateral monopoly. The buying agent can induce instability by encouraging coalitions or members within the cartel to consider a separate deal.

(discussing effects of Mexican energy minister Luis Tellez's efforts to revive OPEC). Rival non-OPEC oil suppliers have not yet entered the market with sufficient volume to drive the price back down, and it may take them several months, perhaps years. And the incentive for rivals to enter is clearly dampened by the prospect that the cartel may again lose control over the production levels of members, causing the price to collapse.

[136] On limit pricing see, F. M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 356- 374 (Boston: Houghton Mifflin Co., 1990); Darius W. Gaskins, Jr., *Dynamic Limit Pricing: Optimal Pricing Under Threat of Entry*, 3 J. ECON. THEORY 306 (September 1971).

[137] Stigler, *supra* note 133.

Under Section 2, the threat of entry and of competition from incumbent firms in the industry play similar roles. A dominant firm that consistently charges monopoly prices will attract entrants to its market. As with cartels, the speed of entry—and, in markets with differentiated goods, the comparability of the entrants' products—is critical to the degree of constraint.[138] Strategic factors also play a role in constraining costs if customers seek substitute supply sources in order credibly to threaten to break off business with the dominant firm.[139]

Academic commentary in recent years has focused increasingly on the ways in which decisions of firms with market power can affect rivals.[140] False acquittals can retard market competition in some instances, if anticompetitive conduct that limits the prospect of successful entry or expansion goes undeterred. For that reason, there has been special concern over practices such as predatory pricing, which—if there is a durable monopoly—can drive rivals from the market and then impose excessive costs on consumers.[141] There is considerable debate, however, as to the plausibility of assumptions necessary to sustain predatory pricing and similar practices.[142]

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[138] *E.g.*, Steven C. Salop, *Measuring Ease of Entry*, 31 ANTITRUST BULL. 551, 556 (1986).

[139] For example, in Barry Wright Corp. v. ITT Grinnell Corp., 724 F. 2d 227 (1st Cir.1983), the defendant, in order to develop an alternative source of supply for mechanical snubbers, supported the plaintiff's entry into the market. This support included financing product development costs and a commitment to purchase roughly $10 million worth of snubbers.

[140] *See, e.g.*, Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation,* 76 AM. ECON. REV. 940 (1986); Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach,* 63 ANTITRUST L.J. 513 (1995); Steven C. Salop, *Strategic Entry Deterrence*, 69 AM. ECON. REV. 335 (1979).

[141] *See, e.g.*, Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975); Patrick Bolton, Joseph F. Brodley and Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L. J. 2239 (2000).

[142] *See, e.g.*, Joseph F. Brodley & George Hay, *Predatory Pricing: Competing Economic Theories and the Evolution of Legal Standards*, 66 CORNELL L. REV. 738 (1981); Avinash Dixit, *Entry and Exit Decisions Under Uncertainty*, 97 J. POL. ECON. 620, 620-38 (1989); Frank H. Easterbrook, *Predatory Strategies and Counter-Strategies*, 48 U. CHI. L. REV. 263 (1981); Paul Joskow & Alvin Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213 (1979); John S. McGee, *Predatory Pricing Revisited*, 23 J.L. & ECON. 289 (1980); Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 J. ECON. THEORY 280 (1982); Paul Milgrom & John Roberts, *Limit Pricing and Entry Under Incomplete Information: An Equilibrium Analysis*, 50 ECONOMETRICA 443 (1982); Janusz Ordover & Garth Saloner, *Predation, Monopolization, and Antitrust*, *in* THE HANDBOOK OF INDUSTRIAL ORGANIZATION vol. 1, at 537-96 (Richard Schmalensee & Robert

False Conviction Costs

False convictions occur when a firm is convicted under the Sherman Act when its actions were reasonable in the sense already defined. For purposes of Section 1, we could provide a theory of reasonable price-fixing but this is unnecessary.[143] It should suffice to say that the reasonableness standard would make some allowance for reasonable price-fixing, and probably more than the law currently allows.[144] The law already, as we have noted, creates exceptions to the per se rule for certain cases (for instance, the introduction of a new product, as in *BMI*). In determining the costs of false convictions, we must ask whether the per se rule's foreclosure of certain exceptions that would be available under a general reasonableness test generates substantial overdeterrence costs.

Under Section 2, false convictions generate overdeterrence costs of several forms, depending on the type of monopolization claim. Consider, again, the preemptive expansion claims upheld in the *Alcoa* opinion. False convictions for capacity expansion deter dominant firms from making aggressive efforts to expand into new markets or to meet increases in demand for their products. In the latter case, if the firm is dominant in an industry with economies of scale, a decision to forgo expansion would be costly to the firm and to consumers. Let us call this a simple *production efficiency cost*. In general, production efficiency costs result if false convictions cause dominant firms whose costs are lower because of scale economies to forgo aggressive expansion efforts.

Another type of overdeterrence cost is associated with false convictions for predatory pricing. Firms concerned about the risk of predatory pricing charges will have an incentive to avoid aggressive price competition, which diminishes the welfare of consumers by generating consumer surplus losses, a cost we will call a *price efficiency cost*.

The error costs associated with false convictions for monopolization are quite plausibly broader than the two basic types of overdeterrence costs discussed so far—production efficiency and price efficiency costs. False convictions for monopolization, particularly predatory pricing, encourage firms to seek informal agreements with their competitors. The reason for this is simple: if competitors have no complaints at all about a dominant firm's pricing or output decisions, they will have no incentive to seek

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D. Willig eds., North-Holland 1989); Garth Saloner, *Predation, Mergers, and Incomplete Information*, 18 RAND J. ECON. 165 (1987).

[143] On "reasonable" price-fixing, *see* Grady, *supra* note 36; TELSER, *supra* note 36.

[144] Grady, *supra* note 36.

antitrust enforcement from the government. Alternatively, if the government or some third party should bring an antitrust action against a dominant firm, one that has formed alliances with many of its competitors will be able to rely on their support—e.g., testifying in court in favor of the dominant firm's conduct. Thus, false convictions for monopolization have a multiplier effect, creating *cartelization* costs, to the extent that they cause informal collusive arrangements to develop.

Drawing an analogy to Guido Calabresi's famous analysis of accident costs,[145] let us define the foregoing types of costs as the *primary overdeterrence costs associated with false convictions for monopolization*. The overdeterrence costs associated with false convictions under Section 2 are therefore production efficiency costs, price efficiency costs, and cartelization costs.

In addition to these primary costs, we can identify a set of *secondary rent-seeking costs* associated with false convictions for monopolization. Secondary costs result from the law itself becoming a competitive instrument, which is a problem largely unique to Section 2. As a competitive instrument, the law will be used to facilitate informal cartel behavior among firms. Firms that try to deviate from the implicit non-competition norms encouraged by false convictions will be punished by Section 2 lawsuits brought by firms that comply with the norms. Thus, use of the law as a facilitating mechanism for informal collusion generates a distinguishable type of cost—*facilitation costs*—that results from firms using the law to enforce non-competition norms.

Another distinguishable cost is connected to the distorted view that firms are encouraged to have of the Section 2 standard. As firms tend increasingly to use it in order to facilitate informal cartelization, each firm will tend to view the law as serving largely that purpose in the hands of plaintiffs. This leads potential defendants to have less regard for the standards of the law itself, which should distort their compliance efforts, again toward informal cartelization. In other words, use of the Section 2 standard as a competitive instrument encourages *demoralization costs* to the extent that reputational concerns and a belief that compliance with a reasonable conduct rule will be rewarded are diminished as incentives to avoid cartelization.

Finally, false convictions for monopolization generate *tertiary litigation costs* connected to bad faith litigation. Litigation is costly by itself. However, these costs are likely to multiply as a result of the facilitation and demoralization effects just described. As a larger number of firms use the

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[145] *See* GUIDO CALABRESI, THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS (New Haven: Yale Univ. Press 1970).

monopolization lawsuit as a competitive tool, firms will find it increasingly difficult to tell whether damages are awarded appropriately in the typical case. As firms lose faith in the ability of courts to distinguish valid from invalid monopolization claims, their incentive increases to bring spurious monopolization claims.[146] Indeed, competition would spur firms to file spurious claims since the firm that forbears from filing such claims would be at a competitive disadvantage.[147]

One can draw an analogy here to tax cheating and bribery. As long as the expected penalty for tax cheating—the product of the probability of detection and the penalty—is less than the immediate gain, competition will spur firms to cheat on their taxes; for the firm that forbears from such cheating will be undersold by its nefarious rivals. Similarly, the firm that refuses to bribe government functionaries in a corrupt country will suffer a competitive disadvantage relative to its rivals.[148] In the same sense, if there is a substantial probability that a false conviction for monopolization will occur, each firm will have an incentive to file a spurious claim against a dominant competitor as long as the expected gain—in terms of deterring the competitive conduct of the dominant firm—exceeds the cost of bringing suit. We should expect this incentive to increase as the perceived probability of a false conviction increases. The logical endpoint of this process is a state in which each firm has an incentive to seek damages from a competitor after any event that causes a shift of business toward the competitor.

Error Costs under Public Enforcement

We have focused on the incentives of private litigants. However, many of the error costs we have identified would be observed under a regime of exclusively public enforcement. Experience has shown that private parties often have input, directly or through intermediaries, into the decisions of

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[146] Two notes are in order here. First, in this context, we use "spurious" to indicate suits not based on a reasonable belief that the defendant is imposing monopoly costs on consumers. This certainly would include suits with negative expected value, but also (if errors are sufficiently frequent and substantial) might include positive expected value suits as well. Second, we are using the more complex, Bayesian notion of error referred to earlier (see text accompanying note 95) in this discussion. The simpler error rate (the likelihood of judicial error) may be fixed at a low level, but industry players will observe the empirical (ex post) frequency of false convictions (which is a function both of error and of the mix of guilty and innocent defendants) and base their views of the operative legal standard on this measure.

[147] This is true even if the suits have negative expected value in the ordinary sense so long as the costs associated with defending the litigation sufficiently reduce competition to compensate for the plaintiff's expected litigation costs.

[148] *See, e.g.,* Andrei Shleifer & Robert Vishny, *Corruption,* 105 Q. J. ECON. 599 (1993).

the federal antitrust enforcers (the FTC and Justice Department).[149] Indeed, in any regime in which public antitrust enforcers have discretion, it is difficult to see how private influence could be eliminated.

Although the incidence of litigation would not be entirely within private litigants' control, much of the preceding analysis would apply in a public enforcement regime. The primary overdeterrence costs (productive efficiency costs and price efficiency costs) would remain, of course, because these are due simply to the existence of a positive probability of false conviction. The magnitude of the costs will be affected by the probability of false conviction, which in turn would be a function of the cases brought.[150] As a first approximation, we would expect public enforcement to be more in line with the public interest in case selection, though as we show momentarily that expectation will not necessarily hold up.

The secondary costs that reflect rent-seeking pressures are likely to remain in some form as well. Although it is true that public enforcers will not respond immediately to and in perfect conformance with the wishes of private parties, they are likely to respond at least partially.[151] Moreover, even though the response of public enforcers will be muted and partial, public enforcement agencies have the advantage of a relatively large budget that can be spent without an immediate concern for the financial payoff.[152] Public enforcers' greater freedom from direct concern about litigation costs—which provides some likelihood that a public enforcement agency will pursue an "unremunerative" claim through the courts—also gives private parties an incentive to lobby for public enforcement rather than litigate on their own claims. Indeed, a superior strategy is to pursue both: to persuade the public enforcement agency to pursue an aggressive monopolization claim first, and then follow with a private suit for treble

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[149] *See, e.g.,* THE CAUSES AND CONSEQUENCES OF ANTITRUST: THE PUBLIC CHOICE PERSPECTIVE (Fred S. McChesney & William D. Shugart eds., Chicago: Univ. of Chicago Press 1995).

[150] *See* discussion of the error probability accompanying note 95.

[151] Public enforcers with different political allegiances will respond differently to pleas from specific private parties. That will affect the precise contours of public response to rent-seeking and perhaps even the magnitude of rents generated through this response. However, public action under any regime will be likely to support some rent-seeking, as that will be the dominant source of demands for public action.

[152] Public enforcers do, of course, face budget constraints, and they must be concerned about the costs and prospects for litigation. But that concern is not so immediate and direct as the concern of private litigants, and this suggests private parties will seek to influence public prosecutors. In general, of course, it is not possible to know whether public enforcers will bring more or fewer suits than private litigants or will seek enforcement in more or fewer low-probability cases.

damages if the public enforcement agent is successful.[153] Given this possibility, secondary rent-seeking costs associated with public enforcement may be even larger than those created under a purely private enforcement regime. The same analysis raises the possibility that aggregate litigation costs will be larger under a mixed public-private regime than under a regime of strictly private litigation.

D. Understanding Antitrust Standards

This framework for error cost analysis can be applied to the two important deviations from a reasonable conduct/general intent standard observed in antitrust: the specific intent requirement under Section 2, and the per se rule under Section 1.

Specific Intent Requirement

From the foregoing, the justification for the specific intent standard under Section 2 should be clear. The alternative to a specific intent requirement under Section 2 is the standard articulated by Judge Hand in *Alcoa*: a reasonable conduct standard coupled with a requirement of only general intent evidence. However, the modern Section 2 case law applies a reasonable conduct standard with a requirement of specific intent evidence. This effectively constrains courts to hold dominant firms liable under Section 2 only when the sole (or overwhelming) purpose or motive behind their conduct is to monopolize or create barriers to competition. In other words, the requirement of specific intent implies that a dominant firm does not violate Section 2 when it's actions can be characterized as a mixed sort involving the creation of competition barriers and benefits for consumers.

Let us refer to the reasonable conduct standard coupled with a general intent test as the *Alcoa* standard, and let us refer to the reasonable conduct standard coupled with a specific intent test as the actual standard under Section 2. Relative to an extremely accurate court (one in which mistakes are rare), the *Alcoa* standard involves a high likelihood of both false convictions and false acquittals—that is, it generates a symmetric increase in error. For example, if courts attempt to determine whether capacity expansion decisions were warranted by business conditions, many errors in favor the defendant and in favor the plaintiff are likely. The actual standard, compared to a low-error regime, implies a decrease in the likelihood of false convictions and an increase in the likelihood of false

[153] *See, e.g.*, Robert B. Reich, *The Antitrust Industry*, 68 GEO. L.J. 1053, 1065 (1980).

acquittals. The specific intent test implies an asymmetric increase in error favoring defendants.

The case for the specific intent test is straightforward. Under the *Alcoa* standard, both false convictions and false acquittals are likely to occur. Under the actual standard, false acquittals are likely and false convictions unlikely. If the costs associated with false convictions and false acquittals were of equal magnitude, there would be little reason to choose one rule over another. However, the error costs are not of equal magnitude. False acquittal costs are likely smaller than those associated with false convictions.

The reason false acquittal costs are likely to be smaller than false conviction costs under Section 2 follows from a comparison of market restraints and rent-seeking costs. Market restraints due to entry, competition from incumbents, and strategic behavior of market participants are likely to keep the costs of false acquittals under Section 2 relatively small. False acquittal costs will be high only where the defendant has a durable monopoly, protected against entry, and does not fear further litigation costs from exploiting the monopoly.[154] On the other hand, false convictions under Section 2 are not constrained by similar factors. The threat of entry as a constraining force on cartelization is weakened under a false-convictions regime because incumbent firms can use the monopolization lawsuit as an instrument to restrain the competitive efforts of an entrant.

A rough, static sense of the comparative magnitudes of false acquittal and false conviction costs is suggested by Arnold Harberger's analysis of the deadweight cost of monopoly,[155] and Gordon Tullock's analysis of the rent-seeking costs of monopoly.[156] Recall that false acquittal costs under Section 2 are consumer (and producer) surplus losses that result from monopoly pricing. Harberger's and several succeeding empirical analyses have suggested that these costs are relatively small, given the degree of competition that typically exists.[157] Harberger's results suggest that among potential antitrust defendants who have monopoly power and have

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[154] *See* discussion *supra*, text at notes 133-136.

[155] Arnold C. Harberger, *Monopoly and Resource Allocation*, 44 AM. ECON. REV. 77 (May 1954).

[156] Gordon Tullock, *The Welfare Costs of Tariffs, Monopolies, and Theft*, 5 WESTERN ECON. J. 224 (June 1967).

[157] Harberger, *supra* note 155. For the studies supporting Harberger's results, see David Schwartzman, *The Burden of Monopoly*, J. POL. ECON. 627 (1960); Dean A. Worcester, Jr., *New Estimates of the Welfare Loss to Monopoly*, 40 SOUTHERN ECON. J. 234 (1973); John J. Siegfried & Thomas K. Tiemann, *The Welfare Costs of Monopoly: An Inter-Industry Analysis*, 12 ECON. INQUIRY 190 (1974).

exercised it illicitly (necessary aspects of a false acquittal), the instances in which such power is both durable and substantial will be rare. On the other hand, false conviction costs are probably dominated by rent-seeking costs, which can be approximated under Tullock's analysis by the expected profits from monopolization. Where false acquittal costs principally involve the dead-weight cost of a monopoly that is unchecked, false conviction costs include the total cost of unproductive expenditures made in pursuit of monopoly gains.[158] In other words, while false acquittal costs can be represented by Harberger triangles, false conviction costs are given by Tullockian rectangles. Thus in a static sense the error costs associated with false convictions are likely to be greater than those associated with false acquittals for monopolization.

A dynamic view of the regime further supports the concern over false conviction costs, as the divergence in error costs is likely to increase over time. Changes in technology and tastes open new opportunities for firms to enter and steal business from dominant firms. Transportation and communication costs fall over time, enabling firms in formerly distinct markets to compete. These factors reduce the costs of false acquittals—the costs of monopolization—toward zero in the long run; that is at least the historical tendency of entry, competition, and technological change.[159] On the other hand, where false convictions are frequent, monopolization costs are likely to "ratchet up" over time. The prospect of false convictions not only deters vigorous competition but also provides non-competing firms an effective tool—the attempted monopolization lawsuit—to constrain

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[158] Rent-seeking will not be a one-way street. Potential defendants as well as potential beneficiaries of antitrust litigation will make "directly unproductive" expenditures aimed at influencing public authorities. So far as potential defendants' expenditures contribute to false acquittal or to non-prosecution these impose costs that are in some respects similar to competitors' expenditures in pursuit of convictions (though constrained by the market restraints identified earlier in this paper). Not all of the lobbying expenditures by potential defendants, however, should be classified as false-acquittal costs. Apart from the fact that some proportion of expenditures for both potential defendants and potential beneficiaries of antitrust litigation will be congruent with social good, defendants' expenditures aimed at influencing public decision-makers are likely to increase along with the prospect of false *conviction*. *See* Fred McChesney, *Rent Extraction and Rent Creation in the Economic Theory of Organization,* 16 J. LEGAL STUD. 101 (1987); Fred McChesney, *Rent Extraction and Interest-Group Organization in a Coasean Model of Regulation*, 20 J. LEGAL STUD. 73 (1991). Moreover, since defendants will have an incentive to match the lobbying efforts of potential plaintiffs, directly-unproductive expenditures are considerably more likely to be spiral upward under the false convictions regime.

[159] *See, e.g.*, ALFRED D. CHANDLER, JR., THE VISIBLE HAND: THE MANAGERIAL REVOLUTION IN AMERICAN BUSINESS 188-239 (1977) (discussing economic impact of transportation and communication revolutions of the nineteenth century).

competition from non-cooperating incumbents and potentially successful entrants.[160]

The best analogy to the likely outcome of a regime with substantial numbers of false convictions is suggested by the regulation of taxicabs. Under medallion regimes, incumbent taxicab firms have an incentive to prevent entry from new competitors, and seek to prevent entry by lobbying municipal governments to enforce taxi regulations. Moreover, incumbent firms have typically made heavy investments based on their expectations of retaining some degree of monopoly power, and understand that maintenance of entry restrictions is necessary if the firms are to break even on their investments.[161] A similar scenario is likely to be observed in a regime of false convictions for monopolization. Firms that have made investments based on the expectation that entrants would not take business from them would have incentives to use the monopolization lawsuit in order to protect their investments.[162]

In view of this, the specific intent standard probably serves the function of reducing expected error costs associated with the reasonable conduct rule under Section 2 by helping eliminate false convictions. Again, in an ideal, error-free world, the *Alcoa* standard (general intent coupled with reasonableness test) could be applied in a manner that maximizes social welfare. However, in a regime in which mistakes are likely to occur, the *Alcoa* standard is likely to perform poorly.

In addition to providing a positive theory of the specific intent test, error-cost analysis provides suggestions as to the specific form of the test. An intent inquiry can be framed either as a subjective or as an objective

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[160] To be sure, there will be market pressures to reduce costs through development of substitutes to goods or services whose efficient provision is constrained by fear of litigation. But these mitigating factors do not alter the fundamental problem, that the false-convictions regime encourages unproductive rent-seeking investments.

[161] *See, e.g.,* RONALD A. CASS, COLIN S. DIVER & JACK M. BEERMANN, ADMINISTRATIVE LAW 1021-22 (New York: Aspen Law & Business 1998); Edmund W. Kitch, Marc Isaacson & Daniel Kasper, *The Regulation of Taxicabs in Chicago,* 14 J.L. & ECON. 285 (1971).

[162] One might ask why these are not sunk costs, in the sense that the firms have incurred them in the past, and should no longer take them into account in making decisions. But when firms have made investments in securing a legal framework that protects them from competition, their future profits depend on the maintenance of their protective framework. Hence, they will have an incentive to continue to invest in the maintenance of a legally protective framework. To take a more concrete example, return to the example of taxicab medallions. The medallion is an asset—the most important assets owned by taxi drivers and companies—whose value is substantially determined by the degree of protection from competition. The market value of the medallion is the presented discounted value of the stream of profits accruing to the medallion owner. Medallion owners know that future protection from entry increases the expected future stream of profits, and also the current value of the medallion. *See* CASS, DIVER & BEERMANN, *supra* note 161, at 1021-22.

inquiry. Under a subjective inquiry, specific intent could be established by evidence suggesting that the defendant had a desire to gain monopoly power or restrict competition. Thus, a defendant could be found in violation of Section 2 even though his conduct provided substantial benefits to consumers as long as the plaintiff could show that he really wanted to gain monopoly power. Corporate memoranda with statements such as "we'll destroy our competitors with this new product enhancement," would be indicators of specific intent under a subjective inquiry.

Under an objective inquiry, specific intent is inferred largely from evidence negating the likelihood of any other motives. Thus, under an objective inquiry, a defendant whose actions produce benefits to consumers in addition to potential barriers to competition would be an unlikely candidate for a specific intent finding.

We doubt whether a subjective intent test can be applied in a predictable fashion in a field such as antitrust, where all defendants seek to increase profits, typically through strategies that require a gain in market share. Given the difficulty of drawing distinctions on the basis of subjective intent, such a test is likely to operate in effect as a randomly applied strict liability rule. If the subjective intent is inferred largely from statements of business strategy under ordinary civil proof standards, the overdeterrence costs associated with false convictions should be at least as large in this regime as under the reasonable conduct standard.[163]

Per Se Rule

The foregoing analysis would seem to suggest that the per se rule against price-fixing should be abandoned in favor of a reasonable conduct test. False acquittal costs under Section 1 are, like those under Section 2, constrained by the threat of entry, competition from incumbent firms, and strategic behavior by consumers. If false acquittal costs were the most important components of an error-cost analysis, this would be the unavoidable conclusion. But this is an incomplete analysis.

Though false acquittal costs are constrained both under Section 1 and under Section 2 by market forces, false conviction costs are subject to different pressures under the two provisions. The key difference is that the rent-seeking costs generated by the prospect of false-convictions under Section 2 are not observed in similar measure under Section 1. Firms would not have incentives to use Section 1 as a competitive tool in the same

[163] Of course, various alterations of the subjective intent test—such as specifying a more precise and limited object for the intent requirement or raising the evidentiary bar—could reduce false convictions and overdeterrence costs. Such changes also could be made in other intent tests.

way as they might use Section 2. Collusive behavior under Section 1 tends to either include firms that otherwise might compete or to provide an umbrella over less efficient competitors. The victims who would bring suit under Section 1 typically are not the competitors of the defendant, they are suppliers or customers.[164] In this capacity, they would have no interest in using the Section 1 action as a tool for gaining a competitive advantage, nor would they face competitive pressure to use Section 1 in this manner. Moreover, while Section 2 (with false-convictions) can be used by an incumbent firm to restrain competition from any substantial competitor, Section 1 can be used (also with false-convictions) only against firms that form a potentially-collusive group. In addition, the scope for standing is so much broader under Section 2 than under Section 1 that it is difficult to imagine firms using Section 1 as competitive instrument. The upshot is that false conviction costs under Section 1 are not subject to the Tullockian rent-seeking pressures observed under Section 2.

This is not to say that there will not be false-conviction costs under Section 1, for there are several such costs under the current regime. First, the per se rule itself obviously generates false convictions, since a welfare-maximizing, error-free regime would apply a reasonable conduct standard. Of course, as we have noted before, the per se rule contains exceptions (such as *BMI*), and in view of this the relevant question is whether the false-convictions generated under the per se rule with its current exceptions are substantial. Second, public enforcement agents bring many of the Section 1 actions, and the incentives of these agents may diverge from those of enforcer who is devoted to maximizing social welfare. In particular, public enforcement agents may have career interests that drive them to pursue doubtful applications of the law.[165] However, these costs are not fueled by the same wellspring of self-interest as those generated under Section 2.

The other major difference between Section 1 and Section 2 is that while competence (or the lack of it) would be a major factor generating error under a reasonable conduct standard for Section 2, the private information problem is probably the more serious source of error under a reasonable conduct test for Section 1. This is evident when viewed in light of the

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[164] Law firms specializing in class action litigation could engage in rent-seeking activities even though consumers on whose behalf they (ostensibly) sue would not. There is some evidence of rent-seeking by such lawyers, though it appears targeted more generally to preventing changes in the class-action litigation process than at securing government cooperation in particular antitrust actions. The reason for this may be the lawyers' inability to secure effective property rights in litigation ex ante in the same manner as competitors whose status as parties in interest cannot be supplanted readily by other firms.

[165] *E.g.*, Richard A. Posner, *The Federal Trade Commission*, 37 U. CHI. L. REV. 47, 82-87 (1969).

history of price-fixing law. Before the enactment of the Sherman Act, a price-fixing issue entered the courts only on the occasion when a cartel member refused to participate, and the other cartel members sued him on breach of contract grounds. Courts refused to enforce agreements to restrain trade that they deemed unreasonable. The courts applied a reasonable conduct test to price-fixing and generated an elaborate doctrine governing contract in restraint of trade.

If common law courts, well before the Sherman Act, were capable of analyzing price-fixing claims, how could it be that courts would have such a difficult time with similar claims after the passage of the Sherman Act? The answer is that before the Sherman Act, courts confronted the price-fixing issue only when one of the parties refused to participate. In the ensuing contract breach action, the parties in court were all extremely knowledgeable of the reasons and motivations behind their agreement. The defendant could offer credible testimony as to whether the horizontal agreement had economically-justifiable motives, or whether it was an effort to gouge consumers. In this setting, courts were given enough information to assess the credibility of the alternative theories of price-fixing offered by the plaintiff and defendant.

Under the Sherman Act, we have a different scenario. Here we see a public enforcement agent prosecuting a group of firms who have formed a cartel. Unless one of the members of the cartel discloses the true nature of the agreement, the Sherman Act plaintiff and the court face an enormous disadvantage. The disadvantage is not attributable to the competence of the court, it is attributable to the private information held by the cartel. The real reasons and motivations behind the horizontal conspiracy are known by the cartel members, and they have a potentially decisive advantage in obtaining and producing evidence to support their arguments.

Given that it is primarily private information held by defendants rather than competence that generates error under Section 1, false acquittals must be viewed as considerably more likely than false convictions. Consequently, the expected costs of false acquittals under Section 1 should be adjusted upward to reflect the private information problem.

Putting the pieces together, error-cost analysis suggests the arguments favoring a high burden against plaintiffs under Section 2 do not suggest the same burden under Section 1. First, under a reasonable conduct standard, false-convictions costs are likely to be smaller under Section 1 than under Section 2. Second, under the same standard, false acquittal costs are likely to be higher under Section 1 than under Section 2. These factors obviously support the per se rule.

We have noted that the strict-conduct-plus-general-intent test that is otherwise known as the per se rule has been relaxed in the two special cases

of facilitating practices and conscious parallelism. Courts have permitted plaintiffs to prevail in some of these cases with only circumstantial evidence—that is, with evidence falling short of proving general intent to conspire with respect to price. The analysis here shows that these special cases should be understood as error-cost minimizing responses to the private information problem. Where the conditions indicate that the likelihood of price-fixing is very high, courts have effectively shifted the burden on general intent to the defendants. When defendants have the evidence in their hands, and the circumstantial evidence indicates guilt, shifting the burden reduces the likelihood of error by giving the informed party an incentive to reveal his information to the court. In this sense, the special and rather narrow exceptions created for plaintiffs in facilitating practice and conscious parallelism cases are analogous to the *res ipsa* rule in tort law, which shifts the burden of proof to the tort defendant in cases where the circumstantial evidence indicates negligence.[166] It is not clear that deterrence analysis can provide a compelling account for the per se rule in antitrust. A cartel can act in a manner that, from a social welfare perspective, is unreasonable, as would occur where its horizontal agreement is designed to generate monopoly profits and is able to do so. But cartels also can act reasonably from a social welfare perspective, engaging in cooperative activity that enhances social welfare, *see* Grady, *supra* note 32. Reasonable cartel behavior does not expose consumers to any special risks. Common law courts for many years applied a reasonable conduct test to

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[166] Note that error-cost analysis provides a justification for the per se rule that would otherwise be harder to construct under the traditional deterrence analysis used to justify strict liability rules in tort law. Under the traditional deterrence analysis in tort law, strict liability is appropriate in some areas even if courts operate without error. Under one version of deterrence analysis, strict liability is applied in order to reduce the scale of activities when shutting down an activity is a more effective way of reducing harm than controlling instantaneous precaution, see LANDES & POSNER, *supra* note 87, at 70. Another version of deterrence analysis holds that strict liability is applied in order to reduce the scale of activities when the externalized costs associated with the activity are substantially greater than the externalized benefits. *See* Keith N. Hylton, *A Missing Markets Theory of Tort Law*, 90 NW. U. L. REV. 977 (1996). This is true, for example, of blasting, which even if operated under reasonable care is likely to impose substantial costs and only minor benefits on adjacent landowners.

It is not clear that deterrence analysis can provide a compelling account for the per se rule in antitrust. A cartel can act in a manner that, from a social welfare perspective, is unreasonable, as would occur where its horizontal agreement is designed to generate monopoly profits and is able to do so. But cartels also can act reasonably from a social welfare perspective, engaging in cooperative activity that enhances social welfare, *see* Grady, *supra* note 32. Reasonable cartel behavior does not expose consumers to any special risks. Common law courts for many years applied a reasonable conduct test to horizontal agreements, even while applying strict conduct tests to nuisances in the tort law.

horizontal agreements, even while applying strict conduct tests to nuisances in the tort law.

IV. The Controversy over Intent in Antitrust

As we noted earlier, definition of the intent standard has been controversial in antitrust law, particularly in monopolization disputes. A growing number of scholars in the law and economics area have suggested that intent should play no role at all in antitrust analysis, which is the position that Judge Hand took in *Alcoa*.[167] A minority of antitrust commentators have argued, on the other extreme, that intent should be determined either wholly or in part by a subjective inquiry.[168]

Perhaps the individual who best illustrates the controversy is Professor Franklin Fisher, the lead economic expert for IBM during the litigation of *United States v. IBM* and later the lead economic expert for the government in the *Microsoft* litigation. During the IBM litigation, Fisher perceptively noted that the intent issue had taken on an unjustifiably large degree of importance in antitrust litigation, and argued that it should be deemed irrelevant under the monopolization standard.[169] During the *Microsoft* case, however, Fisher argued that memoranda and other internal communications

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[167] United States v. Aluminum Co. of America, 148 F.2d 416, 431-32 (2d Cir. 1945). On the case against intent, see A.A. Poultry Farms, Inc. v. Rose-Acre Farm, Inc., 881 F.2d 1396, 1402 (7th Cir. 1989) (Easterbrook, J., holding that specific intent is immaterial in predatory pricing cases); Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227, 232 (1st Cir. 1983) (Breyer, J., subjective intent irrelevant); see also, RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 190 (Chicago: Univ. of Chicago Press, 1976) (Any doctrine that relies on proof of intent is going to be applied erratically as best); Franklin M. Fisher, *Matsushita: Myth v. Analysis in the Economics of Predation*, 64 CHI. KENT L. REV. 969, 969-70 (1988); David McGowan, Networks and Intention in Antitrust and Intellectual Property Law, 24 J. CORP. L. 485, 513 (1999); Michael C. Quinn, *Predatory Pricing Strategies: The Relevance of Intent under Antitrust, Unfair Competition, and Tort Law*, 64 ST. JOHN'S L. REV. 607 (1990).

[168] Daniel Gifford, *The Role of the Ninth Circuit in the Development of the Law of Attempt to Monopolize*, 61 NOTRE DAME L. REV. 1021, 1021-23 (1986) (arguing that subjective intent resolves ambiguities surrounding defendant's conduct); Will Wachs, *The Microsoft Antitrust Litigation: In the Name of Competition*, 30 U. TOL. L. REV. 485, 498-99 (1999) (Microsoft's conduct should be judged in light of the subjective intent evidence). In William Inglis & Sons Baking Co. v. ITT Continental Baking Co., 668 F.2d 1014 (9th Cir. 1981)—a case holding that subjective intent evidence *is* material— the 9th Circuit cites Richard Markovits for the proposition that the "rational expectations of the monopolist" should be consulted in order to help determine whether his conduct violates the Sherman Act, *Inglis*, 668 F.2d, at 1034. However, it is unclear whether Markovits thought that rational expectations are equivalent to subjective intent. A firm's rational expectations as to the outcome of an action could easily differ from its subjective intent.

[169] *See, e.g.,* FISHER, MCGOWAN & GREENWOOD, *supra* note 3, at 272.

from Microsoft officers and employees that could be read as suggesting an anticompetitive intent supplied the critical evidence that Microsoft's actions were not competitive acts but instead were violations of Section 2.[170]

The *Microsoft* litigation serves to illustrate the problems that would be generated under either of the two extreme approaches to intent (general versus subjective) suggested by antitrust commentators. As we suggested in Part II of this paper, antitrust courts have for the most part avoided reliance on the subjective intent test and moved increasingly toward adopting a specific intent requirement under Section 2. In other words, of the three approaches to intent observed in the law; (1) general intent, (2) specific intent determined by a subjective inquiry, (3) specific intent determined by an objective inquiry, courts have gravitated toward the objective specific intent test. The *Microsoft* litigation provides a good illustration of the reasons for rejecting the alternatives to the objective specific intent test.

A. General Intent and Microsoft

The case brought by the U.S. Department of Justice against Microsoft Corporation turns on Microsoft actions that generally had two effects: they reduced the cost of consumer access to software features integrated into Microsoft's Windows operating system for personal computers, and at the same time made it more difficult for competitors to compete with Microsoft. For example, Microsoft integrated its Internet Explorer Web-browser technology into Windows rather than selling it solely on a stand-alone basis. That decision increased consumer access to browsing software and reduced the cost of such software but it also cut into the profitability of competitors' efforts to sell software performing similar Web-browsing functions.

The question for the courts is what standard should be applied in evaluating the challenged actions. Our focus below is not on the details or the outcome of the *Microsoft* case, but on the general issue of the appropriate legal test to be applied in this case and in others with similar issues.

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[170] *See* Fisher Cross, *supra* note 2. We do not intend our remarks to be understood as a criticism of Professor Fisher. Indeed, that an economist of his caliber would take different views of the intent issue in different cases should be taken as an indication of the issue's complexity. For Fisher's own description of his views in the *IBM* and *Microsoft* cases, see Franklin M. Fisher, *The* IBM *and* Microsoft *Cases: What's the Difference*?, 90 AM. ECON. REV. 180 (2000).

The Argument for General Intent

Steve Salop and Craig Romaine urge that the question—in the *Microsoft* litigation specifically and in other antitrust cases more generally—should be answered by applying a general intent standard to a reasonable conduct test. Salop and Romaine use their own error-cost analysis to support this argument. In their view, a specific intent requirement would lead to too many errors in favor of defendants. A reasonable conduct-plus-general intent test, however, would give courts discretion, according to Salop and Romaine, to trade off false conviction costs against false acquittal costs in a manner that leads to the minimization of overall error costs.[171]

In several places in their analysis, Salop and Romaine refer to a simple hypothetical to support their case for the reasonableness-plus-general intent standard. In the hypothetical, a dominant firm enhances its product. The product-enhancement, however, has the effect of making it more difficult for rivals to compete. As Salop and Romaine put this hypothetical example:

> [S]uppose the efficiency benefit involves improved performance of the product. Suppose that it were known that the improved product performance has a value to users of $5. To make the example extreme in order to illustrate the differences among alternative antitrust approaches, suppose further that the higher barriers to competition [resulting from the product improvement] were known to allow the monopolist to charge an additional $50.[172]

Salop and Romaine argue that in this hypothetical case the antitrust court comparing the consumer benefits to the consumer harms should hold the firm in violation of Section 2. They assert that a reasonable conduct-general intent test would allow courts to maximize consumer welfare and, thus, to operate an antitrust regime with minimal error.

Error Costs of General Intent versus Specific Intent

Our argument has been the opposite of that put forward by Salop and Romaine. We have urged that in many circumstances *denying* courts discretion will minimize overall error costs. That has been the apparent function of the specific intent test in antitrust law and in the common law generally. Salop and Romaine, however, believe that it is wiser to give courts maximum discretion, so that they will be free to reach decisions that

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[171] *Id.*

[172] *Id*. at 646.

maximize consumer welfare. The logical extreme of Salop and Romaine's argument would leave antitrust courts unconstrained by legal doctrine and simply charged with the duty to maximize consumer welfare.[173]

The Salop and Romaine hypothetical properly puts the difference between two standards in issue. Under a specific intent requirement, there is a substantial probability that the judge in their hypothetical would find that the dominant firm did *not* violate Section 2. The case for acquitting the dominant firm would be greater, of course, if we changed the numbers so that the new value to consumers is $20 and the price enhancement $30 instead of $5 and $50. However, even in their hypothetical as stated, it is not evident that the objective evidence indicates specific intent to harm competition. Specific intent is an appropriate finding when the evidence suggests that harming competition is the most probable motivation behind the dominant firm's conduct. However, in the Salop and Romaine hypothetical, we do not have clear support for such a finding. Unlike *Aspen Skiing* or *Lorain Journal,* the Salop and Romaine case is not one in which the dominant firm cannot put forward any credible efficiency justification whatsoever for its conduct.

Their hypothetical, thus, puts the question of the error-cost-minimizing standard. Salop and Romaine argue that the proper standard is the one that allows judges in each individual case to assess whether social costs net positive or negative from the particular acts challenged under the antitrust laws. The general intent standard would allow that; the specific intent standard would not. That does not mean that the specific intent standard would prevent courts in fact from deciding cases in line with social welfare, much less that the specific intent standard would produce overall results further from social welfare. We believe that the opposite is the case.

The difference is our evaluation of the likelihood that courts will err in making these determinations, that litigation will be used strategically more often under the general intent standard, and that the constraints imposed by market forces will limit the ill effects of acquittals more than they will of convictions. Returning to the analysis of our previous section, we know that acquittal costs in antitrust monopolization cases are constrained by the threat of entry from new firms, competition from incumbents, and strategic responses of consumers.

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[173] Although readers might take the point to be a mere rhetorical exercise—the *reductio ad absurdum* of a moderate position—academic legal scholars often suggest commitment of a similarly radical discretion to courts, especially in the arena of constitutional adjudication. *See, e.g.,* BRUCE ACKERMAN, WE THE PEOPLE: FOUNDATIONS 98-99 (Cambridge: Belknap Press 1991); Thomas C. Grey, *Do We Have an Unwritten Constitution*?, 27 STAN. L. REV. 703 (1975); MICHAEL PERRY, THE CONSTITUTION, THE COURTS, AND HUMAN RIGHTS (New Haven: Yale Univ. Press 1982).

Consider first the strategic responses of consumers. In the Salop and Romaine hypothetical a dominant firm—let us assume it is a software firm—enhances its software in a manner that produces a benefit of $5, and raises its price by $50. What would a rational consumer do? The consumer has several options. The most obvious is to stick with the old version of the software. After all, the old version is inferior in terms of value by only $5, and cheaper by $50. Because the "consumer surplus," the gap between value and price, is $45 greater for the old version, the old version is *economically superior* to the new. In a market in which all consumers are informed and rational, they will stick with the economically superior product rather than purchase an inferior new version.

One of the constraints software makers face is the durability of their own products. Generally, product durability is a constraining factor for firms with monopoly power. According to the famous "Coase conjecture," a monopolist who produces a highly durable product will be forced, in a sense, to charge the competitive price.[174] With a durable product, consumers have the option of waiting until the monopolist can sell only to low-valuing customers. Knowing that the monopolist would prefer to make those sales rather than forgo them, consumers will wait, forcing the monopolist to lower its price to the competitive level.[175]

The Salop and Romaine hypothetical is one in which the cost of waiting is not simply low; it is negative—consumers should find it highly beneficial to wait, given that the old version of the product is superior. At a minimum, if consumers are rational they will not rush to the store to purchase the new product unless the net benefits of switching to the new version are positive. The test here is not simply whether the new product is in some way more valuable than the old product standing alone. The gain from switching to the new version must exceed the sum of the price of the new version and the costs incurred in learning how to use it. This calculation must include the loss of benefits from investments previously made in mastering the old version.[176] Given the benefits of waiting (or credibly threatening to wait),

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[174] Ronald H. Coase, *Durability and Monopoly*, 1 J.L. & ECON. 143 (1972). *See also* Jeremy Bulow, *Durable-Goods Monopolists*, 90 J. POL. ECON. 314 (1982); John Shepard Wiley, Jr., Eric Rasmusen & J. Mark Ramseyer, *The Leasing Monopolist*, 37 UCLA L. REV. 693 (1990).

[175] *But see* John Shepard Wiley, Jr., Eric Rasmusen & J. Mark Ramseyer, *Naked Exclusion*, 81 AM. ECON. REV. 1137 (1991) (suggesting that under certain conditions it is possible for the leasing monopolist to charge supra-competitive prices).

[176] Of course, someone who is new to the product group will have less to gain from the prior version—having nothing to gain from prior investments in mastering it—and, thus, might find it advantageous to shift when someone earlier to the product group would not. Apart from the effect of network externalities, discussed below, this is not a significant fact. It should not affect the actions of other consumers. They still benefit from passing up the new product, waiting for a product that is higher in benefit or lower in price or both.

consumers will also demand that the new product's benefits exceed the gains they forgo by not waiting.

Another factor constraining false acquittals is competition from incumbent firms in the market. Beyond the immediate term, the decision modeled in the Salop and Romaine hypothetical will produce supply market changes that provide additional alternatives to consumers. The dominant firm's decision to charge a premium of $45 over the added consumer value of its new software is an open invitation for competing firms to offer consumers an economically superior product. Unless the dominant firm in their hypothetical is insulated from competition to a degree rarely seen in mature markets such as that for software, gouging its customers will erode its market over time.

The third factor constraining false acquittal costs is entry. Some commentary suggests that entry is difficult in the software industry, as firms must incur significant costs up-front in design, production, and marketing.[177] Large up-front investment often is described as constituting a "barrier to entry" into an industry.[178] Whether the need for such investment, however, in fact discourages entry depends on the magnitude of the up-front costs in relation to the potential gains from successful entry and on the availability of financing to support investment. With well-functioning capital markets, even risky ventures requiring up-front investment will be undertaken if the expected return is sufficient to justify it. That is true even if the venture is unlikely to turn a profit for some time, as is quite evident today with the explosion in new internet-based firms. It seems improbable that the software industry, built more around brainpower than around large factories and expensive physical components, would have difficulty attracting entrants when entry is economically justified.

If a dominant firm charges a large premium for a new product, as Salop and Romaine hypothesize, and if incumbent firms cannot provide suitable alternatives, there is ample room for consumers and potential entrants to make common cause. Consumers—or intermediaries who serve their interests, where consumers are too numerous and have individual interests in the product that are too small for individual bargaining their intermediaries—have incentives to provide guarantees to entrants who can

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[177] *See, e.g.*, Teague I. Donahey, *Terminal Railroad Revisited: Using the Essential Facilities Doctrine to Ensure Accessibility to Internet Software Standards*, 25 AIPLA Q. J. 277, 298 (1997) ("For example, to create from scratch a new browser-based operating system that could compete with Microsoft or Netscape, it would require unusual and significant technical expertise, as well as substantial time and money.")

[178] JOE S. BAIN, BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES 144-66 (1956); A. Michael Spence, *Entry, Capacity, Investment, and Oligopolistic Pricing*, 8 BELL J. ECON. 534, 542 (1977).

supply a superior product. A large firm, for example, may be able to distribute such large quantities of software internally that it could support an entrant who offers a product superior to that of the dominant firm.[179] Or a firm might produce a product to which the software is complementary, and thus have a special incentive to support development of a superior alternative.[180]

The Role of Network Externalities

Before finally rejecting the general intent standard promoted by Salop and Romaine, we should consider an argument pressed by proponents of using antitrust law to regularize competition in the software industry: that the costs of false acquittals are especially high where firms benefit from network effects (or externalities).[181] The argument relies on the proposition that in such settings consumers do not behave in quite the same way as they do in other settings, so that in the Salop and Romaine hypothetical, for instance, consumers may switch to the new version even though it is economically inferior.[182] If, because of network externalities, consumers are "locked in" to the dominant brand, false acquittal costs are likely to be relatively high and perhaps unconstrained by market pressures. If the network "lock-in" theory were valid, it obviously would tilt our analysis in favor of the general intent standard. However, we do not think the theory is valid.

Network externalities are, roughly, benefits consumers enjoy because the product is used widely. Take a software product that facilitates communication (or file sharing) between users. Because of the large base of customers, users know that they can communicate easily with other users of

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[179] Again, recall the example from *Barry Wright*, discussed *supra* note 139, in which the defendant incurred substantial expenses in supporting the plaintiff's entry into the market, solely for the purpose of creating an alternative source of supply.

[180] The large number of firms in the software industry and the constant emergence of new firms supports the view that economically justified entry—entry by firms that can produce software that performs competitively with incumbent software at cost competitive with the price charged by incumbent firms—is likely. *See, e.g.*, Price Waterhouse Coopers, 1999 Software Business Practices Survey, *available at* <http://pwcsoft.-com/pwcsoft/vcpract.htm>.

[181] On network effects and antitrust, *see, e.g.,* David S. Evans & Richard Schmalensee, *A Guide to the Antitrust Economics of Networks*, ANTITRUST, Spring 1996, at 36; Salop & Romaine, *supra* note 3; David A. Balto, *Networks and Exclusivity: Antitrust Analysis to Promote Network Competition*, 7 GEO. MASON L. REV. 523 (1999); Carl Shapiro, *Exclusivity in Network Industries*, 7 GEO. MASON L. REV. 673 (1999).

[182] For a rigorous exploration of the implications of this assumption, *see* Joseph Farrell & Michael Katz, *The Effects of Antitrust and Intellectual Property Law on Compatibility and Innovation*, 43 ANTITRUST BULL. 609 (1998).

the same software. If the value of such communication is high enough, the number of other users becomes a critical determinant in consumer choice. Thus, if each consumer thinks that most other consumers will switch to the new version in the Salop and Romaine hypothetical, they may all switch to the new version even though it is economically inferior to the old. Switching to the new version is rational in order to avoid network exclusion costs.

There are several empirical issues raised by this theory. Network effects do, of course, exist; they explain a great deal of the tendency of one technical standard to dominate in many technologies, including those critical to widespread use of computers.[183] But it is doubtful that they would cause rational consumers to choose economically inferior products—for example, to spend an additional $50 on a product that has a marginal value of only $5.[184] This wrinkle on the network effects argument lends weight to the concerns of the network effects theorists. However, on inspection it turns out to be the same as the basic network effects case. In a market without special impediments to dissemination of information (and no one has suggested that there is a problem getting information about the software market), newcomers will know that current users have no reason to switch to the new version of the software in question. If there are substantial network effects, the newcomers will demand to be provided the older version of the software. That is especially likely if there is a very large group of current users. If there are relatively few current users and many newcomers, the network effects could work in the other direction. But that would be a setting quite different from what Salop and Romaine postulate; it would be a setting in which the typical user found the new software economically advantageous, not dramatically disadvantageous. Even in this setting, the current users would not switch unless the benefits, include network effect benefits, dominate the costs. And, if the gap between network-independent

[183] *See* Evans & Schmalensee, *supra* note 181.

[184] Suppose we have two groups of consumers: current users and newcomers, and users of current software have a disincentive to switch not shared by consumers who are newcomers to the market. In this case, the newcomers might be inclined to purchase new software that has net costs to current users. That is, the product in the Salop-Romaine hypothetical might have a net economic cost to users of the current version of this software but a net economic benefit to newcomers. If that is so, current users must take account of the benefit they derive from being on the same system as the newcomers. This benefit could be enough to induce them to switch even if changing to the new software did not make economic sense apart from the expected actions of other consumers. This might be especially plausible in a case where current user demands are heavily affected by their expectations regarding the choices of newcomers.

value and price is so large as in the Salop and Romaine hypothetical, it is unlikely that consumers would either expect other consumers to flock to the new version or gain enough value to raise their own utility past the increased price.

The empirical evidence suggests that consumer decisions are not so strongly influenced by network effects. Leibowitz and Margolis have found that consumer software purchases can be explained largely by quality (as defined by the assessments of experts) rather than the herding behavior induced by network externalities.[185] They find that this result holds for a considerable array of software products.[186]

Perhaps, however, network effects dominate consumer purchase decisions in a segment of the software market. The *Microsoft* litigation might be characterized as involving the segment of that market—the platform segment—that is most sensitive to network effects. A software platform contains application program interfaces (APIs), which allow other software to use parts of the computer's operating system to access files or to utilize links to hardware such as printers. Applications software (like word processors, spreadsheets, and games) typically is written for a specific software platform. If network effects are much stronger for platform software, does this alter our conclusion that the market will restrain the costs of false acquittals? In other words, if the Salop and Romaine hypothetical expressly addressed Microsoft's operating system, would market forces then be beside the point? We doubt it.

Even in the presence of strong network effects, market forces should continue to constrain the costs of erroneous acquittals under Section 2. After all, the consumer loyalty caused by network effects is, by hypothesis, due to a rational belief on the part of consumers that present dominance implies future dominance. The network "lock-in" theory does not require consumers to be irrational or uninformed as to the quality of the products on the market; and if they were irrational or uninformed then network effects would have only marginal relevance to the problem. If consumers are informed, then an incentive always remains for them to switch to a superior product whenever they can avoid network exclusion costs.

And there are many ways to avoid network exclusion costs. For example, in the case of large employer, much of the communication relevant for an employee's work may take place inside of the firm. In this case, if the network exclusion costs are negligible, the firm should choose the superior

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[185] *See* STAN J. LIEBOWITZ & STEPHEN MARGOLIS, WINNERS AND LOSERS AND MICROSOFT: COMPETITION AND ANTITRUST IN HIGH TECHNOLOGY (San Francisco: Independent Inst. 1999).

[186] In addition to Web-browsing software, Liebowitz and Margolis examine competition in word-processing, spreadsheet programs, personal finance software, desktop publishing software, and online services. *Id.* at 163-229.

software product, or stick with the old version.[187] Alternatively, in many industries, virtually all of the interchange relevant for work takes place among the firms in the industry, or a subset of these firms. Consider, for example, law professors. Almost all of the collaboration to which network effects are relevant involves other law professors, or other lawyers. Law professors or lawyers ought to be able at low cost to communicate with one another about the quality of products relevant to their profession, including the benefits of continuing to use an older version instead of a newer, but economically inferior, version of software. Indeed, trade journals routinely contain reviews of and advice about software relevant to lawyers' work.[188] The journals review specialty software (for tasks such as litigation management) and general interest software (word-processing, spreadsheet, and similar software), and they also inform readers about new versions of platform software, reviewing various changes in operating systems.[189] Communication about software, including platform software, can provide excellent signals about the likely decisions of other professionals, and such signaling can make the probability of globally irrational group decisions—decisions driven by fear of the costs of network exclusion—arbitrarily small.

B. Microsoft, Reasonable Conduct, and Error Constraints

To this point we have suggested that the operating system software market is no different from many other markets, in the sense that the threat of entry, competition from rivals, and strategic actions of consumers all constrain the power of dominant firms to exercise monopoly power. The network effects phenomenon introduces a feature that arguably requires a more careful examination of error costs in the *Microsoft* case. Kenneth J. Arrow's affidavit (on behalf of the Antitrust Division) in an earlier iteration of the *Microsoft* litigation provides an excellent starting point for an analysis of error costs:

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[187] In any choice of software, the firm will consider costs, such as retraining costs, that might be reduced by following along with other firms' software choices. Retraining costs often are underestimated by casual observers. *See, e.g.,* Ronald A. Cass, *Copyright, Licensing and the First Screen*, 5 MICH. J. TELECOM. & TECH. 35 (1999). In the short run, of course, there are no retraining costs involved in staying with the current software.

[188] *See, e.g.*, LAW OFFICE COMPUTING (magazine reviewing, among other things, software for lawyers, see Reviews section); LAW PRACTICE MANAGEMENT (Technology Update and Product Watch sections in every issue).

[189] *See, e.g.*, *DecisionQuest's CaseSoft Division Releases CaseMap 2.5*, 1 LAWYERS COMPETITIVE EDGE, August, 1999, at 14 (litigation management software); G. Burgess Allison, *World-Class Innovation and Century-Class Headaches*, 26 LAW PRACTICE MANAGEMENT Jan.- Feb. 2000, at 14, 18-19 (software platform).

> [T]he software market is peculiarly characterized by increasing returns to scale and therefore natural barriers to entry. Large-scale operation is low-cost operation and also conveys advantages to the buyer. Virtually all the costs of production are in the design of the software and therefore independent of the amount sold, so that marginal costs are virtually zero. There are also fixed costs in the need to risk large amounts of capital and the costs associated with developing a reputation as a quality supplier. Further, there are network externalities, in particular, the importance of an established product with a large installed base and the related advantage of a product that is compatible with complementary applications.
>
> Installed base generally refers to the number of active users of a particular software product. A software product with a large installed base has several advantages relative to a new entrant. Consumers know that such a product is likely to be supported by the vendor with upgrades and service. Users of a product with a large installed base are more likely to find that their products are compatible with other products. . . . The value of an operating system is in its capability to run application software. The larger the installed base of a particular operating system, the more likely it is that independent software vendors will write programs that run on that operating system, and, in this circular fashion, the more valuable the operating system will be to consumers. . . .
>
> It is correct that under strongly increasing returns, the tendency of the market is towards monopoly . . . and it is certainly possible that the monopolization is inefficient. But notice that most of the steps in the dynamic process leading to monopoly or imperfect competition are steps in which the growth of the monopoly arises by offering a cheaper or superior product. . . .
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> The amici curiae brief notes that, "once a market is 'tipped' in favor of a particular competitor, it would take truly massive forces to return the market to a state of equilibrium (i.e., competition)." There are two remarks to be made here. (1) Clearly, competition is not a state of equilibrium or at any rate of stable equilibrium, . . . (2) "Truly massive" forces are very likely to impose their own truly massive costs, which have to be weighed against the gain from competition, which, under increasing re turns, is sure to be inefficient, or from "tipping" the equilibrium in the right direction, which is usually unknowable . . . .
>
> This is not to deny that a firm with a large installed base or other realization of scale economies may sometimes be in a position to impose artificial barriers, and these should be regulated or prohibited, . . . But interfering with purely natural barriers to entry can be dangerous to the economy's welfare.[190]

As the Arrow declaration makes clear, the phenomenon of scale economies, or "increasing returns," is central to the *Microsoft* case. Professor Arrow suggests that it is important to distinguish the effects of artificial and natural barriers to entry in an increasing-returns industry. The

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[190] *See* Arrow declaration, available at <http://web.lawcrawler.com/microsoft/usdoj/-cases/>.

natural barriers in the operating system software market are the factors initially discussed by Arrow: up-front fixed costs and network externalities. Artificial barriers are alleged as the basis of the complaints against Microsoft: exclusionary contracts (contracts with computer makers and Internet service providers) and product tying (tying the internet browser to the operating system).

An additional problem, not discussed in Arrow's declaration, is the possibility that some artificial barriers may be socially desirable in an industry with increasing returns. Suppose, for example, A produces hairbrushes and combs, and there are scale economies in the joint production of both. Suppose B produces only combs. If A can fully exploit scale economies, it can offer a combined package of combs and brushes more cheaply than B or any other firm. In this setting, A might want to offer only the combination package, a move that commonly would be labeled as product tying, an artificial barrier. Here, that move may be socially desirable. Why? Tying increases the likelihood that A will be able to exploit economies of joint production. Some consumers might buy combs and brushes together even though they would have preferred (ceteris paribus) to purchase only one or the other, leading to a decrease in consumer welfare that must be offset against the gain that follows from A's full exploitation of the economies of joint production.[191] Of course, if B or some other firm can offer combs at a price consumers find attractive (enough below the combined price for A's combs and brushes to be worth forgoing the tied purchase), then A will sell fewer combs and will not fully exploit the benefits of joint production.

Let us reconsider our error cost analysis in this context. To this point we have argued that the general intent plus reasonable conduct test is inferior to the specific intent test because the costs of false convictions are likely to be relatively high and unconstrained under the general intent/reasonable conduct test. Does the presence of increasing returns, or natural barriers to entry, require us to alter this conclusion?

Consider, first, the costs of false acquittals. One should note immediately that the definition of a false acquittal is more complicated now. One could argue that a false acquittal occurs whenever a defendant that has employed artificial entry barriers escapes punishment. This standard, however, would be inappropriate from the vantage of social welfare, because it encompasses the case in which the artificial barriers have a negligible impact (probably

[191] On the use of tying to capture scale economies, see John L. Peterman, *The* International Salt *Case*, 22 J. LAW & ECON. 351 (1979) (suggesting that International Salt's policy of tying salt to Lixators was efficient in the sense that it allowed the firm to reduce expenses of distributing salt, through gaining scale economies in distribution). *But see* Robin Cooper Feldman, *Defensive Leveraging in Antitrust*, 87 GEO. L.J. 2079 (1999).

less than any cost of policing it). Suppose, for example, that both artificial and natural barriers are present, but the difficulties experienced by rivals are entirely attributable to the natural barriers. In this case, the defendant would not be found liable under a properly-functioning reasonable conduct standard, because the critical requirement of *causation* is lacking. A verdict for defendant in these circumstances should not be deemed a false acquittal. Under a proper definition of the reasonable conduct standard, a false acquittal occurs only when the defendant has erected artificial barriers that substantially diminish market competition.

There is another serious difficulty in applying a reasonable conduct standard in the increasing-returns environment. As we noted earlier, some degree of artificial entry protection may be socially desirable when the dominant firm is attempting to ensure full exploitation of scale economies in production and marketing. In the software market, recall, there are scale economies in production and network externalities (a form of scale economies) in consumption and in complementary product markets (applications software). The dominant firm may be the only actor in this market whose gain from exploiting scale economies is sufficiently large to make it worthwhile to invest the sums necessary to achieve such economies.

Under a proper reasonable conduct standard, the dominant firm would not be found liable when the artificial barriers had no significant impact on market competition, or when the artificial barriers were socially desirable in light of the gains from exploiting scale economies. A proper standard would force us to confront the question: how much is too much? In other words, given that the reasonable conduct standard should make allowance for the presence of some artificial barriers to entry, in the increasing-returns context, when has the dominant firm gone *too far* in creating artificial barriers? Obviously, this question is hard to answer. That task is at least as difficult as determining whether, under Hand's *Alcoa* standard, a dominant firm has expanded its capacity in a *preemptive* or in a *reasonable* fashion.

It should be clear from this discussion that, because of the difficulty in distinguishing the effects of artificial and natural barriers in the increasing-returns setting, the likelihood of judicial error is substantial under a reasonable conduct test. Like the question of reasonable conduct in the medical malpractice setting, or the issue of capacity expansion in *Alcoa*, the reasonableness determination in a setting of increasing returns is very likely to be beyond the competence of a court.

We can, however, more readily answer other questions. Setting aside whether a false acquittal has occurred, can we tell whether the cost of a false acquittal is likely to be constrained by market pressures in the increasing returns setting? We can. Although the threat of entry is weakened in this setting, it remains a constraining force—it still helps put an outer limit on

the costs of a false acquittal. Suppose artificial barriers (such as tying) are present and the natural barriers to entry are trivial (that is, the artificial barriers have bite). This would be the case where, say, the aspiring entrant can produce at a lower cost than the dominant incumbent but the cost of entry is high because of an artificial barrier erected by the incumbent firm. The threat of entry remains a constraining force in this setting because the aspiring entrant will incur the additional entry costs—will climb the artificial barrier—if the anticipated gains from superior efficiency would permit it to recoup the costs of entry. The degree of constraint, of course, depends on the size of the barrier, but if the potential entrant cannot offer a significant efficiency advantage, there is no evident welfare gain from entry or welfare loss from exclusion.[192]

Now let us turn to the costs of false convictions. The relevant question is whether these costs are unusually high in the increasing returns setting. We have identified the general types of false conviction costs as follows: primary overdeterrence costs, secondary rent-seeking costs, and tertiary litigation costs. Primary overdeterrence costs consist generally of production efficiency costs, price efficiency costs, and cartelization costs. Without launching into a detailed accounting effort, it should be clear that these costs are larger in the increasing-returns setting than in cases of decreasing returns or constant returns. In the increasing-returns setting, any given price increase implies a loss in production efficiency and a further price efficiency loss since the cost of producing each additional unit rises. Cartelization costs are also apt to be larger. This follows from the tendency toward monopoly noted in the Arrow declaration, which suggests that the number of firms in the industry will be smaller and the prospects for formal or informal cartel arrangements greater.[193] In the operating system software market, these costs are present along with the efficiency costs associated with reducing network effects. Output restraints and price increases in this special case reduce the network benefits to users and to application makers.

Yet another reason for concern over false convictions is that rent-seeking costs are likely to be quite high in the increasing-returns setting. The reason is simple: every firm wants to be the winner. Every firm, and every

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[192] This argument puts to one side the prospect of increased "x-inefficiency costs" to non-entry. X-inefficiency refers to the theory that when competition is weak, firms will tend to tolerate a greater degree of incompetence and dilatory behavior from their workers. On the theory, see F. M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 667-672 (Boston: Houghton Mifflin Co., 3d ed. 1990).

[193] As George Stigler noted, the relation of number of firms in an industry to degree of competition in the industry is unproven, but a smaller number of firms reduces the costs of cartelization (even if it does not reduce—and may even increase—the benefits of competition). *See* Stigler, *supra* note 133.

consumer, gains ex ante from a regime that encourages full exploitation of scale economies. However, ex post, after the winner has emerged, every loser prefers a regime in which he is the winner or in which the market is shared in an oligopolistic structure. This is true irrespective of the identities of the losers and the winners. The behavior of Microsoft's main competitors in the market for potential software platforms does not reveal any essential quality that distinguishes the officers of those firms from the officers of Microsoft. Rather, their behavior is the predictable response of firms that have (at least temporarily) lost the race for dominance in a market with increasing returns and network effects. For such firms, there is a nearly irresistible incentive to contest the ultimate outcome.

The existence of natural barriers explains a large part—if not all— of the incentive for unsuccessful or non-dominant firms to seek a regime in which the market is more evenly shared. Although there is a tendency toward monopoly under increasing returns, we often see oligopolistic markets. For example, although railroads have high fixed costs relative to most industries, railroads typically have an oligopolistic structure rather than a single dominant firm. A sufficient explanation is that natural capacity constraints make it difficult for one firm to displace all of its competitors. The existence of very high fixed and low marginal costs, however, make vigorous price competition quite perilous for the financial health of the firms.[194] There is, hence, a strong incentive to arrive at an arrangement that will secure for each of the firms a stable existence, relatively sheltered from fierce competition.[195] These arrangements can last a long time, but they are unstable in the face of impediments to verifiable information on competitive conduct. For that reason, the efforts to maintain railroad cartels were no more a feature of the industry than the collapse of the cartel arrangements.[196]

Much as it might explain about the structure of a particular increasing-returns industry, the existence of natural barriers will not be the first explanation offered by less successful competitors for their performance. Given the difficulty of distinguishing the effects of natural and artificial barriers, and the desire to gain a market advantage, each non-dominant firm has an incentive to attribute the effects of natural barriers to the existence of

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[194] GABRIEL KOLKO, RAILROADS AND REGULATION 1877-1916, at 8 (Princeton: Princeton Univ. Press, 1965).

[195] This is at least part of the story behind regulation of railroads. *See* KOLKO, *supra* note 194; Robert M. Spann & Edward W. Erickson, *The Economics of Railroading: The Beginning of Cartelization and Regulation*, 1 BELL J. ECON. & MGT. SCI. 227 (1970).

[196] Elizabeth Granitz & Benjamin Klein, *Monopolization by "Raising Rivals' Costs": The Standard Oil Case*, 39 J. L & ECON. 1 (1996). *See also* PAUL W. MACAVOY, THE ECONOMIC STRUCTURE OF REGULATION: THE TRUNK-LINE RAILROAD CARTELS AND THE INTERSTATE COMMERCE COMMISSION BEFORE 1900 (1965).

artificial barriers. Indeed, as in the tax-cheating and bribery examples mentioned earlier,[197] competition should induce every non-dominant firm to mount such a challenge so long as the test applied has a substantial probability of erroneous application – as is the case with the general intent/reasonable conduct test in this context.

Finally, it should be clear that the administrative and litigation costs associated with false convictions are likely to be unusually high in the increasing returns setting. The reasons follow from the foregoing arguments. The difficulty of distinguishing the effects of artificial and natural barriers generates uncertainty, and uncertainty generates litigation.[198] In addition to uncertainty, high stakes increase the prospect for litigation.[199] High stakes are a standard feature of competition in increasing returns settings.

Far from seeing increasing returns as a reason for altering the specific intent requirement, we conclude that the case for such a change is especially weak in the context of increasing returns. As in the general case, the costs of false acquittals continue to be restrained by competitive forces, but the costs associated with false convictions are likely to be especially high in the increasing returns setting. Contrary to the suggestions of scholars such as Salop and Romaine, the existence of increasing returns and network externalities in the operating system software market do not suggest that a reasonable conduct-plus-general intent standard would be preferable in *Microsoft* and similar high-technology antitrust cases. To the contrary, they suggest that the specific intent test is strongly preferable.

C. Specific Intent, Subjectively Assessed

At this point, we can quickly dispose of the alternative standard recently urged by Frank Fisher that would determine liability on the basis of subjective intent evidence. The subjective intent test divides the market between firms that are legally sophisticated (or especially focused on litigation rather than market competition) and unsophisticated firms (or firms preoccupied with market competition and largely oblivious to the importance of litigation as a strategic tool). Legally sophisticated firms know how to avoid leaving substantial amounts of discoverable evidence of

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[197] *See* discussion *supra* text at notes 147-148.

[198] *See, e.g.*, RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 588-590 (5th ed. 1998).

[199] If the stakes are high, then the plaintiff's expected recovery is more likely to exceed his litigation expenses, so he is more likely to sue. Moreover, if plaintiff and defendant disagree about the likely outcome of a trial, the likelihood of settlement declines as the stakes increase. These points are clear implications of the settlement model elaborated in Shavell, *supra* note 105.

subjective intent. Unsophisticated firms are not aware of the importance of watching their words. The subjective intent test, thus, introduces a large payoff for legal sophistication, or more generally, strategic sophistication in a litigious environment.

The ultimate effect of the subjective intent test on plaintiff's and defendants' success rates is not readily estimated. Potential plaintiffs might be worse off under the subjective intent test, since firms eventually would gain the sophistication to avoid liability. Of course, it is unlikely that *every* firm would gain such a level of sophistication. At the same time, subjective intent to harm competition would be apt in many instances to be predicated on internal documents that (as explained earlier) are far from compelling. This, however, is likely to be the direct evidence of subjective intent that is available.[200] As firms grew more sophisticated, plaintiffs would respond accordingly, arguing for a finding of specific intent at the first whiff, or slightest suggestion, of bad intent. The game, in other words, is unpredictable, and the expected strategic responses are most likely to push toward reliance on increasingly ambiguous evidence.

Although we cannot confidently predict the equilibrium of this game, our first intuition is that the subjective intent test increases the risk of liability to firms operating under it. Under this assumption, the social costs associated with the subjective intent standard are likely to be equivalent to and perhaps larger than those associated with a general intent test. The reason is that the subjective intent test would operate effectively as a strict liability standard, since every act that could be deemed anticompetitive, whether or not it would be deemed so under a reasonable conduct standard, could lead to a finding of liability under the Sherman Act.

The precise manner in which the social costs of a subjective intent test are realized might depend on the type of defendant. Among legally unsophisticated potential defendants, false convictions probably would happen more frequently under the subjective intent test than under the general intent test.[201] For legally sophisticated defendants, false convictions

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[200] Recognizing the importance of business records, Judge Frank Easterbrook criticized the subjective intent approach for its meager contribution to judicial accuracy and its large impact on litigation expenses, A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc. 881 F.2d 1396, 1402 (7th Cir. 1989) ("Intent does not help to separate competition from attempted monopolization and invites juries to penalize hard competition. It also complicates litigation. Lawyers rummage through business records seeking to discover tidbits that will sound impressive (or aggressive) when read to a jury. Traipsing through the warehouses of business in search of misleading evidence both increases the cost of litigation and reduces the accuracy of decisions.")

[201] And would false acquittals happen more frequently? Probably not. The subjective intent test would most likely take the form of an "add on", leading to liability in those cases where

might happen less frequently, but only because they had consulted their lawyers before taking any action potentially harmful to competitors. Both types of equilibrium imply large social costs. In the former, involving the unsophisticated firms, the costs of false convictions would be large. In the latter, involving sophisticated firms, the overdeterrence costs would be unusually large, in addition to the sheer administrative burden of having lawyers involved in the formulation and negotiation of every competitive action. The two outcomes differ largely in the sense that the rent-seeking and litigation costs are likely to be smaller in the equilibrium among sophisticated firms. But the savings in these costs would probably be more than offset by greater overdeterrence costs.

Whether realized in the form of primary (overdeterrence), secondary (rent-seeking), or tertiary (litigation) costs, we see no reason a priori to believe that the social costs created by the subjective intent test are less than those of the general intent test. We have argued already that these components of social cost are amplified in the increasing returns setting characteristic of network markets. The presence of network externalities tilts the case against rather than in favor of the subjective intent test.

V. Extensions

The same sorts of judgments about error costs we observe in antitrust can explain the shape of many legal rules. In this section, we provide a few illustrations. These are not developed in great detail, but they indicate the manner in which error cost analysis can illuminate the choices made in framing legal rules.

A. Business Judgment Rule of Corporate Law

Error cost analysis provides a theory of the business judgment rule in corporate law. Under the business judgment rule, courts defer to the judgment of the corporate officers when shareholders or creditors sue them on the theory that they were negligent in managing the firm. In order to hold officers liable for negligence under the rule, plaintiffs typically have to prove that the officer's harm to the corporation was grossly negligent or intentional. The business judgment rule is operationally quite similar to the Section 2 legal standard in the sense that it can be read as a reasonable conduct rule requiring evidence of specific intent.

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the conduct was ambiguous but the subjective bad intent present. In a case where the defendant's conduct is unambiguously unreasonable, the court is unlikely to allow the defendant to escape liability merely because his intent was benign.

Since courts have no particular advantage in reviewing the business decisions of corporate officers, one should assume that a reasonable conduct rule with a general intent test would result in frequent errors, in favor of plaintiffs and of defendants. The likely result of these errors is overdeterrence, since corporate officers would be reluctant to take actions that might be near the threshold of reasonable conduct.

False acquittals occur when the corporate officer is found non-negligent even though the expected harms to the corporation exceeded the expected benefits of his conduct. However, the costs of false acquittals for negligent management will be constrained by market forces. Managers who in good faith frequently take actions that harm their corporations are likely to be punished in several ways. They will lose their jobs, their reputations will suffer, the corporations they manage will fail. In a competitive market for corporate control, bad managers will be forced to exit, or to consistently receive a return on their human capital investments well below what they could receive in an alternative calling.

False conviction costs for negligent management obviously create excessive deterrence against risk-taking by managers. More important, false convictions generate a form of rent seeking behavior as well. The parties who own the assets of a corporation can be divided into fixed claimants and residual claimants; the former composed of fixed-salary employees and creditors, and the latter composed of primarily of shareholders. Often these two classes of owner have opposing views on the appropriateness of risk taking. Fixed claimants usually prefer the firm to follow conservative policies, while shareholders are willing to see the firm take risky decisions. A false convictions regime could generate a rent-dissipating struggle between these classes of owner to gain control of corporate officers. Since corporate officers already owe their primary duty to the shareholders, the fixed-claimants would have the clearest incentive to use the courts in order to gain control over corporate decisions.

B. Specific Intent and Duty in Tort Law

While antitrust rules and corporate law rules affect rents over which parties compete to gain control, there are many instances of rules that can be explained by an error-cost analysis, that do not control the distribution of rents. Tort law contains many such rules, almost all of which come in the form of modifications of the reasonable conduct standard.

As we have suggested earlier, specific intent requirements in the rules for assault and defamation can be analyzed from an error-cost perspective. In both cases, error-free courts could, in theory, apply a reasonable conduct standard in a manner that penalizes all socially undesirable conduct.

However, the difficulty arises in these cases of determining the reasonable conduct threshold.

One reason for the difficulty is reluctance to restrict socially beneficial activity. Expression, which is directly at issue in defamation and can be implicated in assault cases as well, has long been understood to have aspects of a public good.[202] So, too, elements of assault are not readily disentangled from socially beneficial interpersonal relations (including, at times, an element of expressive activity).[203]

Given the difficulty of determining the reasonable conduct threshold for assault and defamation, the specific intent test serves the function of providing an alternative standard that provides the right incentives for courts. Courts are required under these standards to penalize conduct that may be largely expressive only when the evidence indicates that the actor intended to harm someone. Cases of mixed motives, determined under an objective test, are inappropriate for penalization under the rules in these areas. This approach minimizes the presumably large costs associated with false convictions for expression.

An error-cost perspective also suggests a positive theory of the famous and often-criticized "no-duty" rules in tort law, such as the rule governing rescue and that governing the duties of a landowner to a trespasser. Under the rescue rule, an individual is generally immune from tort liability for simply failing to rescue someone, even though the burden of rescue is minimal. However, a defendant may be held liable if he intentionally harms the victim or acts with reckless disregard for the victim's safety. The same rule applies as between a landowner and trespasser. Both rules effectively substitute a specific intent rule for the negligence test.

Many scholars have noted that a duty to rescue would create serious line-drawing problems for courts because it would often be difficult to determine which of several parties should be held responsible for failing to rescue.[204] Tort law generally assigns duties of care for activities that create

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[202] *See, e.g.,* JOHN STUART MILL, ON LIBERTY (Boston: Ticknor & Fields 1863; orig. pub. London 1859); FREDERICK SCHAUER, FREE SPEECH: A PHILOSOPHICAL ENQUIRY (Cambridge: Cambridge Univ. Press 1982); Aaron Director, *The Parity of the Economic Marketplace*, 7 J.L. & ECON. 1, 3-10 (1964); Richard A. Posner, *Free Speech in an Economic Perspective,* 20 SUFFOLK L. REV. 1, 41-43 (1986).

[203] Return to the example of *Tuberville v. Savage*, discussed supra note . Or consider the more extreme example of a feigned assassination attempt. *See, e.g.*, Cass Sunstein, *Words, Conduct, Caste*, 60 U. CHIC. L. REV. 795, 836 (1993) (observing that "an attempted assassination of the President may well qualify as speech," while also noting that "it does not raise anything like a free speech question . . . because government can invoke strong content-neutral reasons for protecting the President's life.").

[204] James A Henderson, Jr., *Process Constraints in Tort*, 67 CORNELL L. REV. 901, 928-43 (1987); PROSSER & KEETON, *supra* note 21, § 56 at 373-385.

foreseeable harm.[205] A general duty to rescue, on the other hand, could not be appended to a specific activity or a specific decision. The range of potential defendants and the difficulties of assessing the value of the targeted (non-rescuing) action as compared to its risk of harm pose enormous problems for structuring a rule with low error costs. Those who are not rescued (or their survivors) are unlikely to have information about most of the potential rescuers, and courts are unlikely to be able to secure enough of the private information about the activities of non-rescuers to assess correctly the reasonableness of the non-rescue decision. The rule, thus, would be almost certain to be enforced selectively and with a considerable degree of error. Moreover, the rule is apt to generate considerable administrative costs unless it is structured to minimize the prospect that false convictions would advantage risk-taking activities by potential plaintiffs.[206]

C. Intent in Constitutional Law

Constitutional law presents issues of intent analysis in several areas. Consider the construction of the bill of attainder clause,[207] the free speech clause of the first amendment,[208] and the equal protection clause of the fourteenth amendment.[209] These provisions, respectively, prohibit government actions that singles specific individuals out for punishment, that discriminates against suspect classes, or that discriminates unreasonably against disfavored speech.[210] In each case, the constitutional

[205] For the best known presentation of this view, see Cardozo's opinion in Palsgraf v. Long Island R.R., 162 N.E. 99 (N.Y. 1928).

[206] And if the rule advantages risk-taking by potential plaintiffs, it will generate incentives among those plaintiffs to litigate in order to maintain the advantage. Thus, a duty-to-rescue could generate the same rent-seeking incentives as a nuisance rule protecting landowners from aesthetic disturbances, *see* text accompanying notes 106-108.

[207] *See, e.g.*, Nixon v. Administrator of General Services, 433 U.S. 425, 473, 475-476, 478 (1977).

[208] *See, e.g.*, Minneapolis Star & Tribune Co. v. Minnesota Comm'r of Revenue, 460 U.S. 575, 592 (1983).

[209] See, e.g., Personnel Administrator of Massachusetts v. Feeney, 442 US. 256, 279 (1979).

[210] As we explain below, the "reasonableness" determination in first amendment law is not a simple, undifferentiated assessment of reasonableness. Rather, the courts have created per se rules (usually with exceptions) for some types of speech-regulative activity and have utilized a modified reasonableness standard for other types (with burdens on the government in some cases to justify the reasonableness of its actions and burdens on plaintiffs in other cases to establish the unreasonableness of speech regulations). *See, e.g.,* Ronald A. Cass, *The Perils of Positive Thinking: Constitutional Interpretation and Negative First Amendment Theory,* 34 UCLA L. REV. 1405 (1987); John Hart Ely, *Flag Desecration: A Case Study in the Roles of Categorization and Balancing in First Amendment Analysis,* 88 HARV. L. REV. 1482

concern is not readily addressed by looking only at the express language of a statute or at its effects. And in each case, the courts have fashioned specific intent tests to effectuate the constitutional interest.

The starting point in each provision is the instinct that government officers cannot be trusted to serve public interests in certain settings where their personal interests are engaged directly or where animus from a politically-influential group distorts public action.[211] Of course, personal interest and group conflict are endemic to public governance.[212] Constitutional processes are designed to limit the degree to which these distortions from public interest place exceptional burdens on individuals.

The three provisions discussed here reflect intuitive concerns, probably shared the Constitution's framers, that particular actions would be unlikely to be policed effectively by ordinary political processes, would impose especially corrosive burdens on individuals, and could be addressed at tolerable cost by a focused prohibition.[213] These provisions are part of an overall design to align government actions with public interest. The shape given to these provisions through constitutional interpretation is sensitive to error cost concerns.

(1975); Daniel A. Farber & Philip Frickey, Practical Reason and the First Amendment, 34 UCLA L. REV. 1615 (1987); Frederick Schauer, *Categories and the First Amendment: A Play in Three Acts,* 34 VAND L. REV. 265 (1981); Geoffrey Stone, *Content Regulation and the First Amendment*, 25 WM. & MARY L. REV. 189 (1983). Similarly, equal protection analysis has fragmented into different tests for different contexts. *See, e.g.,* Massachusetts Board of Retirement v. Murgia, 427 U.S. 307, 312 (1976) (rationality test for non-suspect classifications); Palmore v. Sidoti, 466 U.S. 429, 432-33 (1983)(strict scrutiny standard of review for race-based classifications); Craig v. Boren, 429 U.S. 190, 197 (1976) (intermediate standard of review for gender-based classification).

[211] *See, e.g.,* Cummings v. Missouri, 71 U.S. (4 Wall.) 277 (1867); LEE BOLLINGER, THE TOLERANT SOCIETY: FREEDOM OF SPEECH AND EXTREMIST SPEECH IN AMERICA (New York: Oxford Univ. Press 1986); JOHN HART ELY, DEMOCRACY AND DISTRUST: A THEORY OF JUDICIAL REVIEW (Cambridge: Harvard Univ. Press 1980); Vincent Blasi, *The Checking Value in First Amendment Theory,* 1977 AM. B. FOUND. RES. J. 521; Ronald A. Cass, *Commercial Speech, Constitutionalism, Collective Choice*, 56 U. CIN. L. REV. 1317 (1988); Frederick Schauer, *The Role of the People in the First Amendment,* 74 CALIF. L. REV. 761 (1986).

[212] *See, e.g.,* ROBERT A. DAHL, A PREFACE TO DEMOCRATIC THEORY (Chicago: Univ. of Chicago Press 1959); THEODORE LOWI, THE END OF LIBERALISM: IDEOLOGY, POLICY, THE CRISIS OF PUBLIC AUTHORITY (New York: W.W. Norton & Co. 1969).

[213] *Cf.* DAVID F. EPSTEIN, THE POLITICAL THEORY OF THE FEDERALIST 44 (Chicago: Univ. of Chicago Press 1984) (discussing Federalist 78 and limitations on legislative power like bills of attainder, he states "Hamilton understands a limited Constitution to be one with 'certain specified exceptions to the legislative authority' rather than as one limited to a certain specified enumeration of the legislative authority."). The view expressed by Epstein is consistent with the notion that the three constitutional provisions discussed here make surgical strikes at legislative authority at points where it is especially likely to depart from general welfare interests.

More specifically, in each of the three cases considered below, courts have imposed a specific intent burden on plaintiffs who challenge facially-neutral statutes or regulations. In an ideal, error-free world, there would be no need to examine intent. Courts could apply a reasonableness test to individual conduct and to legislation as well. Under such a test, applied to legislation, judges would have a power quite similar to that claimed by Justice Chase in *Calder v. Bull*:[214] to invalidate legislation as inconsistent with "natural law."[215]

However, in the real world, such an amorphous test would create substantial costs. Assessing legislation on general reasonableness grounds is probably beyond the competence of most judges, who could not possibly find the time to understand all of the tradeoffs among interest groups necessary to produce a particular statute. Burdened parties, observing the cloud of uncertainty surrounding every legislative enactment, would have incentives to challenge every statute. In view of the likelihood of error and attendant costs, the constitutional doctrines considered below fall easily in line with the error cost framework.

Bills of Attainder

The general requirements of the Constitution are that punishment not be imposed retroactively,[216] that the grounds for punishment be clearly articulated,[217] that persons independent of the legislative and executive branches determine whether the grounds for punishment are established,[218] and that the manner in which punishment is determined comport with norms of due process (norms consonant with accurate decision-making).[219] All of these restrictions on criminal punishment are designed to increase the probability that punishment will serve public interests.

Direct imposition of punishment on individuals by the legislature—a bill of attainder[220]—is suspect as it is more likely to be subject to manipulation

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[214] 3 U.S. (3 Dall.) 386 (1798).

[215] Justice Chase argued that "natural law," in addition to the provisions of written constitutions, constrained the power of governments (state and federal). 3 U.S. (3 Dall.) At 386-88. A regime in which courts are free to invalidate legislation on the basis of natural law theories would not differ greatly, if at all, from one in which courts apply a reasonableness test to legislation.

[216] *See* U.S.CONST. art. I., § 9, cl.3.

[217] *See* U.S. CONST. amend. V; U.S. CONST. amend XIV, § 1.

[218] *See* U.S. CONST. art. I, § 9, cl. 3.

[219] *See* U.S. CONST. amend. V; U.S. CONST. amend XIV, § 1.

[220] Historically, a *bill of attainder* was the legislative direction of capital punishment for select individuals. Other legislative punishments directed at particular individuals were *bills*

in ways at odds with public interest, in no small measure because the certainty of the enforcement target dramatically increases the risk of opportunistic behavior.[221] This is true not only of the immediate term, but of the longer term as well. For instance, the narrow interest of a temporary legislative majority might be advanced by punishing political adversaries; and lodging such a power in the legislature could undermine processes that ordinarily would keep political power from becoming concentrated.

The seriousness of the concern, however, does not make it easy to determine when it is triggered. It is not enough that legislation has a pronounced effect on a particular group or even a particular individual. The narrowness of the class punished of itself does not demonstrate that the concerns behind the bill of attainder clause are engaged. Indeed, even legislation that singles an individual out—as happened with Richard Nixon in legislation assigning ownership rights of certain presidential papers—can be free from the sort of self-interest or group animus that threatens serious distortion of public processes.[222] At the same time, legislation that on its face names no specific person nonetheless may be tailored to impose a criminal punishment on particular individuals who are targeted because of past actions and have little opportunity to avoid its penalties.[223]

Absent a ready metric to ascertain the propriety of a given legislative burden, courts might want to determine whether the law is animated by licit or illicit considerations -- put another way, by a specific intent to harm.[224] This is, in fact, the approach used in assessing transgressions of the bill of attainder clause.[225] The alternative to an intent inquiry, a reasonableness test, could easily be beyond the competence of courts and would surely encourage challenges to every piece of legislation. Courts, however, do not inquire into legislators' *subjective* intent—that inquiry would depend on private information that is difficult to obtain in a reliable manner. Instead, the courts look at factors that would be congruent with illicit motive rather

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of pain and punishment. The constitutional provision, however, long has been interpreted to cover both sorts of punishment.

[221] This follows from and is the obverse of the intuition that individuals with limited knowledge of their particular attributes will arrive at more just rules for their own governance, see GEOFFREY BRENNAN & JAMES M. BUCHANAN, THE REASON OF RULES: CONSTITUTIONAL POLITICAL ECONOMY 28-29 (Cambridge: Cambridge Univ. Press, 1985).

[222] *See* Nixon v. Administrator of General Services, 433 U.S. 425 (1977).

[223] *See* United States v. Brown, 381 U.S. 437 (1965).

[224] Dean Paul Brest has proposed a more general focus on this issue to determine when unconstitutional discrimination has occurred. *See* Paul Brest, *Palmer v. Thompson: An Approach to the Problem of Unconstitutional Legislative Motive*, 1971 SUP. CT. REV. 95.

[225] *See* Nixon v. Administrator of General Services, 433 U.S. 425, 468-84 (1977); Board of Governors v. Agnew, 329 U.S. 441 (1947).

than seeking directly to identify legislators' intent from their own statements or from similar evidence that is highly manipulable.

The courts' construction of the bill of attainder clause, thus, appears consistent with the error cost analysis presented in this paper. The specific intent feature of the clause's construction helps reduce errors and uncertainty that would exist if courts had the discretion afforded by a reasonableness standard. And use of an objective test for specific intent avoids error costs (including administrative costs) connected to a subjective intent inquiry.

Equal Protection

Equal protection analysis has evolved in a similar direction, though with more controversy. The language of the equal protection clause of the fourteenth amendment is simple, but its instruction that no person be denied equal protection of the laws cannot be implemented without substantial analytical work. Perhaps the clause's lynchpin notion of "equality" is not completely empty, as Peter Westen has urged.[226] But Westen is plainly correct that the notion of equality becomes meaningful only after we specify what are relevant criteria for making distinctions, specification that requires a theoretical grounding in something other than the notion of likeness.

Rather than focusing on equality, the courts have followed a different route to interpreting the equal protection clause. First, they have identified characteristics that seem especially likely to be subjects of animus among government decision makers,[227] and that seem least likely to correlate with any legitimate basis for distinction among those benefitted or burdened by government actions. Race is the first characteristic on this list, but national origin, sex, and other characteristics also are viewed as suspect bases for distinguishing among citizens.[228] These distinctions are not indefensible in all cases, but they are sufficiently improbable, as serving public interest, to bear special burdens of justification.[229] Under strict scrutiny analysis, even

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[226] Peter Westen, *The Empty Idea of Equality*, 95 HARV. L. REV. 537 (1982); *see also* Kenneth W. Simons, *Equality as a Comparative Right*, 65 B.U.L. REV.387 (1985).

[227] Agric v. Moreno, 413 U.S. 528, 534-35 (1973) ("[I]f the constitutional conception of 'equal protection of the laws' means anything, it must at the very least mean that a bare congressional desire to harm a politically unpopular group cannot constitute a legitimate governmental interest.").

[228] RONALD D. ROTUNDA & JOHN E. NOWAK, TREATISE ON CONSTITUTIONAL LAW § 18.3 216-221 (1999).

[229] As a formal matter, the equal protection clause provides merely for a greater or a lesser degree of scrutiny of government's justification for a discrimination built into the law. The higher level of scrutiny is triggered by a "suspect classification" or by a government action

discriminations that can be defended as serving legitimate public purposes generally will be found wanting.[230]

Second, the courts have imposed a specific intent requirement in cases in which facially neutral acts are asserted to discriminate among certain groups and for discriminations along quasi-suspect lines (such as residency).[231] Commentators have suggested various tests for judging the consistency of facially neutral legislation with equal protection. Some have urged analysis only of the effects of legislation, with "disparate impact" on classes divided along suspect lines sufficient to invalidate a law.[232] This is equivalent to applying a general intent test. Some commentators have argued that the court should strike down legislation if it determines that the legislation was in fact motivated by animus along suspect lines, applying a subjective intent test.[233] Some commentators have urged courts to ignore the purpose behind legislation, upholding any legislation that has a plausible, neutral justification for the law, applying a *weak* specific intent test.[234]

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that burdens a "fundamental right." United States v. Caroline Products Co., 304 U.S. 144, 152 n.4 (1938).] In practice, however, the Court seems to use more stringent tests for race than for national origin, for national origin than for sex, and so on. RONALD D. ROTUNDA & JOHN E. NOWAK, *supra* note 206 at §18.3 222-226; John Marquez Lundin, *Making Equal Protection Analysis Make Sense*, 49 SYRACUSE L. REV. 1191, 1193 ("while laws based on alienage are ostensibly subject to strict scrutiny just like race-based action, in practice, the Court routinely upholds immigration laws that make a mockery of the Due Process Clause.").

[230] *See, e.g.,* Adarand Constructors, Inc. v. Pena, 515 U.S. 200 (1995); City of Richmond v. J.A. Croson Co., 488 U.S. 469 (1989).

[231] Residency requirements assertedly burden a right to interstate travel. Although that right does not appear in the Constitution and has not been found to be among the fundamental rights burdens on which require strict scrutiny, the courts have been unwilling to give residency requirements highly deferential review. *See, e.g.,* Hooper v. Bernadillo County Assessor, 472 U.S. 612, 623 (1985); Zobel v. Williams, 457 U.S. 55, 62-3 (1982).

[232] *E.g.*, Gayle Binion, *"Intent" and Equal Protection: a Reconsideration*, 1983 SUP. CT. REV. 397; Charles R. Lawrence III, *The Id, the Ego, and Equal Protection: Reckoning with Unconscious Racism*, 39 STAN. L. REV. 317 (1987); Theodore Eisenberg, *Disproportionate Impact and Illicit Motive: Theories of Constitutional Adjudication*, 52 N.Y.U. L. REV. 36 (1977).

[233] *See, e.g.,* Brest, *supra* note 224, at 95 (courts should determine whether "illicit motive played a significant role in the decision-making process, and if so, to construe the law in terms of the classifications established by impact."). Thus, if racial animus explained a law, the law would be judged as a discrimination along racial lines that *could* be upheld if it was essential to serve a compelling state interest (a virtual impossibility if motivated by animus). *See also* Ashutosh Bhagwat, *Purpose Scrutiny in Constitutional Analysis,* 85 CALIF. L. REV. 297 (1997) (urging both a more vigorous purpose review in many instances and a more deferential review in other cases).

[234] *See, e.g.,* ELY, *supra* note 211, at 136-45 (1980); Robert W. Bennett, *"Mere" Rationality in Constitutional Law: Judicial Review and Democratic Theory*, 67 CAL. L. REV. 1049 (1979).

The courts have not followed any of these paths, instead applying a *strong* or *credible objective* specific intent standard. Courts, thus, will strike down laws that even though supported by a rational connection to a legitimate government purpose seem too weakly connected to that purpose and too closely connected to the sort of animus that prompts equal protection concerns.[235] But they will uphold against equal protection challenge laws that pass modest rational basis review in the absence of a showing that illicit animus is the law's likely motivation.[236]

Although criticized from many different directions, this approach is entirely consistent with the error cost framework developed here. The general intent approach would be widely over-inclusive, generating many false convictions, occasionally under-inclusive, and impose enormous costs associated with uncertainty and with administrative costs. If *any* benefit or burden along suspect lines suffices to invalidate legislation, virtually all actions are open to challenge, with a large attendant cost from strategic litigation.

The subjective intent approach also is inconsistent with the error cost framework. Because of the difficulty of determining subjective intent, uncertainty surrounding the validity of legislation would be at least as great under the subjective intent test as under the general intent test. The social costs associated with a subjective intent test should be of the same magnitude as those associated with the general intent test. Recognizing the uncertainty problem, the Supreme Court flatly rejected the subjective intent test in *Palmer v. Thompson*,[237] on the grounds that

> it is extremely difficult for a court to ascertain the motivation, or collection of different motivations, that lie behind a legislative enactment. . . . [T]here is an element of futility in a judicial attempt to invalidate a law because of the bad motives of its supporters. If the law is struck down for this reason, rather than because of its facial content or effect, it would presumably be valid as soon as the legislature or relevant governing body repassed it for different reasons.[238]

The weak specific intent approach is more consistent with the error cost framework and with the law, but it contains too high a risk of false negatives. Discriminatory actions motivated by racial animus or other illegitimate purpose often can be camouflaged by somewhat plausible justifications. If courts were to demand nothing more than a reasonable

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[235] *See, e.g.,* Romer v. Evans, 517 U.S. 620 (1996); Zobel v. Williams, 457 U.S. 55 (1982); Department of Agriculture v. Moreno, 413 U.S. 528 (1973).

[236] *See, e.g.,* Washington v. Davis, 426 U.S. 229, 246 (1976).

[237] 403 U.S. 217 (1971).

[238] 403 U.S. at 224-5.

justification for government actions, virtually no action would be found to violate the equal protection guarantee, no matter how malevolent in purpose and effect.

By adopting a *strong specific intent* test that seeks to establish an inference of specific intent based on evidence, not on the ex-post rationalizations of litigants, courts have marked out the path that is most consistent with the error cost model of this paper. The courts have not gotten bogged down in analysis of legislative effects, even where there is no realistic claim that legislation was the product of animus, nor have they gotten bogged down in analysis of specific individual government actors' motivations. And they have not allowed a specious explanation to exculpate when government actions are more likely to be understood as products of illicit animus than of other purposes.

First Amendment Speech Protection

Another field of constitutional law in which the courts have applied a specific intent requirement is first amendment protection of speech rights. The first amendment's free speech guarantee is one of the Constitution's most opaque provisions. History suggests that it had an extremely limited focus, though we are well beyond that.[239] Certainly, we are well beyond the text. The commitment that "Congress shall make no law . . . abridging the freedom of speech" does not apply merely to Congress, nor to law-making, nor even to activity that most citizens would describe as speech.[240]

What has emerged from judicial construction of the freedom of speech clause over the past century is a focus on special sources of distrust.[241] The courts have been wary of government speech regulation that is especially apt to be the product of self-interest—as where the speech is directly critical of the speech-regulating official or of a superior officer—or that is especially apt to be the product of animus.[242] The more tolerant treatment of

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[239] Steven J. Heyman, *Righting the Balance: An Inquiry into the Foundations and Limits of Freedom of Expression*, 78 B.U. L. REV. 1275, 1291 (1998).

[240] *See, e.g.,* Frederick Schauer, *Categories and the First Amendment: A Play in Three Acts*, 34 VAND. L. REV. 265, 267-82 (1997).

[241] *See* Blasi, *supra* note 189; Daniel A. Farber, *Free Speech Without Romance: Public Choice and the First Amendment*, 105 HARV. L. REV 554 (1991); Frederick Schauer, *The Second-Best First Amendment,* 31 WM. & MARY L. REV. 1 (1989).

[242] Blasi, *supra* note 189, at 567-9; Ronald A. Cass, *Perils of Positive Thinking: Constitutional Interpretation and Negative First Amendment Theory*, 34 UCLA L. REV. 1405, 1454 - 6 (1987).

commercial speech[243] and of "time, place, and manner" regulation[244] along with the more stringent requirements for message-specific speech restraints[245] reflect this approach.[246]

These divisions are sensitive to the likely error costs of judicial policing of speech regulation, which necessarily includes attention to the error costs attending regulation itself.[247] The courts have not assessed the reasonableness of regulation standing alone, an approach that would generate high error and administrative costs. The approach they have followed looks very much like an objective specific intent approach, where indicia of regulation that correlate with a significant risk of illicit intent, in circumstances in which error costs associated with the speech regulation will be high, very substantially increases the burden on the government to justify the regulation.[248]

VI. Conclusion

Intent has been a controversial issue in the law, and particularly in antitrust. The error-cost theory of legal standards set out in this article explains and justifies the role of intent analysis in antitrust and in other areas of the law. The structure of intent rules can be understood by focusing on the goal of minimizing the total cost of legal error, which is determined by the frequencies and costs of false acquittals and false convictions and the administrative costs associated with making the requisite decisions. As a general rule, proof of specific intent—an intent to engage in conduct that violates the law for a particular (bad) reason or with a particular understanding of its harmful effect—is required where the costs of false

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[243] *See* Virginia State Bd of Pharmacy v. Virginia Citizens Consumer Council, Inc., 425 U.S. 748, 764 (1975).

[244] *See* Ward v. Rock Against Racism, 491 U.S. 781, 798 (1989).

[245] *See, e.g.,* Herndon v. Lowry, U.S. (1937); Gitlow v. New York, U.S. (1925); Stone . The concern extends to forms of regulation that are readily administered as message regulation as well as forms that expressly target particular messages. *See, e.g.,* Metromedia, Inc. v. City of San Diego, 493 U.S. 490 (1981); Cohen v. California, 403 U.S. 15 (1971).

[246] Cass, *supra* note 188; Farber, *supra* note 219; Stone, *supra* note 188.

[247] Cass, *supra* note 189.

[248] It is important to emphasize that the test here is not simply one of intent. *See, e.g.,* Posner, *supra* note 202. There is no evidence that speech regulation more frequently and systematically departs from social welfare-optimization where commercial speech is regulated, for example, than where political speech is regulated. Regulation of commercial speech, however, is likely to impose lower error costs, both because the process costs of verifying truth are lower in this context and because the speech, responsive to profit-incentives, is apt to be more resistant to regulation than the broad run of political speech. *See* Cass, *supra* note 189, at 1361-81.

convictions are high relative to those of false acquittals. This error-cost approach explains the allocation of burdens and sorts of proof required under the specific intent tests in antitrust, and in many other areas of law as well.