

OBJECTIVE AND SUBJECTIVE THEORIES OF CONCERTED ACTION

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The theory of concerted action is central to antitrust policy because it shapes legal doctrines that courts use to decide when an oligopoly has become a cartel. Most directly, it influences the legal definition of agreement—the “contract, combination . . . or conspiracy” required for Section 1 liability.¹ That definition in turn affects the standard of pleading agreement with sufficient specificity to avoid dismissal;² the standard of legally sufficient proof of

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¹ 15 U.S.C. § 1 (“Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal.”). Article 101 of the Treaty on the Functioning of the European Union distinguishes between agreement, which requires an exchange of promises, and concerted practices, which may include parallel actions coordinated by communications other than promises. Consolidated Version of the Treaty on the Functioning of the European Union art. 101, Mar. 30, 2010, 2010 O.J. (C 83) 88 [hereinafter TFEU], available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:0047:0200:en:PDF>; see also OLIVER BLACK, CONCEPTUAL FOUNDATIONS OF ANTITRUST 164–66 (2005). Both forms of coordination violate Section 1. Compare *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 224 n.59 (1940) (holding “a conspiracy to fix prices violates § 1 . . . though no overt act is shown . . .”), with *United States v. U.S. Steel Corp.*, 223 F. 55, 159 (D.N.J. 1915), *aff’d*, 251 U.S. 417, 460 (1920) (discussed *infra* note 19).

Some have suggested that Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45, which prohibits unfair methods of competition, might reach a broader range of oligopoly pricing than Section 1. See, e.g., Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655, 682 (1962). I have argued that the substantive reach of the two provisions on this issue should be the same because the interpretation of each rests on the same policy concerns, not on differences in language. William H. Page, *The FTC’s Procedural Advantage in Discovering Concerted Action*, ANTITRUST SOURCE, Feb. 2009, http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/Feb09_Page2_26f.authcheckdam.pdf.

² See *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 557 (2007); see also William H. Page, *Twombly and Communication: The Emerging Definition of Concerted Action Under the New Pleading Standards*, 5 J. COMPETITION L. & ECON. 439, 468 (2009).

agreement to avoid summary judgment;³ and the jury instructions that guide the fact-finder's inference of agreement at trial.⁴ And, because violations of Section 1 entail criminal penalties and treble damages, the definition of agreement can deter firms' primary conduct in the market, for good or ill.⁵

The Supreme Court's various statements over the past century about the nature of horizontal⁶ agreement and concerted action have given conflicting answers to many of the most basic questions that the concept raises. The Court has said, for example, that an agreement involves a "meeting of minds"⁷ among rivals or a "conscious commitment to a common scheme"⁸ that need not be "formal,"⁹ but it has also said that "tacit collusion" or "oligopolistic price coordination" is lawful.¹⁰ This ambiguity about the role of communication in establishing an agreement or concerted action is potentially costly.

³ *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 588 (1986) (holding that "[t]o survive a motion for summary judgment or for a directed verdict, a plaintiff seeking damages for a violation of § 1 must present evidence 'that tends to exclude the possibility' that the alleged conspirators acted independently."). See generally ABA SECTION OF ANTITRUST LAW, *PROOF OF CONSPIRACY UNDER FEDERAL ANTITRUST LAWS* (2010).

⁴ See, e.g., *United States v. U.S. Gypsum Co.*, 438 U.S. 422, 446 (1978) (disapproving an instruction in a criminal price-fixing case that rivals who exchanged price information were *presumed* to have intended the consequent effects on prices, although the effects "may well support an *inference* that the defendant had knowledge of the probability of such a consequence") (emphasis added).

⁵ Christopher Leslie has suggested that "[o]verdeterrence concerns should inform discussions when the scope of antitrust law is imprecise, [but] they do not really apply when the illegal conduct is well defined and clearly without redeeming value, such as price-fixing conspiracies." Christopher R. Leslie, *Judgment-Sharing Agreements*, 58 *DUKE L.J.* 747, 803 (2009). Overdeterrence concerns reappear, however, if the definition of a price-fixing conspiracy becomes either ambiguous or overbroad—the contingency I consider in this article. *Id.* at 803 n.246 (citing WILLIAM BREIT & KENNETH G. ELZINGA, *ANTITRUST PENALTY REFORM: AN ECONOMIC ANALYSIS* 29, 35 (1986) ("If horizontal price fixing could be correctly defined, the problem of overdeterrence could not occur since horizontal price fixing has little if any social benefit.") (emphasis added)).

⁶ Although the histories of the standards for inference of horizontal and vertical agreement are intertwined, the issues they raise are not necessarily the same. See M. Laurence Popofsky, *Does Leegin Liberate the Law Governing Horizontal Conspiracies from Its Vertical Contamination?*, 78 *ANTITRUST L.J.* 23 (2012). My focus here will be on horizontal agreement.

⁷ *Am. Tobacco Co. v. United States*, 328 U.S. 781, 810 (1946).

⁸ *Monsanto Co. v. Spray-Rite Serv. Corp.*, 465 U.S. 752, 768 (1984).

⁹ *Am. Tobacco*, 328 U.S. at 809; see also *United States v. Gen. Motors Corp.*, 384 U.S. 127, 142–43 (1966) (explicit agreement not required); *United States v. Paramount Pictures, Inc.*, 334 U.S. 131, 142 (1948) (same).

¹⁰ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993) ("Tacit collusion, sometimes called oligopolistic price coordination or conscious parallelism, describes the process, *not in itself unlawful*, by which firms in a concentrated market might in effect share monopoly power, setting their prices at a profit-maximizing, supracompetitive level by recognizing their shared economic interests and their interdependence with respect to price and output decisions.") (emphasis added). *But cf.* *Theatre Enters., Inc. v. Paramount Film Distrib. Corp.*, 346 U.S. 537, 540 (1954) ("The crucial question is whether respondents' conduct toward petitioner stemmed from independent decision or from an agreement, tacit or express.").

Deterring cartels is antitrust's most fundamental goal,¹¹ but confusion about whether illegal cartelization requires communication (and, if so, what kind) fosters judicial errors of underinclusion or overinclusion, depending upon which definition courts apply.¹² Commenting on the uncertainty in 1956, Director and Levi observed that it would be "difficult and unwise for the law to assume that action taken on general knowledge implies a concert of action equivalent to collusion, conspiracy or agreement, and yet the result may be the same as that which follows from an agreement."¹³

In recent decades, however, the confusion has diminished because most courts and scholars have concluded (or assumed) that the definitions of agreement and concerted action do indeed require communication.¹⁴ Some readings of the state of the law suggest that courts require a completed verbal agreement on future competitive conduct. Jonathan Baker, after reviewing the case law, concluded in 1996 that "the legal idea of 'agreement' does not describe a result or equilibrium but one particular process of reaching supracompetitive marketplace outcomes—what may be termed the 'forbidden process' of negotiation and exchange of assurances."¹⁵

¹¹ See ROBERT H. BORK, *THE ANTITRUST PARADOX* 263 (1978) ("The subject of cartels lies at the center of antitrust policy.").

¹² If the optimal definition is objective and requires communication, the ambiguity invites false positives, because courts may mistakenly infer agreement in the absence of communication. See, e.g., Jonathan B. Baker, *Identifying Horizontal Price Fixing in the Electronic Marketplace*, 65 *ANTITRUST L.J.* 41, 47 (1996) (observing that "a court conscientiously applying these definitions would be led to mistakenly infer an agreement merely from the consciously parallel interaction among oligopolists."). If the optimal definition is subjective and does not require communication, the ambiguity correspondingly fosters false negatives because courts may mistakenly find no agreement simply because the parties have not communicated.

¹³ Aaron Director & Edward H. Levi, *Law and the Future: Trade Regulation*, 51 *Nw. U. L. REV.* 281, 296 (1956).

¹⁴ *Williamson Oil Co., Inc. v. Philip Morris USA*, 346 F.3d 1287, 1323 (11th Cir. 2003) (affirming the exclusion expert testimony that "defined 'collusion' to include conscious parallelism."); *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 654 (7th Cir. 2002) (Posner, J.) (observing that most courts hold "that an express, manifested agreement, and thus an agreement involving actual, verbalized communication, must be proved in order for a price-fixing conspiracy to be actionable under the Sherman Act."); see also *Superior Offshore Int'l, Inc. v. Bristow Group, Inc.*, 490 F. App'x 492, 499–500 (3d Cir. 2012) ("The parallel price increases here could just as easily be the result of each company independently analyzing the market and realizing that they needed to charge more in order to make a profit, given that external circumstances indicated that they would be providing fewer services to their customers in the future[, or] given the concentration of the helicopter-services market at issue here, such price increases could have just as easily been the result of 'price leadership' as of price fixing."); *Clamp-All Corp. v. Cast Iron Soil Pipe Inst.*, 851 F.2d 478, 484 (1st Cir. 1988) ("Courts . . . have almost uniformly held, at least in the pricing area, that such individual pricing decisions (even when each firm rests its decision upon its belief that competitors will do the same) do *not* constitute an unlawful agreement under section 1 of the Sherman Act.").

¹⁵ Baker, *supra* note 12, at 48.

I agree that the definition of concerted action should include communication, but not necessarily an exchange of verbal assurances.¹⁶ Rivals may act concertedly, I have argued, by privately communicating their intention to act in a certain way and their reliance on their interlocutors to do the same, then acting consistently with their statements.¹⁷ This definition bears some resemblance to the concept of concerted practices in European competition law, which prohibits rivals telling one another about market actions they “have decided to adopt or contemplate adopting” thus “facilitating a collusive outcome.”¹⁸ The paradigmatic instances of this sort of concerted action in the United States were the Gary Dinners,¹⁹ but examples continue to come to light

¹⁶ See, e.g., William E. Kovacic et al., *Plus Factors and Agreement in Antitrust*, 110 MICH. L. REV. 393, 401 (2011) (reading early Supreme Court cases to establish that “courts would characterize as concerted action interfirm coordination realized by means other than a direct exchange of assurances.”).

¹⁷ William H. Page, *Communication and Concerted Action*, 38 LOY. U. CHI. L.J. 405, 417 (2007) [hereinafter Page, *Communication*]; William H. Page, *A Neo-Chicago Approach to Concerted Action*, 78 ANTITRUST L.J. 173, 184 (2012) [hereinafter Page, *Neo-Chicago*]. This idea builds on the analysis of degrees of “correlation” among actions in BLACK, *supra* note 1, at 185–87. For a more recent discussion, see OLIVER BLACK, *AGREEMENTS: A PHILOSOPHICAL AND LEGAL STUDY* 257–322 (2012).

¹⁸ Guidelines on the Applicability of Article 101 of the Treaty on the Functioning of the European Union to Horizontal Co-operation Agreements, 2011 O.J. (C 11) 1, 14. Under the EC’s recent horizontal cooperation guidelines, firms may “adapt themselves intelligently to the existing or anticipated conduct of their competitors,” but may not “disclose to [a] competitor the course of conduct which they themselves have decided to adopt or contemplate adopting on the market, thereby facilitating a collusive outcome on the market,” particularly where “the data exchanged is strategic.” *Id.* For discussion, see Howard Rosenblatt & Tomas Nilsson, *Analyst Calls and Price Signaling Under EU Law*, ANTITRUST SOURCE, June 2012, http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/jun12_rosenblatt_6_26f.authcheckdam.pdf.

¹⁹ See William H. Page, *The Gary Dinners and the Meaning of Concerted Action*, 62 SMU L. REV. 597 (2009) [hereinafter Page, *Gary Dinners*]. The dinners and related meetings gathered competing steel producers in various product lines, under instructions from Judge Elbert Gary of U.S. Steel not to make any promises or form agreements. *Id.* at 600. Describing one of the many dinners, one executive maintained there was no “absolute promise made by anybody” concerning prices, only their intentions, although the participants left the meetings “with the general understanding, each relying upon the other, that the prices announced would be maintained.” *United States v. U.S. Steel Corp.*, 223 F. 55, 159 (D.N.J. 1915), *aff’d*, 251 U.S. 417 (1920). At the monopolization trial of U.S. Steel, the following exchange occurred on direct and cross-examination of this executive:

By Mr. Lindabury [for the defendant]

Q. That [reliance] was faith and hope, though, rather than promise and contract, was it not?

A. Yes.

By Mr. Dickinson [for the government]:

Q. Was a good deal of it faith?

A. Mostly hope.

Q. Did you expect to observe your announcement?

A. Yes.

Q. Did you observe it?

A. Yes sir.

Q. Did others observe it?

A. The larger concerns, the stronger concerns, yes.

more than a century later.²⁰

To say that the legal definition of agreement requires communication does not mean that a plaintiff must allege specific communications or produce direct evidence of them; it is sufficient that the circumstances permit a reasonable inference that the requisite communications have occurred. Thus, William Kovacic and his co-authors have recently begun to identify “super plus factors”—market conditions and conduct that they suggest create “a strong inference of explicit collusion.”²¹ This approach assumes an objective theory of concerted action.

Some leading scholars have questioned this apparent consensus on the need for communication.²² Richard Posner, in scholarly work dating to the 1960s,²³ has argued that oligopolistic price coordination, even if not accompanied by direct communications between rivals, should meet the definition of agreement. For decades, scholars framed the issue of agreement in terms of Posner’s dispute with Donald Turner, who wrote an influential early article opposing a definition of illegal agreement that reached pure oligopolistic in-

Page, *Gary Dinners*, *supra*, at 604 (quoting Transcript of Record, Plaintiff’s Testimony, vol. 6 at 2509, *United States v. U.S. Steel Corp.*, 251 U.S. 417 (1920) (No. 481) (testimony of Samuel A. Brenner)); *see also U.S. Steel Corp.*, 251 U.S. at 460 (Day, J., dissenting) (observing that, in the dinners, “the assembled trade opponents secured co-operation and joint action through the machinery of special committees of competing concerns, and by *prudent prevision* took into account the possibility of defection, and the means of controlling and perpetuating that industrial harmony which arose from the control and maintenance of prices.”) (emphasis added).

²⁰ *See, e.g., In re Publication Paper Antitrust Litig.*, 690 F.3d 51, 65 (2d Cir. 2012) (reversing summary judgment where “in private phone calls and meetings—for which no social or personal purpose has been persuasively identified—[one rival’s division president] shared [his firm’s] pricing strategies with [another rival’s president] and both men disclosed to each other their companies’ intentions to increase prices before those decisions had been publicly announced”).

²¹ Kovacic et al., *supra* note 16, at 396–97. They use “‘explicit collusion’ to mean an agreement among competitors that relies on explicit communication, transfers, or both to suppress rivalry.” *Id.* at 397 n.14; *see also* ROBERT C. MARSHALL & LESLIE M. MARX, *THE ECONOMICS OF COLLUSION: CARTELS AND BIDDING RINGS* 211–37 (2012); Rosa Abrantes-Metz et al., *A Variance Screen for Collusion*, 24 INT’L J. INDUS. ORG. 467 (2006); Susan Athey et al., *Collusion and Price Rigidity*, 71 REV. ECON. STUDIES 317 (2004).

²² In addition to the authorities cited in this paragraph and the next, *see* Joseph E. Harrington, *Posted Pricing as a Plus Factor*, 7 J. COMPETITION L. & ECON. 1, 6 (2011) (describing circumstances “under which the parallel adoption of posted pricing is sufficient to establish an agreement to restrain trade”); Thomas A. Piraino, Jr., *Regulating Oligopoly Conduct Under the Antitrust Laws*, 89 MINN. L. REV. 9, 14 (2004) (offering “a new approach that will preclude oligopolists’ tacit collusion while protecting their right to engage in aggressive independent competition”).

²³ Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 STAN. L. REV. 1562, 1577–78 (1968) [hereinafter Posner, *Oligopoly*]; RICHARD A. POSNER, *ANTITRUST LAW* 51–100 (2d ed. 2001). Posner based his legal analysis in part on Stigler’s seminal economic analysis. George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964); *see also In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 654 (7th Cir. 2002) (Posner, J.) (suggesting that coordinating a price increase through price announcements should constitute an agreement, but recognizing that most courts do not agree).

terdependence.²⁴ For Turner and others, oligopolists are only pricing rationally when they take account of their rivals' likely responses,²⁵ so the only effective antitrust remedy would be to increase the number of rivals by breaking them up.²⁶ Posner, in contrast, argued that oligopolists can choose to set competitive prices and would do so if antitrust law adopted standards of liability and penalties that set the proper incentives.²⁷

Louis Kaplow has now joined Posner in criticizing the communication-based approach in an important series of articles²⁸ and a new book.²⁹ Although Kaplow stops short of proposing a definition as a standard of liability,³⁰ he argues that the focus of analysis of price fixing should be on whether oligo-

²⁴ See generally John E. Lopatka, *Solving the Oligopoly Problem: Turner's Try*, 41 ANTI-TRUST BULL. 843, 889–96 (1996).

²⁵ Turner, *supra* note 1, at 671 (reasoning that an oligopolist acts as rationally as a competitive firm except that it “takes one more factor into account—the reactions of his competitors to any price change he makes”).

²⁶ See, e.g., Donald F. Turner, *The Scope of Antitrust and Other Economic Regulatory Policies*, 82 HARV. L. REV. 1207, 1230–31 (1969); see also Joe S. Bain, *Price Leaders, Barometers, and Kinks*, 33 J. BUS. 193, 203 (1960) (“[T]he proper focus of [antitrust] attack is found in the structural situations of which various phenomena of conduct are only reflections . . .”).

²⁷ Posner, *Oligopoly*, *supra* note 23, at 1571–72:

Much more is necessary to the disappearance of competitive pricing than the bare fact that there are only a few sellers in the market. To begin with, just as in the atomistic market, each seller must make a deliberate choice not to expand output to the point where the cost of the last unit of output equals the market price, or, if he is at that point, to reduce output. There is a real choice here. It is not irrational for an oligopolist to decide to set a price that approximates marginal cost. It is not an unprofitable point at which to sell (so long as cost is defined to include a sufficient profit to make production attractive to investors), and it may have definite attractions: if the oligopolist finds speculation about the probable reactions of his rivals as inconclusive as suggested in the earlier discussion of interdependence; if he believes that new entry or the competition of substitute products will prevent him from obtaining appreciable monopoly profits; if he distrusts his competitors and fears that any higher price would quickly be eroded by cheaters, placing him at a temporary disadvantage if he did not cheat; or if restricting output would lay him open to heavy punishment . . .

For discussion of the Chicago School's rejection of the structure-conduct-performance paradigm, see Herbert Hovenkamp, *United States Competition Policy in Crisis: 1890–1955*, 94 MINN. L. REV. 311, 360–62 (2009).

²⁸ See Louis Kaplow, *Direct Versus Communications-Based Prohibitions on Price Fixing*, 3 J. LEGAL ANALYSIS 449 (2011) [hereinafter Kaplow, *Direct*]; Louis Kaplow, *On the Meaning of Horizontal Agreements in Competition Law*, 99 CALIF. L. REV. 683 (2011) [hereinafter Kaplow, *Horizontal Agreements*]; Louis Kaplow, *An Economic Approach to Price Fixing*, 77 ANTI-TRUST L.J. 343 (2011) [hereinafter Kaplow, *Economic Approach*].

²⁹ LOUIS KAPLOW, *COMPETITION POLICY AND PRICE FIXING* (2013).

³⁰ Kaplow, *Horizontal Agreements*, *supra* note 28, at 816 (“Even though virtually all of the considerations seem to point in the same direction, this Article does not come close to demonstrating that it would be good policy to proscribe and highly penalize all instances in which interdependent oligopolistic behavior appears to occur.”); Kaplow, *Economic Approach*, *supra* note 28, at 449 (“This body of work constitutes a strong critique of existing modes of thought, even though it does not advocate for a particular legal rule . . .”); KAPLOW, *supra* note 29, at 451 (“In spite of the book's extensive investigation, which generates a number of strong claims and criticisms, any policy lessons must be viewed as quite tentative.”).

polists set noncompetitive prices interdependently in an economic sense.³¹ Communication of one sort or another may be a facilitating practice or a mechanism for achieving this sort of anticompetitive cooperation.³² It can be evidence that rivals have reached a meeting of the minds on a noncompetitive price.³³ It might also provide strong evidence that rivals have attempted to coordinate prices, if that were a separate offense.³⁴ It should not, however, be necessary to establish the offense. The literature, he notes pointedly, has failed to settle on what sorts of communications are prohibited, suggesting the difficulty if not the impossibility of the task.³⁵ Indeed, Kaplow argues that requiring particular forms of communication to prove agreement merely confuses the inquiry, introducing incoherencies, and potentially undermines social welfare by immunizing inefficient tacit price coordination. Instead, if oligopolists were subject to an appropriate definition of illegal price coordination and expected properly defined civil and criminal penalties, they would behave competitively, without continuing regulatory injunctions.³⁶ Thus, even markets structured in ways that are highly conducive to coordination would have prices close to marginal cost.³⁷

This dispute is between objective and subjective theories of concerted action. For Kaplow, the “subjective notion [of a meeting of the minds] . . . is at the heart of interdependent behavior, including in particular successful coordinated oligopoly pricing.”³⁸ To satisfy the objective theory, reflected in current consensus, firms must coordinate their actions by an objectively manifested mechanism, a defined form of communication.³⁹ If firms accomplish coordination without communication, the conduct is not concerted in a legal sense.

³¹ KAPLOW, *supra* note 29, at 33 (claiming that “the term agreement may, consistent with wider usage, readily be defined to embrace interdependent oligopolistic price elevation, which entails the required meeting of the minds”). Scott Hemphill and Tim Wu make a related argument with respect to oligopolistic exclusionary practices, although the legal issues differ. *See* C. Scott Hemphill & Tim Wu, *Parallel Exclusion*, 122 *YALE L.J.* 1182 (2013).

³² Kaplow, *Economic Approach*, *supra* note 28, at 388 (“[D]irect interfirm communications, taken by many to be determinative of what constitutes a price-fixing agreement, can also be viewed as facilitating practices.”).

³³ KAPLOW, *supra* note 29, at 304.

³⁴ *Id.* at 314–17.

³⁵ *Id.* at 57–61.

³⁶ Kaplow, *Economic Approach*, *supra* note 28, at 430–32.

³⁷ *See id.* at 401–03.

³⁸ Kaplow, *Horizontal Agreements*, *supra* note 28, at 731. *But cf. id.* at 792 n.257 (“Players are not actually in each other’s minds, which is impossible short of psychoanalysis, hypnosis, or MRI scans, none of which are taken to be pertinent here or in other settings in which such characterizations are offered.”). In the same footnote, Kaplow cites Posner, *Oligopoly*, *supra* note 23, at 1576 n.39 (“The proposition that a belief in mental telepathy is not necessary to allow one to conclude that there may be a ‘meeting of the minds’ without verbal interchanges has been illuminated by game theorists.”).

³⁹ For example, Oliver Black arranges parallel human conduct on a spectrum of correlation, running from entirely independent action to concerted action, which is aimed at the same goal,

Coordination by communication entails finding a common goal, and the information exchanged is strategic in the sense of bearing on future plans and outcomes, but the focus of the objective theory is on the use of communication to achieve the noncompetitive outcome rather than on the interlocutors' mental state.

In this essay, I will examine the relative merits of these two legal approaches to the problem of concerted action, focusing on Kaplow's arguments and on whether a move to a standard of liability based on the subjective theory of concerted action would be likely to improve social welfare. I begin in the next Part by examining more closely the nature of the subjective definition of agreement, explaining the kinds of conduct and market equilibria that it includes and excludes. In Part II, I evaluate the subjective definition of agreement by comparing it to the objective, communication-based approach. In doing so, I describe the error-cost analysis I will use and the social harm that the prohibition of agreements in restraint of trade is designed to resolve. I argue that the subjective definition would prohibit only a limited number of durable anticompetitive arrangements that are not already illegal. Moreover, adoption of the subjective definition, as framed by Kaplow, would likely entail both new false negatives and new false positives. I examine both kinds of potential costs and conclude by arguing that the law should retain the objective definition's requirement of communication.

I. THE SUBJECTIVE THEORY OF CONCERTED ACTION

Following standard usage, Kaplow characterizes rivals' actions as interdependent if their minds meet in choosing a course of conduct.⁴⁰ More controversially, he suggests that this meeting of the minds is the appropriate basis for the definition of agreement in antitrust law, in part because it is consistent with the concept of equilibrium in modern economic game theory. In order to clarify the concept as a possible legal standard, he explains both what sorts of market conduct it includes and what it does not include.

A. INCLUDED CONDUCT

To reach a meeting of the minds on a course of action, firms must infer their rivals' beliefs and intentions about a range of future choices and act in anticipation of these inferences. In the familiar example of two gas stations at the same corner in a remote town,⁴¹ the stations act interdependently if one

done with mutual knowledge and reliance, and achieved, at least in part, by communication. *See* Page, *Communication*, *supra* note 17, at 426–27 (discussing BLACK, *supra* note 1, at 185–87).

⁴⁰ Kaplow, *Horizontal Agreements*, *supra* note 28, at 696.

⁴¹ *See, e.g.*, Hemphill & Wu, *supra* note 31, at 1185; Dennis W. Carlton et al., *Communication Among Competitors: Game Theory and Antitrust*, 5 GEO. MASON L. REV. 423, 426–28 (1997). A recent real-world example may be *White v. R.M. Packer Co.*, 635 F.3d 571, 580–86 (1st Cir.

posts a new, higher price (unjustified by a cost increase or a change in demand conditions), anticipating that its rival will find it preferable to match the price rather than undercut it, and its rival, recognizing the new price as an opportunity, matches the price, with the expectation that the first mover will see the price matching as an adoption of the new price for the indefinite future. The first mover invites coordination and the second, getting the message and considering its appropriately discounted payoffs in likely scenarios in later periods, accepts it.⁴² If rivals arrive at a common strategy based on these conjectures, they have reached a meeting of minds pursuant to which they act interdependently, in the same way and to the same effect as if they had communicated directly before the price increase.⁴³ This outcome amounts, under the subjective theory, to price fixing with all its accompanying static and dynamic inefficiencies.⁴⁴

Kaplow explicitly links this idea of interdependent action to the concept of cooperative oligopoly equilibrium in “noncooperative” game theory, so called (confusingly, he correctly points out) because the players cannot form binding contracts as they can in cooperative game theory.⁴⁵ In a one-shot game, in which firms set a price for only one period, oligopolists will (with exceptions to be noted later) choose a competitive price, even though they would be better off if both of them chose the monopoly price or one close to it.⁴⁶ As in the classic Prisoner’s Dilemma, each firm calculates that it will maximize profit for that period by charging a competitive price regardless of whether its rival charges a competitive or a supracompetitive price.⁴⁷

2011), holding that evidence of parallel pricing by gas stations on Martha’s Vineyard, despite drops in demand, was insufficient to raise an inference of agreement. “Plaintiff’s ambiguous evidence [including some communication was] entirely consistent with permissible conscious parallelism.” *Id.* at 585.

⁴² Posner, *Oligopoly*, *supra* note 23, at 1576 (“A seller communicates his ‘offer’ by restricting output, and the offer is ‘accepted’ by the actions of his rivals in restricting their outputs as well.”).

⁴³ Kaplow, *Horizontal Agreements*, *supra* note 28, at 789 (“Whether a pair of strategies constitutes an equilibrium for two gas stations engaged in price signaling with their price postings or having a discussion in a smoke-filled room leading them to charge the monopoly price depends on precisely the same calculations that compare the gain from defection with the lost future profits due to the other firm’s anticipated response.”); Kaplow, *Direct*, *supra* note 28, at 458 (same); Kaplow, *Economic Approach*, *supra* note 28, at 352 (same).

⁴⁴ Kaplow, *Economic Approach*, *supra* note 28, at 353–62.

⁴⁵ Kaplow, *Horizontal Agreements*, *supra* note 28, at 780. Cooperative game theory is irrelevant to antitrust law, because any arrangement that the law would classify as an agreement is illegal and not legally enforceable. Kaplow, *Economic Approach*, *supra* note 28, at 350. Even within noncooperative game theory, however, parties may reach cooperative outcomes. *Id.*

⁴⁶ Kaplow, *Horizontal Agreements*, *supra* note 28, at 783; Kaplow, *Economic Approach*, *supra* note 28, at 351.

⁴⁷ See Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 ANTITRUST BULL. 143, 155 (1993) (“Each firm [charges the competitive price] because it recognizes that its rivals have a strong

In an infinitely repeated game, however, strategic thinking may allow firms to sustain a noncompetitive price.⁴⁸ In a duopoly, for example, one firm may risk raising the price in one period as an invitation, and the other may match it, if it thinks charging a lower price will just cause its rival to charge lower prices in later periods. The firm will contemplate cheating in a later period in order to garner short-term profits but will not actually cheat “as long as it values the gain of one period’s profits . . . less than the loss of ten periods’ profits spread in the future” that it would lose when its rival met the lower price.⁴⁹ If both firms think this way, they may continue to charge the monopoly price indefinitely. If they both appraise the situation another way, then they may sustain an equilibrium at any other price, including the competitive one. Kaplow describes the selection of an equilibrium as “an intersubjective process, the conclusion of which may aptly be described as a meeting of the minds[.]”⁵⁰ Firm A must assess what its rival is B likely to do, bearing in mind that B is making a similar assessment about what A will do. In a Nash equilibrium in an infinitely repeated game, the rivals “predict [the equilibrium price], predict that their opponents predict it, and so on[.]”⁵¹ taking account of what would occur if each were to defect.⁵²

Nothing in this process requires communication among the rivals beyond a general knowledge of the market, particularly publicly announced prices.⁵³

incentive to cheat, and that cheating by a rival is very costly to a firm that does not compete.”) (discussing Stigler, *supra* note 23).

⁴⁸ Kaplow, *Horizontal Agreements*, *supra* note 28, at 785–86; *see also* Baker, *supra* note 47, at 155 (“The repetition of the game can change the outcome [because a] firm that cheats must now trade off the short-run gains from cheating against the now-larger cost.”).

⁴⁹ Kaplow, *Horizontal Agreements*, *supra* note 28, at 787. In considering the implementation of an agreement, Kaplow builds on Edward J. Green & Robert H. Porter, *Noncooperative Collusion Under Imperfect Price Information*, 52 *ECONOMETRICA* 87 (1984). Kaplow, *Horizontal Agreements*, *supra* note 28, at 786 n.241. *See also* Kyle Bagwell & Robert W. Staiger, *Collusion over the Business Cycle*, 28 *RAND J. ECON.* 82 (1997) (analyzing the effect of demand shocks on collusive prices).

⁵⁰ Kaplow, *Horizontal Agreements*, *supra* note 28, at 791.

⁵¹ *Id.* at 791 (quoting DREW FUDENBERG & JEAN TIROLE, *GAME THEORY* 13 (1991)).

⁵² *Id.* at 792; *see also* Edward J. Green et al., *Tacit Collusion in Oligopoly*, in *THE OXFORD HANDBOOK OF INTERNATIONAL ANTITRUST ECONOMICS* (D. Daniel Sokol & Roger Blair eds.) (forthcoming 2014) (manuscript at 25), *available at* <https://faculty.fuqua.duke.edu/~marx/bio/papers/tacitcollusion.pdf> (collusion requires “higher-order knowledge,” that is “[c]ommon knowledge, and mutual knowledge about other players’ mental states (e.g., intentions, beliefs) . . .”).

⁵³ *See supra* note 43. *But cf.* Green et al., *supra* note 52, at 25, which notes:

[A]lthough direct observation (without communication) by all competitors is sufficient to establish mutual knowledge of an observable fact, it is not sufficient to establish mutual knowledge of one another’s intentions. In particular, given that repeated games . . . have both competitive and collusive equilibria, one competitor cannot observe which equilibrium another expects everyone else to play (and so will play himself). Thus, in any cartel situation—even a duopoly—it is difficult to see how [prospective colluders] would achieve mutual knowledge of each other’s intent to collude, unless they were to communicate those intentions to one another.

This characteristic of Kaplow's idea of interdependent conduct would, if incorporated into a legal definition of agreement, represent an important expansion of liability from current law: it would prohibit rivals from reaching a noncompetitive outcome by interdependent conjectures and actions, regardless of whether they communicated in doing so.⁵⁴ Kaplow recognizes that communication can be useful for firms to reach agreement, but argues that it should not be part of the legal definition of agreement. First, communication is an ambiguous term because communication in some sense is necessary for markets to function at all. Some forms of indirect or oblique communication among firms (by price announcements, for example), always occur in oligopoly.⁵⁵ Under a subjective definition of coordination, it does not matter how firms gather knowledge: if they reach a meeting of the minds with respect to a noncompetitive price and output combination, their conduct is illegal. Kaplow describes a range of categories of evidence, such as certain pricing patterns, price elevations, and facilitating practices, from which courts could infer the existence of successful oligopolistic price coordination and impose appropriate penalties to deter the practice.⁵⁶ He also considers how market conditions should figure in the process of inference depending upon whether they are more or less conducive to coordination.

Kaplow suggests that parallel adoption of a facilitating practice, which makes it easier for rivals to select the same price and output, is evidence of oligopolistic coordination, but only if coordination is the primary purpose of the practice.⁵⁷ Inferring coordination from the use of a facilitating practice "is sensible when there exists no other explanation for the practice or when other explanations can be shown to be implausible in a particular case. In contrast, practices that may facilitate oligopolistic interdependence but would likely be employed regardless are not directly probative."⁵⁸ Thus, if a practice is beneficial in certain ways but also makes it easier for rivals to coordinate prices, the practice would not provide evidence of an agreement to fix prices.

⁵⁴ Under present law, courts often exclude expert economic opinion testimony on the ultimate question of whether the defendants have conspired because economics does not distinguish express collusion from oligopolistic interdependence. See John E. Lopatka & William H. Page, *Economic Authority and the Limits of Expertise in Antitrust Cases*, 90 CORNELL L. REV. 617, 673–83 (2005).

⁵⁵ Kaplow, *Horizontal Agreements*, *supra* note 28, at 698–99; Kaplow, *Direct*, *supra* note 28, at 481–82; see also BLACK, *supra* note 1, at 152–55 (distinguishing forms of communication); Gregory Werden, *Economic Evidence on the Existence of Collusion: Reconciling Antitrust Law with Oligopoly Theory*, 71 ANTITRUST L.J. 719, 735 (2004) ("It does not stretch the meaning of the term to say that communication occurs when rivals observe each others' marketplace actions, e.g., which customers each seller supplies and at what prices.").

⁵⁶ See Kaplow, *Economic Approach*, *supra* note 28, at 376–403.

⁵⁷ *Id.* at 388 ("[P]ractices that may facilitate oligopolistic interdependence but would likely be employed regardless are not directly probative.").

⁵⁸ *Id.* at 388–89.

Communication-based definitions of concerted action must limit the concept of communication by some further specification.⁵⁹ For example, some definitions refer to an exchange of assurances.⁶⁰ My own definition of concerted action, as I noted earlier, requires private statements of intention (or “strategy”) and reliance.⁶¹ Whatever the definition, direct evidence of the relevant communications and circumstantial evidence of those communications and opportunities to communicate will both be probative.⁶²

In some instances, however, direct evidence of communications will be unavailable and courts will be asked to infer from circumstantial evidence not only whether firms coordinated their pricing but also whether they did so by communicating.⁶³ Kaplow notes an implication of a communication-based definition—one that scholars and courts have long recognized—that proving concerted action, so defined, solely by circumstantial evidence involves a “paradox of proof”: courts may be unable to infer agreement from noncompetitive conduct where market conditions are most conducive to coordination. If market conditions make coordination easy, rivals have a motive to con-

⁵⁹ Carlton et al., *supra* note 41, at 431–36 (distinguishing types of communications based on their likely beneficial or anticompetitive effects).

⁶⁰ See, e.g., Baker, *supra* note 12, at 47–48. Cf. MARSHALL & MARX, *supra* note 21, at ix (“This book is about explicit collusion.”).

⁶¹ See, e.g., Page, *Communication*, *supra* note 17, at 417. Economists distinguish between communication to initiate collusion and communication to implement coordinated action. See Green et al., *supra* note 52, at 5–8. In my formulation, communication for either purpose would be sufficient to establish concerted action. The statements must be sufficiently clear to convey both intention to act in a certain way and reliance on the opposing party to do likewise. Ordinary public price announcements would not normally satisfy this condition. But formally public communications can convey private information that only rivals can fully interpret. Cf. Administrative Complaint, Valassis Commc’ns, Inc., FTC Docket No. C-4160 (Mar. 14, 2006), available at <http://www.ftc.gov/os/caselist/0510008/060314cmp0510008.pdf>; Analysis of Agreement Containing Consent Order to Aid Public Comment, *In re Valassis Commc’ns, Inc.*, 71 Fed. Reg. 13,976, 13,978–79 (Fed. Trade Comm’n Mar. 20, 2006) (describing the use of a quarterly “earnings call” to convey information to rivals as an invitation to collude); see also Maurice E. Stucke, *Evaluating the Risks of Increased Price Transparency*, ANTITRUST, Spring 2005, at 82 (noting that courts are more likely to infer agreement from the exchange of private, confidential, specific, and future price information).

⁶² *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 361 (3d Cir. 2004) (“The most important evidence will generally be non-economic evidence ‘that there was an actual, manifest agreement not to compete.’” (quoting *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 661 (7th Cir. 2002))). For recent analysis of this sort of testimony, see *In re Urethane Antitrust Litig.*, 912 F. Supp. 2d 1145, 1155 (D. Kan. 2012) (identifying testimony describing admissions of agreement and “evidence of a great number of communications and meetings and even vacations involving executives for these competitors, including communications involving pricing, and including communications at or near the time of price increase announcements by the companies.”).

⁶³ *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 556 n.4 (2007) (“The parties in this case agree that ‘complex and historically unprecedented changes in pricing structure made at the very same time by multiple competitors, and made for no other discernible reason,’ would support a plausible inference of conspiracy.”); *In re Text Messaging Antitrust Litig.*, 630 F.3d 622, 29 (7th Cir. 2010) (Posner, J.) (“Circumstantial evidence can establish an antitrust conspiracy.”).

spire;⁶⁴ if the rivals are coordinating, they are acting contrary to their independent interests as competitors.⁶⁵ But they may only be acting interdependently, without the requisite communication. Consequently, coordinated price movements under these conditions “may not suffice—by themselves—to defeat summary judgment on a claim of horizontal price-fixing among oligopolists”⁶⁶ because courts will be unable to infer that they coordinated by communicating.⁶⁷ Only if market conditions are less conducive to coordination will evidence of successful coordination permit an inference that it was accomplished by communication. Thus, some harmful instances of oligopoly behavior that the subjective definition condemns may be immunized by the objective definition, in the absence of direct evidence or admissions, even if the rivals actually communicated.

Under current law, courts use the concept of plus factors to distinguish agreement from pure interdependence. Kaplow correctly observes courts have not used this concept consistently.⁶⁸ As I noted earlier, recent scholarship has

⁶⁴ *Flat Glass*, 385 F.3d at 360.

⁶⁵ *Id.* at 360–61.

⁶⁶ *Id.* at 361.

⁶⁷ Kaplow, *Horizontal Agreements*, *supra* note 28, at 758–65; Kaplow, *Direct*, *supra* note 28, at 493–94. For an earlier account the paradox or “dilemma,” see Baker, *supra* note 47, at 169–70:

[On the one hand, if] the economic environment in the industry in which parallel pricing is observed is not conducive to coordination, for example, because cheating is difficult to detect or punish, then it would be irrational for the firms to reach an agreement. If it would be irrational to agree, an agreement is unlikely to have been reached.

[On the other hand, if] the economic environment is conducive to coordination, then the firms may establish focal rules for achieving high prices through coordination without engaging in the process that the law terms an agreement. Reaching an agreement may confer little additional market power upon the firms, and it will raise the risks of a costly antitrust prosecution. If an agreement is unnecessary for firms to achieve the observed coordinated outcome, then it would be irrational for the firms to agree; under such circumstances, parallel pricing will be understood as arising more plausibly from independent decision making under conditions of oligopolistic interdependence than from an agreement to fix price. [Both lines of reasoning] can be expected to lead courts often to question whether it would be rational for the firms to agree. A court that experiences such doubts will be reluctant to infer an agreement to fix price under Sherman Act § 1 from circumstantial evidence.

See also POSNER, ANTITRUST LAW, *supra* note 23, at 100 (requiring communication “produces the paradox that the more conducive the market’s structure is to collusion without express communication, the weaker the plaintiff’s case.”); Julian M. Joshua & Sarah Jordan, *Combinations, Concerted Practices and Cartels: Adopting the Concept of Conspiracy in European Community Competition Law*, 24 Nw. J. INT’L L. & BUS. 647, 661–64 (2004) (recognizing the dilemma and suggesting that European courts and agencies have begun to resolve the dilemma, for hardcore cartels, by reference to the American law of conspiracy in restraint of trade).

⁶⁸ *See* Kaplow, *Horizontal Agreements*, *supra* note 28, at 749–52. Some cases appear to use it to infer only interdependence or action contrary to independent self-interest, while others appear to use it to infer something beyond interdependence. Some courts suggest that direct evidence of certain communications obviates the need for a plus factor analysis. *Edward J. Sweeney & Sons v. Texaco Inc.*, 637 F.2d 105, 129 (3d Cir. 1980). Others characterize direct evidence of some

sought to identify “super plus factors,” market circumstances that justify an inference of explicit agreement without direct evidence of communication,⁶⁹ but (thus far) no court has explicitly adopted this approach.

B. EXCLUDED CONDUCT

Kaplow emphasizes that interdependence does not mean simply that rivals are mutually aware of one another’s actions. He properly criticizes the common equation of interdependence with “conscious parallelism,” which can mean a simple awareness of others’ parallel actions with a common external cause—like pedestrians simultaneously opening umbrellas on the same street when rain begins to fall. Even a competitive firm that raised its prices in response to an increase in the cost of inputs would probably be aware if its rivals also increased prices. In this case, however, the competitive firm “takes other firms’ behavior . . . as given”⁷⁰ in choosing its price. A firm acts independently, even if it takes account of its rivals’ actions, so long as the rivals’ actions are determined by other forces, and thus simply givens for the firm. It acts interdependently only if rivals engage in strategic estimation of each others’ choices among a range of possible equilibria in present and later periods.

Kaplow also excludes, explicitly or implicitly, several equilibria from his suggested definition of liability. First, he excludes the competitive equilibrium, even if it was achieved through a meeting of minds among oligopolists. Kaplow recognizes that, in oligopoly, firms might choose the competitive price by a meeting of the minds,⁷¹ although they might also reach that result by independent choices.⁷² He suggests, however, that the concept of agreement should reach “only those meetings of the minds that involve mutually

kinds of communications as a plus factor. *White v. R.M. Packer Co.*, 635 F.3d 571, 583 (1st Cir. 2011); *Blomkest Fertilizer, Inc. v. Potash Corp. of Sask.*, 203 F.3d 1028, 1047 (8th Cir. 2000) (Gibson, J., dissenting) (communications about completed transaction were “circumstantial evidence of a type of behavior one would not expect in the absence of a [preexisting] agreement to cooperate.”). Still others infer that communications occurred based only on noncommunicative market conduct. *City of Tuscaloosa v. Harcros Chems., Inc.* 158 F.3d 548, 572 n.38 (11th Cir. 1998) (reasoning that “high incumbency rates exhibited in the market would not likely have occurred in the absence of some sort of communication among the defendants [and therefore they] establish the necessary ‘plus factor.’”).

⁶⁹ See Kovacic et al., *supra* note 16, at 397; see also Page, *Communication*, *supra* note 17, at 417 (a plus factor can be “a constellation of pieces of evidence that, taken as a whole, create the necessary inference” of concerted action).

⁷⁰ Kaplow, *Horizontal Agreements*, *supra* note 28, at 697.

⁷¹ *Id.* at 795; see also Malcolm B. Coate, Should Economic Theory Control Price Fixing Analysis? 29 (Apr. 29, 2013) (unpublished manuscript) (although “the outcome of such a game MAY involve firms earning profits by pricing substantially above the competitive level . . . the analyst can tweak the structure of the game, and recover a competitive outcome.”), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2103359.

⁷² Kaplow, *Horizontal Agreements*, *supra* note 28, at 796.

advantageous cooperation” to reach a higher price.⁷³ Alternatively, he suggests that a competitive equilibrium might involve an agreement, but not one in restraint of trade: “the purpose of competition law’s prohibition on horizontal agreements is to prevent groups of firms from behaving as if they were a single firm rather than as competitors, and it is precisely the decision to play oligopolistic equilibrium strategies that brings about the disfavored result.”⁷⁴ For similar reasons, he argues, enforcement should be limited to instances of substantial elevations in price.⁷⁵

Kaplow emphasizes that his approach would condemn only those inefficient equilibria that rivals achieve by successful oligopolistic interdependence; it would not prohibit all inefficient equilibria. He agrees, for example, with the accepted rule of American antitrust law that simple monopoly pricing by a single firm is lawful,⁷⁶ even if inefficient in a static sense, because the prospect of monopoly profits is necessary to spur investment and innovation:

[C]ompetition regimes, such as that in the United States, tend to tolerate monopoly pricing as long as the monopoly position was obtained and is maintained through efficient behavior—producing products that consumers value and selling them at sufficiently attractive prices—rather than through exclusionary practices. This permissive approach is not without costs; ex ante incentives can be excessive and ex post payoffs, with accompanying allocative inefficiency, may be more than is necessary to induce investment. Hence, intellectual property rights tend to be limited, and direct regulation of monopoly is sometimes imposed. However, the judgment behind general competition regimes is that, in other settings, monopolies should be permitted to price as they wish, although the degree to which this view is accepted varies across jurisdictions.⁷⁷

Kaplow thus recognizes that an antitrust rule that tolerates unilateral monopoly pricing entails some false negatives in principle because it condones all monopolists’ output restrictions regardless of whether they actually spur inno-

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ Kaplow, *Economic Approach*, *supra* note 28, at 414–15.

⁷⁶ See, e.g., *Blue Cross & Blue Shield United of Wis. v. Marshfield Clinic*, 65 F.3d 1406, 1413 (7th Cir. 1995) (“A natural monopolist that acquired and maintained its monopoly without excluding competitors by improper means is not guilty of ‘monopolizing’ in violation of the Sherman Act, and can therefore charge any price that it wants, for the antitrust laws are not a price-control statute or a public-utility or common-carrier rate-regulation statute.”) (citations omitted). At least on paper, excessive pricing may constitute abuse of a dominant position, but applications of the rule are unusual. TFEU, art. 101, *supra* note 1; see also Michal S. Gal, *Monopoly Pricing as an Antitrust Offense in the U.S. and the EC: Two Systems of Belief About Monopoly?*, 49 ANTITRUST BULL. 343, 376 (2004) (even though challenges to excessive pricing are rare, “there is a significant conceptual difference between the two approaches because in the EC the reticence to intervene is based on practical reasons, while in the U.S. it is based on theoretical and ideological ones.”).

⁷⁷ Kaplow, *Economic Approach*, *supra* note 28, at 360; see also KAPLOW, *supra* note 29, at 227–28.

vation in particular cases. Unilateral monopoly pricing is nonetheless legal, even if static efficiency losses from the present, very certain output restriction are greater than the discounted value of any dynamic efficiency gains from possible future innovation.

Courts might try to frame antitrust rules to make this sort of distinction directly and prohibit only the instances of monopoly pricing that are inefficient on balance. Herbert Hovenkamp and Christina Bohannon, for example, have argued that the law should require firms enforcing intellectual property rights to show that an infringer is imposing “IP injury,” that is, an injury to the IP owner’s incentive to innovate.⁷⁸ Antitrust law could analogously condemn unilateral monopoly pricing if the resulting monopoly profit was more than would have been necessary, from an ex ante perspective, to induce the firm to innovate.⁷⁹ Alternatively, monopoly pricing could be prima facie unlawful, subject to a defense that some or all of the resulting profit was necessary to spur innovation. Such a rule would directly address the concern that prohibiting monopoly pricing would undermine incentives. Apparently, however, Kaplow agrees with American law’s assessment that false positives in the enforcement of such a rule would deter innovation; better to keep the safe harbor for unilateral, nonexclusionary exploitation of monopoly power.

Kaplow reasons that coordinated exploitation of monopoly power is categorically more likely to reduce welfare than unilateral exploitation of monopoly power.⁸⁰ He recognizes that, even within a cartel, a firm has some incentive to reduce its costs and improve its product by innovation but he finds an “insufficient nexus”⁸¹ with dynamic efficiency to justify exceptions to the ban on price fixing. Coordinated exploitation, Kaplow reasons, “does not reward firms to the extent that they outperform their competitors but instead bestows profits whose magnitude depends on firms’ success in refraining from competition.”⁸² He adds that firms may have less incentive to innovate and reduce costs in a tacit cartel than an explicit cartel because they are less able to “rationalize production” and thus achieve economies of scale.⁸³

⁷⁸ CHRISTINA BOHANNAN & HERBERT HOVENKAMP, CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION 51 (2012) (“IP law should recognize harm only for uses that are likely to interfere with IP holders’ decisions to create or distribute their works—that is, only for harms that are consistent with the constitutional mandate that the purpose of the patent and copyright systems is to further innovation.”).

⁷⁹ *Id.* (“[O]nly an ex ante view can relate IP injury to the incentive to innovate.”).

⁸⁰ See KAPLOW, *supra* note 29, at 228–30; Kaplow, *Economic Approach*, *supra* note 28, at 360.

⁸¹ Kaplow, *Direct*, *supra* note 28, at 461.

⁸² *Id.* at 460–61.

⁸³ Kaplow, *Horizontal Agreements*, *supra* note 28, at 812; Kaplow, *Economic Approach*, *supra* note 28, at 361.

Kaplow also recognizes that price leadership by a dominant firm is independent.⁸⁴ A dominant firm (or partial monopolist) in a market with a fringe of much smaller competitors must consciously take account of the output of its smaller rivals.⁸⁵ In the classic model, the dominant firm concedes its rivals a share of the market; it subtracts their supply from the market demand and constructs the residual demand and marginal revenue curves that it faces. It maximizes profit by acting as a monopolist with respect to the residual demand: it sets its output where its residual marginal revenue equals its marginal cost and sets its price at the corresponding point on the residual demand curve. Its smaller rivals set their output at the point at which their marginal cost equals the dominant firm's price. In this model, the firms are, in some sense, coordinating their price and output decisions by taking account of one another's actions. Given its static assumptions, however, the model is determinate and each firm is setting the only profit-maximizing price. For this reason, Jesse Markham long ago suggested in a classic article that the dominant firm case is more akin to pure monopoly pricing than to typical oligopolistic price leadership, from an antitrust point of view.⁸⁶ Kaplow agrees, at least if the competitive fringe were all price takers incapable of acting strategically.⁸⁷ Condemning dominant firm pricing as price fixing would be as problematic, in terms of firm incentives, as condemning pure monopoly pricing.

Kaplow also recognizes that two other noncompetitive oligopoly equilibria do not involve a meeting of minds, in the sense he uses the term.⁸⁸ First, unlike Posner,⁸⁹ Kaplow would not define the classic Cournot equilibrium as interdependent.⁹⁰ In a Cournot duopoly, "each firm chooses its quantity rather

⁸⁴ KAPLOW, *supra* note 29, at 349. He traces the theory to Karl Forchheimer, *Theoretisches zum Unvollständigen Monopole* [The Theory of Partial Monopoly], in 32 JAHRBUCH FÜR GESETZGEBUNG, VERWALTUNG UND VOLKSWIRTSCHAFT IM DEUTSCHEN REICH 1 (Gustav Schmoller ed., 1908). *Id.* at 349 n.5.

⁸⁵ William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 944–52 (1981).

⁸⁶ See Jesse W. Markham, *The Nature and Significance of Price Leadership*, 41 AM. ECON. REV. 891, 895 (1951).

⁸⁷ KAPLOW, *supra* note 29, at 349. *Cf.* Kaplow, *Economic Approach*, *supra* note 28, at 369 (sustained supracompetitive pricing may be the result of a cost advantage, not coordinated pricing).

⁸⁸ See Kaplow, *Economic Approach*, *supra* note 28, at 442–43; Kaplow, *Horizontal Agreements*, *supra* note 28, at 784 n.237 (citing AUGUSTIN COURNOT, RECHERCHES SUR LES PRINCIPES MATHÉMATIQUES DE LA THÉORIE DES RICHESSES (1838); Joseph Bertrand, Book Review, 67 JOURNAL DES SAVANTS 499 (1883) (reviewing LÉON WALRAS, THÉORIE MATHÉMATIQUES DE LA RICHESSE SOCIALE (1883) and AUGUSTIN COURNOT, RECHERCHES SUR LES PRINCIPES MATHÉMATIQUES DE LA THÉORIE DES RICHESSES (1838)). In KAPLOW, *supra* note 29, at 362–65, the differentiated products case, discussed later in this paragraph, is not attributed to Bertrand.

⁸⁹ See POSNER, ANTITRUST LAW, *supra* note 23, at 98. For discussion, see Werden, *supra* note 55, at 775–76.

⁹⁰ See Hovenkamp, *supra* note 27, at 314–17 (on the role of Cournot in the history of economic theory).

than its price" simultaneously for homogeneous products, taking its rival's output as fixed.⁹¹ In this model, each firm chooses an output less than half of the competitive output, in order, in effect, to set a profit-maximizing price for the portion of the market not supplied by its rival. The resulting equilibrium price is lower than the monopoly equilibrium price and higher than the competitive equilibrium price. Because each firm does not choose its output based on an estimate of its rival's output choices in likely future scenarios, the equilibrium does not involve a meeting of the minds, as Kaplow defines it; it is a unilateral exercise of market power in a two-stage game. Second, in one type of Bertrand duopoly, each firm sets its price rather than its quantity, but for differentiated products, so cutting the price reduces the seller's per-unit profit but only marginally increases its total sales. As each firm trades off the inverse effects of price and volume to maximize profit, the market reaches an equilibrium higher than the competitive level.⁹² Because each rival is taking the actions the others as given, the equilibrium is not collusive.

II. EVALUATING A MOVE TO THE SUBJECTIVE THEORY

Defining concerted action entails framing a rule of liability. Since Frank Easterbrook's seminal article, *The Limits of Antitrust*,⁹³ scholars usually argue about antitrust rules in terms of error-cost analysis, which compares estimates of the rules' costs of underinclusion ("false negatives" excusing harmful conduct) and of overinclusion ("false positives" condemning beneficial conduct).⁹⁴ Kaplow applies a version of this analysis, asking which alternative rule entails the greater "deterrence benefits" (avoiding false negatives) relative to "chilling costs" (creating false positives).⁹⁵ Although informed by economic theory, the error-cost approach is fundamentally an institutional one that depends on assessments of judicial competence in actually applying the rule in litigation and estimates of largely unmeasurable present and future costs and benefits from altered incentives of both potential defendants and

⁹¹ Kaplow, *Horizontal Agreements*, *supra* note 28, at 784 n.237; *see also* KAPLOW, *supra* note 29, at 356–57.

⁹² Kaplow, *Horizontal Agreements*, *supra* note 28, at 784 n.237 (noting that the firms in Bertrand competition have market power and "trade off the profit per unit sold with the quantity of sales," so that the price is "above the competitive level, the more so the greater the degree of differentiation," reaching the monopoly price where "the products are not substitutes at all.").

⁹³ Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984).

⁹⁴ *Id.* at 16 ("The legal system should be designed to minimize the total costs of (1) anticompetitive practices that escape condemnation; (2) competitive practices that are condemned or deterred; and (3) the system itself.").

⁹⁵ Kaplow, *Direct*, *supra* note 28, at 453; *see also* Kaplow, *Economic Approach*, *supra* note 28, at 362–70.

potential plaintiffs. These estimates, based in part on intuition and ideology, can have an important effect on the advocacy and selection of legal rules.⁹⁶

Under error-cost analysis, whether the subjective standard of liability (or the direct approach, as Kaplow terms it) is better than the current law's objective standard depends on whether, if put into practice, it would deter more instances of inefficient conduct and fewer instances of efficient conduct. The relevant inefficiencies are those associated with interdependent noncompetitive oligopoly pricing. The subjective definition would directly prohibit pricing that is both interdependent and noncompetitive; it would not prohibit interdependent competitive pricing or noncompetitive independent pricing. The objective definition is apparently less direct. It focuses on communication as a means of achieving interdependent pricing, adding an element, or proxy, to the core questions of interdependence and noncompetitiveness.

I will argue in this Part that a rule defined in terms of communication is preferable to one stated only in terms of oligopolistic interdependence, as Kaplow defines it. First, I examine the extent to which the subjective definition would reduce false negatives by prohibiting harmful conduct that the objective definition currently permits. Second, I consider whether a pure version of the subjective definition would create new false negatives by immunizing harmful conduct that present law prohibits. Finally, I consider whether the subjective definition's reliance on the meeting-of-the-minds standard would create new false positives by increasing the likelihood of imposing liability for independent monopoly and oligopoly conduct. I will argue that adopting the subjective definition would eliminate few serious false negatives but would create a risk of both new false negatives and new false positives.

A. AVOIDING CURRENT FALSE NEGATIVES: PROHIBITING PURE INTERDEPENDENCE

Everyone agrees that firms can sometimes—in theory, in the lab, and in practice—coordinate their prices and other decisions without communicating directly.⁹⁷ Kaplow's proposal to prohibit this sort of successful coordination would therefore prohibit some noncompetitive conduct and its attendant wel-

⁹⁶ See generally William H. Page, *The Ideological Origins and Evolution of U.S. Antitrust Law*, in 1 ABA SECTION OF ANTITRUST LAW, ISSUES IN COMPETITION LAW AND POLICY 1, 2 (W. Dale Collins ed., 2008) (arguing that “two great, opposing ideologies of the market and the state have shaped antitrust evolution from its inception”).

⁹⁷ Marco A. Haan et al., *Experimental Results on Collusion*, in EXPERIMENTS AND COMPETITION POLICY 9, 14 (Jeroen Hinloopen & Hans-Theo Normann eds., 2009). These authors note that, where firms are asymmetric in size, they “at least need to communicate in order to make some agreement about which of the infinitely many equilibria they are going to play,” and to police them. *Id.*

fare losses that the communications-based rule does not reach.⁹⁸ But the frequency of successful real-world coordination without communication is not clear.⁹⁹ Communicating makes it easier to coordinate.¹⁰⁰ As one judge put it, “[S]uccessful price coordination requires accurate predictions about what other competitors will do; it is easier to predict what people mean to do if they tell you.”¹⁰¹ The market’s own mechanisms will ordinarily be able to thwart purely tacit coordination. Consequently, durable and costly instances of tacit coordination are probably rare.

Members of a real-world cartel have to resolve issues related to prices, output levels, and product standards, all of which require periodic reconsideration.¹⁰² They also must figure out how to detect and punish cheating.¹⁰³ In markets of any complexity, all of these functions will usually require communication to have any chance of success.¹⁰⁴ Gas stations at a remote street corner may be able to collude by posting prices, but sellers in markets with private pricing, uncertain demand, and strategic buyers (or some combination of these) would probably find tacit collusion impossible to implement.¹⁰⁵ In a

⁹⁸ KAPLOW, *supra* note 29, at 394–97.

⁹⁹ Kaplow discusses this scenario as the “narrow paradox region.” Kaplow, *Direct*, *supra* note 28, at 498–500. He suggests that, if this state of affairs were true, then there would be no great difference in extending the prohibition of Section 1 to interdependent pricing. *Id.* at 500–01. I suggest below that the move to the pure interdependence standard would entail other false positives and false negatives.

¹⁰⁰ MICHAEL D. WHINSTON, LECTURES ON ANTITRUST ECONOMICS 21 (2006) (“It is natural to think that talking may help with this coordination, but exactly to what degree, and in what circumstances is less clear.”); XAVIER VIVES, OLIGOPOLY PRICING: OLD IDEAS AND NEW TOOLS 321 (1999) (“In repeated games . . . in the presence of imperfect monitoring and privately observed signals, it is not known whether full collusion is possible without communication or whether communication is even needed for collusion [but] the presumption is that communication abets collusion.”); *see also* Joseph Farrell & Matthew Rabin, *Cheap Talk*, J. ECON. PERSPS., Summer 1996, at 103, 110–11 (observing that, when parties want to meet for dinner, the expression by one of them of an intention to go to a particular restaurant is cheap talk but still helpful to coordination; people who think otherwise “tend to eat alone.”).

¹⁰¹ *Blomkest Fertilizer, Inc. v. Potash Corp. of Sask.*, 203 F.3d 1028, 1042 (8th Cir. 2000) (Gibson, J., dissenting).

¹⁰² Herbert Hovenkamp & Christopher R. Leslie, *The Firm as Cartel Manager*, 64 VAND. L. REV. 813, 825–37 (2011); Baker, *supra* note 47, at 156 (observing that members of a cartel “must determine the terms of their coordinated arrangement, monitor deviation, and credibly threaten to punish deviation sufficiently in order to deter cheating in the first instance.”).

¹⁰³ On punishing cheating, see Green & Porter, *supra* note 49. On both detection and punishment, see David Genesove & Wallace P. Mullin, *Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case*, 91 AM. ECON. REV. 379 (2001). Unlike Green and Porter, Genesove and Mullin find that detection of cheating in the *Sugar Institute* case led to a process of investigation and adjudication that ended sometimes in a measured retaliation and sometimes in a confession of guilt and promise to do better. *Id.* at 390–93.

¹⁰⁴ *See* Hovenkamp & Leslie, *supra* note 102, at 837–42; *see also* Joseph E. Harrington, Jr., *How Do Cartels Operate?*, 2 FOUNDS. & TRENDS IN MICROECON. 1, 74–76 (2006).

¹⁰⁵ MARSHALL & MARX, *supra* note 21, at 9–17. For a real-world example of far more complex gasoline price fixing, see Can Erutku & Vincent A. Hildebrand, *Conspiracy at the Pump*, 53 J.L. & ECON. 223 (2010); *see also* BORK, *supra* note 11, at 175 (“The difficulty of maintaining small-

simple market, it is conceivable that rivals with similar backgrounds and beliefs could tacitly reach a meeting of the minds on a focal price by a series of conjectures about each other's strategies; in more-complicated markets, such an outcome is unlikely.¹⁰⁶ As only one example, Joseph Harrington has recently found in experimental studies that coordination by price announcements without direct communication is only possible in markets in which there are few sellers and all have symmetric cost functions.¹⁰⁷

Communication is also helpful more generally to foster the sort of trust among members that successful cartels typically need to succeed.¹⁰⁸ More-complex markets necessarily involve less complete initial cartel agreements and greater need for communication to fill in the blanks and modify terms based on experience.¹⁰⁹ Where firms in more complex markets do maintain parallel noncompetitive practices for a long time, courts may properly infer that they are communicating, even without direct evidence.¹¹⁰

It is also not clear that courts would detect many instances of tacit collusion under a rule framed in terms of interdependence. Many of the problems of inference that plague prosecution of explicit cartels would still apply to proof of tacit collusion. Consider the example of facilitating practices.¹¹¹ Rivals may adopt a facilitating practice independently (when it provides independent ben-

number cartels based upon detailed communication and agreement should . . . make us dubious that concerted action without explicit communication is likely to be at all common or successful.”).

¹⁰⁶ Green et al., *supra* note 52, at 32 (“[B]ecause most market environments are sufficiently complex that there are numerous possible ways to collude, none of which will work unless it is adopted by all of the significant market participants, that view suggests that it is difficult, and probably rare, for successful collusion to obtain in the absence of explicit communication.”).

¹⁰⁷ See Joseph E. Harrington, Jr. et al., *The Relative Efficacy of Price Announcements and Express Communication for Collusion: Experimental Findings* (Feb. 8, 2013) (unpublished manuscript), available at http://warrington.ufl.edu/centers/pprc/docs/conference2013_Harrington.pdf; see also Miguel A. Fonseca & Hans-Theo Normann, *Explicit vs. Tacit Collusion—The Impact of Communication in Oligopoly Experiments*, 56 EUR. ECON. REV. 1759, 1760 (2012) (finding that “talking leads to higher profits in markets with any number of firms” and “collusion is easier the fewer the firms,” but “medium-sized industries [in terms of the number of firms] hav[e] the largest additional profit from talking.”); Astri Muren & Roger Pyddoke, *Collusion Without Communication*, 18 INFO. ECON. & POL’Y 43, 51 (2006) (in experiments, “tacit collusion occurs only in duopoly markets.”).

¹⁰⁸ Christopher R. Leslie, *Trust, Distrust, and Antitrust*, 82 TEX. L. REV. 515, 538 (2004) (“Communication seems to have a linear relationship with trust.”).

¹⁰⁹ Genesove & Mullin, *supra* note 103, at 379–87.

¹¹⁰ Cf. *City of Tuscaloosa v. Harcros Chems., Inc.*, 158 F.3d 548, 572 (11th Cir. 1998) (“Oligopolists behaving in a legal, consciously parallel fashion could achieve high and rising prices, even as costs remained stable, by engaging in price leadership. The odds that they could achieve a price and profit increase and maintain incredibly high incumbency rates—that is, maintain the very same distribution of municipal contracts year after year—are miniscule, however, unless the oligopolists were communicating with one another.”) (citations omitted).

¹¹¹ See generally William H. Page, *Facilitating Practices and Concerted Action Under Section 1 of the Sherman Act*, in *ANTITRUST LAW AND ECONOMICS* 23 (Keith Hylton ed., 2010).

efits apart from coordination); interdependently (as a substitute for an explicit collusive agreement); or by explicit collusion (as a means of enforcing a collusive agreement). The third category is already illegal¹¹² and the first category is legal even under Kaplow's expanded definition.¹¹³ Thus, the only additional practices the expanded definition would reach would be those in the second category: facilitating practices that firms adopt interdependently, without an independent justification and without communicating.

But firms usually have independent justifications for using facilitating practices. In the *Du Pont (Ethyl)* case,¹¹⁴ for example, the court found independent justifications for the defendants' use of advance price announcements, price protection clauses, and delivered pricing, even though they contributed to price uniformity.¹¹⁵ Consider also resale price maintenance. The Supreme Court in *Leegin*¹¹⁶ recognized that industry-wide resale price maintenance is a facilitating practice because it sometimes makes it easier for a manufacturers' cartel to detect when members cheat by offering secret discounts to retailers.¹¹⁷ Thus, resale price maintenance "should be subject to more careful scrutiny . . . if many competing manufacturers adopt the practice"¹¹⁸ because it might suggest "the existence of a horizontal cartel."¹¹⁹ But manufacturers also use resale price maintenance to prevent their dealers from free riding on the promotional activities of other retailers.¹²⁰ Consequently, as Posner has recognized, "the fact that competing sellers engage in resale price maintenance is an ambiguous sign of cartelization; it may mean only that each of the sellers in the industry has decided that his own ends would be furthered by controlling the resale price of the product."¹²¹ Kaplow would agree, even under his expanded definition of agreement.¹²² Thus, to establish liability, a plaintiff

¹¹² See, e.g., *Catalano, Inc. v. Target Sales, Inc.*, 446 U.S. 643, 644–46 (1980) (agreement among wholesalers not to sell on credit); *Sugar Inst., Inc. v. United States*, 297 U.S. 553, 601 (1936) (agreement among rivals to preannounce prices and, especially, to adhere to them).

¹¹³ Kaplow, *Direct*, *supra* note 28, at 468 (a facilitating practice provides a basis for inferring oligopolistic coordination "when there exists no other plausible explanation for the practice.").

¹¹⁴ *E.I. du Pont de Nemours & Co. v. FTC (Ethyl)*, 729 F.2d 128, 133–34, 140–42 (2d Cir. 1984).

¹¹⁵ But see Joseph E. Harrington, Jr., *Posted Pricing as a Plus Factor*, 7 J. COMPETITION L. & ECON. 1, 16 (2011) (identifying economic evidence that suggests that posted pricing has been used to reach agreement or interdependence).

¹¹⁶ *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007).

¹¹⁷ *Leegin*, 551 U.S. at 892–93; POSNER, ANTITRUST, *supra* note 23, at 88–89.

¹¹⁸ *Leegin*, 551 U.S. at 897.

¹¹⁹ *Id.* at 893.

¹²⁰ See *id.* at 890.

¹²¹ POSNER, ANTITRUST, *supra* note 23, at 89. Interestingly, Turner suggested that it would be "an unlawful agreement for oligopolists to make interdependent decisions to adopt [resale price maintenance], regardless of the means employed." See Turner, *supra* note 1, at 681.

¹²² Kaplow, *Economic Approach*, *supra* note 28, at 395 (describing ambiguous effects of resale price maintenance on dealer rivalry).

would need to offer evidence that tended to exclude the possibility that manufacturers were using resale price maintenance to control free riding. If the plaintiff succeeded in doing so, however, it could well be plausible to infer that the firms adopted the practice by communicating.¹²³ Thus, it is not clear how many more uses of facilitating practices the pure interdependence standard would reach.

The subjective approach would certainly condemn some interdependent oligopoly conduct that present law permits. But the false negatives we are experiencing under current law may not be very costly if the newly prohibited conduct is not durable or durably inefficient. As I noted earlier, the error-cost framework for rulemaking poses an institutional question: in what circumstances can courts do better than markets in preventing and ending practices that reduce competition and reduce consumer welfare? In his original formulation of the error-cost framework, Easterbrook observes that markets are generally self-correcting and that even highly concentrated markets can behave competitively,¹²⁴ while courts and legal standards are far less adaptable and prone to costly misapplication of even well-designed standards. This presumption is relevant to the issue of defining agreement. Noncompetitive cooperative equilibria are often unstable, even apart from legal prohibitions. Regardless of the means of cooperation, the noncompetitive understanding is legally unenforceable¹²⁵ and cheating, entry, and fringe expansion tend to erode supracompetitive prices.¹²⁶

¹²³ For instances in which it would have been proper to infer communication from the use of facilitating practices, see Page, *Neo-Chicago*, *supra* note 17, at 193–200, which discusses Erutku & Hildebrand, *supra* note 105, at 225; Robert C. Marshall et al., *Cartel Price Announcements: The Vitamins Industry*, 26 INT'L J. INDUS. ORG. 762, 763 (2008); and Zhongmin Wang, *Collusive Communication and Pricing Coordination in a Retail Gasoline Market*, 32 REV. INDUS. ORG. 35 (2008).

¹²⁴ Easterbrook, *supra* note 93, at 19 n.36 (citing studies that “suggest that the structure-conduct-performance paradigm on which much of antitrust is based—the belief that certain conditions are conducive to collusion and monopoly overcharges—may not be sound.”).

¹²⁵ Kaplow, *Economic Approach*, *supra* note 28, at 372 (“[T]he mere fact that laws make cartel agreements legally unenforceable has some effect, and possibly a significant one, in reducing the extent of oligopoly pricing.”).

¹²⁶ See, e.g., Director & Levi, *supra* note 13, at 294 (“[P]rice-fixing agreements, when adherence to them cannot be compelled through coercion or penalties, might be self-correcting either through the defection of members, which would be rewarding to the individual firm, or through the advent of new firms.”). Haan et al., *supra* note 97, at 15, notes that collusion “becomes more difficult as the number of firms increases, as firms meet less often, or as firms observe each other’s behavior less often.” Cf. Margaret C. Levenstein & Valerie Y. Suslow, *Breaking Up Is Hard to Do: Determinants of Cartel Duration*, 54 J.L. & ECON. 455 (2011) (most explicit cartels break up because of legal intervention); Amanda P. Reeves & Maurice Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527, 1563–67 (2011) (explicit cartels can sometimes overcome the efforts of large buyers to induce cheating).

Noncompetitive cooperative equilibria are almost certainly even more unstable if the participants never communicate.¹²⁷ Even if conditions are highly conducive to oligopolistic coordination, as in the circumstances that pose the paradox of proof, it will often be difficult for rivals to make accurate inferences about their rivals' motives and intentions for a long time without communication.¹²⁸ Thus, as a first approximation, the market itself is more likely to erode a tacit cooperative equilibrium than an explicit cartel. A rule prohibiting tacit coordination would reach and deter some inefficient conduct, but the magnitude of the benefits would likely be limited.¹²⁹ On the other hand, because it must be applied by courts in litigation, it raises a risk of imposing greater false positives, as I will explain in more detail below.

B. NEW FALSE NEGATIVES: EXCUSING COLLUSIVE COMPETITIVE
EQUILIBRIA ACHIEVED BY COMMUNICATION

Kaplow recognizes that oligopolists may reach a meeting of the minds on an equilibrium at the competitive level. The firms, in this instance, are on the same page about the appropriate market equilibrium—it just happens to be the competitive one. Kaplow, however, would apparently only condemn successful noncompetitive oligopoly pricing—interdependence that raises prices above the competitive level—because it makes little sense to create an anti-trust rule that prohibits competitive pricing. But to exclude competitive pricing from the definition of price fixing would change long-established law in troubling ways.¹³⁰

¹²⁷ Levenstein & Suslow, *supra* note 126, at 485 (cartels that use a mechanism to control the incentive to cheat are more stable); Christopher R. Leslie, *Cartels, Agency Costs, and Finding Virtue in Faithless Agents*, 49 WM. & MARY L. REV. 1621, 1629 (2008) (“Successful cartels have devised mechanisms that enable members to trust one another not to cheat, such as developing personal relationships among competitors, undertaking goodwill gestures among cartel members, having frequent and open communications, making price more transparent, and creating a group identity and attendant social norms of cooperation among cartel members.”).

¹²⁸ Individuals coordinating physical tasks, like surgery or repairing a machine, can often infer each others' minds from their faces, eyes, and actions in the work environment but they still will often require some communication to be successful. Susan R. Fussell et al., *Visual Cues as Evidence of Other Minds in Collaborative Physical Tasks*, in OTHER MINDS: HOW HUMANS BRIDGE THE DIVIDE BETWEEN SELF AND OTHERS 91 (Bertram F. Malle & Sara D. Hodges eds., 2005). In coordinating market choices, firms that do not communicate directly must infer each others' minds and motives at a distance with far less information.

¹²⁹ An exception may be the gas turbine market, in which the duopoly of General Electric and Westinghouse was able to maintain noncompetitive prices for 15 years, apparently without private communication, using detailed price books and a price protection plans. See Barak Y. Orbach, *The Duopolist Puzzle: Monopoly Power in Durable-Goods Markets*, 21 YALE J. REG. 67 (2004).

¹³⁰ See, e.g., *United States v. Trenton Potteries Co.*, 273 U.S. 392, 397–98 (1927) (“[W]e should hesitate to adopt a construction making the difference between legal and illegal conduct in the field of business relations depend upon so uncertain a test as whether prices are reasonable—a determination which can be satisfactorily made only after a complete survey of our economic organization and a choice between rival philosophies.”).

Consider the following scenario.¹³¹ Bombay and 2 Bros. are pizza parlors on the same block of Sixth Avenue in New York City, both charging \$1 per slice. One day in March 2012, Bombay cut the price to 79 cents; then next day 2 Bros. cut its price to 75 cents, which Bombay matched. The new price was below both stores' costs. In September, after months of defiantly losing money, the owners both raised their prices back to \$1. According to one account, the two owners met and communicated: "I said, 'We lose money, and the customer wins,' [one] recalled. He said, 'You're right.'"¹³² According to a later published account, however, there was no communication before the two shops raised prices: "The establishment was losing money and unable to pay bills or meet its rent at the 75 cent rate and therefore independently decided to raise the price back up to \$1. Any similarity between the prices was simply a coincidence."¹³³

Setting aside the relative credibility of these accounts, should there be any legal difference between the actions they describe? Assume that \$1 is a competitive price (and it is a very good price for a slice of pizza in New York)¹³⁴ and 75 cents is below marginal cost for both businesses. Consider first the rivals' return to the price of \$1 in the second, noncommunicative scenario. The two parlors' actions were certainly interdependent: the first parlor raised prices and the second, recognizing an opportunity to end the price war, chose to match it rather than maintain the low price and capture the lion's share of the business on the block. Nevertheless, their actions would be lawful under either current law or Kaplow's proposed standard. Under current law, the rivals' action would be lawful because they did not communicate. Under Kaplow's standard, the rivals' actions would be lawful, but for a different reason: the new price was competitive. The firms reached a meeting of the minds, but not to charge a supracompetitive price.

One might argue that below-cost pricing is always a phase that a firm endures in hopes of raising prices in a later phase, after disciplining (or destroying) a rival or after building loyalty to its own product. In the latter context, in which below-cost pricing is a promotional expense, interdependent action to shorten the low-price phase might be anticompetitive in a dynamic sense. Nevertheless, as a practical matter, the conduct in the scenario would have to

¹³¹ Chester Higgins, Jr., *\$1 Pizza Slice Is Back After a Sidewalk Showdown Ends Two Parlors' Price War*, N.Y. TIMES, Sept. 6, 2012, at A21.

¹³² *Id.* (internal quotation marks omitted).

¹³³ Jennifer Williams, *From Pizza Wars to Price Fixing*, N.Y. L. SCH. LEGAL AS SHE IS SPOKE (Sept. 28, 2012), <http://www.lasisblog.com/2012/09/28/from-pizza-wars-to-price-fixing/> (summarizing the position of one owner).

¹³⁴ See, e.g., Susana Kim, *A Little Slice of New York-Style Inflation*, WNYC NEWS (May 13, 2011), <http://www.wnyc.org/articles/wnyc-news/2011/may/13/blog-a-little-slice-of-new-york-style-inflation/> (reporting an average price of \$2.46).

be legal. If the market is ever to return to a competitive equilibrium, with prices equal to marginal cost, and the firms are fully informed of each other's moves as they must be in this hypothetical, the return must almost certainly involve some sort of meeting the minds.¹³⁵ Courts could not realistically condemn coordination to achieve a static competitive outcome rather than some hypothetical dynamic competitive outcome.

But what about the first scenario, in which the proprietors discussed the situation directly and each expressed his intention to return to the competitive price? Under present law, which does not allow "competitive evils to be a defense to price-fixing conspiracies,"¹³⁶ this sort of concerted action achieved through communication would be per se unlawful.¹³⁷ Yet if, as a strictly subjective approach would suggest, communication is not the defining element of illegal coordinated pricing, such a scenario would seem to be lawful: it achieves the same result, with very much the same mental states of the participants, as the scenario in which the parlors each decide to return to the competitive price through a tacit meeting of the minds. Communication provides a mechanism, but not an essential element.

Kaplow suggests that the law might separately prohibit certain communications as facilitating practices.¹³⁸ But communication in this scenario is not a facilitating practice in the usual sense. Facilitating practices are usually durable mechanisms that make it easier for firms to reach or to police an understanding by, for example, making prices more transparent and simplifying the monitoring process over a period of time. An agreement to adopt a facilitating practice can be illegal, even if there is no separate, express agreement on price. So, for example, an agreement to announce in advance and adhere to prices,¹³⁹ to deny short-term credit,¹⁴⁰ to use basing point pricing,¹⁴¹ or to report price quotes to rivals,¹⁴² all make pricing more transparent and thus make it easier to detect when firms are deviating from a price understanding. In the communication version of the pizza incident, however, the communications

¹³⁵ If marginal cost is upward-sloping, even an "independent" choice to price at marginal cost would require the firm to take account of its rivals' price and output. If the prices were identical, as in the hypothetical, firms must have reached that price and output combination by something like a meeting of the minds.

¹³⁶ *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 221 (1940).

¹³⁷ *See id.* at 223 ("[A] combination formed for the purpose and with the effect of raising, depressing, fixing, pegging, or stabilizing the price of a commodity in interstate or foreign commerce is illegal per se."); *id.* at 228 ("[P]rice-fixing combinations . . . are illegal per se; they are not evaluated in terms of their purpose, aim or effect in the elimination of so-called competitive evils.").

¹³⁸ *See* Kaplow, *Horizontal Agreements*, *supra* note 28, at 715-19.

¹³⁹ *Sugar Inst., Inc. v. United States*, 297 U.S. 553 (1936).

¹⁴⁰ *Catalano, Inc. v. Target Sales, Inc.*, 446 U.S. 643 (1980).

¹⁴¹ *FTC v. Cement Inst.*, 333 U.S. 683 (1948).

¹⁴² *United States v. Container Corp. of Am.*, 393 U.S. 333 (1969).

were not pursuant to any separate agreement and they did not merely facilitate an understanding on prices. The communications of intention and reliance were actions that became unlawful under Section 1 only when the firms acted consistently with them; at that point, their pricing became objectively concerted action.¹⁴³ By conveying rivals' intentions and reliance, they were inseparable from the formation of the common mental state itself and, together with that mental state, integral to the conduct.

Strict adherence to the subjective theory in this case would base liability on whether rivals interdependently achieved a noncompetitive result, not on whether rivals communicated. If it would be legal to reach a meeting of minds to end a below-cost price war simply by announcing price increases, it should be legal to do so by privately expressing an intention to increase prices and a reliance on your rival to do the same. But such a rule would involve a problematic change in present law. Coordination of price movements by communication is intrinsically more suspicious than coordination by interdependent conjectures based on general knowledge. The change might not matter much if the only consequence was whether the price of pizza by the slice is fixed at a static competitive level on one block in New York City. But the adoption of such a rule would place in question important precedents in which cartels employed explicit communications. For example, in the *Socony-Vacuum* case,¹⁴⁴ the Supreme Court affirmed criminal convictions of refiners that had agreed to purchase excess supplies of gasoline in spot markets, even though much of the excess supply was "hot gasoline" refined from oil produced in violation of state proration laws and was allegedly being sold at distress prices, often below the costs of production. In other circumstances, firms could argue that a market failure, like poorly defined property rights, justified a price-fixing conspiracy simply to reach the competitive level.¹⁴⁵ In *Addyston Pipe*,¹⁴⁶ for example, the defendants unsuccessfully argued that the price-fixing agreements were necessary to avoid "ruinous competition," possibly triggered by cost conditions consistent with natural monopoly.¹⁴⁷

¹⁴³ *But cf.* Larry Fullerton, *FTC Challenges "Invitations to Collude,"* ANTITRUST, Spring 2011, at 30 (describing FTC complaints and consent agreements in cases alleging invitations to collude, even though not accepted, as violations of Section 5 of the FTC Act).

¹⁴⁴ *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 220–24 (1940).

¹⁴⁵ Of course, in *Socony-Vacuum*, other firms produced at inefficient levels and the conspirators agreed to buy their excess supplies in order to maintain the market price. For that scheme to work, the conspirators must also have been reducing their own production.

¹⁴⁶ *United States v. Addyston Pipe & Steel Co.*, 85 F. 271, 283 (6th Cir. 1898), *aff'd*, 175 U.S. 211 (1899).

¹⁴⁷ *See* George Bittlingmayer, *Decreasing Average Cost and Competition: A New Look at the Addyston Pipe Case*, 25 J.L. & ECON. 201 (1982). *Cf.* Kaplow, *Economic Approach*, *supra* note 28, at 369:

A laissez-faire approach [to price coordination in markets with high fixed costs] is not entirely without virtues, for as more firms enter, prices may come down somewhat as

Price fixing may be subject to a rule of reason analysis if it is ancillary to an integration of productive functions, as in *Broadcast Music*.¹⁴⁸ In circumstances like the pizza scenario or *Socony-Vacuum*, however, allowing such a defense would invite courts to “set sail on a sea of doubt.”¹⁴⁹ Such a rule would likely involve costly false negatives by allowing harmful cartels to escape liability when they can create doubt whether fixed prices are above competitive levels. This change would have a significant effect on criminal cases, where fines are typically based on a share of revenues rather than the magnitude of the overcharge.¹⁵⁰ If rivals fix the price at the competitive level, the same mechanism can be used to coordinate noncompetitive pricing in the future; that danger is greater if the rivals are communicating.

One might avoid these false negatives by qualifying the subjective theory of concerted action and preserving the traditional prohibition on rivals’ use of communication to reach a meeting of the minds on any price. Under this approach, even if a meeting of the minds on a competitive price reached by interdependent conduct would be lawful, the same meeting of minds reached by direct communication could be unlawful. Posner adopts this view in his analysis of rivals responding to a common cost increase.¹⁵¹ He warns against “pressing the ‘meeting of the minds’ approach too far”¹⁵² and condemning firms for taking account of one another’s responses to the cost increase in deciding how much to raise prices. Such a process might lead to a tacit agreement on a common price, Posner believes, but it would be “inevitable and unobjectionable.”¹⁵³ On the other hand, “if the firms explicitly coordinated their pricing in reaction to the cost change, the law would [properly] treat their agreement as illegal collusion” because “there would be justifiable suspicion that the agreement was both unnecessary to a smooth adjustment to the cost increase and motivated, at least in part, by a desire to raise the price by more than the cost increase actually justified.”¹⁵⁴ The same reasoning applies to the dueling pizza scenarios.

price elevation is more difficult to maintain, and it is possible that the benefit from such price reduction would outweigh the waste from excessive entry (although it may not). In any case, it is hardly clear that an optimal response would be to permit whatever price elevation can be achieved without certain forms of explicit communications but to disallow all other price elevation.

¹⁴⁸ See, e.g., *Broadcast Music, Inc. v. CBS, Inc.*, 441 U.S. 1, 21–22 (1979); see also Christopher R. Leslie, Comment, *Achieving Efficiency Through Collusion: A Market Failure Defense to Horizontal Price Fixing*, 81 CAL. L. REV. 243, 288–91 (1993).

¹⁴⁹ *Addyston Pipe*, 85 F. at 284.

¹⁵⁰ Kaplow, *Economic Approach*, *supra* note 28, at 424–25.

¹⁵¹ POSNER, *ANTITRUST LAW*, *supra* note 23, at 95.

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.*

In this passage, Posner recognizes that the use of communication in this instance is not merely a facilitating practice, nor is it the subject of a separate agreement; it is integral to the meeting of minds on the price and it supplies the reason why a meeting of minds on a competitive price should be illegal. His rationale for condemning collusion in these circumstances reflects the objective theory of concerted action and exposes the limitations of the subjective theory as a basis for liability. If the relevant social harm is noncompetitive pricing pursuant to a meeting of minds, as the subjective theory maintains, then the law should focus on whether the price is noncompetitive, not on whether the conduct involves communication. A tacit agreement on how much to raise prices after a cost increase would be illegal if it resulted, after a costly process of signaling, in a price that was not fully cost-justified; the express agreement would be legal if it resulted instantly in a new competitive equilibrium that was cost-justified.

Posner rejects this legal framing of the issues in favor of one based on communication. Consistently with the objective theory, Posner recognizes that rivals' use of communication to coordinate a market outcome is more likely to be inefficient than the same rivals' use of their general knowledge of each other's present and likely future actions. Where communications are "unnecessary" to a legitimate purpose they raise a "suspicion" that they have an illegitimate purpose, even if the present result is a competitive equilibrium. These intuitions help explain why courts have come to view communication as part of the definition of agreement, a benchmark of anticompetitive effect, not simply as a facilitating practice.

C. NEW FALSE NEGATIVES: EXCUSING NONSTRATEGIC NONCOMPETITIVE EQUILIBRIA ACHIEVED BY COMMUNICATION

We also saw in the last Part that Kaplow excludes the noncompetitive one-shot equilibria, such as the Cournot and differentiated Bertrand models, from the category of interdependent oligopoly because each firm takes the estimated actions of its rivals as a given in choosing to price above the competitive level. In litigation, to infer whether prohibited collusion has occurred, courts must recognize these sorts of nonstrategic equilibria as possible explanations for noncompetitive pricing.¹⁵⁵ As I will argue later in this Part, making this distinction in litigation would be difficult if the law condemned purely interdependent noncompetitive equilibria.

But suppose the evidence clearly showed that rivals privately communicated their intentions and reliance with respect to output in a Cournot setting or with respect to prices in a Bertrand setting and thereby reached the oligop-

¹⁵⁵ See Werden, *supra* note 55, at 776.

oly equilibrium, but not the monopoly equilibrium.¹⁵⁶ Under present law, the use of these sorts of communications to reach a noncompetitive equilibrium would be unlawful, even if doing so without communications was theoretically possible. Put another way, the use of communication to achieve a non-strategic noncompetitive outcome would be illegal. Under the subjective model of concerted action, however, only a meeting of the minds in the strategic sense of an infinitely repeated game is unlawful. The use of communications would presumably not change this outcome. This result would be even more problematic than excusing the use of communication to fix competitive prices, as described in the last section. In this instance, the law would condone explicitly fixed prices at a noncompetitive level.

D. NEW FALSE POSITIVES: DISTINGUISHING MONOPOLY

In this Part and the next, I consider whether a pure subjective standard will allow courts adequately to distinguish in litigation certain noncompetitive equilibria that Kaplow excludes from coverage. Because Kaplow very properly would not prohibit all noncompetitive pricing, the existence of pricing above marginal cost is relevant to the existence of coordination, but not determinative. But it will be difficult for courts to distinguish these sorts of noncompetitive equilibria achieved by independent calculation from those achieved by a strategic calculation that leads to meeting of the minds.

We have already seen that Kaplow would not prohibit unilateral exploitation of monopoly power by a monopolist, because doing so would inhibit innovation and risk taking. The same concerns, he argues, do not apply to coordinated oligopoly pricing. But monopolists do not exist in vacuums. Even a monopolist must be aware of the competitive actions of other firms, such as the producers of substitutes and potential entrants, and those other firms must be aware of the monopolist's actions. In the extreme case, if there are increasing returns to scale, the incumbent firm may fear total displacement by a potential entrant.¹⁵⁷ An agreement between regional or single-product monopolists not to enter each others' markets would, of course, be per se illegal.¹⁵⁸ But there are many actions that firms may take to deter entry by

¹⁵⁶ See, e.g., Maria Goltsman & Gregory Pavloc, *Communication in Cournot Oligopoly* (Univ. of W. Ont., Dep't of Econ. Research Report Series, Working Paper No. 2012-1, 2012), available at http://economics.uwo.ca/research/department_working_papers_docs/wp2012/wp2012_1.pdf; Israel Waichman et al., *Pre-play Communication in Cournot Competition: An Experiment with Students and Managers* (Christian-Albrechts-Universität Kiel, Dep't of Econ., Working Paper No. 2010,09, 2010), available at <http://hdl.handle.net/10419/41551>.

¹⁵⁷ WILLIAM J. BAUMOL ET AL., *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* (1982).

¹⁵⁸ See, e.g., *Timken Roller Bearing Co. v. United States*, 341 U.S. 593, 595–96 (1951). In *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 765 (1984), the Court disapproved *Timken's* reference to the intra-enterprise conspiracy doctrine, but recognized that the

potential rivals, actions that might be viewed as signals. An incumbent firm might deter entry by making investments in sunk costs and signaling “commitment to aggressive post-entry competition.”¹⁵⁹ Thus, when an incumbent charges noncompetitive prices and the potential entrant does not enter, it is possible to characterize their decision not to do so as the product of a meeting of the minds—an agreement to divide markets.

In *Twombly*, the Supreme Court held that regional telephone monopolists’ mutual decisions not to enter each others’ markets, unaided by communication, did not constitute an agreement:

In a traditionally unregulated industry with low barriers to entry, sparse competition among large firms dominating separate geographical segments of the market could very well signify illegal agreement, but here we have an obvious alternative explanation. In the decade preceding the 1996 Act and well before that, monopoly was the norm in telecommunications, not the exception. The ILECs were born in that world, doubtless liked the world the way it was, and surely knew the adage about him who lives by the sword. Hence, a natural explanation for the noncompetition alleged is that the former Government-sanctioned monopolists were sitting tight, expecting their neighbors to do the same thing.¹⁶⁰

Kaplow notes this passage and its evident endorsement of a “narrow view of agreement, one that excludes interdependent oligopolistic behavior,”¹⁶¹ but dismisses *Twombly* as not articulating a definition of agreement or distinguishing earlier precedent reflecting a broader view. But “sitting tight, expecting their neighbors to do the same thing” is a fair description of a meeting of the minds.¹⁶² In giving this “alternative” explanation for the rival ILEC’s actions, the Court expressly held that the thought process it described was not a market allocation agreement. Even if there were internal memoranda documenting the firms’ thought processes and even if the firms admitted those processes in depositions, the conduct would be lawful. And, of course, if they reached the same result by communicating, the conduct would be unlawful.

doctrine “was in no way necessary to the result.” Cf. Randy Stutz, *Market Allocation in the Health Insurance Industry and the McCarran-Ferguson Act*, 89 OR. L. REV. 885, 888–91 (2011) (discussing allegations of market allocation by insurers).

¹⁵⁹ Jonathan B. Baker, *Responding to Developments in Economics and the Courts: Entry in the Merger Guidelines*, 71 ANTITRUST L.J. 189, 194 n.31 (2003).

¹⁶⁰ *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 567–68 (2007) (citation omitted).

¹⁶¹ Kaplow, *Horizontal Agreements*, *supra* note 28, at 739.

¹⁶² In the first part of the quoted passage, Justice Scalia suggests that, if adjacent monopolists in unregulated markets with low entry barriers had not entered each other’s markets, then an allegation of an illegal agreement to allocate markets might be plausible. The second part of the passage makes clear that that the “illegal agreement” he had in mind was not simply a meeting of the minds. See *Twombly*, 550 U.S. at 567–68.

Justice Scalia recognized that, in some circumstances, rivals' persistent refusal to compete may make an allegation that the firms' actions were pursuant to coordination by direct communications plausible. In the first part of the quoted passage, he noted that one might infer an "illegal agreement" if regional monopolists in an unregulated market with low entry barriers were not competing. It would thus be plausible in certain circumstances, where there is no "alternative explanation," that the regional monopolists had divided markets by communicating. A standard of liability defined in terms of a meeting of minds, however, would permit an inference of illegal agreement in far more instances, including tacit understandings to allocate product lines.¹⁶³ In oral argument in *Twombly*, Chief Justice Roberts facetiously asked if a court could infer a market-allocation agreement if there were a pet store on the same block as a grocery store and "the grocery store is not selling pet supplies and they could make money if they did."¹⁶⁴

Justice Scalia must have thought it unnecessary to explain why firms' mutual decisions to "sit tight expecting their neighbors to do the same" did not constitute agreement. He might have pointed to the policy of preserving the incentive to innovate by allowing monopolists to extract a full monopoly profit. That policy is broad enough to protect monopolists' discretion to consume their monopoly profits rather than place them at risk by entering adjoining markets, even if adjoining monopolists make the same choice. To hold otherwise would constrict the safe harbor for unilateral exploitation of monopoly power and potentially deter innovation (for example, to reduce the costs of grocery retailing) by making less certain the reward of monopoly profits. To hold otherwise would also place courts in the position of second-guessing a range of decisions by firms about whether to enter adjoining markets.

A legal rule that prohibits noncompetitive, cooperative equilibria achieved without communication is thus likely to impose significant error costs because the prospect of damage awards inhibits not only the core conduct that motivates the rule but also efficient, facially similar conduct that firms fear may trigger liability.¹⁶⁵ Direct and indirect purchasers will likely challenge price

¹⁶³ For example, in *Polk Bros. v. Forest City Enterprises, Inc.*, 776 F.2d 185, 190 (7th Cir. 1985), Judge Easterbrook held that an agreement between retailers not to sell competing products was ancillary to a productive joint venture to build a new space to house both retailers and therefore subject to a rule of reason analysis. Were there no such joint venture agreement, however, decisions by retailers in the same building not to sell competing products might be subject to challenge as concerted action.

¹⁶⁴ Transcript of Oral Argument at 31, *Bell Atl. Corp. v. Twombly*, 550 U.S. 544 (2007) (No. 05-1126), available at http://www.supremecourt.gov/oral_arguments/argument_transcripts/05-1126.pdf.

¹⁶⁵ Kaplow suggests that it would be preferable to address problems of overdeterrence by increasing the burden of proof for coordinated oligopoly pricing (extending liability to the entire region of the paradox of proof) rather than insisting on proof of particular means of coordination. Kaplow, *Direct*, *supra* note 28, at 510–11. I will not discuss this suggestion further because it is

increases whenever the legal rule creates a chance of recovery or settlement that warrants the expense of suit.¹⁶⁶ Consequently, a subjective definition of agreement may impose substantial and long-lasting costs by deterring non-interdependent conduct that courts cannot easily distinguish from harmful conduct. Kaplow suggests that the law could reduce chilling costs by challenging only significant price elevations. But the proposed rule would also have to distinguish lawful practices that result in price elevations.¹⁶⁷ The notion of a meeting of minds is not a promising standard for distinguishing harmful noncompetitive interdependent equilibria from facially similar non-competitive independent equilibria.

E. NEW FALSE POSITIVES: DISTINGUISHING NONCOLLUSIVE NONCOMPETITIVE OLIGOPOLY

Other instances of apparently independent noncompetitive pricing may also involve equilibria that resemble interdependent oligopoly pricing in important respects and may lead to new false positives.¹⁶⁸ Kaplow recognizes the potential for false positives, but suggests that “[m]any means of detection identify interdependence per se and thus do distinguish the cases.”¹⁶⁹ But false positives are nevertheless likely. Consider first dominant firm pricing, which we concluded represented unilateral exercise of monopoly power, if it conformed to the classic static model. Recall that, in that model, the dominant firm takes the fringe firms’ output as given and sets a monopoly price based on the residual demand; the fringe firms set their output at the point at which their marginal cost equals the dominant firm’s price.¹⁷⁰ Economists have shown, however, that even dominant and fringe firms have incentives to make strategic choices.¹⁷¹ The dominant firm must estimate the prospect of fringe expan-

not clear how or in what form such a change in the ordinary civil burden of persuasion might occur.

¹⁶⁶ See Kaplow, *Economic Approach*, *supra* note 28, at 433.

¹⁶⁷ *Id.* at 415.

¹⁶⁸ Compare Coate, *supra* note 71, at 35–36, pointing out many challenges to isolating successful oligopoly pricing based on empirical evidence:

Economists have a broad range of performance indicators, often with indirect ties to competition. For example, some considerations are closely related to the theoretical concept of profits (prices well above relevant costs), but difficult to measure; others are tangentially related to profit (stable market share), but easier to measure. Thus, it is possible for performance considerations to be mis-measured and artificially correlated with structural concerns. This would allow an incorrect inference of a competitive concern. Examples include inferences of monopoly profit due to high margins, but really caused by high fixed cost conditions in the market or stable market shares driven by a static customer base.

¹⁶⁹ Kaplow, *Economic Approach*, *supra* note 28, at 445.

¹⁷⁰ See *id.* at 369.

¹⁷¹ See W. KIP VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 177–82 (4th ed. 2005) (discussing Darius W. Gaskins, Jr., *Dynamic Limit Pricing: Optimal Pricing under Threat of Entry*, 3 J. ECON. THEORY 306 (1971); Kenneth L. Judd & Bruce C. Petersen, *Dynamic Limit*

sion through investment in new capacity. A higher price may allow the fringe firm to earn substantial rents. The fringe firm may then invest those rents in new capacity, making its supply function and the dominant firm's residual demand curve more elastic. The dominant firm, however, may set lower prices in order to deter expansion and prolong its dominant position. Or it may set a limit price and exclude the fringe from the market entirely.

Suppose, however, that we observe that a dominant firm is setting its short-run profit-maximizing price, which the fringe firm is matching at its marginal cost.¹⁷² The fringe firm, however, is not retaining its earnings to invest in new capacity, perhaps fearing that the dominant firm would adopt a strategy of dynamic limit pricing if it increased capacity. Here it would appear that the choices of the dominant and fringe firms are not independent static choices (taking each other's decisions as given), but strategic. They represent a form of coordination to reach and sustain the noncompetitive equilibrium.¹⁷³ If, before reaching this equilibrium, the dominant firm had communicated its pricing intentions and its reliance on the fringe firm not to invest in new capacity, and the fringe firm had communicated its intention to match the price and to consume the resulting rents rather than investing them in new capacity, the resulting equilibrium would be collusive. If the firms did not communicate, however, it would be problematic to characterize the equilibrium as collusive, despite the strategic thinking on both sides. Yet, under a subjective theory of concerted action, that inference would seem to be permissible. The danger is particularly significant, because some of the types of economic evidence that Kaplow identifies as a basis for inference of coordination, particularly price elevation, would also be present in the dominant firm context.

Another possible source of confusion is the size of the fringe firms. The dominant firm model assumes that fringe firms are sufficiently small to be price takers. Thus, if there is a dominant firm with 80 percent of the market, with five fringe producers, each with 4 percent of the market, the model would appear to hold and the resulting equilibrium would not be interdependent. But suppose there are only two smaller producers in the market, each with 10 percent of the market, or one with 20 percent? Now each smaller producer has choices to make about its price and output. One choice might be

Pricing and Internal Finance, 39 J. ECON. THEORY 368 (1986); see also KAPLOW, *supra* note 29, at 348–53 (recognizing problems in identifying a true dominant firm case).

¹⁷² Cf. Kaplow, *Economic Approach*, *supra* note 28, at 369–70 (recognizing dangers of false positives from basing liability on whether higher-cost oligopolists are pricing at marginal cost).

¹⁷³ A related issue arises if small fringe firms are matching the price of a cartel with a dominant market share. See Iwan Bos & Joseph E. Harrington, Jr., *Endogenous Cartel Formation with Heterogeneous Firms*, 41 RAND J. ECON. 92 (2010). The fringe firms might be criminally liable, even if they did not participate in the formation or execution of the cartel.

to follow the dominant firm's price.¹⁷⁴ But if it did so, it would appear it acted pursuant to a meeting of the minds with the dominant firm.¹⁷⁵ It seems a slender reed to determine the liability of the rival based on an indistinct point at which it becomes large enough that its decision to follow the lead of the larger firm is not determined.

Recall also that Kaplow would also exclude Cournot and differentiated Bertrand equilibria from the category of interdependent pricing. In the Cournot quantity-setting model of duopoly, each firm individually sets its output at the point where marginal cost equals marginal revenue, taking its rival's output as given. The resulting price and output combination is above the competitive level, because each firm is exploiting its measure of market power, but below the monopoly level. Suppose, however, that buyers allege that the firms have gone beyond the standard Cournot calculation and have jointly coordinated a higher price and a lower output, albeit without communication. Making such a distinction would be extraordinarily challenging, in the absence of admissions.¹⁷⁶

Kaplow has two responses to this concern.¹⁷⁷ First, he suggests that, in a Cournot equilibrium, firms would be operating at or near capacity and there would be little evidence specifically of price coordination. But much of the evidence of coordination that Kaplow identifies involves pricing patterns and price elevation that could be similar to pricing in a Cournot equilibrium. Perhaps a jury could distinguish noncompetitive equilibria on this basis, but it would involve choosing between complex expert accounts, with a significant rate of error. Second, Kaplow suggests that the law should not be overly concerned about false positives in this context because the Cournot equilibrium is, after all, noncompetitive: "unilateral price elevation with homogeneous goods tends to involve both allocative and dynamic inefficiency, so false positives (deeming to be interdependent price elevation that is really unilateral) may actually be beneficial rather than socially costly."¹⁷⁸ Nevertheless, the outcome is problematic because firms in the Cournot case have acted independently and lawfully, even by Kaplow's broadened definition. The implication of Kaplow's justification is that the law should simply condemn noncompeti-

¹⁷⁴ See Raymond J. Deneckere & Dan Kovenock, *Price Leadership*, 59 REV. ECON. STUD. 143, 145 (1992).

¹⁷⁵ *Id.* (price leadership in these circumstances is "more collusive" than simultaneous price setting); see also KAPLOW, *supra* note 23, at 348–53 (considering evidentiary problems in this case).

¹⁷⁶ See Herbert Hovenkamp, *The Rationalization of Antitrust*, 116 HARV. L. REV. 917, 924 (2003) (reviewing POSNER, *supra* note 23) (evidence of, for example, stable market shares is equally consistent the Cournot and collusive equilibria).

¹⁷⁷ Kaplow, *Economic Approach*, *supra* note 28, at 443–45.

¹⁷⁸ *Id.* at 444.

tive pricing, regardless of whether it is concerted—a result he rejects elsewhere.

A similar problem might arise in Bertrand competition in markets with differentiated products. Kaplow includes in the category of unilateral conduct not only monopolists, but Bertrand oligopolists that sell differentiated products at prices above marginal cost. In Kaplow's framework, this sort of pricing is independent, even though the decision involves a choice that requires an awareness of the likely prices of rival products, because each seller takes the choices of its rivals as given. In these circumstances, Kaplow observes,

undercutting one's rival ever so slightly will capture only a modest amount of additional sales. Once again, each firm has some market power. Firms will trade off the profit per unit sold with the quantity of sales. The result is a price above the competitive level, the more so the greater the degree of differentiation.¹⁷⁹

Kaplow suggests that the very existence of significant differentiation diminishes the possibility of coordination, so the risk of false positives is likely to be small.¹⁸⁰

Nevertheless, markets characterized by this sort of competition may pose challenging factual issues for a subjective standard of agreement. For example, when Microsoft recently introduced its Surface tablet computer, it had to choose a price that took account of its capabilities relative to the price and capabilities other tablet manufacturers, such as Apple and Samsung. As Kaplow recognizes, it would be problematic to prohibit the rivals' choices of a price point above marginal cost for the same reason that pure monopoly pricing is lawful: the higher price is in part the reward for innovation that differentiates the product. Indeed, under present standards, Bertrand competition can explain noncompetitive pricing in a way that defeats an inference of collusion.¹⁸¹

An oligopolist selling a differentiated product might not be able profitably to raise its price if doing so would divert substantial sales to a close rival. It can solve this problem and raise its prices by acquiring that rival and eliminating the diversion.¹⁸² The same two firms could also profit by remaining separate entities, but coordinating prices at a level above a Bertrand equilibrium.¹⁸³

¹⁷⁹ Kaplow, *Horizontal Agreements*, *supra* note 28, at 783–84 n.237.

¹⁸⁰ See Kaplow, *Economic Approach*, *supra* note 28, at 445–46.

¹⁸¹ See *In re Brand Name Prescription Drugs Antitrust Litig.*, 186 F.3d 781, 787 (7th Cir. 1999) (Posner, J.). Posner's analysis is discussed in Werden, *supra* note 55, at 775–76.

¹⁸² See James Langenfeld & Gregory G. Wrobel, *Upward Pricing Pressure Under the 2010 Horizontal Merger Guidelines*, ANTITRUST, Fall 2010, at 21.

¹⁸³ Cf. Jonathan B. Baker & Timothy F. Bresnahan, *The Gains from Merger or Collusion in Product-Differentiated Industries*, 33 J. INDUS. ECON. 427, 428 (1985) (equating the estimated gains from merger and bilateral collusion).

It would be a difficult task, however, for courts to distinguish the sorts of accommodations involved in Bertrand competition from successful oligopolistic coordination.

III. CONCLUSION

Communication, even if it is only cheap talk, is useful and often necessary for rivals to coordinate price and output decisions. All would agree that evidence of communication on these issues is relevant to the issue of whether firms reached an illegal agreement or engaged in concerted action. Most courts and commentators in recent years would go further and include some form of communication in the definition of agreement: in order to find liability, the finder of fact must be able reasonably to infer that the rivals' conduct was the product of communication, variously defined. Louis Kaplow has recently challenged this approach in three extensive articles and a major book, all of which argue that the focus on communications is misguided. Although he does not propose a full or final definition, he suggests that the standard of successful oligopolistic interdependence by a meeting of minds, properly defined and qualified, would provide a superior basis for identifying unlawful agreements.

In this essay, I have outlined Kaplow's subjective theory of concerted action and considered its likely costs and benefits relative to the current objective theory. I suggest that it will deter relatively few durable instances of oligopolistic interdependence that present law would not reach. On the other hand, it would seem to immunize some equilibria that have been reached through communication. If so, it would raise the possibility of new and problematic defenses to claims of illegal concerted action. Moreover, Kaplow expressly and implicitly excludes certain noncompetitive equilibria from the subjective standard on the ground that they do not involve the requisite meeting of minds. But each of these equilibria differs in only a few ways from at least one other, more strategic, equilibrium that apparently involves a meeting of minds. Depending on the chosen burden of proof, these distinctions raise the danger of significant false positives.

