

California Law Review

VOL. 99

JUNE 2011

No. 3

Copyright © 2011 by California Law Review, Inc., a California Nonprofit Corporation

On the Meaning of Horizontal Agreements in Competition Law

Louis Kaplow*

Competition law's prohibition on price fixing and related horizontal agreements is one of its few uncontroversial provisions and is understood to be well grounded in economic principles that are taken to provide the foundation for competition policy. Upon examination, however, commonly offered views of the law's conception of agreement prove to be difficult to articulate in an

Copyright © 2011 California Law Review, Inc. California Law Review, Inc. (CLR) is a California nonprofit corporation. CLR and the authors are solely responsible for the content of their publications.

* Finn M.W. Caspersen and Household International Professor of Law and Economics, Harvard Law School. I am grateful to Ryan Bubb, Aaron Edlin, Oliver Hart, Alvin Klevorick, Steven Shavell, Kathryn Spier, and participants in workshops at Harvard, the Antitrust Division of the Department of Justice, and the American Law and Economics Association for helpful discussions and comments; Josh Branson, Jamison Davies, Danielle D'Onfro, Ariel Fox, Barbara Glowacka, David Gottlieb, Jason Green-Lowe, Jesse Gurman, Kinga Guzdek, Anat Holtzman, Noam Lerer, Lauren Merrell, Soojin Nam, Balaji Narain, Max Nicholas, Robert Ritchie, Cody Rockey, Michael Sabin, Dorothy Shapiro, and Joseph Vardner for research assistance; and the Kauffman Foundation and Harvard Law School's John M. Olin Center for Law, Economics, and Business for financial support. Seeds for some of the ideas in this Article appear but are not developed in PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS* (4th ed. 1988) (and also in the 1988 Teacher's Manual), and Louis Kaplow & Carl Shapiro, *Antitrust*, in 2 *HANDBOOK OF LAW AND ECONOMICS* 1073 (A. Mitchell Polinsky & Steven Shavell eds., 2007). I have benefited greatly from prior interchanges with my co-authors, but neither they nor others who have offered comments should be held responsible for any views expressed herein (some of which conflict in part with what I have suggested previously). This article is the first piece of a three-part project, the second of which—Louis Kaplow, *An Economic Approach to Price Fixing*, 77 *ANTITRUST L.J.* 343 (2011)—addresses the optimal legal regime for price fixing, and the third of which—Louis Kaplow, *Direct Versus Communications-Based Prohibitions on Price Fixing*, *J. LEGAL ANALYSIS* (forthcoming)—compares such a regime to that conventionally advocated.

operational manner, at odds with key aspects of legal doctrine and practice, and unrelated to core elements of modern oligopoly theory. This Article explores these and other features of the agreement requirement and suggests the need for a wholesale rethinking of how competition law should approach the oligopoly problem.

Introduction.....	685
I. Preliminaries.....	690
A. Illustrations	690
1. Example 1	690
2. Example 2	694
B. Taxonomy	696
1. Independent Behavior	696
2. Interdependent Behavior.....	697
3. Express Agreement.....	699
4. Commentators' Views	700
5. A Clarification Regarding Independent Interdependent Behavior.....	702
II. Concepts.....	704
A. Terminology.....	704
B. Communications	710
1. Nature of Communications	711
2. Communications as Facilitating Practices	715
3. Remarks on Language	719
III. Doctrine	725
A. Statute	727
1. Contract, Combination, or Conspiracy	727
2. General Law of Conspiracy	729
B. Supreme Court	731
1. Early Decisions	731
2. Subsequent Decisions	735
C. Lower Courts	743
1. Circumstantial Evidence	743
2. Plus Factors.....	749
3. Jury Instructions.....	752
4. Damages	754
D. Paradox of Proof.....	758
E. On the Meaning of the Law	766
F. EU Article 101	771
IV. Oligopoly Theory and the Agreement Requirement.....	777
A. Theory of Coordinated Oligopoly Behavior	777
1. Distinction Between Cooperative and Noncooperative Games	779
2. Repeated Games and Dynamic Interaction.....	783

3. Equilibrium Elaborated.....	789
B. Is There a Concept of Agreement in Oligopoly Theory?.....	792
1. Equilibrium.....	795
2. Communications.....	797
3. Promises.....	803
C. Rationale of Price-Fixing Prohibition.....	809
Conclusion.....	814

INTRODUCTION

Competition regimes strictly scrutinize horizontal agreements, generally condemning price fixing and related practices outright. Under U.S. antitrust law—the focus of this Article for concreteness and due to the author’s familiarity—price-fixing agreements are deemed to be per se illegal, giving rise to criminal sanctions as well as treble damages. In the European Union and most other jurisdictions, price fixing is similarly subject to competition law’s harshest penalties.¹

Although much competition regulation, particularly of practices by dominant firms (monopolies) and of vertical contractual arrangements, has proved controversial, with different rules across jurisdictions and over time, the prohibition on price fixing is longstanding and not subject to serious question in standard applications. Current doctrine is believed to reflect competition law’s tendency to move away from formalism and increasingly embrace a purposive approach that motivates regulation and designs particular rules in light of substantive teachings of modern economics. In this regard, condemnation of price-fixing agreements is not merely seen as unproblematic but as the most central, important, and defensible feature of contemporary competition law.

There is, however, a central difficulty that is insufficiently recognized and seriously underanalyzed. On one hand, the law makes the existence of an agreement a necessary condition for liability, and for simple price fixing and closely related acts it is a sufficient condition as well. On the other hand, the underlying notion of agreement, as many understand the term, proves extremely hard to make operational; indeed, direct, practical formulations are rarely offered. Furthermore, the most commonly articulated interpretation of the law is at odds with much doctrine and legal practice. And perhaps most important, it is unconnected with the modern theory of oligopoly that supposedly provides the foundation for the prohibition.²

1. Throughout, this Article focuses on price fixing although most of the analysis is equally pertinent to other horizontal agreements designed to enable successful oligopolistic coordination. In addition, some of the argument (including much of that pertaining to terminology and doctrine) is applicable to all manner of horizontal agreements and in some respects to vertical agreements as well.

2. This final point builds on the theme most associated with the academic writings of Richard Posner. See RICHARD A. POSNER, *ANTITRUST LAW*, ch. 3 (2d ed. 2001) [hereinafter POSNER, *ANTITRUST*]; Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 *STAN. L. REV.* 1562 (1969) [hereinafter Posner, *Oligopoly*].

The core difficulty in defining agreement derives from the nature of dynamic, strategic interaction among firms in an oligopoly. Suppose that, in a concentrated industry, the firms are successful in charging a price that approximates the monopoly level and in maintaining this state of affairs because firms that contemplate cheating (cutting price to enhance market share) fear sufficiently swift and substantial retaliation to render deviation unprofitable. The firms' actions (and inactions) are interdependent in that each firm's strategic assessment is notably influenced by how it expects other firms to react.

A central question for legal regulation is whether successful oligopolistic interdependence that produces supracompetitive prices should in itself be deemed a violation or whether something additional—perhaps secret negotiations producing a signed cartel agreement, perhaps less formal arrangements—should be a prerequisite to liability. Most contemporary writers believe that the law does and should require more than interdependence. It is unclear, however, just what supplement is necessary. One implication of this gap is that it is difficult to identify the extent of consensus or disagreement that exists. In addition, it is appreciated that this view is in tension with a rejection of formalism and an embrace of economically based competition regulation because successful interdependent coordination that produces supracompetitive pricing leads to essentially the same economic consequences regardless of the particular manner of interactions that generate this outcome.

Part I begins the investigation of the horizontal agreement question by presenting scenarios that illustrate the difficulty of defining agreement in a coherent fashion that successfully distinguishes pure interdependence (deemed to be insufficient) from classic cartels (widely accepted to be more than sufficient). Of course, most legal categories give rise to line-drawing problems; it is notoriously difficult to distinguish among some shades of gray. The examples presented, however, are more corrosive because they demonstrate how hard it is to distinguish what many regard to be polar opposite cases, analogous to black and white.

Part II scrutinizes the concepts used in discussing horizontal agreements. Initial examination suggests that standard meanings of key terms readily encompass interdependence within agreement, although under other definitions and usages, this is not the case. The widespread use of terms having potentially different meanings can generate substantial confusion. Even worse, terms often associated with one category of behavior are sometimes used to denote the opposite category. Interpreting both court opinions and commentary thus becomes almost impossible at times, and there is room for interpreters to depict key passages, including important canonical statements of the doctrine, as having whatever meaning is desired, especially when these pronouncements are taken out of context. More broadly, intelligent dialogue about the agreement requirement is often undermined, perhaps without the participants recognizing the extent of misunderstanding that their statements may cause or their readings

may involve. To some extent, this state of affairs reflects inattention. But it also is symptomatic of underlying substantive challenges; after all, it never is easy to state with precision ideas that themselves are foggy, inconsistent, or incoherent.

Particular attention is devoted to interfirm communications that many (sometimes implicitly) take to be central to defining the law's concept of agreement. The core problem with making the existence of communications determinative is that communication is ubiquitous, among other reasons because most actions, certainly including the sale of a good at a price, themselves communicate pertinent information. If the use of communications constitutes agreement, then pure interdependence (or less) would trigger liability. Therefore, if agreement is to depend on communications and yet be more restrictive, it is necessary to specify some subcategory of communications, perhaps based on the mode of communication or its content, the use of which constitutes agreement whereas the absence of which leads to a designation of no agreement. It is explained that this approach is tantamount to declaring the result of price fixing to be *per se* legal while making only the use of certain means illegal—and, moreover, suspending the agreement requirement with respect to the decision to use such means, despite the fact that it is the same agreement requirement that produces the exoneration of price coordination when such means are not employed. Moreover, if regulation is to be restricted to a particular subcategory of communications, it is necessary to decide whether firms' use of functional equivalents also gives rise to liability. If it does not, circumvention is invited. But if it does—which one might expect under a modern, nonformalistic view of the law—one returns to a prohibition on all successful interdependent coordination, for the function that is meant to be served by the communications in question obviously is to accomplish successful coordination (rather than to communicate for its own sake).

Finally, the discussion of communications considers a range of theories and evidence about language that seems directly pertinent but has not previously been studied in the present context. Human language is extremely flexible and adaptable, resisting efforts at regulation. It also can be difficult for outsiders to understand what is being communicated. These and other points are well illustrated by sign language. Indeed, the very existence of sign language is problematic for those who implicitly seek to prohibit communication that uses language and yet freely permit the use of signs (like price signaling). It is also observed that standard approaches to defining agreement, which require the presence of particular, purely symbolic communications rather than encompassing behavior that communicates, have as their underlying logic the maxim that "words speak louder than actions." Of course, the more familiar opposite dictum is better rooted in common sense and, not surprisingly, in the teaching of scholars of strategy, including business strategy with regard to the interaction of firms in an oligopoly.

Part III examines how the agreement requirement is reflected in existing doctrine. The provision of U.S. Sherman Act Section 1, which is rarely elaborated directly, does suggest some guidance, particularly through its use of the word “conspiracy.” This term had and continues to have an established legal meaning that is rather encompassing. Indeed, some of the earlier Supreme Court cases that provide seminal interpretations of the statute are also regarded as leading pronouncements on the more general law of conspiracy, and precisely for some of its broader features. More recent Supreme Court opinions provide more restrictive interpretations, although the agreement question was not formally before the Court in these cases and the statements themselves are difficult to give meaning. Practice in the lower courts is quite mixed. In fundamental respects, in spite of direct pronouncements that are ambiguous or to the contrary, actual practice in court is often as if the law deemed successful interdependence sufficient—notably, regarding the “plus factors” deemed sufficient to establish agreement, jury instructions on what must be found to establish an agreement, damages rules (that necessarily reflect a standard of liability due to the requisite causal nexus between liability and compensable injury), and the paradoxical process of inferring the existence of an agreement from circumstantial evidence. And actions in the world, reflected in legal advice, business strategy instruction, and everyday behavior, seem difficult to reconcile with conventional pronouncements on the breadth of the legal proscription on price fixing. Interpretation of Article 101 (formerly 81) in the European Union is also briefly considered. Although the details differ, it is not surprising that similar difficulties appear because the underlying economic problem is identical and the structure of the legal prohibition is almost the same.

Part IV assesses the relationship between modern oligopoly theory and the agreement requirement. Because competition law seeks to regulate oligopoly and, moreover, to ground such regulation in modern economic understandings, it would seem to follow that, if the law’s notion of agreement reflects economic substance, it would correspond to a core distinction drawn in oligopoly theory. As it turns out, that theory, which is an application of game theory (particularly, that of repeated games), does have an explicit notion of agreement. But this notion refers to binding agreements and thus is irrelevant for present purposes because competition law renders horizontal agreements void *ab initio*. When agreements are not taken to be automatically enforced by an outside authority, another branch of game theory is applicable. But the same theory, models, and analysis are applicable equally to successful oligopolistic coordination accomplished through pure interdependence and to that arranged in the form of a classic cartel. That is, the distinction that many would have the law make central is, as a first approximation, nonexistent in the pertinent economic theory.

Modern oligopoly theory does, however, have a central concept—whether parties’ strategies constitute an equilibrium—that may be relevant in a somewhat different way. This concept is closely related to the idea of a meeting

of the minds that is both at the very essence of interdependent oligopolistic coordination and also constitutes a standard definition of the term agreement. Equating the concept of equilibrium with agreement is not without its problems, but it really is the only concept in the relevant theory that relates in a significant way to the notion of an agreement. This Part of the Article also considers the roles of communications and of promises in oligopoly theory, finding each of potential relevance but neither hinging critically on a notion of agreement. Finally, it is observed that what economics teaches about why we should be concerned about price fixing not only fails to support reasoning offered in favor of a heightened agreement requirement but also cuts against it because the cases exonerated on the ground that they involve mere interdependence are those that involve the greatest rather than the least social harm.

It is tempting to conclude from the analysis in Parts I–IV that the horizontal agreement requirement is best interpreted as applicable to all interdependent behavior that is successful in producing oligopoly prices. After all, from each of the dimensions considered, virtually every problem derives from attempting to define agreement as requiring something more (whatever that may be). This Article does not, however, conclude in this manner. As the Conclusion emphasizes, the present inquiry, although elaborate, does not examine many of the key dimensions relevant to the determination of the ideal legal rule. It does not systematically compare the performance of reasonably well-specified competing formulations. It does not consider important aspects of administration. And, most importantly, it does not undertake the sort of analysis sketched at the conclusion of Section IV.C, wherein it is emphasized that the law must be assessed in large part based on *ex ante* considerations of deterrence and the chilling of desirable behavior rather than focused primarily, as is more conventional, on the error rate in adjudicated cases.

This Article nevertheless should advance thought on the best way to regulate oligopoly behavior through competition law. Because of the near consensus of present opinion that centers on a criterion (or, more likely, numerous differing criteria) of uncertain meaning and the failure to appreciate many implications of the dominant view, it is important to clarify terminology, eliminate much underbrush, and begin the task of using modern oligopoly theory to analyze the problem directly. It is difficult to compare, say, liability based on interdependence with a rule requiring more if we do not know what that more is, how to identify its existence, or how it relates to the justification for limiting oligopolistic interaction. And even simple points about terminology are critical, for it is hard to assess competing arguments when they are couched in language susceptible to multiple, even opposite interpretations. Although the present Article's focus does not encompass the entire problem of the optimal competition law regulation of oligopoly pricing, the resulting conceptual clarification should improve the ability of future work to advance understanding.

I.

PRELIMINARIES

To understand the meaning of horizontal agreement, it is necessary to juxtapose abstract categories and concrete situations. Accordingly, this Part begins in Section A by offering two examples that illustrate some of the key difficulties in determining what constitutes an agreement. Section B then offers a conventional taxonomy that will aid in further examination of possible meanings of the agreement concept.

A. Illustrations

In some instances, it is straightforward to determine the existence of an agreement, however that notion might be defined within a fairly broad range. When two parties sign a formal, legally binding contract for the sale of an object, there is undoubtedly an agreement. When two individuals, unconnected in any way, each choose which glove to put on first, there is no agreement, even if they should both start with the same hand.

Regarding horizontal agreements in competition law, the challenge is not merely that there is a line-drawing problem as with any categorical distinction. Rather, fairly common interactions raise difficult questions. Moreover, because parties may reap great profits if they are on one side of the line (even if just barely) but suffer stiff penalties if they are on the other side (even slightly), their strategic anticipatory behavior places great pressure on the boundary, wherever it is drawn. This Section presents two examples, really sets of related scenarios, designed to illustrate the tensions that arise.

1. Example 1

From the perspective of firms seeking maximum profits, the oligopoly problem for them is to come up with a way to raise prices above the competitive level, ideally to a mutually optimal monopoly-like price, and to keep the price elevated, avoiding the problem of cheating to the extent possible and quickly identifying and punishing any defections that occur (the prospect of which, the firms hope, will deter cheating in the first place).³ The following story depicts a very simple case of success.

As the curtain opens, our two competitors are staring intently at each other. Each sees the other's stare. Each is thinking (and is pretty darn sure that the other is thinking): "This is ridiculous. We've each been charging the competitive price of \$3.00 for months. We'd both make a ton more money if we were charging something higher."

And each thinks: "Should I break the staring contest and just shout out to my competitor that this is so? Nah, why bother? It's so obvious

3. For further elaboration and references, see Section IV.A.

as to be pathetic, embarrassing. A good primal scream might get it off my chest, but the name of the game is *communication* and reaching an *agreement* to move forward, not a therapy session.”

One of the two, who will be called the Initiator, decides that it’s time to act. Initiator thinks that a good price would be \$3.40 but doesn’t want to be too aggressive. So Initiator decides to go with \$3.25 as an opening suggestion. Initiator proclaims, “As of this very instant, until further notice, I’m going to charge all of my customers \$3.25. By the way, if I change my mind, I can assure you that you will be among the first to know. There will be no secret price cuts. Never.”

The other, who will be called the Responder, is delighted. Responder thinks: “Should I just go right along, accepting this invitation? Or, since I think that the ideal price is higher, should I raise the offer? Hey, why not go for it while the going’s good.” Responder answers: “As of this moment, until further notice, I’m going to charge all of my customers \$3.35. And, if I change my mind, you will certainly be among the first to know. I will never secretly cut my price.”

Initiator is ecstatic. Initiator had hoped and suspected that Responder would answer positively. But one never knows for sure. And Responder has done one better by going up to \$3.35. So, Initiator wonders: “Do I respond quickly and match the offer, closing the deal, or should I go for it and press for \$3.40, my view of the ideal price? What the heck, today is a good day and Responder is obviously in the spirit of cooperation. And \$3.40 is hardly an in your face rejection!” Initiator then declares: “As of now, until further notice, I’m going to charge all of my customers \$3.40. And”

Responder answers quickly this time. Responder wasn’t sure if the right price was \$3.35, \$3.40, or perhaps \$3.45. “But hey, Initiator must think it’s \$3.40, and we’re nearly symmetrically situated, so why not close the deal?” Responder announces: “As of now, until further notice, I’m going to charge all of my customers \$3.40. . . .”

And there our story ends. Initiator and Responder live happily, and profitably, ever after. Of course, their customers don’t.

At this point, one should ask whether the foregoing depicts an agreement. Also consider variants, such as an express agreement. Most, I suspect, will have little reluctance answering in the affirmative.

But what of the fact that there is no binding contract? No signed document? No language of offer and acceptance, of agreement, of promises, and so forth? These questions do not create serious reservations. Agreements subject to competition law’s prohibition need not be binding contracts; indeed, this is an impossibility because, for agreements that involve forbidden behavior like pure price fixing, they as a consequence cannot be legally binding. Nor is writing required. Nor the use of magic words. Stating “I certainly will never secretly cut my price” rather than “I promise never to secretly cut my price” is

not taken to be an important distinction, and it may be viewed as meaningless in this context because, as just noted, no promise is binding in any event.⁴ Furthermore, as a practical matter, if a finding of agreement could be avoided merely by phrasing communications in the language of declarations of unilateral intent—perhaps adding for good measure formal disclaimers of any agreement—then parties, coached by lawyers as necessary, would be free to fix prices with impunity. Accordingly, our story of the two competitors would generally be regarded to involve an undoubted agreement.

Suppose now that we change the story. Instead of a secret meeting of the principals of the only two competitors in a market, consider the interaction of two gas station owners located on adjacent corners in an otherwise isolated area.⁵ No words are spoken. We begin with each selling at \$3.00 per gallon. Then, one morning, the owner playing the role of initiator changes the numbers displayed on the station's large sign—visible from a block away and thus impossible to miss for the competing station owner across the street—to show a new price of \$3.25. Shortly thereafter, the owner of the competing station posts \$3.35 on its large sign. And so forth, until the price that each charges settles at \$3.40 and remains there indefinitely. Suppose further that each entertains precisely the same thoughts as in our original story—that is, they both think it ridiculous to be selling at the competitive price, the initiator initially thought that \$3.40 would be a good price but out of caution began by posting \$3.25, and so on.

Does this new scenario depict an agreement? It is almost universally accepted that it does not. Even though the consequence in terms of noncompetitive pricing is the same as in our original setting, this unfortunate result is attributed to the structural character of the market in question, not to an agreement. After all, because no agreement exists, how could it be otherwise?

Although there is near consensus on the outcomes, this harmony does not extend to the articulation of which distinctions between the two scenarios are responsible for the demarcation: an undoubted agreement in the first and none in the second. Some would emphasize the inevitability of an oligopoly outcome in the second case, making an agreement unnecessary. Some might note the lack of any exchange of words or other forms of explicit communication in the latter setting. But, regardless of which factors are mentioned, it obviously is necessary to

4. Nevertheless, of the many individuals who have read this story in draft or heard it presented, a couple viewed it as not involving an agreement, apparently because specific words of assurance were not included, despite the seemingly open invitation to circumvention provided by this approach. Furthermore, it seems that they would also be willing to infer agreements from circumstantial evidence, a task that Section III.D indicates is quite daunting if there must be some sort of express agreement, but one that seems impossible if subtle differences in phrasing must be inferred. Indeed, even proof of a hundred secret meetings may not suffice to establish an agreement under this view if there were no transcripts—or, if there were, but they revealed that the participants carefully avoided certain words and phrases.

5. See, e.g., PHILLIP AREEDA, LOUIS KAPLOW & AARON EDLIN, *ANTITRUST ANALYSIS* 208–09 (6th ed. 2004); Louis Kaplow & Carl Shapiro, *Antitrust*, in 2 *HANDBOOK OF LAW AND ECONOMICS* 1073, 1122–23 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

be able to identify one or more differences that explain why there is an agreement in one case but not in the other. Furthermore, because neither case is generally regarded to be a close call, the distinguishing features should be fairly sharp.

Upon reflection, however, any proposed answer to the question at hand must be deficient. One way to see this point is to consider that the exposition of the second case involved a sleight of hand. Specifically, the introductory sentence was inaccurate. The two gas station owners are not players in a changed, second story. They were the principals in the original version; that is, the second story is just a retelling of the first, as can be seen by reviewing that play: At the outset, the two competitors were staring intently at each other—from across the street. Each thought the situation of two gas stations in a remote area charging the competitive price was foolish. Each would have had to “shout out to the other” because they were across the street, not in a hotel room. The Initiator “proclaims” (that is, declares publicly, gives an outward indication, to mention some standard definitions of the term⁶) a new price of \$3.25 in the clearest and most convincing manner possible, by posting that price on the station’s price sign. Obviously, any subsequent change in this price would result in the competing owner being among the first to know, and there cannot be a secret price cut in this setting. The Responder “answers” (acts in response to an action performed by another) and later “announces” (makes known publicly) its own prices, using its own price signs.

One could augment the story and suppose that the price signs, in addition to displaying the price in large numerals, also contain in standard-form smaller print: “The above price is this gas station’s price from this very instant and will continue in force until further notice. And if the owner of this station should ever wish to change the price, this can be done only by replacing this price sign with a sign showing such different price. In addition, the owner is bound to charge the price posted on this sign and no other price, that is, unless and until this sign is changed.” In such a fashion, each word in the original scenario could be included. Of course, because this is the plain, unambiguous meaning of the simple sign that contains merely the price, no meaningful difference is entailed.⁷

This example therefore poses a sharp challenge. The simple, straightforward scenario is properly characterized in two ways: a classic, undoubted agreement, and a clear case of no agreement. Whatever distinctions one might have hypothesized to be sufficient to rationalize this difference in legal characterization must be mistaken because there is only one situation after

6. For a discussion of the use of definitions in this Article, see note 34.

7. See Kaplow & Shapiro, *supra* note 5, at 1123. The meaning of the term “sign” includes, rather pertinently, a posted command, warning, or direction. The reason that price signs at gas stations and in many other settings contain only numerals is that the further verbal elaboration in the story has long been so conventional and unambiguous as to render it redundant. Indeed, charging a customer more than the posted price violates some consumer protection laws and may be regarded as fraud because the meaning of price postings is taken to be so well established. Consider also the discussion of language, including of sign language, in Subsection II.B.3.

all.⁸ Therefore, even before examining particular definitions of and variations on agreement and related terms in Part II, it is apparent that the categorization problem, as conventionally understood, is quite difficult to solve, if indeed any solution is possible.

2. Example 2⁹

Version A. Individuals with price-setting authority at each of the firms in a fairly concentrated industry meet in a hotel room and hash out an explicit agreement on pricing: future prices, penalties for deviation, and so forth. They all speak directly, and all concur on the final outcome, which includes increasing each firm's price from the current, competitive level to a monopoly level in one month, and this result occurs on schedule.

Version B. This variant is the same as version A except that the language is lawyered, which is to say that there is no use of magic words like "agreement" or "promise" or anything close; instead, all statements are carefully phrased as expressions of thoughts, wishes, or unilateral intentions. No one's understanding, however, is influenced by this adjustment, and the same result transpires.

Version C. Same as version B except that each individual is in a conference room at his or her respective home office and the meeting is conducted by video conference.

Version D. Same as version C except that members of the news media are present in each conference room.

Version E. Same as version D except that the media crews supply and operate the video equipment.

Version F. Same as version E except that the meeting is decreed by each firm to be a press conference, with the broadcast made public (live) through the Internet rather than kept private (limited to the other firms).

Version G. Same as version F except that there is some time lag between statements. The same statements are made in the same order with the same tones and gestures, and precisely the same understanding is reached. Indeed, because even in version A the price increase was not to take effect for a month, there is not even any delay in the time of the eventual price rise.

8. To this challenge one can add that the scenario can equally well be described in other ways, some of which would and others of which would not be deemed agreements under various meanings that might be given to that term. The possible descriptions include many versions of the second example about to be presented, if it is described without some of the further details provided.

9. For precursors, see, for example, PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS* 281, 346–48 (4th ed. 1988) (and *Teacher's Manual* at 79); Kaplow & Shapiro, *supra* note 5, at 1122; 6 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* 210, 254–55 (2d ed. 2003).

Version A is the stereotypical express agreement. By contrast, sequential press conferences of the sort depicted in version G are not ordinarily regarded as involving agreements.¹⁰ The question, therefore, is whether this difference can be rationalized by one or more of the changes introduced in moving from A to G.¹¹

The move from A to B—lawyering the phrasing to remove magic words of agreement, substituting the language of thoughts, wishes, and intentions—is, as noted when discussing example 1, not regarded to matter.¹² All of the other steps, from B through G, involve seemingly inconsequential shuffles: changing rooms, inviting the media, switching who operates the cameras, and so forth. Since these matters are unrelated both to the harm involved (consumers being charged monopoly prices) and to most conceptions of agreement (see Section II.A), it is difficult to see how these changes should matter. It is possible that in practice the lack of magic words, close proximity, privacy, and immediacy will erode firms' ability to reach consensus. Yet it was posited that, in this instance, such is not the case. Furthermore, cultural differences, personality clashes, and other difficulties might make a meeting of the minds more rather than less difficult at a secret meeting, but it is not imagined that such possibilities, even if demonstrated in a particular case, would negate the existence of an agreement when the meeting is successful.

In example 1, two interpretations of the same story led to opposite outcomes. In the present example, there are differences but not ones that appear to be important for the notion of agreement. As a result, it is not easy in example 2 to determine either where the characterization switches—that is, if version A is an agreement and version G is not, which step along the way causes the result to change?—or what would be the rationale for reversing the outcome at that step. Furthermore, even if certain adjustments are given some weight, it is not clear that they can bear the burden of explaining the difference between version A, which is the clearest of possible agreements, and version G, which most view as definitely not an agreement. That is, versions A and G do not merely have different outcomes, perhaps each being ever so close to the line; they are seen as being a great distance apart on the agreement spectrum. These two examples, taken together, suggest at a minimum that substantial work needs to be done in articulating and defending a concept of horizontal agreement.

10. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 29, 37, 254–57. In this light, however, it is curious that such behavior, at least of a highly explicit sort, is not ordinarily observed rather than being widespread. See *infra* Section III.E.

11. One could also take the steps in a different order: for example, after version B, first inviting in the press before moving to different rooms. Or, perhaps more interesting would be to retain the language of agreement, promise, and so forth through to the press conference stage, removing it only as the final step. The same question could be asked regarding any such ordering.

12. But see *supra* note 4.

B. Taxonomy

Courts and commentators have used varying numbers of categories, many of which are described by different terms, to classify different situations with regard to the interaction among firms. Even more confusing, sometimes the same term is used to refer to different categories. Before examining these matters in more detail, beginning in Part II, it is useful to state a fairly conventional taxonomy to aid further discussion.

As will be elaborated in the following three Subsections, most would recognize and distinguish behavior that is purely independent (undertaken without regard to how others might react), behavior that is interdependent (undertaken in light of how others are expected to react), and behavior that is the product of an express agreement.¹³ The three types of behavior are not symmetric classifications—rather, there is a hierarchy. The first two categories, independent and interdependent, can be thought of as a mutually exclusive and exhaustive partition of possible behavior. That is, behavior is independent or it is not, and if it is not (but only if it is not), it is deemed to be interdependent. Within the category of interdependent behavior, that resulting from express agreement is taken to be a subset. (The subset of interdependent behavior that is not deemed to result from express agreement will not be given its own name.)

This tripartite division is conventional but also problematic. The two examples in Section A already provide warning that difficulties will be encountered in attempting to subdivide the category of interdependent behavior. Thus, the reader should take the statements that follow as suggestive and withhold intensive scrutiny for the moment. After articulating these three categories, Subsection 4 uses them to describe commentators' views, and Subsection 5 offers a clarification regarding a sometimes different and potentially confusing interpretation of the category of independent behavior.

1. Independent Behavior

Independent behavior—sometimes referred to as purely or entirely independent behavior to avoid a confusion to be addressed in Subsection 5—includes behavior by two or more parties that has no relationship whatsoever as well as behavior that has similarities yet is motivated by considerations that do not depend on others' reactions. The latter, often involving parallel behavior (see Section II.A), is of greater relevance for considering horizontal agreements in competition law. When it begins to rain, two individuals might simultaneously raise and open their umbrellas, but each may not care at all about the other's actions. Moreover, this indifference may exist even if each sees the other or is able to infer what the other is going to do. Likewise, when the price of some input rises or falls (say, the price gasoline stations are charged for gasoline delivered from tank trucks), we would expect even perfect

13. A fourth category, tacit agreement, is discussed in Subsection 4 and Section II.A.

competitors to raise or reduce their prices accordingly. Each may be aware of the other's action or be able to predict it, but that action is not the explanation for why each adjusts its own retail price. Similarly, if industry demand shifts upward for some reason, competitive firms with rising marginal costs would all raise their prices and outputs. Each firm sells at the new market equilibrium price because that price indicates what the market will bear (not because of how a firm expects other firms to react to its decisions), and each raises its output because this decision is profitable given the higher price.

There are some complications because perfect competitors, in responding to the prevailing market price, are implicitly responding to the behavior of their competitors. If a firm noticed that for some reason all of its competitors raised their prices, the firm would find it profitable to raise its price as well, and likewise if they all lowered their prices. Nevertheless, the perfect competitor takes other firms' behavior (in particular, their prices) as given when deciding how it should behave.¹⁴

A further variation arises in the case in which a firm refuses to deal with a supplier, say, because the quality of its product is substandard. The firm predicts that its competitors will behave likewise, but this expectation is not the reason for its decision. Indeed, if some or all of its competitors purchased the deficient input, the firm would benefit from their divergent behavior. Thus, the firm's best choice is to desist regardless of what its competitors do. Its fate may not be entirely independent of competitors' behavior, but its decision in this case is.¹⁵

2. *Interdependent Behavior*

Interdependent behavior for present purposes is taken to refer to behavior that involves coordination with others. Operators of motor vehicles choosing whether to drive on the right or the left side of the road in a remote, unregulated area will make their choice in light of what they expect others to do. When meeting someone for lunch, a rendezvous point may have significance only because of where the other is expected to appear. Thus, parties may meet at the information booth at Grand Central Station not because they need any

14. Not only perfect competitors take other firms' behavior as given. For example, in Cournot interaction or Bertrand competition with differentiated products, firms take others' quantities or prices, respectively, as given, and the result is that prices are higher than under perfect competition. Hence, behavior that is independent in the sense described in the text is not necessarily perfectly competitive. For further exploration of this point and references, see note 237. As will emerge later (often implicitly), it is common for courts and commentators (especially legal commentators) to equate independent behavior and competitive behavior—by which is ordinarily meant, it would appear, rivalrous behavior that is similar even if not identical to that engaged in by textbook perfect competitors; see *infra* Section II.A.

15. This example captures the situation in *Theatre Enterprises*, discussed in Subsection III.B.1.

information but purely because it is an easy to identify place at the station.¹⁶ Note further that the thought process involved in such cases is iterative. One party is thinking about what the other is thinking; the second is thinking about what the first is thinking; each is aware that the other is thinking about what they are thinking; ad infinitum. This subjective state is commonly termed a meeting of the minds.¹⁷ In game-theoretic parlance, the situation constitutes an equilibrium, as will be discussed further in Subsections IV.A.2, IV.A.3, and IV.B.1.

More relevant for present purposes is the situation in which firms coordinate not their driving or lunch dates but their marketplace behavior—notably, their prices. Specifically, we are interested in pricing behavior that takes into account how other firms are expected to react. The Initiator in example 1 first raised its price because it expected that the Responder would do likewise. If the Responder did not, the result of the price increase would merely be to lose business until the price increase was rescinded. Additionally, once prices settled at \$3.40, neither firm would cut its price, say to \$3.35, in attempt to steal business from its rival. This reluctance is not because stealing business at \$3.35 would not be profitable. To the contrary, grabbing perhaps the entire market at a profit of \$0.35 per unit would be more lucrative than taking half the market at a per unit profit of \$0.40. Rather, each firm assumed that, if it did cut its price, its rival would quickly follow, quickly enough that little would be gained in the interim—not enough to compensate for the fact that it would earn less profit going forward than if prices remained at \$3.40. If either firm did not think this to be so, it would indeed cut its price.

In this standard coordinated oligopoly setting, in which firms succeed in raising prices to and maintaining them at a supracompetitive level, the thought process is much like that in the examples of driving and lunch dates. Each firm is thinking about what the other firm is thinking and how that firm will react; each recognizes that the other thinks similarly; and so forth. The firms' minds have met; they are in an equilibrium that is favorable (for them). Parties' mental states and behavior contrasts with the independent, competitive situations depicted in Subsection 1.¹⁸

Notice that, in all of these settings, there generally needs to be some flow of information. For example, for parties to meet for lunch, something must

16. And, as in one of Schelling's famous examples, individuals might coordinate on such a meeting place without having specifically discussed it in advance. See THOMAS C. SCHELLING, *THE STRATEGY OF CONFLICT* 54–57 (1960). For present purposes, such discussion is immaterial; in either case, the decision to appear at the information booth at a given time is made because of expectations about each other's behavior.

17. See *infra* Section II.A.

18. See also *infra* Subsections IV.A.2 & IV.A.3 (elaborating on these ideas as they are developed more precisely in a game-theoretic formulation). In some cases of independent behavior, as previously noted, parties might be aware of what others are thinking, but because this awareness is incidental to their own behavior, the behavior is independent and their thought process would not ordinarily be depicted as a meeting of the minds.

have happened to make them aware of each other's existence and their mutual desire to meet, and something more that leads each to think of a common place and time to meet.¹⁹ In the oligopoly setting, more substantial information transmission and exchange is involved. Firms typically know much in common about their industry and about each other from a variety of sources including prior interactions. For a price increase to induce others to follow, the price increase must be observed by the others. For cheating to be deterred, it must be observable or capable of being inferred from other observable information by others.²⁰ In example 1, taking the interpretation involving two gas stations, they are constantly sending their current price—and thus all price movements, and failures to react—to each other. In the oligopoly setting, the concept of interdependence and the related notions of a meeting of the minds or of an equilibrium in a game²¹ thus involve a fair amount of communication. Nothing, however, has yet been said about what sorts of communication are required for successful interdependence; presumably, the answer will depend on the context.

3. *Express Agreement*

As mentioned at the outset of this Section, express agreements are taken to denote a subset of interdependent behavior. There is little consensus, however, on just how this subset is to be defined. For the moment, this difficulty will be set to the side because all that is intended is a provisional, conventional statement. Instead of a conceptual definition, consider the canonical, pure (one might say extreme) example of firms meeting in person, engaging in extensive, direct, and un-lawyered discussions, and coming together on an explicit plan of action that is encapsulated in a precise verbal formula such as may be contained in a fleshed-out written document signed by each party.

Clearly, all who use the term express agreement would include within the category cases involving less, possibly far less, explicitness than is present in this illustration. The problem of drawing the line is often regarded to be

19. In some of Schelling's famous examples, *supra* note 16, at 54–57, some of this information is constructed by the parties, but they do know of each other, their desire to meet, and something about the meeting place and time. One could envision a blind date, but in that situation, everything but the identity of the other party is known and there is some information even about that fact conveyed implicitly through intermediaries. A more extreme example (closer to choosing whether to drive on the left or right side of the road) would be where two individuals show up at a singles bar some evening. Here, the thought process has some parallels (people know that others are thinking similarly, which is why they expect some prospect of meeting someone at the bar); one might say that they have a probabilistic meeting with various individuals (the probability depending on the population of the jurisdiction, number of bars, and other factors).

20. See, e.g., George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964); Edward J. Green & Robert H. Porter, *Noncooperative Collusion under Imperfect Price Information*, 52 ECONOMETRICA 87 (1984); A. Michael Spence, *Tacit Coordination and Imperfect Information*, 3 CANADIAN J. ECON. 490 (1978); see also Subsection IV.A.2 (discussing the oligopoly coordination problem when other firms' prices must be inferred).

21. See *infra* Section IV.A.

difficult, and the two examples in Section A indicate that the task is truly daunting. As a preview of Section II.A, one way of looking at the problem is to consider that both terms, express and agreement, are difficult to define in a manner that seems suitable in the present context. Furthermore, the importance of defining express agreement is unclear if the forbidden category of agreements is taken (as many do) to include other forms, such as so-called tacit agreements.

4. Commentators' Views

Using this provisional taxonomy, it is possible to describe the range of commentators' views. Independent behavior, in the sense described in Subsection 1, is universally regarded as not constituting an agreement for purposes of competition law, regardless of how similar firms' independent behavior might be. That is, behavior must (at least) be interdependent. The greater difficulty is in determining how the law subdivides this second category. There is little sympathy for the view that all interdependent behavior constitutes an agreement under competition law.²² Therefore, it is necessary to divide the category of interdependent behavior between that which is sufficient under Section 1 of the Sherman Act or, for example, Article 101 of the EU Treaty and that which is not. At various points below, the former will be referred to as behavior involving acts in the set X and the latter as in the set XN; that is, any acts or clusters of acts that are legally deemed to constitute an agreement comprise set X, and all others, set XN.

All concur that express agreements are a subset of interdependent behavior that counts, that is, triggers liability. There is, however, no sharp consensus either on the boundaries of this subset or on whether other subsets, such as one including tacit agreements, also suffice. These and other questions are interrelated. For example, if express agreements are defined broadly, to include what others might deem to be tacit agreements, then express agreements might be viewed as exhausting the space of interdependent behavior that suffices, supposing that the only other candidate behavior involves tacit agreements. Many, including the Supreme Court in both earlier decisions and its most recent (discussed in Section III.B), do in fact state that tacit agreements are sufficient, yet it is hard to know what to make of these proclamations given the great ambiguity of the term.²³ Indeed, the examples in Section I.A and the discussion of definitions to follow in Section II.A show how hard it is to distinguish clear, traditional express agreements from

22. The main exception is Judge Posner's academic writing. *See supra* note 2; *see also infra* page 705 and note 35 (discussing Turner's views).

23. *See, e.g.*, George A. Hay, *Horizontal Agreements: Concept and Proof*, 51 ANTITRUST BULL. 877, 891-95 (2006) (discussing the lack of clarity in courts' use of the term tacit agreement); William E. Kovacic, *The Identification and Proof of Horizontal Agreements Under the Antitrust Laws*, 38 ANTITRUST BULL. 5, 14-21 (1993) (discussing courts' varying usage of the term tacit agreement).

interdependence, so it should be all the more challenging to articulate an intermediate category, notably broader than express agreement but distinctly narrower than interdependence. This task is not aided by the general failure of courts and commentators to define any of these categories with even modest precision. For purposes of the law, however, assuming that interdependent behavior is not deemed to be sufficient, it is only necessary to articulate a single further division.

In performing such a subdivision of interdependent behavior, there are various dimensions along which one might make distinctions. For example, one could look to parties' mental states, identifying various respects in which their minds have met, a concept that has roots in ordinary language, Supreme Court opinions, and conspiracy law more generally, as will be seen in Parts II and III. Many modern commentators and some court opinions would instead draw lines based on the presence of communications, the modes of communications employed, or the types of information communicated.²⁴ It would also be possible to consider what sort of assurances or commitments, if any, have been conveyed.²⁵ Any of these or other features might be deemed to constitute the relevant boundaries, or they might be factors considered in defining such terms as express agreement.

Yet another way that one might attempt to draw the line is functionally, based not on what types of communication or other activities are employed but instead on whether those used in a particular setting are successful in producing oligopolistic coordination that leads to higher prices. This approach, however, essentially replicates the distinction between independent and interdependent

24. See, e.g., *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 654 (7th Cir. 2002) (Posner, J.) ("This statutory language [of Sherman Act Section 1] is broad enough . . . to encompass a purely tacit agreement to fix prices, that is, an agreement made without any actual communication among the parties to the agreement. . . . Nevertheless, it is generally believed . . . 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."); William H. Page, *Twombly and Communication: The Emerging Definition of Concerted Action Under the New Pleading Standards*, 5 J. COMPETITION L. & ECON. 439, 451-64 (2009). This manner of articulating the difference is often mentioned by economists. See, e.g., MICHAEL D. WHINSTON, *LECTURES ON ANTITRUST ECONOMICS* 20 (2006) (referring to the law as prohibiting "talking" between firms); Kai-Uwe Kühn, *Fighting Collusion by Regulating Communication Between Firms*, 16 ECON. POL'Y 169 (2001) (advocating that liability for oligopoly pricing be based exclusively in the use of particular sorts of communications); Robert H. Porter, *Detecting Collusion*, 26 REV. INDUS. ORG. 147, 147-48 (2005) (suggesting a distinction between direct and indirect communication); see also Massimo Motta, *Review of Michael Whinston, Lectures on Antitrust Economics*, 3 COMPETITION POL'Y INT'L 313, 315 (2007); *infra* note 47 (discussing Werden's views). Similar depictions are offered with regard to law in the European Union. See, e.g., Oliver Black, *Communication, Concerted Practices and the Oligopoly Problem*, 1 EUR. COMPETITION J. 341, 341 (2005) (finding "high[ly] plausib[le] . . . the view that [concerted practices under EU Article 101] involve communication"); Alison Jones, *Woodpulp: Concerted Practice and/or Conscious Parallelism?*, 6 EUR. COMPETITION L. REV. 273, 276 (1993).

25. Areeda and Hovenkamp are leading proponents of this view. See *infra* note 290.

behavior: successful coordination is interdependent whereas failed coordination leaves the firms to go their own way, behaving as competitors.²⁶ Thus, if not all successful interdependent behavior is deemed to be sufficient to trigger Section 1 liability, this instrumental approach cannot be the basis for determining the legal boundary. The use of a substantially formal rather than purely functional inquiry, in turn, helps to explain why the two examples in Section A (both involving successful interdependence) pose difficulties for conventional methods of categorization. In any event, further examination of the various terminological questions is undertaken in Part II.

5. *A Clarification Regarding Independent Interdependent Behavior*

Before concluding this provisional taxonomy, it is useful to offer a clarification regarding the fact that what is here referred to as interdependent behavior is sometimes described as independent behavior.²⁷ Naturally, this can be quite confusing because this Article and many other writings use the terms independent and interdependent to demarcate mutually exclusive categories of behavior. The intention behind this alternative usage of the term independent is clearest when the two terms are joined, such as by describing firms' decisions as interdependent yet independently determined.²⁸ The meaning seems to be that, although the behavior in question is indeed interdependent in the sense described in Subsection 2, it is determined by each firm on its own. That is, however interdependent and perfectly aligned may be the firms' thought processes in deciding what prices to charge, at the end of the day each firm has chosen the price that it deems to be in its own best interest, all things (including other firms' reactions) considered.

This clarification is helpful and may not cause too much befuddlement or misdirection when the terms independent and interdependent are combined in the manner just described. However, this is not always the case, making it hard

26. Note that the text for convenience refers to unsuccessful (attempted) interdependent behavior as (de facto) independent.

27. The first sustained usage of the term independent to refer in the oligopoly context to interdependent behavior of which this author is aware is in Edward Chamberlin, *Duopoly: Value Where Sellers Are Few*, 43 Q.J. ECON. 63, 65, 83 (1929).

28. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 207:

In short, each firm is aware of its impact upon the others. Though each may independently decide upon its own course of action, any rational decision must take into account the anticipated reaction of the other two firms. Whenever rational decision making requires an estimate of the impact of any decision on the remaining firms and an estimate of their response, decisions are said to be "interdependent." Because of their mutual awareness, oligopolists' decisions may be interdependent although arrived at independently.

But in fact the stand-alone usage of "independent" in contexts in which it appears to mean purely independent and competitive is sometimes interpreted as encompassing interdependent oligopolistic behavior. See, e.g., POSNER, *ANTITRUST*, *supra* note 2, at 100 (lamenting that "[m]ost courts mistakenly regard tacitly collusive behavior as independent" in applying *Monsanto's* test (see *infra* Subsection III.B.2)).

for a reader to know when “independent” means purely independent, and when it includes the opposite of purely independent. Interdependent seems to be a much better shorthand for “interdependent yet independently determined” than does independent, especially given the back and forth information flows and behaviors as well as the interconnected thought processes described in Subsection 2, not to mention that the term independent is also being used to refer to the distinct type of behavior described in Subsection 1.²⁹ Of course, when the term independent is clearly defined and used only in one sense, typically that discussed in Subsection 1, confusion does not arise.³⁰

There is also a deeper problem that remains despite this clarification. Whether decisions are independent in the alternative sense just described is generally proposed as a means of distinguishing between interdependent behavior that does involve express agreement (or some other legally sufficient sort) and interdependent behavior that does not. But the proffered distinction is illusory. The notion advanced is that, in the case of so-called independent interdependence, each firm ultimately makes its own decision based on its own calculation of interests, however much its calculations reflect expectations of other firms’ reactions. Yet this depiction is equally apt in the case of an express price-fixing agreement once one recalls that such agreements are void ab initio. Even if the price-fixing agreement is in writing, signed in blood, and attested to by reliable witnesses, it provides absolutely no basis for legal enforcement. Hence, when a firm decides whether or not to adhere to such an express agreement, it accords no weight whatsoever to being legally bound (it isn’t). It does, to be sure, take into account the consequences of defection, say, by lowering its price. That is, it considers that other firms may react by matching its price cut or otherwise administering punishment, which reaction may render the decision to deviate unprofitable. But this characterization is true of interdependent behavior more generally. In either case—that is, with or without an express agreement—the firm’s decision at the end of the day is its own, and presumably will be made by a calculation of its own best interest. In this sense, all firms’ decisions in the relevant settings are independent under the proffered usage. Indeed, under this usage, a victim’s decision at gunpoint to hand a wallet to a mugger is aptly described as independent: it is in the victim’s best interest, taking into account the mugger’s possible reaction if the wallet is instead

29. It is interesting to speculate on why this usage of the term independent has emerged despite the confusion it brings. As will be discussed in Section III.B, numerous Supreme Court cases have stated that behavior that is “independent” does not give rise to liability (and is insufficient to survive defendants’ motion for summary judgment, and so forth). Accordingly, if the word independent can successfully be attached to a type of behavior that a party, a commentator, or a court wishes to exonerate, victory would appear to follow automatically.

30. 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, 681 (1962) (clarifying that “‘independent’ decision mean[s] a decision that would have been taken regardless of what competitors decided to do”).

withheld.³¹ This simple observation is not meant to suggest that there cannot exist other distinctions within the category of interdependent behavior, but only to indicate that the broadened notion of independence under consideration is not one of them, once legally enforceable agreements are off the table.³²

II. CONCEPTS

It is remarkable how much weight legal and economic commentary and also court opinions place on the meaning of particular terms and how inconsistent is the usage—the combination being a recipe for misunderstanding. It therefore is difficult to state existing law in an operational way, one that conveys the same meaning to firms, their lawyers, judges, jurors, and commentators and that readily distinguishes cases by their facts. Relatedly, it is difficult to assess various arguments about the proper scope of the law when they consider the relative virtues of competing legal formulations that are highly ambiguous and not necessarily distinct.³³ Notably, most commentators advance a notion of agreement that is narrower than interdependence, but it is hard to evaluate their position if we have little idea what agreement or the other key words used to define it actually encompass.

An examination of commonly used terms cannot resolve all these problems or indicate how the law should be given content. But it provides helpful background that clarifies subsequent discussion. Section A offers definitions of the most commonly used terms. Communications are treated separately and more extensively in Section B because of their central role in many proposed classifications and their relevance to the oligopoly problem. That Section also briefly notes some ideas in various disciplines' study of language for the light they may shed on the present subject.

A. Terminology

Agreement—Since the term agreement is, as a matter of blackletter law, the legally relevant determinant of the applicability of Section 1 of the Sherman

31. Nor would this strained usage be rendered natural if the attacker was silent, leaving implicit, from the act of pulling the gun, the threat "your money or your life," and the victim likewise merely handed over the wallet without any utterance of submission.

32. This lack of conceptual distinction within the category of interdependent behavior is mirrored in the discussion of game-theoretic terminology. See *infra* Subsection IV.A.1.

33. A conjecture is that present confusion is due in part to a series of motivated interpretations over an extended period of time, some of which have become commonplace. For example, it may be that terms like independent or parallel (conscious or otherwise) had clear meanings when first employed but were described by subsequent litigants, courts, or commentators as if they had other meanings in order to advance their own agendas. See *supra* note 29 (exploring origins of alternative usages for the term independent). Since, as will be seen, many of the terms in common usage have multiple meanings that allow key passages to be given different (sometimes opposite) interpretations, this process may have been easier than is ordinarily the case.

Act, its definition might be regarded as particularly central. Yet, as will be discussed in Section III.A, not only does the statute itself not define what is meant by agreement, but the term does not even appear. Rather, the term is taken to capture the composite concept embodied in the statutory language of contract, combination, and conspiracy.

The most pertinent of the standard definitions³⁴ of agreement is a harmony of opinion, action, or character. A harmony of opinion exists when there is a meeting of the minds in the sense discussed in Subsection I.B.2 with regard to interdependent behavior, including that of firms behaving in an oligopolistic manner by coordinating their pricing. It, along with harmony of action or character, may also be taken more broadly, as incorporating common behavior even when it arises independently, as described in Subsection I.B.1. Thus, we might say that two individuals who never interacted are in agreement that Jones is a terrific author if both actually believe this. We would not require their thought processes to be interdependent to say that they agree on the matter. Yet we also may not be inclined to describe them as having reached an agreement on a view of Jones by mere coincidence of opinion.

There are narrower definitions of agreement, such as viewing it as synonymous with a compact, treaty, or a legally binding contract. But the legal notion of agreement in the present context is surely broader. After all, “contract” is just one of the listed terms in the statute that agreement is taken to capture. Moreover, as noted in Subsection I.B.5, because the statute itself renders price-fixing contracts legally void, if binding contracts were all that was illegal, the statute would not punish even classic, express, price-fixing cartels.

It seems that if the term agreement is to be given a standard meaning, and one that does not nullify the statute, it would have to be broader than the one just stated, encompassing interdependent behavior, certainly including oligopolistic behavior. This approach is hardly novel. For example, Turner, despite arguing that interdependent oligopolistic behavior should not be a sufficient basis for Section 1 liability as a matter of policy, stated that, as a matter of language usage, “there are far better grounds for saying that though there may be ‘agreement’ it is not unlawful agreement.”³⁵ (The notion that a

34. Throughout, proffered standard definitions are taken from the CD-ROM version of Merriam-Webster’s Collegiate Dictionary (11th ed. 2007). Some definitions are direct quotations and others are paraphrases. Since dictionary definitions vary somewhat and lack canonical status for present purposes in any event, quotation marks will be dispensed with. Irrelevant or unhelpful senses will be omitted. (For example, in defining agreement, this dictionary also includes “the act or fact of agreeing,” which is circular.)

35. Turner, *supra* note 30, at 671. Earlier, he states: “It is not novel conspiracy doctrine to say that agreement can be signified by action as well as by words.” *Id.* at 665. Turner concludes on the matter as follows:

I also find considerable appeal, as a general matter, in defining “agreement” for purposes of Sherman Act law in terms of interdependence of decisions, if for no other reason than that it seems to me to be a clearer and more workable standard than any other standard, of acceptable scope, which requires something more. Once one goes

category of behavior may be deemed to involve agreements but be subject to further analysis to determine whether there is liability—that is whether it constitutes a “restraint of trade”—will be considered further in Subsection B.2.)

An obvious alternative (not necessarily inconsistent with giving agreement its standard meaning) is to take agreement to be a term of art. This approach may have added appeal because the term is not in the statute itself.³⁶ Once this course is taken, it is not clear whether the path becomes clearer or more obscure. The former would hold if the usage were consistent or if canonical definitions were accepted, neither of which appears to be the case. Instead, the term is often used by different writers in a conclusory fashion that often does little to communicate meaning on the question at hand.

Conspiracy—The term conspiracy does appear in the statute and, moreover, is a legal term of art with a long history that might illuminate its meaning in Section 1, as further elaborated in Subsection III.A.2. For the present, attention will be confined to standard definitions, one of which refers to agreements among conspirators. This definition is reassuring because it suggests that the term agreement is an appropriate summary of this component of the statutory language, and it leaves us with the result, such as it is, from the preceding discussion. Another standard definition is that a conspiracy involves action in harmony toward a common end, a close fit with the concept of interdependent behavior articulated in Subsection I.B.2.³⁷

Collusion—The term collusion is often used in discussions of oligopoly and price fixing, especially by economists but also more widely. Interdependent oligopolistic behavior is often regarded to be encompassed by the term, which seems to be used to describe the economic nature of the behavior rather than how it might be categorized in legal terms. The standard, general definition of collusion is that it is an agreement, adding that it may well be regarded as one undertaken for illegal purposes—which supplement would be redundant in the present context because price-fixing agreements are already taken to be illegal.

beyond the boundaries of explicit, verbally communicated assent to a common course of action—a step long since taken and from which it would not seem reasonable to retreat—it is extraordinarily difficult if not impossible to define clearly a plausible limit short of interdependence.

Id. at 683; see also *infra* note 141 (discussing the Supreme Court’s citation of Turner on the agreement question).

36. This approach may be less available with other terms, such as conspiracy, which do appear in the statute, and with regard to other statutes that do contain the language under consideration. Such terms may still be terms of art, but the approach to interpreting them may differ when they are part of an enacted provision rather than chosen by courts and commentators as a convenience.

37. Conspiracy often refers to secret agreements, presumably because the context, like the present one with price fixing, is one in which the agreement is illegal, inducing parties to act clandestinely. Just as with conspiracy to rob a bank, it is not the case that immunity from conspiracy prosecution arises if word leaks out or if others are alerted for this purpose (unless a party is withdrawing and offering to assist the government in the prosecution of other conspirators in exchange for such immunity).

In addition, collusion is often taken to denote secrecy, which would make it narrower than agreement.³⁸

Meeting of the Minds—Meeting of the minds is a metaphorical phrase that directs attention to parties' subjective states (even if objectively determined). As discussed in Subsection I.B.2, it readily covers behavior that is interdependent, such as the standard scenario in which firms in an oligopoly are able to coordinate their prices by understanding each other's thought processes, which forms the basis for predicting their reactions to different prices that each firm may charge. The term is used sufficiently often to have its own entry in dictionaries, where it is defined as a synonym for agreement or concord—which itself is defined as involving agreement or harmony, the latter being one of the terms used to define agreement. The phrase is also a legal term of art used in determining the existence of a contract, particularly under the subjective theory of contractual agreement.³⁹

Express—Using ordinary definitions, an agreement would be express if it were directly, firmly, and explicitly stated. The term explicit (itself sometimes used in discussions of agreements prohibited by competition law) is a reasonably close synonym indicating an absence of vagueness or ambiguity. On one hand, this articulation of express agreement might include what some mean to exclude. In example 1 (Subsection I.A.1), for the interpretation with the two gas station owners, everything was explicit and unambiguous, even though many would not count it as an agreement, much less an express one.⁴⁰ On the other hand, if taken literally, then lawyered language, as discussed in example 2 (Subsection I.A.2), would be sufficient to remove a wide range of activity from the category that few if any courts or commentators would in fact exonerate. One might also ask how much explicitness is required to be in this category. If the answer were functional, then as discussed in Subsection I.B.4, an agreement would be express when what transpired was sufficient to produce oligopolistic coordination, that is, successful interdependent behavior.⁴¹ If not, it would be

38. It is ironic that, in describing oligopolistic behavior, the term collusion would be used in place of agreement to avoid the legal term that indicates illegality when the ordinary meaning of collusion is narrower than (a subset of) agreement. The terms would be coincident if avoiding secrecy conferred immunity. See *supra* note 37.

39. See, e.g., BLACK'S LAW DICTIONARY 1072–73 (9th ed. 2009); see also *Meeting of the Minds Definition*, LEGAL-EXPLANATIONS.COM, <http://www.legal-explanations.com/definitions/meeting-of-the-minds.htm> (last visited Nov. 22, 2010) (“The phrase ‘Meeting of the mind’ is used to represent the state of mind of the parties that the parties involved are thinking and understanding a situation, provision or stipulations etc [sic] in the correct and similar meaning.”).

40. If the ground for distinction is that given in the next paragraph—perhaps interpreting express agreement as requiring words to be expressed—it is not clear that the situation changes, unless a sign indicating “\$3.40” is deemed not to be words (just numerals), whereas a sign indicating “three dollars and forty cents” would count. See also *supra* page 693 (discussing how adding details to the sign should be viewed as immaterial); *infra* Subsection B.3 (discussing language).

41. Cf. *infra* Subsection B.1 (discussing functional equivalents regarding communication).

necessary to specify what degree of precision was necessary but in a manner not tethered to the function of the communication.

The adjective *express* seems to be used also (or instead) to refer to a communicative dimension, which would be more naturally indicated if the verb form were used (that is, if “express agreement among the parties” were taken as a shorthand for “an agreement among the parties that they expressed to each other”). However, in all variants and interpretations of the two examples in Section I.A—including those not generally regarded as involving express agreements—there was expression. (The verb *express* is broad, not being limited to expressions in words and not specifying the nature of words, signs, or symbols that would be involved.) The notion that the definition of agreement should distinguish communications, either by mode or content, is explored further in Section B.

It is worth keeping in mind that, even if *express* (or, more fully, *express agreement*) is defined, the legal inquiry is not concluded because the legal category of agreement need not be coincident with one or any particular notion of *express agreement*. For example, as already noted and considered further momentarily, *tacit agreements* might also be included. Thus, one might grant that *express agreements* are, by definition, highly explicit and thus the use of lawyered language that communicates effectively would be described as establishing a *tacit agreement*, which would be deemed to be sufficient for liability in the case of price fixing.

Tacit—By contrast to the adjective *express*, the term *tacit* indicates the negation, so that a *tacit agreement* would be any agreement that is not an *express agreement*. More specifically, *tacit* is taken to refer to that which is implied or indicated, but not actually expressed. On reflection, this more direct definition of the term *tacit* does little to help pin down the boundary between *tacit* and *express*. In just about any setting involving possible communication, something must be conveyed if a mutual understanding is to be reached but it is never the case that every conceivable ambiguity is excluded. Thus, if one is told that *tacit* and *express agreements* will be treated differently, one knows that a line will be drawn somewhere between zero and infinity, but the terms by themselves tell us little about where that line is located.

If agreements under Section 1 must be *express agreements*, then *express agreements* need to be defined carefully in order to know what triggers liability. *Tacit agreement* might just be a convenient term to refer to those agreements not giving rise to liability. On the other hand, if it is agreements that give rise to liability, then *tacit agreements* would suffice because they are a type of agreement.⁴² In that case, there would be no significance to the demarcation

42. Since many would take it to be an undisputed point of blackletter law that agreements trigger Section 1, to exclude *tacit agreements* would strain language. Consider proclaiming that a brown cow, a mere type of cow, is not a cow, perhaps after discussing the black-and-white cow as the quintessential cow.

between express and tacit agreements. Nevertheless, if tacit as well as express agreements are covered by Section 1, certain narrow interpretations of the term agreement would be ruled out.

Independent—The oft-used term independent has already been elaborated in Subsection I.B.1 to indicate the usage in this Article, which largely mirrors conventional usage in the competition law setting. Standard definitions of independent, such as not looking to others for guidance in conduct or not relying on others, track this usage. Other standard definitions, such as self-governing, allow the alternative discussed in Subsection I.B.5 that leads to confusion because interdependent action (including, as explained, highly express price-fixing agreements) can be understood as independent in this sense.

Interdependent—This term was examined in Subsection I.B.2. Conventional definitions focus on the possible meanings of the prefix “inter,” which may then be combined with definitions of dependent, which refers to that which is determined or conditioned by another.⁴³ This prefix relevantly means between or among, reciprocal, or carried on between, all of which denote the linkages among parties, such as coordinating oligopolists, described previously.

Parallelism, Conscious Parallelism—A range of independent yet similar behavior, from two individuals raising their umbrellas when it starts raining to cars driving on the right side of the road to firms changing their sales prices in response to changes in input prices, is described as parallel. In each instance, if the relevant players are also aware of each other’s behavior, it might be called consciously parallel, even though it is independent. Highly interdependent behavior, such as successful oligopolistic price coordination, is also parallel as well as consciously parallel. By itself, parallelism refers to that which resembles or corresponds, which is consistent with purely independent behavior but does not rule out interdependent behavior. But parallel (to which parallelism refers) may also be defined as interdependent. In that sense, parallel behavior could not be independent. The term conscious can variously be defined as perceiving, apprehending, noticing, or having awareness, all of which suggest that, if the behavior is independent, the parties cannot be entirely isolated, but none of which indicates much more than that.

To summarize, behavior exhibiting parallelism (in most but not all senses of the term) would seem merely to rule out certain sorts of independent behavior that are of no interest in examining possible price fixing. Indeed, even competitive behavior is parallel in this limited sense. And consciously parallel behavior, while adding more, does not distinguish between independent and interdependent parallel behavior.

43. Dependent may also be defined as subject to the jurisdiction of another, which corresponds to the alternative meaning of independent discussed in Subsection I.B.5 that produces confusion and thus is avoided here. In practice, usage of the term interdependence seems fairly uniform and has not, by itself, given rise to this problem.

The terms pose difficulties in practice because sometimes interdependent behavior is what the writer has in mind, particularly when referring to conscious parallelism rather than (unqualified) parallel behavior. Why add the adjective if no further refinement is intended? On the other hand, if adding an adjective, why employ one that is almost always redundant in context, if taken literally? Furthermore, if adding the adjective is done to indicate that interdependent rather than independent behavior is contemplated, can we then safely assume that all references to parallelism by itself refer to independent behavior? Apparently not.

Existing usage is especially problematic because often the immediate context (and lack of elaboration) does not remove potential ambiguity. Sometimes it is apparent that one or the other meaning must be intended—that may be the whole point of a passage—but to determine which meaning requires broad inferences (for example, one interpretation might be inconsistent with later arguments) or, in some cases, guesswork. Furthermore, even when the intended message can be ascertained with reasonable confidence, the language (such as that in leading cases) may be quoted elsewhere with a different import.

Competition—The term competition does not figure as directly as the others in articulating the agreement requirement under Section 1. However, it often appears in discussions of horizontal agreement, so it can be helpful to have likely meanings in mind. In general usage, the term is taken to refer to rivalrous interactions. This meaning is consistent with the particular application to the marketplace, one of the common domains of the term (that is, even outside competition law): the effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms. There exists a further, more precise notion of perfect textbook competition, an idea widely viewed as an abstraction that may be approached rather than actually observed.

Setting this definition against the provisional taxonomy, behavior that is competitive matches well with that which is independent. Successful interdependent behavior in an oligopoly, producing a monopoly-like price, is widely regarded as exhibiting a lack of competition. The resulting price is described as supracompetitive, and behavior that facilitates such an outcome is described as anticompetitive. Of course, competition is not completely eliminated—firms may still try to attract business through better service, for example. Nevertheless, crudely speaking, competition seems typically to refer to independent behavior, and an absence of competition to interdependent behavior.

B. Communications

In determining what sort of interaction is sufficient to trigger liability under Section 1, an important approach is to consider the nature of communications among the firms, as mentioned in Subsection I.B.4. Although Part III indicates that it is unclear the extent to which such an approach is

supported by the statute, Supreme Court opinions, or lower courts, communications seem most often mentioned by commentators when an attempt is made to articulate a subdivision within interdependent behavior and, relatedly, to give content to the notion of an express agreement.⁴⁴ This approach receives explicit attention in the present Section and in Subsection IV.B.2, but it should be emphasized that most of the rest of the analysis in this Article does not depend on the boundary between agreements and nonagreements being defined by reference to communications.

The requirement might be implicit, so that, in determining whether an express agreement exists, if such is required, an inquiry might focus largely on communications. Alternatively, a test could be explicit, inquiring directly whether particular modes of communication were employed (face-to-face discussions? writings? only public announcements?) or what types of information were transmitted (past prices? future prices? assurances?). All manner of combinations are likewise possible, and whatever communications are to be demonstrated might be proved directly or inferred from other circumstances. Although communications are the focus in commentary and some court opinions, it is largely taken for granted what the notion of communication means or what sorts of communication count. Subsection 1 addresses these matters.

Further questions are raised by the relationship, or lack thereof, between communications and agreement. Recall that a standard definition of agreement considers whether parties' minds have met, whereas examining communications may be more informative about how such a meeting of minds came about, if indeed one did. Of course, a complete disjunction is hardly necessary. Communications might be a basis for inferring the existence of an understanding, or agreement may by stipulation be deemed to constitute certain types of communication (for example, an exchange of verbal promises). In any case, there is substantial sentiment for condemning certain sorts of communications because they undesirably facilitate coordinated oligopolistic pricing, without regard to the precise relationship between the communications and some particular notion of agreement. This approach is described in Subsection 2.

Finally, given the attention devoted to communications, it seems appropriate to examine common but often implicit assumptions about the nature of human expression and interpretation. Accordingly, Subsection 3 briefly considers some pertinent ideas from various studies of language.

1. Nature of Communications

Communication generally refers to a process by which information is exchanged between individuals through some common system of symbols, signs, or behavior. The concept is clearly a broad one, including, for example,

44. See sources cited *supra* note 24.

communication between insects using pheromones.⁴⁵ More importantly, it clearly encompasses all variants of the two examples in Section I.A as well as generic versions of oligopolistic price coordination because pricing moves constitute behavior and, even in the absence of advance announcements through press conferences, are ordinarily conveyed through some sort of sign or symbol. In particular contexts, the intended mode may be more specific. For example, if one asks whether a communication has yet been received from Smith, it may be clear that the questioner has in mind a letter, phone call, or perhaps an email or text message. By contrast, on a submarine or ship, especially in the past, Morse code or signal flags may have been meant, and a baseball pitcher or batter would be referring to hand signals from the catcher or third base coach, respectively. In the American Revolution, the most famous communication involved two lanterns in Boston's Old North Church.

The standard definition of communication and this range of examples indicate that making communications the prerequisite to triggering Section 1 is tantamount to covering all interdependent behavior, certainly including coordinated oligopoly pricing—and seemingly much more, unless it is further required that the communications be successful in producing supracompetitive prices. Yet invocation of a communications requirement often supposes that it involves a limitation, selecting only a subset of interdependent behavior.

One possibility is that only certain communications—those in some set X—count. Communications might be limited by mode: face-to-face meetings, letters, phone calls, and emails count, whereas hand or smoke signals—those in XN—do not. Or they might be limited by content: future prices may be a forbidden subject whereas present prices would be permissible; assurances might be prohibited whereas declarations of intentions or predictions would be allowed. Or they might be limited by the setting: statements in smoke-filled hotel rooms could be prosecuted whereas public announcements would be tolerated; permissible methods of price announcements may be more circumscribed when there are a few large buyers who occasionally place large orders than when there are significant numbers of small purchasers.

Some combination of these sorts of prohibitions and permissions often seems to be contemplated, but the basis for singling out some types while excluding others generally is unspecified and the rationale is hardly self-evident. Regardless of the justification, it is not apparent even approximately where the division is thought to lie. The difficulty in articulating such a classification can be understood by reference to the flexibility and substitutability of modes of communication, which is discussed further in Subsection 3. If one prohibits talking, individuals can write. If writing is unavailable, there are hand signals, even full sign languages. The parties in

45. Lest the reader think this example farfetched, the dictionary used throughout, *see supra* note 34, presents this as its sole illustration of the just-stated definition of communication.

question, firms competing in an industry, may know each other well and interact over extended periods of time, allowing for the development of effective means of communication. They have strong incentives to find some way to communicate and may do so if any channels are left open.

To help understand the problem, consider a notion of functional equivalents. One option is to limit the triggering category X to a prespecified list of modes, content, or whatever combination might be developed, meaning that there will inevitably exist fairly close functional equivalents that are excluded. This approach, as noted in Subsection I.B.4, invites circumvention.⁴⁶ On the other hand, if functional equivalents—both existing ones and those that may be developed over time generally or by the parties—are included, then there is no real limitation. After all, the function in question is to communicate sufficiently well to accomplish successful interdependent behavior. Thus, when effective interdependence is present, the function has been served and liability would be triggered. A functional approach implies no limit to the inclusion of all interdependent oligopolistic behavior, which is contrary to the apparent intention of those who would impose a communications requirement.⁴⁷

Taking an intermediate approach that requires that certain modes of communication have been employed or that certain messages have been sent also creates serious proof problems if inferences are to be allowed based on

46. If the list is sufficiently inclusive, circumvention may be difficult, but the result would be little different from the inclusion of functional equivalents. Also, the rationale for such a list is difficult to imagine. For example, if English, French, and even American Sign Language are on the prohibited list, why bother excluding languages with smaller vocabularies or less developed systems of hand signals? Or if winks, nods, smiles, intonations, and hand signals are on the list, what would be gained by excluding grunts?

47. To illustrate the resulting tension, consider Werden's views. He concludes that there must be "some evidence of communications of some kind among the defendants through which an agreement could have been negotiated." See Gregory J. Werden, *Economic Evidence on the Existence of Collusion: Reconciling Antitrust Law with Oligopoly Theory*, 71 ANTITRUST L.J. 719, 780 (2004). Although "communications of some kind" is all-encompassing, he restates this (using the phrase "[i]n other words") as requiring that evidence must support a "spoken agreement." *Id.* This, in turn, seems so narrow as to exclude exchanges by letters or email, among other things. However, he had previously stated that "[a] 'spoken agreement' results from communications using anything akin to language . . ." *Id.* at 735. He notes that this can include "winks, nods, and the like," that "the law does not require the exchange of explicit mutual assurances," and thus that "there are no legally important distinctions among essentially linguistic means of communication." *Id.* He nevertheless distinguishes and thus excludes "communications purely in the form of marketplace actions," granting that such is within the meaning of the term communication. *Id.* Such a distinction may be rationalized under a result-oriented approach that views communication as a facilitating practice, which is discussed at the end of Subsection 2, but it is hard to make sense of these views as an attempt to define the terms in question so as to articulate what constitutes an agreement. See also *infra* note 290 (discussing Areeda and Hovenkamp's requirement that interdependence be supplemented by some evidence of commitment); AREEDA & HOVENKAMP, *supra* note 9, at 64 (in attempting to distinguish two sets of examples, they observe that the first group has "an advance statement about future behavior and thus something of a commitment," but acknowledge that "undertaking to do as one thinks best is not much of a commitment and may merely verbalize what is implicit in the second group").

circumstantial evidence.⁴⁸ For example, suppose that two individuals are accused of conspiracy to rob a bank. Videotapes reveal tight teamwork, but no words are recorded. How can the prosecution show the mode of communication? (Can we infer that they used telephones or face-to-face meetings rather than something else?) Or what was communicated? (Which details? In what language—say, mere suggestions of possibilities or a commitment to a particular plan?) In the absence of smoking-gun evidence—not of successfully coordinated interdependent behavior, which is obvious, but of whether this result came about through at least some communications in set X and not solely through others in set XN—how is this possible? This obstacle, which seems greater with oligopolistic behavior, has largely been ignored, perhaps because writers imagine that all that must be inferred is the use of some sort of communication. But we have seen that this route, although coherent, is tantamount to covering all successful interdependent behavior (or more).

Focusing on only a limited subset of communications might be justified in other ways. First, communications may be examined not because they have any significance in their own right but instead because they may be a means of determining whether interdependence is likely to have occurred. All manner of circumstantial evidence can be helpful, particularly in settings where interdependence is difficult to ascertain directly. For this purpose, some sorts of communication are more probative than others. For example, a seller's quoting a price to a buyer is a form of communication, and one that, depending on the setting, has a varying probability of reaching competing sellers, which probability the particular seller likely knows. But such price transmission occurs in some fashion in all sales transactions and hence cannot be probative of interdependence; by assumption, it is uninformative, beyond reaffirming the existence of business activity.⁴⁹ On the other hand, a price planning session among competitors is probative of interdependence because it serves few other functions.

Second, deterring certain types of communication may be more or less costly. Taking the preceding examples, because sellers must eventually communicate a price at which they are willing to sell to buyers, it would be problematic to penalize such behavior in and of itself, whereas there may be little risk of social loss in prohibiting firms from meeting to discuss future pricing policy. This distinction is particularly important if communications are not considered as constitutive of agreement or as a basis for inferring one, which has been the focus thus far, but rather as a direct basis for liability, the subject of the next Subsection.

48. For further elaboration, see Subsection III.C.1 and Section III.D.

49. Other forms of price transmission, such as gasoline stations posting prices on signs, may be more or less necessary on other grounds (or may be subject to varying extrinsic legal requirements), so sometimes certain inferences about interdependence might be possible.

2. Communications as Facilitating Practices

To the extent that Section 1 liability comes to depend on the presence of certain types of communication, the prohibition might be viewed as applying to those forms of communication rather than to price fixing itself. Some commentators make this connection explicit.⁵⁰ Nor is the approach doctrinally radical. It is well established that, under Section 1, agreements that facilitate price fixing but do not themselves constitute price fixing may nevertheless be violations. Section 1 does not just prohibit price fixing but all agreements that unreasonably restrain trade. Thus, if an agreement facilitates price fixing (and has no important redeeming virtues), it will be condemned.⁵¹ Accordingly, it seems unsurprising that types of communication that serve primarily to support coordinated oligopolistic pricing would be regarded to be prohibited.

Furthermore, this perspective makes the fixation on communications easier to understand: if certain communications are separately prohibited as facilitating practices, it is important to ascertain their existence. The inability to sort out the relationship between communications and concepts of agreement emphasized in Subsection 1 seems less problematic. All that is necessary is knowledge of which communications are targeted (although determining this set is no easy task, as Subsection 1 suggests).

Two features of this approach warrant emphasis. First, its relationship to the breadth of the direct prohibition on price fixing should be explored. If successful interdependent behavior leading to supracompetitive pricing is deemed a Section 1 agreement, then the separate attack on communications as facilitating practices is less important. It is not entirely unimportant because it may not always be possible to prove interdependence even when it exists and because communications may be designed to elevate prices but fail. Regarding the latter, just as it is often sensible to punish attempts as distinct from completed offenses in other contexts,⁵² so it might be good policy to attack certain types of communications directly. Unless most interdependent behavior is difficult to identify while prohibited communications are easy to detect,

50. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, ¶¶ 1407, 1435, 1436; Dennis W. Carlton, Robert H. Gertner & Andrew Rosenfield, *Communication Among Competitors: Game Theory and Antitrust*, 5 GEO. MASON L. REV. 423 (1997); Susan S. DeSanti & Ernest A. Nagata, *Competitor Communications: Facilitating Practices or Invitations to Collude? An Application of Theories to Proposed Horizontal Agreements Submitted for Antitrust Review*, 63 ANTITRUST L.J. 93 (1994).

51. Aspects of this position find support in cases holding illegal a variety of practices. See, e.g., *Catalano, Inc. v. Target Sales, Inc.*, 446 U.S. 643 (1980) (agreement not to offer credit to buyers); *Nat'l Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 679 (1978) (agreement to refrain from price negotiations until a particular engineer is selected); *United States v. Container Corp. of Am.*, 393 U.S. 333 (1969) (telephone verification of competitors' price quotes on particular transactions); *Am. Column & Lumber Co. v. United States*, 257 U.S. 377 (1921) (exchange of detailed pricing information through trade association).

52. See generally Steven Shavell, *Deterrence and the Punishment of Attempts*, 19 J. LEGAL STUD. 435 (1990).

however, this sort of attack on facilitating practices should be seen as the tail, not the dog.

Most who advance a prohibition on communications as facilitating practices, however, do not regard successful interdependent pricing behavior as price fixing under Section 1. If coordinated oligopolistic activity is by itself lawful, it seems all the more important to attack practices that facilitate it, and this need is an important justification offered for the approach. Note, however, that there is a certain irony involved: aiding and abetting is heavily punished, but undertaking the act one is trying to facilitate is freely permitted if such aids are unnecessary or cannot be proved to have been employed.

Second, in the case in which successful interdependence is not, without more, deemed to be an agreement, it is worth reflecting on the implication of the agreement requirement for the posited prohibition of certain communications. If manifest interdependence is not in itself an agreement, what is the basis for finding an agreement regarding facilitating practices, namely, communications? Many commentators take the answer to be sufficiently self-evident as to require no explanation.⁵³ But this is hardly the case.⁵⁴

It is difficult to untangle this question in the absence of any clear sense of what constitutes an agreement. What is necessary for the immediate inquiry is to hold constant the meaning of agreement (whatever that may be) when considering both coordinated oligopolistic pricing and the communications on which there is posited to be an agreement. To do this, let us derive guidance from examples like those in Section I.A. In the first example, consider the interpretation under which two gas stations signal their prices to each other iteratively using price signs. We are supposing that this process and result do not constitute an agreement. The question, then, is why a discussion in a hotel room is itself an agreement (that is, aside from any conclusion reached in the discussion). There is interdependent behavior: what one party says takes into account what the other has said and how the other is expected to react. But such interdependence, we are supposing is not enough. In addition, the discussion

53. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 6, 24–25, 54; see also *infra* note 55 (further discussing Areeda and Hovenkamp's views).

54. Interestingly—and many commentators would assert, incorrectly—the FTC lost a case in which it argued that various facilitating practices that may have been adopted unilaterally in an oligopolistic industry should be reached by Section 5 of the Federal Trade Commission Act, which statute does not require an agreement. See *E.I. du Pont de Nemours & Co. v. Fed. Trade Comm'n*, 729 F.2d 128 (2d Cir. 1984); see also POSNER, *ANTITRUST*, *supra* note 2, at 98 (criticizing *du Pont*); Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 *ANTITRUST BULL.* 143, 210–15 (1993) (same); Turner, *supra* note 30, at 682 (stating two decades prior to *du Pont*: “I have little doubt that an FTC decision condemning as an ‘unfair method of competition’ any of the conduct which I have suggested be condemned [that facilitates oligopoly pricing but may involve no agreement] would, assuming an adequate statement of reasons, be readily upheld by the Supreme Court.”).

may reach a successful conclusion. But so did the gas stations' price signaling exchange, and we are assuming that this too is insufficient.⁵⁵

In response, some who advance the view under consideration suggest that an agreement can be found in the willingness to attend a meeting in a hotel room.⁵⁶ But that simply moves the question back a stage. For example, Initiator emails Responder: "I think it would be a good idea to talk about prices next Wednesday at 7 p.m. I'll rent a room at the Stardust Motel and leave my room number at the reception desk. I'm not agreeing to anything, mind you, not even to meet. But I'll be there. P.S.: Don't reply to this message." Responder (not using "reply" but sending a separate message): "I'll be at the Stardust next Thursday at 8 p.m." Etc. (They ultimately settle on Thursday at 7:30 p.m.) If the price signaling game with unilateral declarations is not an agreement, it is hard to see why iterating to a common meeting time (rather than to a common selling price) is.⁵⁷ Of course, it is quite easy to characterize the price discussion meeting as involving an agreement as well as the hypothesized exchange to arrange the meeting, but the present discussion is supposing a narrow definition of agreement that excludes even highly coordinated interdependent behavior.

55. To illustrate the difficulty, consider the stance of Areeda and Hovenkamp. On one hand, they argue that interdependent oligopoly pricing behavior is not an agreement, as they would define it, because firms may well be willing to risk price announcements or moves that can quickly be rescinded without advance commitments from their rivals. *See, e.g., AREEDA & HOVENKAMP, supra* note 9, at 22, 96. On the other hand, they also argue that meetings themselves, and the willingness to attend such meetings, are agreements. *See, e.g., id.* at 25. But they do not attempt to explain (which would seem difficult, to say the least) why a firm willing to risk a price move without an advance assurance would be unwilling to risk talking and listening at a meeting without advance assurances about how others would respond to various proposals and other remarks. If interdependent pricing decisions are deemed to be unilateral because each firm, at the end of the day, makes its own decisions, why are meeting attendance and speaking any different as long as each retains control of its own voice? Surely it is in each firm's interest to attend, listen, think, and even to take the risk of saying something that might produce successful oligopolistic coordination. *Cf. id.* at 27–28 (offering as a "simple[] justification for finding an agreement," regarding telephone calls in *Container*, in which competing firms verified price quotes to buyers, that the calls involved "consensual and collaborative activity" so that "[n]othing more is needed"; concluding that "[t]he respondent forms an agreement to give information to its interrogator when it answers the question"; ignoring that elsewhere they repeatedly insist that matching a leader's price increase and all manner of other consensual and collaborative, that is, interdependent activity does not constitute an agreement) (see also pages 734–35 for further discussion of this aspect of *Container*); *id.* at 265 (stating that "the requisite conspiracy can be found when several firms take active steps to exchange *unilaterally* adopted manuals with each other" (emphasis added), despite insisting that so-called unilateral adoption of each other's suggested prices cannot be deemed a conspiracy).

56. *See, e.g., id.* at 29, 34, 36, 120, 155. Likewise, when engaging in direct discussions, one can ask whether the firms' representatives need any agreement to speak in the same language. (Consider even the case where all are fluent in more than one common language.) It is easy to answer this question affirmatively, but once again by treating successful interdependent interaction as agreement. *See also infra* Subsection 3 (on the use of common language).

57. One could assert that they agreed to send the emails, but the same question arises, and the argument is even more attenuated.

One answer to this challenge is simply to define agreement, by stipulation, as including the meeting but not the meeting's outcome.⁵⁸ This conclusory approach works mechanically, but it eliminates the notion that some concept of agreement embodied in Section 1 is doing any of the work.

Another approach is more frank but perhaps less satisfactory. One could admit that all are agreements and then assert further that some arrangements are prohibited and others allowed. Doctrinally, under Section 1's rule of reason, one would say that some are and others are not unreasonable restraints of trade. However, the rule-of-reason test asks whether the restraint in question promotes or suppresses competition.⁵⁹ Thus, implicitly, the approach amounts to asserting that successfully charging oligopoly prices rather than competitive ones is promoting competition, or at least competitively benign, rather than suppressing competition, whereas talking or meeting constitutes suppression of competition—indeed, precisely because it makes more likely the oligopoly pricing that was just stipulated not to involve a suppression of competition.

This juxtaposition, it should be recognized, really just restates the core idea behind approaches that exonerate successful interdependent pricing behavior but seek to capture various means that facilitate it. If a necessary condition for liability is the existence of certain sorts of communication, then there is an important sense in which naked price fixing is not per se illegal, as blackletter law consistently holds. Indeed, the opposite is the case: Truly naked price fixing is per se legal. Illegality flows from acts that clothe it using certain types of communication.

The present Subsection is meant to elucidate the view that certain communications should be prohibited as illegal agreements to engage in facilitating practices even though that which is facilitated—coordinated oligopoly pricing—is not in itself illegal because no agreement is deemed to exist. In particular, the point is to state the doctrinal structure of the idea and to relate it to the agreement concept as applied to price fixing itself. Whether one or another approach, no matter how formalistically congenial or strained, is

58. Areeda and Hovenkamp, despite devoting much of volume 6 of their treatise to the elaboration of the agreement requirement and what they regard to be its implications (interdependent oligopolistic pricing by itself is not an agreement, but engaging in communications often is), also offer occasional remarks indicating that they endorse a result-oriented approach to the interpretation of the term agreement. *See, e.g.*, AREEDA & HOVENKAMP, *supra* note 9, at 269, 272; *see also id.* at 292–93 (expressing reservations regarding liability for unilaterally adopted facilitating practices, but not seeing them as sufficient to deny liability under Section 5 of the FTC Act, under which there are no private suits, treble damages, or criminal penalties; yet implicitly limiting their reluctance to practices ordinarily discussed under the rubric of facilitating practices, which do not include communications that facilitate coordinated oligopolistic price elevation). Turner, as mentioned in note 35 and the accompanying text, is willing to view interdependent oligopoly pricing as an agreement yet not condemn it, and he is also willing to condemn certain facilitating practices in the absence of an agreement. *See* Turner, *supra* note 30, at 673–78.

59. *See, e.g.*, *Chicago Bd. of Trade v. United States*, 246 U.S. 231, 238 (1918); *Nat'l Soc'y of Prof'l Eng'g v. United States*, 435 U.S. 679, 690–91, 693–96 (1978).

superior in advancing economic welfare or some other objective is not under consideration at this point.⁶⁰

3. *Remarks on Language*

Subsection 1 emphasizes a broad view of the concept of communication as well as the challenge posed by functional equivalents that underlines the difficulty of disrupting effective information transmission by regulating some forms of communication but not others. These ideas are reinforced by a wide range of scholarship on a number of subjects and from a variety of disciplinary perspectives, including anthropology, evolution, linguistics, philosophy of language, and sign language studies.⁶¹ Philosophers of language, linguists, and social and natural scientists with similar interests debate many issues, but it seems uncontroversial that language and communication are ultimately taken to constitute an intersubjective phenomenon in which what counts is the ability to transmit thoughts through whatever means (broadly, symbols) are successful.⁶²

Consider a number of features that seem common in human language. In ordinary, unregulated interactions, there exists a variety of modes of expression, of which words are only one. Others include behavior, facial expressions, body language, and tone. Language is seen by many as having gestural origins, partly evidenced by other primates' use of gestures,⁶³ and these nonverbal channels remain an important part of human expression today. An instructive example is provided by sign languages, whose richness approaches that of spoken languages.⁶⁴ Interestingly, some of these features

60. For example, a leading argument in favor of reaching some types of communication but not oligopolistic coordination is that the former may be easier to remedy. *See, e.g.*, sources cited *supra* note 58; Werden, *supra* note 47, at 780.

61. *See generally* NANCY BONVILLAIN, LANGUAGE, CULTURE, AND COMMUNICATION: THE MEANING OF MESSAGES (4th ed. 2003); RAY JACKENDOFF, FOUNDATIONS OF LANGUAGE: BRAIN, MEANING, GRAMMAR, EVOLUTION (2002); STEVEN PINKER, THE LANGUAGE INSTINCT (1994); STEVEN PINKER, THE STUFF OF THOUGHT (2007) [hereinafter PINKER, STUFF OF THOUGHT]; Michael C. Corballis, *From Hand to Mouth: The Gestural Origins of Language*, in LANGUAGE EVOLUTION 201 (Morten H. Christiansen & Simon Kirby eds., 2003); Simon E. Fisher & Gary F. Marcus, *The Eloquent Ape: Genes, Brains and the Evolution of Language*, 7 NATURE REVIEWS: GENETICS 9 (2006); Marc D. Hauser, Noam Chomsky & W. Tecumseh Fitch, *The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?*, 298 SCIENCE 1569 (2002).

62. *See, e.g.*, MARC D. HAUSER, THE EVOLUTION OF COMMUNICATION 7 (1996) (table offering a sampling of definitions of communication in different fields).

63. *See, e.g.*, Corballis, *supra* note 61, at 203 (noting further that “[n]early all [such gestures] included reference to another individual, usually in a way that invited reciprocation”). In addition to what develops naturally, each species of great ape “has been taught to communicate quite well using visual and manual signals. . . . [T]he bonobo Kanzi[] has invented gestures to add to the repertoire . . .” *Id.* at 204.

64. *See, e.g.*, *id.* at 208 (referring to American Sign Language, which “incorporates such features as tense and mood[; at] Gallaudet University, . . . students learn all the usual subjects, even poetry, without a word being spoken”). Interestingly, Darwin suggested that the main advantage of spoken language was that it freed individuals’ hands. *See id.* at 213. In this light, it seems implausible that elaborate communications can be prevented by limiting the two gas station

suggest that face-to-face interchanges allow for richer communication whereas other aspects (including notably behavior) may require no direct contact at all.

Another feature of communication is its symbolic nature, and, in both elaborate modern human languages and other forms of expression, most of the symbols are arbitrary.⁶⁵ Although written and spoken languages and sign languages all have similar grammars, each may employ its own particular words or signs to represent various content. Accordingly, it is unclear the extent to which prohibiting certain magic words (like agreement, promise, assurance, or commitment) or even entire forms of speech or writing would inhibit effective communication.⁶⁶

Additional features of human language compound the challenge. Words or other symbols can be recombined to produce countless messages that a receiver can readily understand even though the combination has never been observed previously.⁶⁷ Strangers can converse without any prior agreement and, especially if they have similar backgrounds, can understand each other readily.⁶⁸ It is also a familiar feature of written and spoken languages that messages, even central ones, are sent indirectly, requiring the receiver to read between the lines.⁶⁹ Steven Pinker offers a variety of colorful examples indicating how frequent and widespread this phenomenon is, and he points out that indirection is often used precisely when there is legal regulation—for example, bribes and threats may be communicated through euphemisms or innuendo.⁷⁰ Although in these instances the meaning is often crystal clear to the parties and to observers despite the message being implicit, in other cases it can

owners in example 1 of Subsection I.A.1 to the use of signs.

65. See, e.g., BONVILLAIN, *supra* note 61, at 34–35 (discussing sign language). This trait is related to the notion in the economic theory of “cheap talk” that there is an inessential multiplicity of equilibria because there is an infinite variety of ways of signaling; all that is required is that the parties employ some common system. See, e.g., Vincent Crawford, *A Survey of Experiments on Communication via Cheap Talk*, 78 J. ECON. THEORY 286, 289 (1998).

66. This reservation is not to suggest that all methods of communication are perfect substitutes. In many settings, disallowing face-to-face (or equivalent) encounters may reduce the ability to convey certain nuance through gestures. The importance of these modes in oligopolistic interaction is unclear. (One might have thought that these methods mattered most in settings such as early-stage courtship; however, the speedy and successful evolution of Internet matchmaking, in which electronic written communication dominates, provides evidence, supplementing that in the text to follow, of the ability of language to evolve functionally even when subject to significant constraints.)

67. See, e.g., HAUSER, *supra* note 62, at 38; JACKENDOFF, *supra* note 61, at xiv; NICHOLAS WADE, *BEFORE THE DAWN: RECOVERING THE LOST HISTORY OF OUR ANCESTORS* 38 (2006); Hauser, Chomsky & Fitch, *supra* note 61, at 1571, 1573.

68. See, e.g., Fisher & Marcus, *supra* note 61, at 10 (“Speaker and listener . . . can have a meaningful conversation without any previous explicit agreement about what particular sounds should signify.”).

69. “In everyday life we anticipate our interlocutor’s ability to listen between the lines and slip in requests and offers that we feel we can’t blurt out directly.” PINKER, *STUFF OF THOUGHT*, *supra* note 61, at 22.

70. See *id.* at 22, 373–425. Pinker explains that this method is also common in dating, particularly with regard to sexual suggestiveness.

be difficult for outsiders to a language community to recognize aspects of communication that are taken for granted by insiders.⁷¹

Even worse for attempts at crafting language regulation is the fact that language evolves readily and functionally to meet individuals' needs. The underlying structures (aspects of grammar, the combinatoric quality) are innate in humans⁷² and give language great flexibility in overcoming incompleteness; language is dynamic and adaptive.⁷³ Shared meanings emerge within groups that need to interact.⁷⁴ Powerful evidence for these features is offered by observed instances in which elaborate languages spontaneously emerged. Thus, when two groups with no common language are combined, pidgins (simplified speech often drawn from both languages) readily arise; the next generation of such groups may transform this base into a full-blown language, referred to as a creole.⁷⁵ A similar process is widely observed among the deaf.⁷⁶ Deaf children (even in very early years) develop their own sign language if they are not taught one.⁷⁷ Groups of deaf individuals invent and develop elaborate sign languages if they are isolated from already existing systems.⁷⁸ For example, in a school that attempted to teach deaf children in a standard, spoken and written language, the children invented their own sign language and passed it on to future generations of students.⁷⁹

71. For example, misunderstandings in interpreting nonverbal behavior can be produced by cultural diversity. See BONVILLAIN, *supra* note 61. Furthermore, it was only after extensive study of sign languages that scholars eventually discovered that the height of a sign for perceived motion might reveal signer perspective. See Susan D. Fischer & Patricia Siple, *Introduction*, in 1 THEORETICAL ISSUES IN SIGN LANGUAGE RESEARCH: LINGUISTICS 1, 3 (Susan D. Fischer & Patricia Siple eds., 1990).

72. See, e.g., Fisher & Marcus, *supra* note 61, at 15, 17.

73. See, e.g., WADE, *supra* note 67, at 38.

74. See, e.g., BONVILLAIN, *supra* note 61, at 2–4.

75. See, e.g., DEREK BICKERTON, LANGUAGE AND SPECIES 118–22, 169–71, 181–85 (1990); WADE, *supra* note 67, at 40–41.

76. It has also been observed among “religious communities sworn to silence, people working in extremely noisy environments, [and] indigenous peoples involved in rituals of silence.” Corballis, *supra* note 61, at 208. Furthermore, existing sign languages have been shown to be capable of importing words from the surrounding spoken language. See Fischer & Siple, *supra* note 71, at 4.

77. See, e.g., Corballis, *supra* note 61, at 209; Fisher & Marcus, *supra* note 61, at 9; JACKENDOFF, *supra* note 61, at 99–100.

78. See, e.g., Wendy Sandler, Irit Meir, Carol Padden & Mark Aronoff, *The Emergence of Grammar: Systematic Structure in a New Language*, 102 PROC. NAT’L ACAD. SCI. 2661 (2005) (describing spontaneously created Al-Sayyid Bedouin Sign Language in an isolated community).

79. “Although instruction in school was conducted in Spanish (with minimal success), these first children began to develop a new, gestural system for communicating with each other. The gestures soon expanded to form an early sign language. Through continued use, both in and out of school, the growing language has been passed down and relearned naturally every year since, as each new wave of children entered the community.” Ann Senghas, Sotaro Kita & Asli Özyürek, *Children Creating Core Properties of Language: Evidence from an Emerging Sign Language in Nicaragua*, 305 SCIENCE 1779, 1780 (2004) (internal citations omitted).

Against this background, one should expect firms in an industry that interact over long periods and that are run by individuals who share common languages, backgrounds, and understandings of their strategic situation to develop means of communicating even if certain statements or techniques are off limits.⁸⁰ The relevant actors as well as consultants they hire may have taken similar courses on competitive strategy at business school, attended conferences on the subject, and read the same literature.⁸¹ When competitors have access to a common play book, which in a sense offers a two-way translation between pertinent moves and standard signals, communication may flow easily.⁸² One could even consider extreme versions: suppose that a consulting firm creates and sells to all the firms in an industry a detailed signaling system using, say, the fifteenth and sixteenth decimal place of a price announcement or the number of milliseconds that elapse between electronic transmissions of dollars and cents, reconstructing all forbidden magic words or anything else that may prove useful.⁸³ Lest these hypotheticals seem far-fetched, similar

80. Drug dealers speak in a code of sorts to help avoid detection and prosecution, and their language has many of the characteristics described in this Subsection. *See, e.g.,* Boyce Watkins, *DEA Seeks Ebonics Experts to Help with Cases . . . Seriously*, BLACK VOICES (Aug. 23, 2010, 11:44 PM), <http://www.bvblackspin.com/2010/08/23/dea-may-hire-ebonics-translators-to-solve-crime/> (“Dealers don’t just sound like rappers, but actually structure a variation of language and sophisticated codes that nearly anyone would have trouble translating. Rather than hiring an Ebonics expert to understand the lingo of drug dealers, the DEA would be better off hiring a former drug dealer. Urban language, in general, has a very dynamic dimension to it that changes with the release of every new album, the start of every new school year and with each new season on *BET*.”).

81. Consider, for example, MICHAEL E. PORTER, *COMPETITIVE STRATEGY*, chs. 4, 5 (1980), a prominent text by a well-known business school professor, which includes chapters on “Market Signals” and on “Competitive Moves.” In those chapters, there is substantial discussion of the means of obtaining the sort of mutual understanding that will result in behavior that redounds to the firms’ advantage, but little if any discussion of (much less fixation on) what those commenting on the law would characterize as express agreement. *See also* DAVID BESANKO, DAVID DRANOVE, MARK SHANLEY & SCOTT SCHAEFER, *ECONOMICS OF STRATEGY*, ch. 8 (4th ed. 2007); DAVID DRANOVE & SONIA MARCIANO, *KELLOGG ON STRATEGY*, chs. 5, 6 (2005) (chapters entitled “The Cancer of Competition: How to Diagnose It” and “The Cancer of Competition: How to Cure It”); *cf.* Oliver P. Heil, George S. Day & David J. Reibstein, *Signaling to Competitors*, in WHARTON ON DYNAMIC COMPETITIVE STRATEGY 277, 288 (George S. Day, David J. Reibstein & Robert E. Gunther eds., 1997) (“When rivals follow similar strategies, use similar structures, and the managers have similar backgrounds, they understand each other and usually make correct attributions of each other’s moves. Difficulties arise with new competitors that go unrecognized because they are members of a divergent strategic group.”).

82. “[O]ne explanation [for successful coordination] is that [firms’] market moves are interpretable as messages. They converse in a code, as it were.” James W. Friedman, *A Non-cooperative Equilibrium for Supergames*, 38 REV. ECON. STUD. 1, 11 (1971).

83. An analogy that may be familiar to some readers is the use of bidding conventions in the game of bridge, which must be shared before play with opponents in duplicate bridge tournaments through the use of convention cards. *See, e.g.,* *Convention Card*, BRIDGE WORLD, http://www.bridgeworld.com/default.asp?d=bridge_glossary&f=glossc.html (last visited Nov. 22, 2010). In addition, defenders employ signaling systems when playing a hand. In both instances, the players are not allowed to speak, wink, or nod once play commences: all communication is undertaken using preexisting signaling systems that players learn from books, other media, and

behavior was employed through an electronic price-posting system in the *Airline Tariff* case and the use of trailing digits in FCC spectrum auctions.⁸⁴

Another interesting feature of communication relates to the overwhelming tendency of proposed competition law regulation to focus on the use of words. As noted, communication takes many forms, including, importantly, behavior—that is, actions. To restrict words but freely permit actions would make sense if the former were a distinctively more powerful means of effectuating coordinated oligopolistic understandings and outcomes. But one should wonder whether this is the case. The familiar adage, after all, is that “actions speak louder than words,” not vice versa.⁸⁵ Consider also numerous cousins: “All talk, no action.” “Put your money where your mouth is.” “Practice what you preach.” “Walk the talk.”⁸⁶ This idea relates to the point that successful interdependent behavior in many settings—including coordinated oligopoly pricing—requires that players have reason to believe that others will behave cooperatively,⁸⁷ and actions themselves either constitute the cooperative behavior that mere words promise or at a minimum demonstrate a higher level of commitment.⁸⁸

Nor is it novel to apply this principle in the present context. Thomas Schelling, in his seminal investigation, *The Strategy of Conflict*, stated: “Even with full verbal communication, the situation may not be greatly different [from

experience, including direct discussions with their partners before the competition.

84. See, e.g., Severin Borenstein, *Rapid Price Communication and Coordination: The Airline Tariff Publishing Case (1994)*, in *THE ANTI-TRUST REVOLUTION* 233 (John E. Kwoka, Jr. & Lawrence J. White eds., 4th ed. 2004); Porter, *supra* note 24, at 153, 158; Werden, *supra* note 47, at 766.

85. See, e.g., *Actions Speak Louder than Words Definition*, GOENGLISH.COM, <http://www.goenglish.com/ActionsSpeakLouderThanWords.asp> (last visited Nov. 22, 2010) (“‘Actions speak louder than words’ means that your actions (what you do) communicate more clearly than your words (what you say). It is as if they were louder than words. ‘Actions speak louder than words’ means that if you want people to believe your words, you should ‘speak’ with your actions. Example: ‘Don’t tell me how to do this; show me! Actions speak louder than words.’”); *Actions Speak Louder than Words Definition*, THE NEW DICTIONARY OF CULTURAL LITERACY (3d ed. 2005), <http://dictionary.reference.com/browse/Actions+speak+louder+than+words> (last visited Nov. 22, 2010) (“People are more impressed with our sincerity if we act on our beliefs than if we merely talk about them.”).

86. See, e.g., PAUL BRIANS, *Walk the Talk*, in *COMMON ERRORS IN ENGLISH* (2d ed. 2008), <http://www.wsu.edu/~brians/errors/walk.html> (last visited Nov. 22, 2010) (clarifying the origins of “walk the talk”).

87. Indeed, some competition law commentators who focus on communications believe that the crucial question is the credibility of commitment that can thereby be conveyed. See AREEDA & HOVENKAMP, *supra* note 9, at 65 (asserting that “expressly exchanged views . . . convey more assurance about the future than mere marketplace behavior”); *infra* note 290 (discussing Areeda and Hovenkamp’s views).

88. An important caveat, of course, is that actions may be louder but more ambiguous. Whether this is so will depend on the context. Ordinary language is often misunderstood or, importantly, understood but not believed, that is, not taken at face value. Compare Pinker’s point noted in the text that meaning is often what is interpreted between the lines of even clear words. Likewise, many actions, such as initiation of a price increase, like in the example in Subsection I.A.1, are quite clear.

that without any]; patterns of action may speak louder than words.”⁸⁹ In discussing communication, cheap talk, and promises (and thus anticipating some modern developments in game theory), he elaborated:

This is one of the reasons why talk is not a substitute for moves. Moves can in some way alter the game, by incurring manifest costs, risks, or a reduced range of subsequent choice; they have an information content, or evidence content, of a different character from that of speech. Talk can be cheap when moves are not⁹⁰

Michael Porter echoes similar sentiments in *Competitive Strategy*: “Announcements or leaks of the intention to carry out a commitment are also communicating devices, although they do not usually communicate with the seriousness of past behavior.”⁹¹ One can also consider this question in the context of the gas stations parable in Subsection I.A.1. Suppose that the Initiator points to a not-yet-posted sign with a higher price, and that the Responder gives a “thumbs up” reply. As previously suggested, such symbolic action is pretty close to verbal expression. But isn’t putting “signs up” rather than “thumbs up” at least as compelling an indication of a willingness to charge the new price?

Determinating the implications of the foregoing observations about language is left to Part IV and to subsequent research. However, a few clarifying notes are in order. First, it certainly need not be supposed that a ban on some subset of communications will be meaningless. Even so, defining any such subset will be quite difficult, and inferring from circumstantial evidence whether the communications that transpired were or were not in the subset will often be even harder. Indeed, even with perfect recordings of all interactions, some possibly significant ambiguity will remain in interpreting what transpired.⁹² Second, predicting the effect of any such regulation will be also be

89. SCHELLING, *supra* note 16, at 107.

90. *Id.* at 117 (emphasis omitted). The ellipsed material is: “(except for the ‘talk’ that takes the form of *enforcible* threats, promises, commitments, and so forth, and that is to be analyzed under the heading of *moves* rather than communication anyway.)” *Id.* (emphasis in original); *see infra* Subsection IV.A.1 (distinguishing cooperative game theory, in which promises are enforceable, from noncooperative game theory, relevant to competition law, in which they are not).

91. PORTER, *supra* note 81, at 103; *see* Heil, Day & Reibstein, *supra* note 81, at 285 (“However, since announcements are so easy and inexpensive, bluffing is more likely. As a result, a manager needs to choose between the fast, low-cost announcement or the slower, more expensive but often more credible action.”); *cf.* PORTER, *supra* note 81, at 77 n.3 (“Competitors can also comment on their pleasure or displeasure *directly* through interviews, speeches to security analysts, and so on. But announcing that they will do something, in response to a firm’s move, is usually a more binding commitment to their position than mere statements of pleasure or displeasure.”).

92. The problem is compounded by the very difficulty of defining the concept of agreement and the existence of widely divergent usages. For example, courts sometimes refer to evidence of the existence of an “understanding,” which is most relevantly defined as being in harmonious relationship, having an agreement of opinion or feeling, or more specifically a mutual agreement not formally entered into but in some degree binding on each side—definitions consistent with a variety of meanings of the term agreement (including interdependent behavior without more) and

challenging. The result will vary greatly by context, and it also may change over time as parties' language, broadly viewed, evolves in response. Innovation in communications technology, which is becoming increasingly rapid, will further complicate the picture.⁹³ Third, outside observers—such as courts, regulators, and academics—are at a disadvantage in determining what is actually happening if parties attempt to be clever and subtle in their methods.

III.

DOCTRINE

In examining competition law's doctrine on horizontal agreements, this Part begins in Section A by addressing the U.S. statute. Although such attention may seem conventional because the legal question is one of statutory interpretation, in fact the language of Sherman Act Section 1 is not much discussed. Indeed, as previously mentioned, the core term agreement does not even appear in the statute. Given the difficulty in making sense of the agreement requirement, it is appropriate to examine the statute for what illumination it may offer.

Section B considers the leading Supreme Court precedents on the subject. These are the primary source of U.S. antitrust law in general and specifically in delineating what constitutes a horizontal agreement under Section 1. Here, there is more conflict than meets the eye. Key older decisions that continue to receive frequent, favorable citation appear to state the rule in a way that contradicts what most commentators deem the law to be. More recent decisions present a more mixed picture: they state rules in canonical language, but the key terms are some of those shown in Section II.A to have multiple, even opposite meanings. The latest cases seem to be most supportive of commentators' views that demand more than interdependent behavior, yet these opinions contain little direct attention to the central question and they also reaffirm, draw support from, and employ to state their holding the earlier cases that are ambiguous or contrary.

Therefore, it is not surprising that, as Section C explores, the practice in lower courts is difficult to characterize (although some commentators depict a substantially harmonious state of affairs). The problem begins with the frequent need to make inferences from circumstantial evidence; all acknowledge this necessity, but the problem of defining agreement makes it hard to know what one is trying to infer or how inferences can be made even when evidence of

not clearly distinguishing among them. *See infra* Subsection III.C.1. How is one to determine how the term was used in context? And if only meetings of the minds that are achieved through specific modes of communication count, how can one tell how such was achieved? And even if those modes are directly in evidence, how does one know whether they were necessary or sufficient in achieving the understanding? For further discussion, see Subsection III.C.1 and Section III.D.

93. *See* Louis Kaplow, *Direct Versus Communications-Based Prohibitions on Price Fixing*, J. LEGAL ANALYSIS, § 4.3 (forthcoming).

agreement appears to be fairly direct. Various seemingly clear rules, such as the demand for so-called plus factors, are entirely unclear upon examination. Furthermore, when one looks at what the courts actually do—that is, what sorts of facts they find adequate or insufficient to support a finding of an agreement—the picture becomes even murkier. Often facts wholly consistent with purely interdependent behavior are cited as showing the existence of an agreement, even an express agreement. In addition, when cases get to a jury, standard instructions do not sharply define what concept of agreement the fact-finder is supposed to consider and seem to invite a broad interpretation. Rules governing the calculation of damages also seem to be in tension with leading formulations of the standard for liability. Finally, as Section D shows, the process of inferring the existence of an agreement (interpreted more narrowly than interdependence) from circumstantial evidence results in a paradox of proof that has surprising implications for the conduct of litigation that do not ordinarily seem to be borne out.

Consistent with the ambiguities in standard articulations of the law and the uncertainties in how they are applied to particular fact configurations in actual cases, it is difficult to extract from the cases how courts would rationalize particular outcomes in the sorts of examples posed in Section I.A. Both courts and commentators speak using the ambiguous terminology examined in Part II: sometimes they refer to express agreements, sometimes to tacit, but without clarifying which is required or what either means; sometimes they focus on communications, but without defining this potentially all-encompassing concept or suggesting a practical delineation of what forms of communications count; they all agree that independent behavior does not amount to an agreement, but differ in or are unclear about how they use the term independent. Accordingly, as will be seen throughout this Part, neither courts' discussions of the issues in more recent cases nor commentators' glosses thereon go very far in giving meaning to the concept of horizontal agreement.

Section E reflects on the meaning of the law in action in light of the foregoing. The analysis is supplemented by the observation that lawyers' advice to clients regarding their primary behavior (as distinct from the conduct of litigation) and the behavior itself do not seem to be consistent with the standard articulation of the agreement requirement as being substantially narrower than interdependent behavior.

At the conclusion of this Part, which focuses specifically on Section 1 of the Sherman Act, Section F gives some attention to the corresponding provision in the European Union, Article 101. Because the underlying questions and the relevant economic theory of oligopoly are the same, it is natural to expect similar challenges to arise, and they do. It need not be true, of course, that European legal institutions and commentators address these matters in the same way.

A. Statute

1. Contract, Combination, or Conspiracy

Sherman Act Section 1 declares to be illegal “[e]very contract, combination in the form of trust or otherwise, or conspiracy[] in restraint of trade or commerce.”⁹⁴ “The three quoted terms are understood to embrace a single concept,”⁹⁵ which is generally referred to as an agreement. Even though the statutory terms are not usually considered separately, it is worth doing so briefly to see what might be learned.⁹⁶

The first term, contract, has a generally recognized legal meaning that it is not unreasonable to suppose is what the legislature had in mind when including it in Section 1’s list. Even in ordinary usage, a contract refers to a binding agreement and usually connotes one that is legally enforceable. As mentioned in Subsection I.B.5, this usage is potentially confusing for, once contracts in restraint of trade are deemed illegal, they are no longer legally enforceable, and this result is one effect of the statute. Nevertheless, there seems to be little doubt that the statute was meant to encompass, at a minimum, arrangements that would be contracts but for the nullifying effect of Section 1 itself. Possibly a broader meaning, covering more informal arrangements, was also intended by the term. Note also that legally binding contracts can sometimes be rather informal, and that in some contexts contracts can be created by actions.

Combination is used in connection with the elaboration “in the form of trust or otherwise,” the concrete reference indicating a common legal form that cartels took at the time the Sherman Act was passed. Combination generally refers to joint action ranging from a formal merger to any sort of acting together, that is, from a particular form of express agreement (and one already included in the term contract) to interdependent oligopoly pricing. Adding “or otherwise” seems to invite a broad interpretation, at the least one not dependent on the form that is employed.

Conspiracy, the specific statutory term most often mentioned by courts and commentators alike, also has a range of ordinary meanings. A narrower one would refer to secret agreements to perform an unlawful or wrongful act or an act that becomes unlawful as a result of the secret agreement, which is close to the criminal law definition discussed in Subsection 2—although secrecy is not generally required.⁹⁷ More broadly, the concept refers to action in harmony

94. 15 U.S.C. § 1 (2006).

95. AREEDA & HOVENKAMP, *supra* note 9, at 1.

96. Areeda and Hovenkamp state: “The several statutory terms for combined action are usually treated interchangeably.” *Id.*; *see id.* at 16. This claim does not appear to be correct; for example, tacit agreements might be referred to as a conspiracy but not as a contract. Of the three terms, the latter, conspiracy, is the one often used generically, which is one of the reasons it receives additional attention in Subsection 2.

97. *See supra* note 37.

toward a common end, readily encompassing interdependent oligopoly pricing. In choosing an interpretation, it does seem highly relevant that conspiracy, like contract, is a legal term of art, which is why Subsection 2 considers its standard legal meaning in greater depth.⁹⁸

The three statutory terms, viewed in isolation (with regard to the latter two) and certainly when combined, suggest a range of possible breadths for Section 1's agreement requirement. In considering the clause as a whole, the use of three terms (and the second with an "or otherwise" clause) suggests as a plausible interpretation "in any way, shape, or form." Congress used a list of terms rather than a single term; some of these terms are fairly clear (contract), and some are ambiguous; some are narrow and some broad; and they are partially overlapping but not nearly coincident. All of this is reminiscent of a common legal drafting technique that strives to be all-inclusive.⁹⁹ Moreover, on its face, there is no attempt to exclude any form of integrated behavior involving multiple parties.

In considering legislative history and intent, it seems clear that Congress had the trusts themselves most clearly in mind and did not entertain thoughts about modern oligopoly theory.¹⁰⁰ On the other hand, the prohibition is explicitly not limited to trusts and is phrased in a comprehensive fashion. Likewise, the stated legislative purposes, such as promoting competition,¹⁰¹ do not on their face imply any distinction based on subtle differences in means.

Another question is how much weight should be given to legislative history and intent. The words of Sherman Act Sections 1 and 2 are few, and it has been a century since they have been interpreted literally. Notably, even though Section 1 prohibits "every" agreement "in restraint of trade or commerce," the Supreme Court in *Standard Oil* in 1911 interpreted this prohibition to apply only to unreasonable restraints (or, to put it another way, restrictions that are reasonable are not deemed to be restraints).¹⁰² The U.S. Supreme Court's stance toward the antitrust statutes has sometimes been described as one that takes them more as a delegation of common-law-like authority to develop doctrine rather than as a prescription of what that doctrine is.¹⁰³

98. Somewhat surprisingly, antitrust commentators tend not to examine (or in many cases even mention) general legal material on conspiracy. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 227 (devoting a single paragraph of a nearly three-hundred-page treatment of horizontal agreements to the subject, stating that "a detailed analysis of conspiracy . . . is relevant in principle [but] does not seem promising enough to add to the authors' and readers' burdens here").

99. It is useful to keep in mind the general caveat that maxims of statutory construction often point in opposite directions. See Karl N. Llewellyn, *Remarks on the Theory of Appellate Decision and the Rules or Canons About How Statutes Are To Be Construed*, 3 VAND. L. REV. 395 (1950).

100. See EARL KINTNER, FEDERAL ANTITRUST LAW, ch. 4 (1980).

101. See, e.g., *id.* at 145, 242.

102. *Standard Oil Co. v. United States*, 221 U.S. 1, 49–68 (1911).

103. See, e.g., *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 899 (2007); AREEDA & HOVENKAMP, *supra* note 9, at 226; KINTNER, *supra* note 100, at 166, 217,

Despite this tendency, the Court has not acted as if the statutes give it *carte blanche*. In particular, it is understood that Sherman Act Section 1 differs from Section 2 in that some sort of group behavior is a prerequisite for application of the former. The question, then, is what sort of group behavior is required to trigger Section 1. The language of the statute seems readily to cover interdependent oligopoly behavior. Nevertheless, the Court still might choose to define covered activity more narrowly if it believes this course to be prudent in light of current understanding of what constitutes good competition policy. If so, it is difficult to locate such a boundary in the statute itself.

Accordingly, although it is blackletter law that an agreement must exist in order for Section 1 to be triggered, the concept of agreement, whether viewed by itself or illuminated by the underlying statutory language, does little to indicate what is or should be required. Instead, courts' and commentators' invocation of the term may simply register a conclusion reached on other grounds. If that is indeed the case, however, the doctrine remains obscure because such rationales are not usually elaborated. Nor are they readily inferred because the typical inquiry is presented as the application of a test for whether an arrangement fits within a preexisting, reasonably well-defined, and readily understood category.

2. General Law of Conspiracy

Subsection 1 shows that the statutory language can readily be seen as inviting a broad interpretation of the agreement concept yet leaving substantial uncertainty about what Congress really intended, which itself may or may not ultimately be determinative. As also noted, however, Congress's intent may be less ambiguous regarding inclusion of the word conspiracy because it was then and continues to be a widely used legal term of art with an established meaning. The term is also of particular interest because it—rather than the other two provisions or the more inclusive term agreement—is most commonly mentioned in Supreme Court opinions on the subject.

Conspiracy refers to “[a]n agreement by two or more persons to commit an unlawful act.”¹⁰⁴ This basic formulation has remained largely unchanged over time, being reflective of the common law of conspiracy and the more recent Model Penal Code.¹⁰⁵ Standard definitions' use of the term agreement helps to explain how that term became a common shorthand for the statutory

239; William F. Baxter, *Separation of Powers, Prosecutorial Discretion, and the “Common Law” Nature of Antitrust Law*, 60 TEX. L. REV. 661, 662–73 (1982). This approach toward Supreme Court interpretation of the Sherman Act has been criticized. *See, e.g.*, Thomas C. Arthur, *Farewell to the Sea of Doubt: Jettisoning the Constitutional Sherman Act*, 74 CALIF. L. REV. 263 (1986); Daniel A. Farber & Brett H. McDonnell, “*Is There a Text in This Class?*” *The Conflict Between Textualism and Antitrust*, 14 J. CONTEMP. LEGAL ISSUES 619 (2005).

104. BLACK'S LAW DICTIONARY, *supra* note 39, at 351.

105. *See, e.g.*, 2 WAYNE R. LAFAVE, SUBSTANTIVE CRIMINAL LAW 265 (2d ed. 2003); MODEL PENAL CODE § 5.03(1) (1985).

trilogy but may also suggest a dead end because attempts to define that term seem unavailing. The above efforts, however, rely on general understandings. The present question is whether the agreement component of conspiracy doctrine has a more determinate meaning.

Wayne LaFave's treatise states: "It is universally conceded that an agreement need not be express, although whether the idea of an implied agreement connotes only an unspoken, actual consensus or has broader, fictional components is by no means clear."¹⁰⁶ In addition, he observes that the agreement notion with regard to conspiracy law is "more lax than elsewhere," and that "[a] mere tacit understanding will suffice, and there need not be any written statement or even a speaking of words which expressly communicates agreement."¹⁰⁷ Of further interest is that the one Supreme Court case LaFave cites in support of this proposition is *American Tobacco*,¹⁰⁸ an antitrust decision that is discussed in Subsection B.1. He also cites (and partially quotes) another antitrust decision, *Interstate Circuit* (also discussed below), in support of the proposition that "it is thus well established that the prosecution may 'rely on inferences drawn from the course of conduct of the alleged conspirators.'"¹⁰⁹ Although, as Part II explains, the scope of terms like express, tacit, and communication is quite unclear, the foregoing statements sharply articulate a

106. LAFAVE, *supra* note 105, at 266 n.11 (quoting MODEL PENAL CODE § 5.03 cmt. at 419 (1985)).

107. LAFAVE, *supra* note 105, at 266. Similarly, Pollack states that the pertinent element of conspiracy is that the actor's intention to participate be conveyed "either by words or conduct." Benjamin F. Pollack, *Common Law Conspiracy*, 35 GEO. L.J. 328, 332 (1947); *cf. id.* at 337 (referring to a legislative commission's commentary regarding the overt act requirement of conspiracy law, which speaks of "the formation of this intent by the interchange of thoughts"). Cousens reviews federal conspiracy law during the period leading up to the passage of the Sherman Act and finds it to be quite broad, allowing that a "common action on a common plan might be plainly shown by actions and circumstances," and discusses a case in which it was stated that there is no need to show an "explicit or formal agreement," it being sufficient that parties "'positively or tacitly' com[e] 'to a mutual understanding.'" Theodore W. Cousens, *Agreement as an Element in Conspiracy*, 23 VA. L. REV. 898, 899-90 (1937). Courts "have emphasized such truths as the lack of necessity for formal or verbal agreement and the possibility of tacit consent and purely circumstantial proof." *Id.* at 910. To tighten courts' approach to conspiracy, Cousens proposes that, "regardless of the kind of evidence or method of proof [juries] must be convinced of an actual agreement in the sense of a meeting of minds in the pursuit of a course of action according to a common plan." *Id.* at 910-11.

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

109. LAFAVE, *supra* note 105, at 267 (quoting *Interstate Circuit v. United States*, 306 U.S. 208, 221 (1939)). It seems standard to cite these Supreme Court antitrust decisions when articulating the blackletter law of conspiracy. For example, 16 Am. Jur. 2d *Conspiracy* § 10 (1998) cites *American Tobacco* as the leading Supreme Court case standing for the proposition that agreements under conspiracy law "need not be formal" (adding further that they need not be "express but may be a tacit understanding; the agreement may be inherent in and inferred from the circumstances[,] especially declarations, acts, and conduct of the alleged conspirators"), and it cites *Interstate Circuit* as the Supreme Court decision supporting the rule that: "The agreement need not be entered into by all the parties to it at the same time but may be reached by successive actions evidencing their joining of the conspiracy."

fairly broad conception of agreement, surely one not limited to direct verbal statements or other highly explicit types of communication.

Furthermore, the use of phrases like “actual consensus” and “mere tacit understanding” reveals a subjective view focused on mental states. Other standard depictions of conspiracy law reinforce this interpretation.¹¹⁰ For example, *Black’s Law Dictionary* quotes only a single court opinion to illuminate its general definition of conspiracy, Justice Jackson’s concurring opinion in *Krulewitch*, concluding with the statement: “It is always ‘predominantly mental in composition’ because it consists primarily of a meeting of minds and an intent.”¹¹¹ This subjective notion, in turn, is at the heart of interdependent behavior, including in particular successful coordinated oligopoly pricing.

B. Supreme Court

1. Early Decisions

This Subsection examines the Supreme Court decisions from more than a half century ago that are still widely cited. The first two, *Interstate Circuit* and *American Tobacco*, were just mentioned as leading cases on the general law of conspiracy that exemplify a broad view of agreement. In *Interstate Circuit*, the Court famously stated:

While the District Court’s finding of an agreement of the distributors among themselves is supported by the evidence, we think that in the circumstances of this case such agreement for the imposition of the restrictions upon subsequent-run exhibitors was not a prerequisite to an unlawful conspiracy. It was enough that, knowing that concerted action was contemplated and invited, the distributors gave their adherence to the scheme and participated in it. Each distributor was advised that the others were asked to participate; each knew that cooperation was essential to successful operation of the plan. They knew that the plan, if carried out, would result in a restraint of commerce

110. See LAFAVE, *supra* note 105, at 275–76.

111. BLACK’S LAW DICTIONARY, *supra* note 39, at 352 (quoting *Krulewitch v. United States*, 336 U.S. 440, 447–48 (1949) (itself quoting Albert J. Harno, *Intent in Criminal Conspiracy*, 89 U. PA. L. REV. 624, 632 (1941))). The centrality of this feature of conspiracy is reinforced by the fact that Justice Jackson is presenting it (and not any other trait) to pin down what he describes as a seemingly elastic, sprawling, vague, and chameleon-like notion. 336 U.S. at 445–47. In similar spirit, Harno emphasizes the focus of conspiracy law on intent, which he further specifies as determining whether there is “a meeting of the minds,” the actor “brings his intention into concurrence with that of the other,” or “[t]he evidence . . . establish[es] that there was a unity of intent on the part of two or more persons to accomplish the end charged.” Harno, *supra*, at 631–33. English common law preceding passage of the Sherman Act is quite similar. See, e.g., GLANVILLE WILLIAMS, *CRIMINAL LAW* 666–68 (2d ed. 1961) (referring, for example, to whether parties “put their heads together”).

It is elementary that an unlawful conspiracy may be and often is formed without simultaneous action or agreement on the part of the conspirators. . . . Acceptance by competitors, without previous agreement, of an invitation to participate in a plan, the necessary consequence of which, if carried out, is restraint of interstate commerce, is sufficient to establish an unlawful conspiracy under the Sherman Act.¹¹²

This formulation deems sufficient an invitation to act together combined with knowledge that cooperation is essential and ultimate participation. Many have acknowledged that these factors, taken together, readily encompass interdependent oligopolistic behavior.¹¹³ That is, these requirements are fulfilled by initiation of a price increase from a competitive to a supracompetitive level plus an appreciation that the higher, mutually beneficial price will not stick unless all go along, supplemented by other firms' actually matching and maintaining the higher price. (Recall the two gas stations in Subsection I.A.1.)

American Tobacco is not cited for its application of law to fact but rather for several of its general pronouncements.

It is not the form of the combination or the particular means used but the result to be achieved that the statute condemns. . . . No formal agreement is necessary to constitute an unlawful conspiracy. . . . The essential combination or conspiracy in violation of the Sherman Act may be found in a course of dealings or other circumstances as well as in any exchange of words. . . . Where the circumstances are such as to warrant a jury in finding that the conspirators had a unity of purpose or a common design and understanding, or a meeting of minds in an unlawful arrangement, the conclusion that a conspiracy is established is justified.¹¹⁴

The statement that the form of combination and the means used are irrelevant and particularly that there need not by any exchange of words rules out interpretations under which words in particular or various modes of communication are determinative.¹¹⁵ Furthermore, the statement that any of a unity of purpose, common understanding, or meeting of the minds is sufficient echos the subjective emphasis of the general law of conspiracy. Both features readily encompass interdependent oligopoly pricing behavior, where words may be lacking but a meeting of the minds is central. This interpretation, which fails to exclude

112. 306 U.S. at 226-27.

113. See, e.g., *AREEDA & HOVENKAMP*, *supra* note 9, at 191, 193; *Turner*, *supra* note 30, at 683.

114. 328 U.S. at 809-10.

115. A fortiori, it seems clear that no express agreement is required, an inference that seems unmistakable because the Court's description of the facts makes clear that the government did not allege one. *Id.* at 800 ("The Government introduced evidence showing that although there was no written or express agreement discovered among American, Liggett and Reynolds their practices included a clear course of dealing.").

a subset of cases having equivalent consequences, is reinforced by the Court's statement that it is "the result to be achieved that the statute condemns."

*Theatre Enterprises*¹¹⁶ is seen by some as cutting back on these precedents, especially *Interstate Circuit*,¹¹⁷ but this view is only plausible if one interprets the latter case as aggressively as the *Theatre Enterprise* plaintiff sought to do (and failed). This firm complained that the defendant movie distributors jointly refused to deal with its theater. The defendants argued that they each independently found it in their self-interest to abstain because plaintiff's outlet was inferior to downtown theaters for first-run pictures. The jury accepted their explanation. Thus, on appeal, the plaintiff's argument was that it should nevertheless have prevailed; specifically, it insisted "that the trial judge should have directed a verdict in its favor" on liability.¹¹⁸ To do so would have been to deem purely independent, entirely competitive behavior to be illegal when it involved parallel action. Not only was there no interdependence, but each defendant would probably have been better off had its competitors dealt through an inferior outlet such as the plaintiff (as discussed in Subsection I.B.1). This extreme proposition is what the Supreme Court rejected.

The crucial question is whether respondents' conduct toward petitioner stemmed from independent decision or from an agreement, tacit or express. To be sure, business behavior is admissible circumstantial evidence from which the fact finder may infer agreement. . . . But this Court has never held that proof of parallel business behavior conclusively establishes agreement or, phrased differently, that such behavior itself constitutes a Sherman Act offense. Circumstantial evidence of consciously parallel behavior may have made heavy inroads into the traditional judicial attitude toward conspiracy; but "conscious parallelism" has not yet read conspiracy out of the Sherman Act entirely.¹¹⁹

The statement that the "Court has never held that proof of parallel business behavior *conclusively* establishes" a violation hardly constitutes a cutback on its prior decisions. Furthermore, the final sentence—that conscious parallelism has not *yet* read out conspiracy *entirely*—may constitute one of the most heavily qualified statements the Supreme Court has penned. Perhaps this observation is best understood as a sarcastic reaction to the plaintiff's absurd

116. *Theatre Enters. v. Paramount Film Distrib. Corp.*, 346 U.S. 537 (1954).

117. *See, e.g.*, KEITH N. HYLTON, *ANTITRUST LAW* 140–41 (2003). Areeda and Hovenkamp label their short subsection on the question: "*Theatre Enterprises* decision as partial retraction?" AREEDA & HOVENKAMP, *supra* note 9, at 190. They begin by stating that "the Court appeared to retreat from *Interstate Circuit*." *Id.* However, they do not find much support for this suggestion because "[e]ven the broad *Interstate Circuit* language would probably not help the plaintiff." *Id.* at 191; *see also* *Toys "R" Us, Inc. v. Fed. Trade Comm'n*, 221 F.3d 928, 935–36 (7th Cir. 2000) (upholding the FTC's horizontal agreement theory as a correct application of *Interstate Circuit*).

118. 346 U.S. at 539.

119. *Id.* at 540–41.

argument. In any event, the Court explicitly endorsed the inclusion of tacit agreements (whatever that may mean) and distinguished them from independent behavior, which in the context of the plaintiff's argument clearly refers to behavior that is not interdependent (recall Subsection I.B.5).¹²⁰

Most other Supreme Court decisions from this time period and in the next couple of decades are to similar effect.¹²¹ For example, in its 1969 *Container* decision, the Court stated:

Here all that was present was a request by each defendant of its competitor for information as to the most recent price charged or quoted, whenever it needed such information and whenever it was not available from another source. Each defendant on receiving that request usually furnished the data with the expectation that it would be furnished reciprocal information when it wanted it. That concerted action is of course sufficient to establish the combination or conspiracy, the initial ingredient of a violation of § 1 of the Sherman Act.¹²²

Thus, the Court depicted interdependent behavior and deemed the implicit reciprocal understanding to constitute an agreement. In this regard, it found the facts to be "obviously quite different from the parallel business behavior

120.

Here each of the respondents had denied the existence of any collaboration and in addition had introduced evidence of the local conditions surrounding the Crest operation which, they contended, precluded it from being a successful first-run house. They also attacked the good faith of the guaranteed offers of the petitioner for first-run pictures and attributed uniform action to individual business judgment motivated by the desire for maximum revenue. This evidence, together with other testimony of an explanatory nature, raised fact issues requiring the trial judge to submit the issue of conspiracy to the jury.

Id. at 541-42.

121. Among the earliest of these decisions is *Eastern States Retail Lumber Dealers' Ass'n v. United States*, 234 U.S. 600, 612 (1914) ("[T]he conspiracy to accomplish that which was the natural consequence of such action may be readily inferred."), which is cited in *Interstate Circuit*. A different view, offered in passing in a monopolization case, appears in *United States v. International Harvester*, 274 U.S. 693, 708-09 (1927) ("[T]he fact that competitors may see proper, in the exercise of their own judgment, to follow the prices of another manufacturer, does not establish any suppression of competition or show any sinister domination."); this part of the opinion is not cited in any of the four cases discussed in the text. The Court in *United States v. Masonite Corp.*, 316 U.S. 265, 275 (1942), recited much of the language quoted in the text from *Interstate Circuit*, and *Masonite* is cited in *Theatre Enterprises*. In *United States v. Paramount Pictures*, 334 U.S. 131, 142 (1948), the Court cited *Interstate Circuit* and *Masonite* for the proposition: "It is not necessary to find an express agreement in order to find a conspiracy. It is enough that a concert of action is contemplated and that the defendants conformed to the arrangement." *Paramount* is likewise cited in *Theatre Enterprises* on the matter of inferring an agreement from business behavior. Later, in *Norfolk Monument Co. v. Woodlawn Memorial Gardens, Inc.*, 394 U.S. 700, 704 (1969), the Court found a lack of "letters, agreements, correspondence, or any other testimonials to a conspiracy among the several defendants" not dispositive, citing *American Tobacco Co. v. United States*, 328 U.S. 781, 809 (1946), for the settled proposition that "[n]o formal agreement is necessary to constitute an unlawful conspiracy," and *Theatre Enterprises*, 346 U.S. at 540, for the rule that "business behavior is admissible circumstantial evidence from which the fact finder may infer agreement."

122. *United States v. Container Corp. of Am.*, 393 U.S. 333, 335 (1969).

condoned in *Theatre Enterprises*.¹²³ In this respect and others, all of the foregoing opinions are quite consonant with the general law of conspiracy described in Subsection A.2—which should hardly be surprising because, as noted there, some of these antitrust decisions are regarded as exemplars of conspiracy doctrine.

2. Subsequent Decisions

In the past few decades, Supreme Court decisions on the agreement requirement have focused on what is required for a plaintiff to survive dispositive motions. For quite some time, the most important of these cases has been the Court's 1986 decision in *Matsushita*:

Respondents correctly note that “[o]n summary judgment the inferences to be drawn from the underlying facts . . . must be viewed in the light most favorable to the party opposing the motion.” . . . But antitrust law limits the range of permissible inferences from ambiguous evidence in a § 1 case. Thus, in *Monsanto* . . . , we held that conduct as consistent with permissible competition as with illegal conspiracy does not, standing alone, support an inference of antitrust conspiracy. . . . To 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. [*Id.*] Respondents in this case, in other words, must show that the inference of conspiracy is reasonable in light of the competing inferences of independent action or collusive action that could not have harmed respondents.¹²⁴

Of central importance in interpreting this oft-quoted statement is the meaning of the term independent. As discussed in Section I.B, the most common but not exclusive definition of independent contrasts it with interdependent. This understanding of *Matsushita* is reinforced by the surrounding language, in particular the sentence indicating in essence that independent action is taken to be synonymous with competition, which (as Section II.A discusses) generally means rivalry, not mutual understanding and behavior to the contrary.¹²⁵ Furthermore, the pertinent context in *Matsushita* is the defendants' argument that the alleged behavior was “economically irrational and practically infeasible,”¹²⁶ not that coordinated behavior occurred but did not involve certain

123. *Id.* at 335 n.2. Likewise, Justice Fortas's concurrence found a violation in “defendants' tacit agreement to exchange information about current prices.” *Id.* at 340.

124. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587–88 (1986) (quoting *Monsanto Co. v. Spray-Rite Serv. Corp.*, 465 U.S. 752, 764 (1984)).

125. Similar language appears later in the opinion: *Monsanto* “establishes that conduct that is as consistent with permissible competition as with illegal conspiracy does not, without more, support even an inference of conspiracy.” 475 U.S. at 597 n.21 (citing *Monsanto*, 465 U.S. at 763–64).

126. 475 U.S. at 588.

sorts of communication.¹²⁷ The *Matsushita* decision was generally regarded to be significant not for elucidating the concept of agreement but rather for sending a message to lower courts that summary judgment in favor of defendants should be seriously considered when plaintiffs' cases are insubstantial.¹²⁸

Before addressing the other major case, it should be mentioned that the Court subsequently made passing reference to the agreement requirement in its *Brooke Group* predatory pricing decision. Specifically, in discussing the plaintiff's claim that the defendant had engaged in predatory pricing in order to discipline the former's low-cost pricing that had disrupted alleged coordinated oligopolistic pricing, the Court described price coordination as a process that is "not in itself unlawful."¹²⁹ This comment was unaccompanied by any discussion of Section 1's agreement requirement or of any of the relevant precedent.¹³⁰ It should also be remarked that both parties in the case had every

127. The Court's quotation from *Monsanto* is not surprising because it was a then-recent Section 1 decision on the evidence required to demonstrate agreement; however, the precise meaning is not obvious because that case involved the qualitatively different setting of a vertical agreement. The *Monsanto* Court's language in the pertinent passage is, in any event, quite similar to that of the earlier Section 1 conspiracy cases:

Thus, something more than evidence of complaints is needed. There must be evidence that tends to exclude the possibility that the manufacturer and nonterminated distributors were acting independently. As Judge Aldisert has written, the antitrust plaintiff should present direct or circumstantial evidence that reasonably tends to prove that the manufacturer and others "had a conscious commitment to a common scheme designed to achieve an unlawful objective." . . . [C]f. *American Tobacco* . . . ([c]ircumstances must reveal "a unity of purpose or a common design and understanding, or a meeting of minds in an unlawful arrangement").

465 U.S. at 764.

128. For example, *Matsushita* does not directly discuss the agreement requirement or cite any of the leading Supreme Court cases on the subject, except its then-recent *Monsanto* decision (which, in turn, cites and quotes relevant passages from *American Tobacco*; see *supra* note 127). Lower courts frequently cite *Matsushita* for encouragement to grant summary judgment when a plaintiff's case is implausible, which the Court believed to be true in that case, in which a decades-long conspiracy to engage in predatory pricing was alleged. See *Matsushita*, 475 U.S. at 587 ("[I]f the factual context renders respondents' claim implausible—if the claim is one that simply makes no economic sense—respondents must come forward with more persuasive evidence to support their claim than would otherwise be necessary."); *Petruzzi's IGA Supermarkets, Inc. v. Darling-Del. Co.*, 998 F.2d 1224, 1232 (3d Cir. 1993); *In re Coordinated Pretrial Proceedings in Petroleum Prods. Antitrust Litig.*, 906 F.2d 432, 439–40 (9th Cir. 1990). This particular concern is not seen to be applicable to an ordinary price-fixing case in large part because, in *Matsushita*, which involved a predation claim, the concern was with chilling low rather than high prices. See *also infra* note 195 (noting implications of *Matsushita* in light of the paradox of proof). Nevertheless, *Matsushita's* broader command to be more willing to grant summary judgment appears to be taken seriously in practice.

129. *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993). One text refers to this statement as "dicta and a rather casual aside in a discussion focused on a different issue." EINER ELHAUGE & DAMIEN GERADIN, *GLOBAL ANTITRUST LAW AND ECONOMICS* 836 (2007); see AREEDA & HOVENKAMP, *supra* note 9, at 227 (likewise referring to the passage as "dicta").

130. Elsewhere, the Court extensively discussed *Matsushita*, but for its analysis of predation. The passage in question is accompanied by citations to two academic commentaries, one an economics text and the other the then-Areeda/Turner treatise, identifying the section discussing the economics of oligopoly pricing but not a later volume by Areeda, subsequently

reason to characterize the industry's prior behavior as legal; had the plaintiff alleged otherwise, it would have been confessing to a criminal (as well as civil) violation.¹³¹

Bell Atlantic v. Twombly,¹³² although not primarily viewed as an antitrust decision,¹³³ also merits attention. In it, the Supreme Court gave a negative answer to the question of

Whether a complaint states a claim under Section 1 of the Sherman Act . . . if it alleges that the defendants engaged in parallel conduct and adds a bald assertion that the defendants were participants in a "conspiracy," without any allegations that, if later proved true, would establish the existence of a conspiracy under the applicable legal standard.¹³⁴

On its face, this question is not about what constitutes a conspiracy under Section 1, it being plain that parallel conduct, which as discussed in Section II.A includes much purely competitive behavior, does not alone suffice, a point clearly established in *Theatre Enterprises*.¹³⁵ Instead, as a formal legal matter, the Court's decision is an interpretation of the pleading requirements of the Federal Rules of Civil Procedure. Its holding reverses¹³⁶ (at least one important reading of) a fifty-year-old precedent, *Conley v. Gibson*,¹³⁷ one of the most cited cases in the federal judiciary, which had held that a complaint is sufficient

revised by Hovenkamp, on application of the law of horizontal agreement to oligopoly pricing.

131. See, e.g., AREEDA, KAPLOW & EDLIN, *supra* note 5, at 231 n.62. It has also been pointed out that the Court did not note, nor did the plaintiff's submissions refer to, modern economics literature on oligopoly theory that was pertinent to the question at hand. See Jonathan B. Baker, *Predatory Pricing After Brooke Group: An Economic Perspective*, 62 ANTITRUST L.J. 585, 602 & n.84 (1994).

132. *Bell Atl. Corp. v. Twombly*, 550 U.S. 544 (2007).

133. The characterization of *Twombly*'s breadth has proved controversial. This author, like many, view it as a broader decision if for no other reason than that it reversed such a prominent (general) precedent on the Federal Rules of Civil Procedure, as the text to follow describes; this reading is strongly supported by the Court's subsequent decision in *Ashcroft v. Iqbal*, 129 S. Ct. 1937 (2009). For an interpretation and analysis of *Twombly* as an antitrust decision, see Alvin K. Klevorick & Issa B. Kohler-Hausmann, *The Plausibility of Twombly: Proving Horizontal Agreements After Twombly*, in RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW (Einer R. Elhauge ed., 2011).

134. Petition for a Writ of Certiorari at i, *Twombly*, 550 U.S. 544 (No. 05-1126).

135. The overwhelming (but not exclusive) emphasis of an amicus brief by economists is likewise on the point that the lower court's standard would allow a plaintiff to proceed even when defendants engaged in routine competitive behavior, which by its nature is often parallel. See Brief of Amici Curiae Economists in Support of Petitioners, *Twombly*, 550 U.S. 544 (No. 05-1126). Further suggesting this point, the brief endorses a plus-factor approach as a solution, *see id.* at 18-19, when, as will be discussed in note 141 and in Subsection C.2, the most commonly cited plus factors are ones indicating that behavior is interdependent rather than independent. This point is also featured in the government's amicus brief. See Brief for the United States as Amicus Curiae Supporting Petitioners at 31-32, *Twombly*, 550 U.S. 544 (No. 05-1126).

136. In the Court's euphemism, *Conley* was merely "retire[d]." 550 U.S. at 563 ("after puzzling the profession for 50 years, this famous observation has earned its retirement").

137. 355 U.S. 41 (1957).

unless “no set of facts” could support it.¹³⁸ *Twombly*’s immediate aftermath reflects this depiction, as it has been heavily cited in all areas of federal litigation, of which antitrust cases are but a small fraction.¹³⁹ Thus, somewhat like *Brooke Group*, *Twombly* is a case that mentions the agreement requirement—in this instance, at much greater length—even though that is not the core legal focus.¹⁴⁰

138. See generally Kendall W. Hannon, *Much Ado About Twombly? A Study on the Impact of Bell Atlantic Corp. v. Twombly on 12(b)(6) Motions*, 83 NOTRE DAME L. REV. 1811 (2008); *id.* at 1814 n.18 (citing Adam N. Steinman, *The Irrepressible Myth of Celotex: Reconsidering Summary Judgment Burdens Twenty Years After the Trilogy*, 63 WASH. & LEE L. REV. 81, 143 (2006), “showing *Conley v. Gibson* to be the fourth most cited case in the federal judiciary”).

139. See Hannon, *supra* note 138, at 1814–15 (“[C]ourts have applied the decision in every substantive area of law governed by Rule 8. Antitrust cases comprised only 3.7% (40 out of 1075) of all cases citing *Twombly* in this study . . .”). Of even greater interest, Hannon’s analysis of outcomes before and after *Twombly* reveals essentially no measurable impact except on civil rights litigation; with those cases removed, there was almost no effect in the large sample (for example, motions to dismiss were granted in 37.4% of cases after, compared to 36.9% before). See *id.* at 1836–37. (Hannon reports that there were too few antitrust cases to meaningfully assess any area-specific impact. See *id.* at 1836 n.160. Inspection of the partially coded data he shared with this author indicates that the magnitude of the difference in the antitrust cases that were coded is negligible.) Subsequent data, covering the period before *Twombly* to after *Iqbal* reinforces the view that a sea change has not (yet?) occurred. See U.S. COURTS, MOTIONS TO DISMISS: INFORMATION ON COLLECTION OF DATA, available at http://www.uscourts.gov/uscourts/RulesAndPolicies/rules/Motions_to_Dismiss_060110.pdf (last visited Nov. 22, 2010) (displaying monthly data on motions to dismiss filed, granted, and denied for four months before *Twombly* to twelve months after *Iqbal*, with no evident overall trend or breakpoints at the time of either decision); see also Memorandum from Andrea Kuperman to Civil Rules Comm. & Standing Rules Comm., Application of Pleading Standards Post-*Ashcroft vs. Iqbal* 2 (November 25, 2009), available at <http://www.uscourts.gov/uscourts/RulesAndPolicies/rules/Memo%20re%20pleading%20standards%20by%20circuit.pdf> (last visited Nov. 22, 2010) (“While more time is needed to allow the lower courts to flesh out the results of *Twombly* and *Iqbal*, most of the case law to date does not indicate a drastic change in pleading standards.”); *id.* at 3 (“While there are many cases supporting the proposition that pleading standards have not changed significantly, some courts have at least questioned whether there has been a change in the level of detail required to provide adequate notice. And a few others have indicated that the claims at issue might have survived before *Twombly* and *Iqbal*, but do not survive under current pleading standards. At least one court has gone so far as to intimate that *Iqbal* will cause certain plaintiffs to avoid federal court when possible.”); Patricia W. Hatamyar, *The Tao of Pleading: Do Twombly and Iqbal Matter Empirically?*, 59 AM. U. L. REV. 553, 616–24 (2010) (reporting regression results that are mixed and statistically insignificant, including a fall in grants of motions to dismiss without leave to amend after *Twombly* and *Iqbal*, compared to before *Twombly*); *id.* at 608–09 (finding a fall in grants of motions to dismiss in a very small sample of antitrust cases, with very few cases involving dismissals without leave to amend).

140. See, e.g., Andrew I. Gavil, *Antitrust Bookends: The 2006 Supreme Court Term in Historical Context*, ANTITRUST, Fall 2007, at 21, 23 (stating that “*Twombly* should not be interpreted in isolation, however. It was one of the four cases decided this past term that interpreted Rule 8(a)(2)’s ‘short and plain statement’ requirement . . .”; not even mentioning in the course of discussing *Twombly* that it may bear on the interpretation of Section 1’s agreement requirement). Although the *Twombly* Court must implicitly have had a legal standard in mind in concluding that it was not met by the plaintiff’s complaint, it does not elaborate the standard in a sustained manner, discuss prior precedent as it bears on the question (although, as will be noted, much is cited in passing, unlike in *Brooke Group*), or offer arguments regarding why one or another rule is superior. This trait of the opinion (and of the dissent) reflects the nature of the

Also, like *Brooke Group*, *Twombly* makes statements reflecting a narrow view of agreement, one that excludes interdependent oligopolistic behavior. Most notably, it quotes the previously noted passage in *Brooke Group*: “Even ‘conscious parallelism,’ a common reaction of ‘firms in a concentrated market [that] recogniz[e] their shared economic interests and their interdependence with respect to price and output decisions’ is ‘not in itself unlawful.’”¹⁴¹ Likewise, in discussing the facts, the Court states that “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.”¹⁴²

That said, *Twombly* is limited in a number of respects. The Court did not articulate any concept of agreement or, relatedly, indicate what more a plaintiff had to show. It did not explain how to reconcile its statements with prior precedent, apparently not appreciating that there was any need to do so. And it did not at all address the rationale for the agreement requirement’s existence or

decision under review, *see infra* note 145, and, relatedly, how the case was argued. Neither the parties’ briefs nor most of the amicus briefs contain any significant discussion of the meaning of the agreement requirement.

141. 550 U.S. at 553–54 (quoting *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993)). The Court cites two other sources in support of this statement. The first is *AREEDA & HOVENKAMP*, *supra* note 9, at 236: “The courts are nearly unanimous in saying that mere interdependent parallelism does not establish the contract, combination, or conspiracy required by Sherman Act § 1.” As is already apparent, this is a rather odd statement, for it is clear that Supreme Court precedents themselves were at that time nearly unanimous in embracing a broader view. Indeed, Areeda and Hovenkamp note in the very next paragraph that “[t]here are two groups of precedents that might point toward the opposite conclusion,” after which they discuss some of the “older Supreme Court cases” and the point that lower courts’ requirement that interdependence be supplemented by so-called plus factors may not in fact require anything more because “[s]ome of those very plus factors . . . seem to describe mere interdependence.” *Id.* at 237. In light of what they actually say about all of these cases, a reader not forewarned by the summary quoted in *Twombly* might well have concluded the opposite, that most courts find mere interdependence sufficient. This impression is reinforced by Areeda and Hovenkamp’s more in-depth treatment that follows their discussion of the earlier Supreme Court cases, in which they cite numerous plus factors and cases as being incorrect for permitting agreements to be inferred from interdependent behavior (and no more), while identifying few factors or cases in which more than interdependence was indicated. *See id.* ¶ 1434. They urge that this large body of case law should not be interpreted as contradicting their view, but they do not identify contrary language or context supporting readings opposite to what the large number of cited courts directly found. *See also infra* Subsection C.2 (and note 167 on Areeda and Hovenkamp’s discussion of plus-factor cases).

The *Twombly* Court also cites Turner for the proposition: “[M]ere interdependence of basic price decisions is not conspiracy.” Turner, *supra* note 30, at 672. However, as the discussion in Section II.A and note 35 explains, this depiction of Turner is misleading, for he makes clear that there is good (indeed, better) argument for the view that interdependence is a conspiracy, but one that on policy grounds should not be deemed unlawful when the conspiratorial behavior would be difficult to remedy. The distinction is important not only for conceptual clarity but also for practical reasons, for what more Turner would require depends on the policy considerations he identifies, whereas what courts who do not see interdependence alone as constituting agreement would require to deem an agreement to exist may be quite different. *Cf. supra* Subsection II.B.2 (on how some commentators, including Turner, would accordingly interpret agreement broadly in order to attack facilitating practices).

142. 550 U.S. at 568.

its taking any particular form. Instead, the Court focused on erecting a nontrivial hurdle on motions to dismiss that plaintiffs must overcome, and on this central matter its motivation was explicit: the pleading rules should not make it too easy for plaintiffs to instigate discovery that is often highly protracted and costly.¹⁴³

143.

But determining whether some illegal agreement may have taken place between unspecified persons at different ILECs (each a multibillion dollar corporation with legions of management level employees) at some point over seven years is a sprawling, costly, and hugely time-consuming undertaking not easily susceptible to the kind of line drawing and case management that the dissent envisions.

Id. at 560 n.6; *see id.* at 558–60 & n.6 (mentioning the “*in terrorem* increment of the settlement value,” the “inevitably costly and protracted discovery phase,” the problem of “allowing a potentially massive factual controversy to proceed,” that “discovery accounts for as much as 90 percent of litigation costs when discovery is actively employed,” and that the “threat of discovery expense will push cost-conscious defendants to settle even anemic cases”); *see also* Gavil, *supra* note 140, at 23 (*Twombly* “also builds on *Matsushita*’s subtext: the complexity and expense of processing antitrust cases suggests the need for additional judicial controls. Antitrust cases have been transformed from being a protected class to being a suspect one.”). In failing to discuss the content of the agreement requirement more directly, however, the relationship between the Court’s holding and its objective is unclear and potentially problematic. For example, if the agreement requirement depends more on subtleties of particular communications than on behavior and economic conditions in the industry, the sort of discovery requiring every external and, importantly, internal communication or notation to be scrutinized and interpreted (the latter potentially requiring depositions of countless employees) may be encouraged rather than dampened, that is, if and when the motion to dismiss hurdle is overcome. (Alternatively, district courts could allow discovery on the agreement question prior to deciding a motion to dismiss, either explicitly or simply by refusing to stay discovery and failing to decide the motion promptly. *See* Page, *supra* note 24, at 466–68. Yet it is not clear how limited such discovery would in fact be, and the *Twombly* majority cited discovery costs and the inability of trial courts to control them as a central motivation for its decision.)

Although less pertinent for present purposes, it is hard to avoid wondering what sort of factual allegations would be sufficient under *Twombly*. Remarkably, neither the majority nor dissent in *Twombly* addressed this point directly. The closest is a footnote in the majority’s opinion. 550 U.S. at 556 n.4. Suppose, for sake of argument, that specific sorts of communications are deemed necessary to constitute an agreement. In that case, *Twombly* could be viewed as requiring allegation of the specific communications (who said what, to whom, and when), which would ordinarily be impossible without discovery in the absence of an informant or perhaps illegal surveillance, with the result that even classic cartel behavior would be close to *per se* legal, at least in private suits (and also for government investigations, if the probable cause requirement for subpoenas or sting operations was as high as the *Twombly* requirement to survive motions to dismiss). *See also infra* note 199 (further discussing the implications of *Twombly* if the agreement requirement is construed narrowly). However, as developed in Section III.D, there is another route available: even explicit communications can be inferred from appropriate circumstantial evidence. Hence, it would seem sufficient under *Twombly*, even assuming a narrow agreement requirement, for a plaintiff to allege interdependent behavior plus that the degree of conduciveness to collusion placed the case in the liability region rather than the paradox region—that is, that the observed coordination would be unlikely or implausible given the conditions of the industry unless the defendants had engaged in prohibited communications. And if mere allegations to this effect are deemed insufficient, perhaps a plaintiff might append an expert affidavit to that effect, or even incorporate it explicitly in its complaint. Put another way, taking as given that some set of evidence would be sufficient for a plaintiff victory at trial, one presumes that there are some corresponding allegations that would be sufficient to survive a motion to dismiss.

For these reasons, it is difficult to read *Twombly* as reversing not only *Conley v. Gibson*'s test on pleading requirements but also, sub silentio, all of the prior Supreme Court precedents on antitrust agreement that are discussed in Subsection 1.¹⁴⁴ As mentioned, the question before the Court did not go to the substance of the agreement requirement. Indeed, the Court treated it as uncontested and as if it were clear.¹⁴⁵ Moreover, it cited approvingly some of the earlier, broad formulations of Section 1. For example, the majority states that "[t]he crucial question' is whether the challenged anticompetitive conduct 'stem[s] from independent decision or from an agreement, tacit or express,' *Theatre Enterprises* . . ."¹⁴⁶ It further elaborates:

An antitrust conspiracy plaintiff with evidence showing nothing beyond parallel conduct is not entitled to a directed verdict, see *Theatre Enterprises*, *supra*; proof of a § 1 conspiracy must include evidence tending to exclude the possibility of independent action, see *Monsanto* . . . ; and at the summary judgment stage a § 1 plaintiff's offer of conspiracy evidence must tend to rule out the possibility that the defendants were acting independently, see *Matsushita* . . .¹⁴⁷

Likewise, the dissent opens its opinion citing *Theatre Enterprises* for an authoritative statement of settled law, followed by the declaration that "this is a case in which there is no dispute about the substantive law. If the defendants acted

144. It is even more difficult than the text suggests because, as noted, some of the key Supreme Court precedents in question are not just pertinent to Section 1 but more broadly define conspiracy for all federal law. If those articulations of the blackletter law of conspiracy were overturned, centuries of conspiracy law would be rejected. Alternatively, the cases could be viewed as reversed only for purposes of federal antitrust law. In any case, given all the attention to whether to overrule a single, widely criticized antitrust precedent by both the majority and the dissent in the nearly contemporaneous decision in *Leegin*, it would be surprising for such a long line of cases to be overturned in passing when no *Twombly* opinion indicates that the question was even at issue.

145. In this regard, it is important to note that the circuit court opinion under review had specifically held that a plaintiff did not have to plead any plus factors to survive a motion to dismiss. 550 U.S. at 553. The district court had dismissed the complaint for failing to allege any plus factor, and the circuit court reversed, holding that at the motion-to-dismiss stage, plus factors were unnecessary:

[T]he court required the plaintiffs to "establish[] at least one 'plus factor' that tends to exclude independent self-interested conduct as an explanation for defendants' parallel behavior." [313 F. Supp. 2d] at 179. Such a factor, the court noted, could be, for example, "evidence that the parallel behavior would have been against individual defendants' economic interests absent an agreement, or that defendants possessed a strong common motive to conspire." *Id.*

Twombly v. Bell Atl. Corp., 425 F.3d 99, 104 (2d Cir. 2005) (first alteration in original). Accordingly, under the circuit court's formulation, a plaintiff could proceed without any basis for ruling out purely independent, competitive behavior. See *supra* note 135; *infra* Subsection C.2.

146. 550 U.S. at 553.

147. *Id.* at 554. The Court further elaborated: "A statement of parallel conduct, even conduct consciously undertaken, needs some setting suggesting the agreement necessary to make out a § 1 claim; without that further circumstance pointing toward a meeting of the minds, an account of a defendant's commercial efforts stays in neutral territory." *Id.* at 557; *cf. supra* Section II.A (on the meaning of "meeting of the minds"); Subsection III.B.1 (language of *American Tobacco*), including note 127 (*Monsanto* quoting pertinent passage of *American Tobacco*).

independently, their conduct was perfectly lawful. If, however, that conduct is the product of a horizontal agreement among potential competitors, it was unlawful.”¹⁴⁸ Taken together, it seems clear that neither the majority nor the dissent focuses on disputes over the meaning of agreement, or deals with the question as one might expect in a decision directly addressed to that issue.¹⁴⁹

Regarding both the early and subsequent decisions, some common elements should be emphasized, concerning primarily what they lack in common. None carefully considers well-articulated, competing specifications of the agreement requirement or elaborates on the meaning of the various pronouncements that are made. From some, notably the long line of earlier cases specifically on the agreement requirement, one gets a strong sense of a broad rule that readily encompasses interdependent oligopolistic behavior. From more recent cases not aimed at interpreting Section 1’s trigger, one is told that such behavior in pure form is understood to be excluded, without any indication that a new legal standard is being articulated. Furthermore, recent cases offer little hint of what more is required, a matter that Part I indicates to be of great importance and Part II shows to be difficult to pin down, especially from formulations using the sort of language that the Court employs.¹⁵⁰ Repeated demands that there must exist an agreement or a conspiracy are question-begging. Perhaps an express agreement is required. Yet *Twombly*, as noted, quotes *Theatre Enterprises* for the proposition that a tacit agreement is sufficient, as distinguished from independent behavior (which, in the context of *Theatre Enterprises*, refers to purely independent behavior). In any event, as Sections I.B and II.A discuss, it is difficult to know what express or tacit agreement means.

Finally, one does not find in any of the opinions, early or recent, an explicit discussion of the substantive reasons for interpreting Section 1 in

148. *Id.* at 571 (Stevens, J., dissenting).

149. *See supra* note 140 (elaborating on how the Court and the parties did not focus on the legal standard for an agreement). In addition to the Court’s seemingly clear but conflicting statements of both a narrow and a broad reading of Section 1’s agreement requirement, it also made more confusing comments, such as: “The inadequacy of showing parallel conduct or interdependence, without more, mirrors the ambiguity of the behavior: consistent with conspiracy, but just as much in line with a wide swath of rational and competitive business strategy unilaterally prompted by common perceptions of the market.” 550 U.S. at 554. The second part of this statement, taking into account the first part’s combining of parallel conduct and interdependence, asserts literally that interdependence is consistent with competitive business behavior, which by ordinary understandings it plainly is not. *See supra* Section II.A. For example, in application of Section 1’s rule of reason test, *see supra* note 59 and accompanying text, there is no question that practices that facilitate oligopolistic coordination are deemed suppressions of competition, not as promoting a form of ordinary competitive business behavior.

150. For example, ELHAUGE & GERADIN, *GLOBAL ANTITRUST LAW AND ECONOMICS: 2007 SUPPLEMENT 106–07* (2007), states that *Twombly* is clear that mere oligopolistic coordination is insufficient, so that plaintiffs must demonstrate plus factors, yet as will be discussed in Subsection C.2, many such plus factors merely establish that behavior is interdependent rather than independent.

whatever manner each Court imagined itself to be doing. Instead, in each case the Court simply declares what it takes to be self-evident. Reliance on ipse dixit statements is perhaps less surprising in the more recent decisions, in which the question was not formally before the Court and the parties did not contest the matter, but this feature amplifies the uncertainty about the import of the Court's latest pronouncements.

C. Lower Courts

Given the degree of ambiguity in the Supreme Court's pronouncements and the more than half a century since its decisions directly on Section 1's agreement requirement, the lower courts have lacked clear guidance. This Section examines central legal questions that these courts routinely confront in price-fixing and other horizontal-restraints cases in which the existence of an agreement is in dispute and how these courts confront them. In light of the nature of the relevant precedent, it is unsurprising that there is much confusion and conflict both on particular legal issues and in any attempt to achieve coherence.

1. Circumstantial Evidence

In some cases, such as those challenging open trade association practices, there is no question that an agreement exists, at least regarding the open practices themselves. In some others, including a number of notorious price-fixing cases uncovered by government investigations, evidence directly establishes an agreement's existence under any interpretation of the term.¹⁵¹ However, because some horizontal agreements, notably those involving price fixing, are per se illegal and subject to serious sanctions—including criminal

151. Surprisingly, even in cases with direct evidence, courts do not uniformly find agreements to exist. *See, e.g.*, *Blomquist Fertilizer, Inc. v. Potash Corp.*, 203 F.3d 1028, 1033–37 (8th Cir.) (en banc), *cert. denied*, 531 U.S. 815 (2000) (narrow majority finding insufficient for plaintiffs to survive summary judgment, among other evidence, proof that high officials verbally verified specific price quotations on completed sales, a variation on the pre-sale verification that the Supreme Court had deemed per se illegal in *Container*; that a foreign cartel memorandum predicted, mostly correctly, future price lists; that there were solicitations to fix prices; and that an internal executive document proposed joint action, which was followed by sudden price changes); *In re Baby Food Antitrust Litig.*, 166 F.3d 112, 118–21, 124–28 (3d Cir. 1999) (among what was deemed insufficient for the plaintiffs to survive summary judgment was evidence that sales representatives often traded future price information, that managers informed sales representatives in advance of competitors' planned price increases, that firms possessed competitors' confidential reports about strategies including in some instances about future prices, and an internal email from a defendant manager referring to a "truce" being in effect; reasons for rejecting such as insufficient included evidence that much price exchange was by lower-level employees and that defendants did not succeed in oligopoly pricing); *Petruzzi's IGA Supermarkets, Inc. v. Darling-Del. Co.*, 998 F.2d 1224, 1233–35 (3d Cir. 1993) (reversing a district court's grant of summary judgment for the defendant, citing, among other evidence that the trial court found insufficient, a former employee's statement that a superior twice said that there was an agreement and another employee's statement that there were discussions between firms about keeping prices low and that a nonconspirator was solicited to join).

penalties and treble damages in the United States—prospective conspirators attempt to keep their actions secret and, where possible, to rely on more indirect and subtle means of achieving oligopolistic price coordination. Accordingly, it is frequently the case that an agreement must be inferred from circumstantial evidence, and it is an uncontroversial proposition of antitrust law (and conspiracy law more generally¹⁵²) that this method of proof is available to plaintiffs, including the government.¹⁵³

As a preliminary observation, one obviously cannot know how to infer an agreement from circumstantial evidence without first articulating what an agreement is. If interdependent oligopolistic coordination constitutes an agreement, then firms' coordinated supracompetitive pricing behavior would seem to be direct evidence of agreement. For example, one firm raising its price above competitive levels (that is, not due to a corresponding rise in input prices), followed by other firms matching the price rise and maintaining prices at the elevated level, would be such evidence. Or there might be internal records indicating that each firm understood itself to be behaving in this fashion.

Now suppose instead that more than interdependent oligopolistic behavior is required to constitute an agreement. Before knowing what inferences can be made, it is necessary to specify further the boundary, as indicated in Parts I and II, because one must know what it is that is being inferred in order to assess what inferences make sense. As Section II.B discusses, many seem to have in mind a demarcation rooted in different sorts of communication. Perhaps words or very close substitutes are impermissible, but subtler signs and signals are allowed. Perhaps it is the mode of communication that matters. Or whether the communications are public. Or whether what is communicated is a prediction or hope rather than intentions, or maybe intentions may be communicated but not assurances. The formulation of the message might matter or only its content. As mentioned, some ways of drawing the line along these and other dimensions are, upon reflection, tantamount to proscribing all interdependent behavior, or very close to it. In any event, as long as the line is drawn at some distance from such a point, there will be communications of type X that are

152. See, e.g., LAFAVE, *supra* note 105, at 267 (“[I]t is thus well established that the prosecution may ‘rely on inferences drawn from the course of conduct of the alleged conspirators.’”) (quoting *Interstate Circuit v. United States*, 306 U.S. 208, 221 (1939)); see also *supra* Subsection A.2.

153. See, e.g., 1 ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 5–6 & n.29 (6th ed. 2007) (“Conspiracies can be proven either by direct or circumstantial evidence. . . . [C]ourts traditionally recognized that ‘[o]nly rarely will there be direct evidence of an express agreement’ in conspiracy cases. . . . Circumstantial evidence as to this element of the offense is . . . not only admissible, but often dispositive.”) (quoting *Local Union No. 189, Amalgamated Meat Cutters & Butcher Workmen of N. Am., AFL-CIO v. Jewel Tea Co.*, 381 U.S. 676, 720 (1965) (Goldberg, J., concurring), and for the latter proposition, citing, *inter alia*, *Monsanto Co. v. Spray-Rite Serv. Corp.*, 465 U.S. 752, 765–66 (1984)); AREEDA & HOVENKAMP, *supra* note 9, at 2; Roger D. Blair, *Introduction*, 53 ANTITRUST BULL. 1, 3 (2008) (in introducing a symposium on *Twombly*, mentions that “plaintiffs may, of course, rely upon circumstantial evidence”).

prohibited and fairly similar communications in a category XN, which perhaps convey the same content in many settings, that are permitted.¹⁵⁴

Recognizing the nature of this situation further elevates the problem posed by the agreement requirement. The reason is that the possibly subtle and slight distinction between some elements of X and others of XN may be made by inference from circumstantial evidence. Because certain acts in X and XN are virtually indistinguishable when viewed directly, clearly, and closely, how are they to be differentiated when viewed indirectly, obscurely, and from afar? It is usually believed (but, as will be discussed in Subsection IV.B.2, not universally true) that more explicit, frequent, and direct communications make success more likely. The relationship is probabilistic. On average, the difference in the probability of success when using certain elements of X rather than certain others of XN (those near the boundaries) will, by assumption, be quite small. Hence, if agreement requires more than successful coordination, the routine inference problem in horizontal agreement cases can be daunting. Section D will further elaborate aspects of this challenge. Do note, however, that this problem will not be present in all cases. Notably, if observed behavior could only have arisen through the use of prohibited means in X bearing no resemblance to any of those in XN, then an agreement may be inferred. Yet it is unclear whether such accuracy will often be possible,¹⁵⁵ and the discussion of communications and language in Section II.B raises significant doubts.

154. Recall from page 711 that the sets X and XN can contain all manner of acts, not just those distinguished by the nature of communications involved.

155. Some commentators have identified circumstances applicable in special cases in which inferences about communication might be more straightforward. Most often mentioned is the submission of identical, non-round-number, secret bids for made-to-order items. *See, e.g., AREEDA & HOVENKAMP, supra* note 9, at 168, 243. (All of the qualifications are necessary for the claimed inference, which shows how infrequently it would be available.) Even such limited exceptions have further, unrecognized qualifications, notably, that it must also be true that public price announcements are deemed illegal (which most offering this sort of illustration do not believe). To see why, suppose that an agreement might otherwise be inferred from the posited identity of secret bids at a price of, say, 3.518 per unit. To break the inference of secret advance communications, all that is required is for one clever firm to announce publicly that it intends to bid (or is thinking of bidding) 3.518, at which point a follow-the-price-leader explanation is a competing inference. Of course, the firms may well have met secretly to agree on the 3.518 price; but as long as, after the meeting, some firm makes the public announcement—and this too can be planned at the meeting—the ability to infer from the pricing coincidence that such a meeting must have occurred would be disrupted. (The fact that we never seem to observe this circumvention strategy bears on what firms and their lawyers implicitly believe the law to be. *See infra* Section E.)

This example also has another serious deficiency: if the firms are secretly meeting to set prices, why should they all submit identical bids that will appear to be suspicious? *See POSNER, ANTITRUST, supra* note 2, at 87. Instead, they could—and it appears, do—choose a low bidder in advance and arrange that others would submit plausible-looking-but-higher bids. *See, e.g., Porter, supra* note 24, at 156 (in reviewing a study of auctions for oil and gas leases, suggests that bids may have been submitted in such a fashion as “to create the appearance of competition”); Robert H. Porter & J. Douglas Zona, *Detection of Bid Rigging in Procurement Auctions*, 101 J. POL. ECON. 518 (1993) (finding that non-winning cartel members submitted phony higher bids in

It should also be observed that game-theoretic logic does not offer a simple solution to this inference problem. One might imagine, for example, that firms would be inclined to use XN rather than X because the former is legal and thus not subject to a risk of sanctions. If, however, it is most likely that an adjudicator will need to infer which type was used from circumstantial evidence, and if it is known as well that the adjudicator will reason in this fashion, then using X rather than XN may make sense. But in that case, the rational inference would be that X was used after all. Thus, the inference problem is more complicated.¹⁵⁶

More should be said about the sorts of circumstantial evidence from which inferences might be drawn. One type is evidence from the market,

highway construction auctions); ANTITRUST DIV., U.S. DEP'T OF JUSTICE, PRICE FIXING, BID RIGGING, AND MARKET ALLOCATION SCHEMES: WHAT THEY ARE AND WHAT TO LOOK FOR 2, available at <http://www.justice.gov/atr/public/guidelines/211578.pdf> (last visited Dec. 7, 2010) ("Complementary bidding schemes are the most frequently occurring forms of bid rigging, and they defraud purchasers by creating the appearance of competition to conceal secretly inflated prices."). Winners might be chosen randomly. However, more often, particular rotations would be more efficient and thus profitable for the conspirators. For example, it would be better to allocate particular bids to firms that momentarily have more excess capacity or are more favorably located. And there is evidence that bidders that meet secretly to plan bids do rotate in this fashion rather than submitting identical bids and leaving it for the buyer to choose. See William S. Comanor & Mark A. Schankerman, *Identical Bids and Cartel Behavior*, 7 BELL J. ECON. 281 (1976) (arguing that bid rotation is more likely, especially when there are smaller numbers of firms, and reporting that, in prosecuted bidding cartels, the substantial majority of cases involving eight or fewer firms employed bid rotation); Paul W. Cook, Jr., *Fact and Fancy on Identical Bids*, 41 HARV. BUS. REV., Jan.-Feb. 1963, at 67, 68 ("In fact, if I were asked, I would certainly bet that most conspiracies involving public tenders are conspiracies to rotate the low bid—and the business. That is, the bidding firms have agreed among themselves who should get the business, and they purposely let that company be low."); see also Douglas D. Davis & Bart J. Wilson, *Experimental Methods and Antitrust Policy*, in EXPERIMENTS INVESTIGATING MARKET POWER 61, 64–72 (Charles A. Holt & R. Mark Isaac eds., 2002) (examining the effects of allowing communications on pricing in experimental sealed-bid auctions both when firms' costs are fixed and when they depend on output committed as a result of winning previous auctions). Indeed, it has been argued that the high prevalence of identical secret bids in government contracting is evidence of less explicit cartel arrangements. See R. Preston McAfee & John McMillan, *Bidding Rings*, 82 AM. ECON. REV. 579, 584 (1992).

156. Rational adjudicators interacting with rational firms, who all knew that others thought in the same fashion, might be expected in equilibrium to employ mixed strategies. That is, adjudicators might expect firms to employ X with a certain probability, which gives rise to probabilistic liability, with firms employing X that often. In reality, unobserved heterogeneity of firms might be expected to lead to determinate strategies. Note that, if the probability of detection or the level of sanctions is sufficiently low, it is an equilibrium for firms to employ X and for adjudicators to infer that X was employed. For elaboration, see Kaplow, *supra* note 93, § 3.4.6.

Also, as the text suggests, the likelihood of direct detection would play an important role, although one complicated by the argument to follow about the difficulty of interpreting internal firm communications. In addition, firms may find it optimal to employ illegal types of communication that are further from the line because they are more effective, or legal types that are further from the line in the opposite direction because they are less likely to be mistaken for illegal forms. The latter strategy is problematic, however, as elaborated in Section D, because one of the most important ways that firms can avoid liability in a world governed by inferences from circumstantial evidence is to be unsuccessful.

including both firms' pricing behavior and the degree to which their market conditions are conducive to successful collusion, which is considered in greater depth in Section D. Another important sort of evidence, which plays a significant role in some litigated cases, is internal. Such evidence replicates the aforementioned problem when such evidence refers to the same sorts of circumstances as the external evidence just described. That is, just as there may be evidence from the market about firms' behavior and the conduciveness of the setting, so there may be internal evidence about each. For example, there may be internal communications about the extent to which prices are elevated, price leadership behavior, and the degree of homogeneity of competing firms' products.

In addition to internal circumstantial evidence, there also may be internal direct evidence that, if sufficiently unambiguous and credible, would alleviate the need to rely on circumstantial evidence (and that more broadly may combine with circumstantial evidence in reaching a conclusion). To illustrate, take what may seem to be an easy case: each firm's internal documents attest to the fact that the firms in the industry have an "agreement." Although most courts would presumably find this to be sufficient evidence from which one might rationally infer an agreement and might even characterize it as a direct admission,¹⁵⁷ a moment's reflection suggests a serious difficulty in reaching such conclusions. As Section II.A indicates and much of this Article elaborates, a common use of the term agreement refers to interdependence, and in the present discussion we are assuming that interdependence alone is insufficient for liability. That is, even if firms use the magic words of the doctrine (or of the statute, such as by referring to their "conspiracy"), they may not mean what the courts mean. And, if pressed at a deposition or in court, firms' officials who have used such terms would be strongly motivated (and coached) to suggest the innocent interpretation regardless.

More commonly, cases refer to internal evidence of an "understanding" in an industry, that competitors are viewed as "friends," and so forth.¹⁵⁸ Such

157. Consider, for example, the following evidence that was held to support an inference that the parties in question acted in concert:

Salisbury signed a written statement stating, "I did not bother Darling accounts. Mr. Sage [a high-level Moyer solicitor] told me on at least two occasions that there was a *mutual agreement and understanding with Darling*, not to bother their accounts." . . . When discussing this statement during his deposition, Salisbury stated that Sage told him: "there was an understanding." . . . While Salisbury later testified that he was not told of any understanding or agreement that Moyer had with any other company . . . , he did not retract his statement as to Darling. In fact, Salisbury testified: "I told [Mr. Rubin and Mr. Keiser, lawyers for Petruzzi's IGA] that there was an agreement or understanding. I also explained to Mr. Kaiser (sic) it has been going on ever since I have been in the business. Ever since 1969. It was something that everybody done (sic)."

Petruzzi's IGA Supermarkets, Inc. v. Darling-Del. Co., 998 F.2d 1224, 1234 (3d Cir. 1993) (emphasis, parentheticals, and brackets in original).

158. A nice illustration is provided by Judge Posner's widely cited opinion in *High Fructose*, in which he presents as evidence for the proposition "that there was an explicit

documentation seems to be treated as smoking-gun evidence, that is, clear, direct evidence of an agreement.¹⁵⁹ However, all such language is what one would expect to find if rational firms were successful in interdependent oligopolistic behavior, without regard to the modes of communication that they employed. Courts' willingness to find that such statements nevertheless constitute sufficient evidence of agreement indicates that, whatever they state the legal test to be, it de facto reverts to interdependence once certain types of evidence of interdependence are presented.

It is perfectly sensible to deem such evidence highly probative of liability if the real problem to be avoided is not penalizing actual coordinated oligopolistic pricing but instead accidentally punishing truly competitive behavior that a plaintiff alleges to be oligopolistic. However, if the law really requires that firms have used means of communication X rather than merely XN in implementing coordinated oligopoly pricing, then such internal evidence is only probative in the same, attenuated manner that external evidence of successful coordinated oligopolistic pricing is probative: internal evidence of successful coordination may make it somewhat more likely that forbidden means of type X were employed than if such evidence is not present. But if successful coordination is already convincingly demonstrated by marketplace behavior, such evidence would be redundant, and if this is not the case, the evidence would be useful but not directly probative of whether forbidden acts, those in set X, were employed.

Accordingly, under the posited views of the agreement requirement, it would seem that internal evidence, to be powerful, would have to show specifically that means in X rather than just those in XN had been employed. This standard is much more demanding. There may have to be references to the modes of communication employed, what content was conveyed, or even how it was phrased. If one went further and made such proof a prerequisite to finding an agreement, one would have adopted a rule that conspiracies may rarely¹⁶⁰ if ever be inferred from circumstantial evidence, which would be a radical revision in the (at least perceived) understanding of the law.

agreement to fix prices" such statements from the alleged conspirators as: "We have an understanding within the industry not to undercut each other's prices." "[O]ur competitors are our friends. Our customers are the enemy." A competitor's president is called a "friendly competitor," and mention is made of an "understanding between the companies that . . . causes us not to . . . make irrational decisions." *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 662 (7th Cir. 2002) (omissions in original).

159. "Examples of direct evidence include . . . evidence that 'explicitly refers to an understanding' between the alleged conspirators." ABA SECTION OF ANTITRUST LAW, MODEL JURY INSTRUCTIONS IN CIVIL ANTITRUST ACTIONS, 2005 EDITION, B-5 to B-6 n.4 (2005) [hereinafter MODEL JURY INSTRUCTIONS] (quoting *Viazis v. Am. Ass'n of Orthodontists*, 314 F.3d 758, 762 (5th Cir. 2002)).

160. See *supra* note 155.

2. Plus Factors

In cases in which a plaintiff seeks to prove a horizontal agreement by circumstantial evidence, the most common (nearly ubiquitous) formulation refers to a requirement of so-called plus factors:

The need for additional evidence derives from the same concerns elaborated in *Matsushita*, namely the desire not to curb procompetitive behavior. Therefore, in addition to establishing consciously parallel behavior by the defendants, a plaintiff also must show the existence of certain “plus” factors, including: (1) actions contrary to the defendants’ economic interests, and (2) a motivation to enter into such an agreement.¹⁶¹

This requirement is often presented as a direct corollary of *Theatre Enterprises*, which held conscious parallelism by itself to be insufficient, when defendants’ behavior is independent rather than interdependent (see Subsection B.1). It is subject to two different interpretations. First, the baseline showing, parallel or consciously parallel behavior, might refer in the price-fixing context to price co-movement supplemented by conscious awareness thereof by the firms, which is of course consistent with textbook competitive behavior; the plus factors must at least establish that behavior is interdependent rather than purely independent (see Subsections I.B.1, I.B.2, and I.B.5). Second, the baseline showing might instead implicitly incorporate interdependent behavior, and the plus factors must go beyond this in some fashion.

Which interpretation makes sense depends on how each of the two features are presented. When the baseline showing is phrased in terms of parallelism, conscious or otherwise, the first interpretation of the baseline showing may seem more natural while the second is also possible (see Section II.A on the definition of parallelism). In either case, much of the action lies in identifying what plus factors are sufficient to establish an agreement. Under the first interpretation, if the plus factors require more than interdependence, the result may be equivalent to that under the second (for it does not matter whether the showing of interdependence is part of the plaintiff’s baseline requirement or entailed in the necessary plus factors). Furthermore, under the second interpretation, if sufficient plus factors really only establish interdependence, then the net result would be equivalent to that under (the weaker interpretation of) the first.

If there was a clear, readily articulated understanding of the agreement requirement, the plus-factor formulation would be a mere restatement of what was well settled. But at this point it is apparent that such is not the case. Thus, it is unsurprising that there is no readily accepted principle that determines what

161. *Petruzzi’s IGA Supermarkets*, 998 F.2d at 1242; see AREEDA & HOVENKAMP, *supra* note 9, at 240 (“The inelegant term ‘plus factors’ refers simply to the additional facts or factors required to be proved as a prerequisite to finding that parallel action amounts to a conspiracy.”).

counts as a sufficient plus factor and what does not (or what combinations might be jointly sufficient).

Furthermore, when one looks at the plus factors frequently identified by the courts, it appears that many are simply alternative ways of describing oligopolistic interdependence, as some commentators have noted.¹⁶² Perhaps the most-cited plus factor is action contrary to defendants' self-interest.¹⁶³ Since firms are presumed to maximize profits, this factor seems mysterious, but the conventional in-context meaning is that the action would be contrary to self-interest if undertaken independently but would be in firms' interest if undertaken jointly. This interpretation rules out purely independent behavior but readily includes—really, defines—interdependent oligopoly pricing. Another common plus factor is the requirement of a conspiratorial motivation, which amounts to much the same thing.¹⁶⁴ Yet another plus factor cited less commonly but still with some regularity is evidence of poor economic performance, which likewise would result from successful oligopolistic interdependence.¹⁶⁵ Various other factors are mentioned, some of which include fairly direct evidence of explicit agreement,¹⁶⁶ but it remains the case that many plus factors that are identified and relied on serve to establish interdependence but no more.¹⁶⁷ Additionally, as Subsection 1 explains, even internal documentation

162. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 245.

163. See, e.g., ABA SECTION OF ANTITRUST LAW, *supra* note 153, at 12–13 (“Among the most important plus factors are those that tend to show that the conduct would be in the parties’ self-interests if they all agreed to act in the same way but would be contrary to their self-interests if they acted alone. . . . Conversely, when each defendant has legitimate business reasons that rationally would lead it to engage independently in the challenged conduct, courts do not infer a conspiracy based solely on that conduct.”); Werden, *supra* note 47, at 748–49 n.131 (illustratively citing eleven cases, some of which cite or quote additional cases). For example, *Merck-Medco Managed Care, LLC v. Rite Aid Corp.*, 201 F.3d 436 (4th Cir. 1999), 1999-2 Trade Cases ¶ 72,640 [at *10] (unpublished per curiam opinion), states: “Evidence of acts contrary to an alleged conspirator’s economic interest is perhaps the strongest plus factor indicative of a conspiracy.” See also *City of Tuscaloosa v. Harcros Chems., Inc.*, 158 F.3d 548, 571 n.35 (11th Cir.1998) (“[A] showing that the defendant acted contrary to its legitimate economic self-interest . . . is sufficient to satisfy the requirement that the plaintiff show ‘plus factors’ beyond mere consciously parallel action. Other ‘plus factors,’ however, may also exist.”).

164. See, e.g., ELHAUGE & GERADIN, *supra* note 129, at 837 (“[A]nother major plus factor is understood to be a ‘motivation for common action,’ that is, some indication that the firms would have a disincentive to engage in the conduct unless others did the same. The problem is that this plus factor is true for cases of pure oligopolistic coordination, when no conspiracy is inferred.”); Werden, *supra* note 47, at 750–51 & n.137 (discussing the factor and citing cases).

165. See, e.g., ELHAUGE & GERADIN, *supra* note 129, at 837 (“Another plus factor sometimes used is evidence of adverse economic performance, like excessive prices or profits. But again this is true in cases of pure oligopoly.”). The lineage of this plus factor traces to *Am. Tobacco Co. v. United States*, 328 U.S. 781, 805–06 (1946).

166. See, e.g., ABA SECTION OF ANTITRUST LAW, *supra* note 153, at 12–16; ABA SECTION OF ANTITRUST LAW, *PROOF OF CONSPIRACY UNDER FEDERAL ANTITRUST LAWS* 69–91 (2010). It seems odd to view such evidence as a plus factor—the plus meaning that, when joined with parallel pricing, an inference of agreement is supported—because it standing alone constitutes direct evidence of explicit agreement.

167. For example, in the nine-page treatment of plus factors in AREEDA & HOVENKAMP,

of “understandings” and the like that is readily taken to be direct evidence of explicit agreement may well demonstrate only interdependence.

One way to rationalize this practice is by reference to *Theatre Enterprises*, which substantially motivated the plus-factors formulation, and *Matsushita*, which sought to avoid chilling truly competitive behavior. Given the fact that parallel, even consciously parallel, behavior routinely stems from ordinary competitive interaction, it is important that such behavior not give rise to liability. Emphasizing that there is a further requirement, met by proving interdependent oligopoly behavior as distinguished from ordinary competitive behavior, is quite significant from this perspective.

If instead the agreement requirement is definitely understood to require more than interdependence, there are two further possibilities. First, a large portion of the cases could be mistaken. Even courts that explicitly purport to be implementing a tougher test are unaware that they are routinely failing to do so.

A second approach would be to tack a further condition onto the sorts of plus factors just discussed, interpreting them as embedding an additional requirement ruling out interdependence. Thus, a motive to conspire would mean a motive to achieve coordinated high prices by illegal rather than legal means. Yet this variation seems odd because no rational firm would specifically wish to subject itself to sanctions rather than achieve the same result legally, although this variation could be further elaborated by adding that legal means be ineffective. Actions against self-interest would refer to actions that would not be taken unless other firms’ cooperation was specifically obtained by illegal rather than legal modes of communication (note the same reservation). And poor economic performance would mean worse performance than would result from legal interdependence.

Each of these restatements is logically possible. Nevertheless, the formulations seem strained. They also replicate the inference problem stated in Subsection 1. Specifically, what evidence would show in a reasonably straightforward fashion that firms intended to use illegal rather than legal means of communication (short of direct evidence of such communications), that firms would rely on others’ coordinated actions if such were generated by illegal but not by legal means, and so forth? To be sure, if one could demonstrate that coordinated oligopolistic pricing was only possible through forbidden means and that such pricing did occur, an agreement would thereby be established, an idea developed in Section D. But it is not clear what is added

supra note 9, ¶ 1434, only a single paragraph, *see id.* at 243, discusses and cites cases on what they term “[c]ustomary indications of traditional conspiracy,” whereas the rest of the section (seven pages) discusses and cites cases on the three factors identified in the text. Regarding the first two, they state that “‘conspiratorial motivation’ and ‘acts against self-interest’ often do no more than restate interdependence.” *Id.* at 245; *see id.* at 206, 237. What they do not attempt to explain is how this point can be reconciled with their view, *see id.* at 206, ¶ 1433, that courts’ insistence on plus factors is what demonstrates that they require more than interdependence.

by the plus factors that are so often used to guide the inquiry. It seems that one would first have to prove a violation by other, more subtle methods, and only when that was accomplished would one be able to conclude that these oft-cited plus factors were present in this elaborated, more complex form—the latter inference being pointless once the violation had already been proven.

Needless to say, this convoluted method is not the routine practice of lower courts. Accordingly, whatever language lower courts use to describe what a plaintiff needs to show, in practice it seems that interdependence is often sufficient. And, when it is not found to be sufficient, it is unclear what alternative plus factors—or, more broadly, formulations of the agreement requirement (definitions of the set X)—are implicitly being invoked.

3. Jury Instructions

Most court decisions on Section 1's agreement requirement address when a case may reach the fact-finder, which under U.S. antitrust law is often a jury. At that point, the relevant legal rule is embodied in jury instructions. Given the elusive nature of the agreement requirement—including the difficulty of formulating it in ordinary language while avoiding substantial ambiguity, and the range of possible interpretations of the statute and precedent—as well as the challenge of inferring an agreement (whatever that may mean) from circumstantial evidence, it is important to inquire how these problems are addressed when presenting the matter to juries.

The ABA Antitrust Section's Model Jury Instruction on "contract, combination or conspiracy" provides:

To establish the existence of a conspiracy, the evidence need not show that its members entered into any formal or written agreement; that they met together; or that they directly stated what their object or purpose was, or the details of it, or the means by which they would accomplish their purpose. The agreement itself may have been entirely unspoken. What the evidence must show to prove that a conspiracy existed is that the alleged members of the conspiracy in some way came to an agreement to accomplish a common purpose.¹⁶⁸

This instruction disclaims the need to demonstrate an express, spoken agreement or any particular sort of communication. Instead it speaks in conclusory terms—it must be proved that the alleged conspirators "came to an agreement"—and it elaborates by focusing on "accomplish[ing] a common purpose," a focus on intent, much like the discussion of a "meeting of the minds" in the various formulations of *American Tobacco* described in Subsection B.1.¹⁶⁹ The Model Instruction further elaborates:

168. MODEL JURY INSTRUCTIONS, *supra* note 159, at B-2 to B-3.

169. It is also of interest that *Interstate Circuit* is cited in the footnote to the paragraph containing this part of the instruction. *See id.* at B-5 n.2.

The agreement may be shown if the proof establishes that the parties knowingly worked together to accomplish a common purpose. . . . Direct proof of an agreement may not be available. A conspiracy may be disclosed by the circumstances or by the acts of the members. Therefore, you may infer the existence of an agreement from what you find the alleged members actually did, as well as from the words they used.¹⁷⁰

This supplement begins by restating a focus on the existence of “a common purpose,” presents the standard directive that indirect proof by circumstantial evidence is permissible, and finally instructs that agreement may be inferred “from what you find the alleged members actually did,” which emphasizes behavior, perhaps coordinated oligopolistic pricing. After the just-quoted passage, the instruction states: “Mere similarity of conduct among various persons, however, . . . does not establish the existence of a conspiracy unless the evidence tends to exclude the possibility that the persons were acting independently.”¹⁷¹ Reminiscent of the holdings of *Matsushita* and *Monsanto*, discussed in Subsection B.2, this portion presents the now-familiar issue (recall Subsections I.B.1, I.B.2, and I.B.5) concerning the interpretation of the term independent, which most naturally refers to purely independent, competitive behavior as distinct from interdependent behavior but also is sometimes viewed as embracing the latter. One might expect that juries in fact would follow the more common usage. Joined with the preceding components, it appears that this Model Instruction invites juries to find an agreement when there is interdependent oligopolistic pricing, although this speculation cannot readily be tested.

There is an additional Model Instruction specifically on the subject of “conscious parallelism,” which reads in relevant part:

The mere fact that the defendants have [*state nature of conduct*] does not by itself establish the existence of any conspiracy among the defendants. Their behavior may be no more than the result of the exercise of independent judgment in response to identical or similar market conditions. For example, everyone might open their umbrellas on a rainy day, but that similar behavior would not necessarily mean that they had agreed or conspired to open their umbrellas.¹⁷²

It is quite clear that this refinement is designed to exclude from the agreement category purely independent conduct rather than interdependent conduct (as those terms are elaborated in Subsections I.B.1, I.B.2, and I.B.5). The instruction continues:

You may consider the defendants’ [*parallel conduct*] along with other evidence in deciding whether the defendants’ conduct was the result of an agreement, and not the result of separate decisions made by each

170. *Id.* at B-3.

171. *Id.* at B-3 to B-4.

172. *Id.* at B-7 (bracketed expression and italics in original).

defendant on its own. To establish the existence of an agreement, the plaintiff must produce evidence that tends to exclude the possibility that the defendants acted independently. . . . [*describe evidence put forward by the plaintiff, such as whether the parallel conduct is contrary to the independent business interests of the defendants*]. . . . [*summarize the defendant's arguments in opposition, . . . such as evidence of . . . competitive conduct inconsistent with conspiracy*]. You should consider all of this evidence as a whole¹⁷³

In elaborating on the concept of independent action, described as “separate decisions made by each defendant on its own,” the example for what a plaintiff might demonstrate refers to conduct “contrary to the independent business interests of the defendants,” discussed in Subsection 2 as a leading plus factor that indicates interdependence. An example of a defendant’s rebuttal, correspondingly, is “evidence of . . . competitive conduct,” rather than, say, evidence of anticompetitive coordinated oligopoly behavior that may have resulted from recognized interdependence. Thus, again it appears that juries may well understand such instructions as including interdependent oligopolistic coordination within the agreement concept.

4. Damages

When liability is established, damages must be assessed. Under U.S. antitrust law, those who purchase from price-fixing conspirators recover treble damages, and government-imposed fines in certain jurisdictions may reflect to some extent the degree of damage inflicted.¹⁷⁴ Damages, in turn, must in

173. *Id.* at B-7 to B-8 (bracketed expressions and italics in original).

174. Fines for violations of U.S. antitrust law are governed by the sentencing guidelines. U.S. SENTENCING GUIDELINES MANUAL, ch. 2, pt. R (Nov. 2010); *see* ABA SECTION OF ANTITRUST LAW, SENTENCING GUIDELINES IN ANTITRUST: A PRACTITIONER’S HANDBOOK (1999). Harm is measured by taking 20% of the volume of commerce involved. This figure is rationalized on the asserted ground that the usual mark-up is 10%, but using that figure would understate harm by omitting the effect on discouraged buyers. Other factors enter into the determination of fines under the Guidelines, and even regarding this factor, there can be adjustments (but not taking the factor below 15%). Use of the 20% figure, making no adjustment for higher or lower overcharge increments, seems to be widespread. *See id.* at 43. (In addition, the FTC claims the authority to disgorge what it terms unjust enrichment, and it has successfully done so in some cases. *See* OFFICE OF GEN. COUNSEL, FED. TRADE COMM’N, A BRIEF OVERVIEW OF THE FEDERAL TRADE COMMISSION’S INVESTIGATIVE AND LAW ENFORCEMENT AUTHORITY § II.B.2 (2008).)

EU law also is unclear regarding the extent to which the magnitude of the overcharge (however defined) is relevant in setting fines, either under the 2006 Fining Guidelines or in practice. *See* Commission Guidelines on the Method of Setting Fines Imposed Pursuant to Art. 23(2)(a) of Reg. No. 1/2003, 2006 O.J. (C 210) 2; *id.* § 1.B.21 (general rule that “the proportion of the value of sales taken into account will be set at a level of up to 30% of the value of sales”); Sergio Sorinas, *Remedies and Fines*, in 3 EU COMPETITION LAW: CARTEL LAW: RESTRICTIVE AGREEMENTS AND PRACTICES BETWEEN COMPETITORS 477 (Mario Siragusa & Cesare Rizza eds., 2007). In describing previous practice, Sorinas explains:

However, as of the end of 2005, the Commission had not adopted any decision where the need to confiscate the profits of the infringement was specifically referred to as a

principle be causally related to those actions that gave rise to liability.¹⁷⁵ Hence, this logical nexus implies a direct relationship between the agreement requirement and the determination of damages. For price-fixing cases, “the usual measure of damage is the difference between the illegal price that was actually charged and the price that would have been charged ‘but for’ the violation multiplied by the number of units purchased.”¹⁷⁶

The concept of the but-for scenario has received significant attention in U.S. antitrust law regarding damages. An important concern arises in cases in which a defendant is alleged to have engaged in multiple activities injurious to the plaintiff, but the legal conclusion is that only some of that conduct is unlawful while the other conduct is lawful. In such cases, it is well established that damages may be awarded only for losses attributable to the former, unlawful conduct.¹⁷⁷ This legal rule is reflected in the Model Jury Instruction on “causation and disaggregation,” which states:

Plaintiff bears the burden of showing that its injuries were caused by defendant’s alleged antitrust violation—as opposed to any other factors If you find that plaintiff’s alleged injuries were caused by factors other than defendant’s alleged antitrust violation, then you must

factor justifying an increase in the amount of the fine. This was no doubt due to the practical difficulty of assessing gain with any degree of precision. The commission has been acknowledging repeatedly that it is often impossible to isolate precisely the effects of a cartel on the level of prices from the impact of external economic factors.

Id. at 578; *see also id.* at 534 (“However, the 2006 Fining Guidelines make clear that cartel-type agreements . . . will ‘as a matter of policy, be heavily fined’. Therefore, in cartel cases the percentage level can be expected to be equal or close to 30%, and the other factors mentioned in the 2006 Fining Guidelines will probably come into play and lead to a lower percentage only in exceptional circumstances.”).

175. *See, e.g.*, 2A PHILLIP E. AREEDA, HERBERT HOVENKAMP, ROGER D. BLAIR & CHRISTINE PIETTE DURRANCE, *ANTITRUST LAW* 333 (3d ed. 2007) (“The guiding principle is that the antitrust victim should recover the difference between its actual economic condition and its ‘but for’ condition.”).

176. *Id.* at 332; *see id.* at 334 (“[T]he antitrust damage calculation must isolate the effect of the antitrust violation.”). It is well known that this measure is conceptually incorrect in omitting deadweight loss (the value in excess of cost of units not purchased due to price elevation), but this discrepancy is tangential to the present discussion and thus will not be considered further.

177.

Except in circumstances where disaggregation is shown to be impossible or impractical, an antitrust plaintiff challenging a variety of conduct is required to segregate damages attributable to particular business practices or, at a minimum, to distinguish between losses attributable to lawful competition and those attributable to unlawful anticompetitive conduct. . . . Disaggregation is required because the antitrust laws are only intended to compensate plaintiffs for losses fairly caused by a defendant’s unlawful anticompetitive behavior.

Litton Sys., Inc. v. Honeywell, Inc., CV 90-4823 MRP(EX), 1996 WL 634213, at *2 (C.D. Cal. 1996); *see, e.g.*, AREEDA ET AL., *supra* note 175, at 134–35, 341–42; M. Sean Royall, *Disaggregation of Antitrust Damages*, 65 *ANTITRUST L.J.* 311 (1977). It should be noted that typical cases on disaggregation of damages involve multiple actions that harmed a plaintiff’s business, some of which are ruled to be unlawful exclusionary practices while others are not found to be illegal. As this Subsection suggests, the point does not seem to have been addressed with regard to price fixing.

return a verdict for defendant. If you find that plaintiff's alleged injuries were caused in part by defendant's alleged antitrust violation and in part by other factors, then you may award damages only for that portion of plaintiff's alleged injuries that were caused by defendant's alleged antitrust violation. Plaintiff bears the burden of proving damages with reasonable certainty, including apportioning damages between lawful and unlawful causes.¹⁷⁸

Consider the implications of this damages rule in price-fixing litigation. On one hand, if successful interdependent oligopolistic price escalation constitutes a violation, then damages per unit of output would be the difference between the price charged and the competitive price, which would then have to be determined.¹⁷⁹ On the other hand, if interdependence is deemed legal and instead illegality rests on a demonstration of communications of type X rather than XN (recall the discussion in Subsection 1), then damages per unit of output would be the difference between the price charged and the price that the oligopolists could have charged had they limited their communications to those in category XN. Accordingly, a plaintiff hoping to recover nontrivial damages, or a government intending to levy a nontrivial fine that was a function of harm caused by the violation, would need to show not only that illegal methods were used but also how much of the price elevation could be attributed to the use of such means.

In cases in which proof is by circumstantial evidence and the fact-finder might have inferred that the defendants' actions barely crossed the line demarcating liability, damages under this formulation could be quite small. But the implications of having to identify the increment above interdependent oligopoly prices are not so limited. Even in a clear case of express conspiracy—smoke-filled rooms, taped conversations, and criminal convictions—it would still be possible and sometimes plausible that, but for the prohibited interactions, the firms might still have elevated price above a competitive level, although perhaps not as high, as long, or with as few price wars.

This point immediately raises a conflict because conventional practice in damages determination appears to compare the actual price to a hypothetical competitive price, not a hypothetical interdependent oligopoly price—precisely the correct approach if interdependent oligopoly pricing suffices to establish liability. In describing *Chattanooga Foundry*,¹⁸⁰ the Supreme Court's seminal decision establishing the overcharge measure of damages, Phillip Areeda and Herbert Hovenkamp state the damages rule as follows: "The direct loss caused by the price fixing cartel was the increased cost of providing the water service above the cost at which it could have been provided had pipe prices been

178. MODEL JURY INSTRUCTIONS, *supra* note 159, at F-19 to F-20.

179. For a possible qualification, see note 237 (on the possibility of uncoordinated interaction that results in supracompetitive prices).

180. *Chattanooga Foundry & Pipe Works v. City of Atlanta*, 203 U.S. 390 (1906).

competitively determined.”¹⁸¹ Even more focused is Hovenkamp’s comment noting a possible shortcoming of the so-called before-and-after approach to measuring damages:

If the market in which the cartel occurred is concentrated and conducive to price leadership or tacit collusion, a good deal of monopoly overcharge may be built into the pre-cartel price to begin with. As a result, the before-and-after method may not really measure the difference between the cartel price and a truly “competitive” price at all.¹⁸²

The method is criticized because, in the posited case, it may capture only the difference between the actual price and the interdependent oligopolistic price, rather than the larger gap between the actual price and the competitive price. This criticism is entirely apt if interdependence is sufficient for liability. However, this property is instead a necessary virtue of the approach, not a defect, if interdependent oligopoly pricing is legal (as Hovenkamp elsewhere asserts).

One might rationalize the apparent contradiction (that is, if oligopoly overcharges through interdependence are permissible) by what may be called an infection argument: what otherwise might be seen as legally permissible may be deemed culpable when joined with impermissible activity.¹⁸³ Under this view, if defendants had extracted, say, one billion dollars in overcharges through tolerated interdependence—using only means of type XN—they would face no liability. But if they were found at any point to have used some means in category X (perhaps a single, poorly supervised subordinate is inferred to have once tip-toed over the line), they would be liable in the United States for three billion dollars in damages (plus treble any increment due to the further overcharge made possible by some use of means of type X). This could be the law, and many hold views regarding the agreement requirement and damages determination under which this implicitly is the law. If so, it is rather remarkable that this feature of the law seems to have gone largely unnoticed.¹⁸⁴

181. AREEDA ET AL., *supra* note 175, at 377.

182. HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY 674 (3d ed. 2005).

183. A different argument that sometimes might justify a similar result is that, in cases in which it is difficult to segregate the effects of illegal acts, defendants (whose wrong created the situation) rather than plaintiffs should bear the burden of uncertainty. *See Bigelow v. RKO Radio Pictures*, 327 U.S. 251, 265 (1946) (referring to the difficulty of quantifying damages, but only with respect to losses not shown to be attributable to causes other than defendants’ illegal behavior); *see also Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555 (1931) (permitting recovery of damages when the fact of harm is certain but the extent is uncertain). “The courts have always distinguished between proof of *causation* of damages and proof of the *amount* of damages. Thus, the courts have been consistent in requiring plaintiffs to prove in a reasonable manner the link between the injury suffered and the *illegal* practices of the defendant.” *MCI Commc’ns Corp. v. Am. Tel. & Tel. Co.*, 708 F.2d 1081, 1161 (7th Cir. 1983) (emphasis in original).

184. The assertion in the text is limited by the author’s knowledge. However, Areeda and Hovenkamp’s failure to mention this juxtaposition despite devoting three hundred pages to the agreement requirement (in the horizontal setting alone), emphasizing throughout their view that

The seemingly well established and uncontroversial rule on damages under which one compares the overcharge price to a hypothetically constructed competitive (not interdependent oligopoly) price seems much more in harmony with an agreement requirement that does not freely permit interdependent oligopoly behavior.¹⁸⁵

*D. Paradox of Proof*¹⁸⁶

As mentioned in Subsection C.2, one of the plus factors that some courts mention as helping to bridge the gap between parallelism and agreement is the presence of poor economic performance. Relatedly, courts often refer to whether market conditions are conducive to successful coordinated oligopoly pricing.¹⁸⁷ If the law is understood in essence to reach successful oligopolistic coordination, these inquiries make perfect sense. If oligopoly pricing seems implausible in a particular market or if in fact economic performance is competitive, the plaintiff would not have a good case. Even if there were some direct evidence purportedly demonstrating a conspiracy, it would be less credible. At best, there may have been an agreement attempting to fix prices but one that could not or in fact did not succeed, in which case a finding of liability would give rise to little or no damages. Likewise, claims by defendants that their actions were purely independent business decisions reflecting

the law tolerates interdependent oligopoly pricing, *see Areeda & Hovenkamp, supra* note 9; PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW, 2009 SUPPLEMENT 171–87 (2009), and over one hundred pages to the law of damages, *see AREEDA ET AL., supra* note 175, at 331–437, is rather striking. Another treatment of the subject of antitrust damages devotes extensive attention to those arising in cases of horizontal price fixing, *see ABA SECTION OF ANTITRUST LAW, PROVING ANTITRUST DAMAGES* 171–98 (1996), and emphasizes the causation point, that damages must be attributable to the illegal activity, *see id.* at 36, 171, but never mentions that damages might sometimes (often) need to be reduced on account of the possibility of legal interdependent price elevation. Interestingly, in one case the defendants' expert argued that the but-for price should be the coordinated (but without-express-agreement) oligopoly price rather than the competitive price. *See* Lawrence J. White, *Lysine and Price Fixing: How Long? How Severe?*, 18 REV. INDUS. ORG. 23, 28 (2001). (The court had previously determined that the proposed settlement was in an acceptable range and seems to have finally approved the settlement shortly after competing affidavits were received without addressing whether particular legal or economic arguments were accepted or rejected.)

185. Under current law, it should also be possible to seek recovery for damages due to successful interdependent price elevation that may be attributable to a prior merger. If a merger in fact contributes to the feasibility of interdependent pricing, and injured parties can show that prices indeed rose as a consequence, then the merger would have been demonstrated to be anticompetitive and the resulting overcharges, being attributable to the anticompetitive merger, would be recoverable. In such a case, a plaintiff's burden would be to demonstrate interdependent price elevation and causation to the merger. There would be no need to indicate the means by which it was accomplished, even if the price-fixing prohibition was narrowly circumscribed. Therefore, mergers, in principle, constitute another realm in which existing law penalizes interdependent pricing.

186. For substantial further elaboration, *see* Kaplow, *supra* note 93, § 3.4.

187. *See, e.g., JTC Petroleum Co. v. Piasa Motor Fuels, Inc.*, 190 F.3d 775, 777 (7th Cir. 1999) (explaining that “conditions are thus ripe for effective collusion”); *id.* at 778–79 (citing evidence suggestive of supracompetitive pricing).

ordinary, rivalrous competitive interaction would be more credible. In light of *Matsushita's* injunction to avoid chilling procompetitive behavior and thus to require stronger proof when a plaintiff's case seems economically implausible (recall Subsection B.2), the argument against finding liability would be strengthened.

Suppose, however, that successful oligopolistic coordination, taken alone, is not deemed to constitute an agreement, and thus condemnation is confined to those defendants who employ particular types of communication. Furthermore, confine attention to cases in which direct evidence (such as recordings of price-fixing meetings) is unavailable. Then the question will be whether circumstantial evidence indicates that interdependence was probably achieved only by means of type XN or also, in whole or in part, through means in prohibited category X. On that question, it would seem initially that poor economic performance or evidence that a market is conducive to coordinated oligopoly pricing would not be directly probative.

This Subsection explores the possibility that, actually, such evidence will sometimes make it less likely that means in category X (whatever that category may be) were employed. The basic reason for this result is that, if successful interdependence is sufficiently easy (think about the two gasoline stations in Subsection I.A.1), then firms may find it unnecessary to rely on communications in prohibited category X, so that any inference that they in fact did so is less plausible. As a result, evidence that a market is *less* conducive to successful coordinated oligopolistic pricing may make the inference that firms' actions included some falling within X *more* plausible.¹⁸⁸

A more complete statement of the core logic is that, on one hand, when circumstances render successful coordination nearly impossible regardless of the means employed, it is quite unlikely that firms would risk liability by resorting to any means in X. As successful coordination is increasingly plausible, the likelihood of an agreement, that is, that acts in category X were employed, rises. By contrast, at the opposite end of the spectrum are settings in which successful coordination is so easy that firms can accomplish it almost automatically; there, firms would arguably be reluctant to use acts in X, risking liability when such seems unnecessary. Short of this extreme, the likelihood of an agreement would plausibly be higher. Combining these ideas, the notion is that the likelihood of liability first rises and then falls as the ease of coordination moves from impossible to extremely easy.

The consequence of the foregoing is that liability would be found if but only if the ease of coordination was at an intermediate level.¹⁸⁹ The intuition is

188. While aspects of this paradox have previously been mentioned in the literature, it has never been explored systematically. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 221; AREEDA & KAPLOW, *supra* note 9, at 308 n.54. A more extensive but still rudimentary discussion appears in Kaplow & Shapiro, *supra* note 5, at 1126–28.

189. As will be discussed below, it may be disputed where this intermediate level is—that

that the ease of coordination is sufficiently high that attempts to collude are likely yet the degree is sufficiently low that collusion probably cannot succeed without using at least some act in X. Therefore, if successful oligopolistic coordination seems to be taking place, it is likely that some means in X are being employed. But when coordination is too difficult or too easy, no liability would be the rational inference.

The existence of a region where coordination is sufficiently easy to negate the inference of an agreement (the use of some act in X) is what is meant here by the paradox of proof. One aspect of this paradox is normative: imposition of a more restrictive definition of agreement has as its distinguishing feature the exoneration of firms precisely in those cases in which the expected social harm is greatest (while assigning liability in cases in which the danger is lower). This dimension will be considered further in Section IV.C. For the present, attention will be confined to implications for the working of the legal system.

The most direct implication of the paradox of proof is the a priori ambiguity of presenting evidence that a market poses a greater ease of coordination—for example, evidence of higher concentration, more nearly homogenous products, more readily observed prices, and larger numbers of smaller buyers placing more frequent orders. Additional evidence that a market is more conducive to coordination than one might otherwise have believed will be helpful to a plaintiff if one starts with a case in which coordination is imagined to be fairly difficult. However, if one otherwise thought that the ease of coordination was moderate—suggesting that liability should be inferred—then such incremental evidence could reduce the likelihood of some use of acts in X and thereby favor the defendants.

A further, substantial complication concerns not the ease of coordination itself but what likelihood of the use of at least some acts in X is associated with a given ease of coordination. For example, a plaintiff might grant that the ease is fairly low or fairly high and nevertheless argue that liability should be found because, in those circumstances, use of some acts in X is sufficiently likely. Similarly, a defendant might concede any degree of ease of coordination—for example, the intermediate level that the plaintiff claims to exist—and argue that, given this characterization, the use of acts in X is not very likely (perhaps

is, in what range of ease of coordination the likelihood of the use of at least some means in X is sufficiently high for liability. It is also possible, in theory (depending on other evidence, including direct evidence of communications, such as from informants, and other evidence, notably, that bearing on the likelihood and extent of successful oligopolistic coordination), for the relevant range not to be intermediate, but rather to cover only the lowest or highest degrees of ease, for it to include all levels of ease of coordination, or for it to be nonexistent (that is, for no degree of ease of coordination would the likelihood of use of acts in X be sufficiently high). See Kaplow, *supra* note 93, § 3.4. These possibilities further complicate the implementation of an agreement requirement that permits inferences from circumstantial evidence and is stricter than interdependence.

the inference would be sufficiently likely if only the ease were notably higher; or perhaps only if the ease were significantly lower).

Therefore, on two matters—the actual ease of coordination and the likelihood of use of acts in X for a given degree of ease of coordination—parties may have quite different views, and an actual inference of liability or no liability depends on the resolution of the combination of two issues. Thus, particular evidence on the ease of coordination may be ambiguous both because of what other evidence on the question suggests about the overall ease of coordination (moderate levels favoring the plaintiff, low or high levels the defendants) and because of disagreement about what level of ease of coordination implies liability (the level most favorable to liability being perhaps quite high or possibly rather low).

Accordingly, litigation strategies at trial would be quite complex. A case might begin with the plaintiff trying to show that the ease of coordination is greater than meets the eye, with the defendants arguing that it is less. But if, at some point, a party believes that the case might be viewed differently (perhaps the plaintiff's expert was too successful), then the parties might reverse positions—the plaintiff fearing that the ease will be deemed to be too high and the defendants now pushing for that result, abandoning their original position that it was very low.¹⁹⁰

There are further conundrums at earlier procedural stages. When composing its complaint, should the plaintiff allege that conditions are highly conducive to coordination or the opposite? And, whichever the plaintiff chooses, should the defendants deny such allegations or instead embrace them? If the plaintiff alleges “easy,” the defendants might agree and move to dismiss because they are so easy; if the plaintiff alleges “hard,” the defendants might also agree and move to dismiss because they are so hard. It seems that the plaintiff needs to allege “medium,” and the defendants' best argument is to deny, claiming instead that they are very hard, or if not that, very easy, but certainly not in between—an atypical form of argument in the alternative. Keep in mind that what counts as medium, easy, or hard, will also be subject to competing allegations and subsequent proof. The problem also seems difficult for a judge who must make decisions on motions to dismiss or for summary judgment. In a standard case, it seems that virtually any allegation or fact on these dimensions could cut in either direction on liability, depending on how other facts were weighed, something the court is not supposed to do at these preliminary stages.

The core logic of the paradox of proof, therefore, indicates that implementation of an agreement requirement that is notably more restrictive

190. It is also conceivable that both parties might choose to push in the same direction, a situation that could arise if they have different predictions of where the fact-finder will end up regarding either the ease of coordination or what degree of ease renders an inference of the use of some acts in X most likely.

than interdependence alone has jarring implications for the conduct of litigation. Such behavior by litigants and courts does not seem to characterize the typical case in which the existence of a horizontal agreement is in dispute. Therefore, this paradox constitutes another substantial respect in which the actual operation of the law in lower courts is at odds with conventional depictions of the legal rule.

There is, however, a way to reconcile what appears to be standard practice with a definition of agreement that requires some use of acts in X (other than by expanding the set X to embrace all, or most, interdependent behavior): suppose that, even when the ease of coordination is quite high, successful oligopolistic coordination is still difficult without resort to at least some acts in X. In that case, the paradox of proof would rarely, if ever, arise.¹⁹¹ Accordingly, there would be little difference in litigation strategies and in outcomes from a broader prohibition on successful interdependent oligopoly behavior: if such behavior virtually never arises without use of some acts in X, it would nearly always be proper to infer the use of some prohibited acts when successful coordinated pricing could be demonstrated. The exception would be in the unusual case in which the ease of coordination was extremely high—suggesting that the danger from coordinated oligopolistic price elevation was at its peak—because then requiring the use of acts in X rather than just interdependence would exonerate the defendants.

Interestingly, many legal and economic analysts speak as though this case governs, a claim that also finds some support from the courts.¹⁹² In offering this

191. In addition to the explanation in the text for a narrow or nonexistent paradox region—that coordination is extremely difficult in all (or all but the easiest) situations without any use of acts in X—there are two other possibilities. First, although coordination eventually becomes feasible as the ease increases, it may remain true that acts in X are sufficiently useful supplements that they are worth the risk of sanctions. (When the ease of coordination is high, it may be true that the added likelihood of success from using acts in X is smaller but the incremental benefit is as great or greater because the value of success is so great; successful collusion may involve larger overcharges for a longer duration when the ease is high.) Second, some factors indicating a greater ease of coordination also reduce the probability of direct detection (such as through informants). Notably, when there are fewer firms and greater product homogeneity, there are fewer communication links required and fewer details that need to be worked out. Therefore, the expected cost of prohibited acts is lower, making their use more attractive. See Kaplow, *supra* note 93, § 3.4.6.

192. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 215 (“The results of perfect express collusion will rarely be achieved by mere interdependence without an express agreement standardizing some product or price terms or relationships.”); George A. Hay, *Oligopoly, Shared Monopoly, and Antitrust Law*, 67 CORNELL L. REV. 439, 445 (1981) (suggesting that the dilemma regarding whether to attack all interdependent behavior or just express agreement may not be practically important because pure oligopolistic interdependence is likely to be rare); MASSIMO MOTTA, *COMPETITION POLICY* 141 (2004) (offering reasons that it would be difficult for firms to coordinate successfully without talking to each other); Motta, *supra* note 24, at 317 (“it is far from clear that tacit collusion can be sustained over time without competitors talking to each other”); Stephen A. Nye, *Can Conduct Oriented Enforcement Inhibit Conscious Parallelism?*, 44 ANTITRUST L.J. 206, 209 (1975) (statement of then-Commissioner of the FTC) (“To put it more forcefully, I believe that pure ‘interdependence’ without some form of express collusion, however

depiction, writers do not speak directly in these terms, for the paradox of proof is only occasionally recognized and it has never been analyzed in the manner done here. Instead, what one finds are strong statements regarding the difficulty of any real success at oligopolistic coordination in the absence of fairly explicit means of communication, that is, acts in the set X, even if that set is defined rather narrowly. (A number deem instances of successful pure interdependence to be “rare.”) There does not, however, exist empirical evidence that bears directly on the validity of this characterization¹⁹³—or on others, such as one

collateral, is a rare case, perhaps almost academic.”); POSNER, ANTITRUST, *supra* note 2, at 66–69; Posner, *Oligopoly*, *supra* note 2, at 1574 (“[I]t seems improbable that prices could long be maintained above cost in a market, even a highly oligopolistic one, without some explicit acts of communication and implementation. One can, to be sure, specify an extreme case in which such acts might be unnecessary. No more than three sellers selling a completely standardized product to a multitude of buyers (none large) should be able to maintain the joint maximizing price without explicit collusion. However, not many industries resemble this model.”); *id.* at 1575; Richard A. Posner, *Oligopolistic Pricing Suits, the Sherman Act, and Economic Welfare: A Reply to Professor Markovits*, 28 STAN. L. REV. 903, 904 (1976) (referring to the fact that “one can imagine a group of sellers able to collude without any overt contact or communication” but asserting that “[s]uch a case is probably rare”); Turner, *supra* note 30, at 665 (“[S]ome finite minimum of explicit communication, at some time, is involved.” (quoting Carl Kaysen, *Collusion Under the Sherman Act*, 65 Q.J. ECON. 263, 268–69 (1951))); *id.* at 672–73; Werden, *supra* note 47, at 762–63 (“it is far less clear that unspoken agreements are a significant phenomenon”; for a “considerable time . . . a widely held view . . . is that ‘coordination cannot be simply spontaneous’” (quoting Kenneth G. Elzinga, *New Developments on the Cartel Front*, 29 ANTITRUST BULL. 3, 25 (1984))); WHINSTON, *supra* note 24, at 26 (“[M]ost economists are not bothered . . . perhaps because they believe (as I do) that direct communication (and especially face-to-face communication) often will matter for achieving cooperation . . .”). In *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 727 (1988) (a vertical price-fixing case), the Supreme Court stated: “Cartels are neither easy to form nor easy to maintain. Uncertainty over the terms of the cartel, particularly the prices to be charged in the future, obstructs both formation and adherence by making cheating easier.” Such a view is inconsistent with a wide paradox region, that is, a wide range of circumstances in which collusion can be successful without fairly explicit communications. There is, however, the caveat that, because authors do not ordinarily define their terms—such as express agreement, talking, explicit communication, and so forth—or the legal standard (the content of X and XN) with any precision, there is substantial ambiguity in what any of these claims mean and how they bear on the breadth of the paradox region. Moreover, the empirical basis for such views is uncertain, particularly because the means employed are not ordinarily observed unless there is a successful prosecution or a legal, publically operating cartel.

Commentary on EU competition law also includes similar suggestions. See Damien J. Neven, “Collusion” Under Article 81 and the Merger Regulation, in KONKURRENSVERKET, SWEDISH COMPETITION AUTHORITY, FIGHTING CARTELS—WHY AND HOW? 56, 57 (2001) (“We review what the economic literature, and in particular the literature in experimental economics, has to say on the matter. We find few reasons to think that collusion is ‘easy’ to undertake without extensive ‘concertation’ between firms.”). Atypically, Neven does provide an empirical basis for his conclusion, namely, experimental evidence on cooperation in games. “The literature on economic experiments thus does not seem to support the presumption that collusion is ‘easy’ without communication. In addition, it is found that if communication improves the scope for collusion, its effect is not dramatic unless the environment is very simple . . .” *Id.* at 66.

193. The closest is probably offered by studies of litigated (mostly government prosecuted) cases. See, e.g., JOHN M. CONNOR, GLOBAL PRICE FIXING (2d upd. & rev. ed. 2008); John M. Connor, *Price-Fixing Overcharges: Legal and Economic Evidence*, 22 RES. L. & ECON. 59 (2007); Joseph E. Harrington, Jr., *How Do Cartels Operate?*, 2 FOUND. & TRENDS IN

under which successful coordination is so easy that one would virtually never find liability when the ease of coordination was at least moderate.

This state of affairs is quite surprising. Most of the commentators who implicitly assert conditions suggesting an almost nonexistent paradox region also insist that the law does not and should not make successful interdependent oligopolistic coordination a basis for liability.¹⁹⁴ But, as just explained, there is little difference in practice between such a rule and one carefully delineating a set X when one should virtually always infer the use of acts in X when successful coordination is demonstrated. Why is there so much insistence on using one rule over another if they differ so little? And, perhaps even more surprising, why might it be thought that the more restrictive rule would filter out a substantial number of cases, especially at the pleading or summary judgment stages, as is often supposed? After all, if there is basis for supporting oligopolistic interdependence, then sufficiently great ease of coordination is powerful evidence of agreement (defined as more limited than interdependence); only in exceptional cases should an agreement not be found to exist.¹⁹⁵

MICROECONOMICS 1 (2006); George A. Hay & Daniel Kelley, *An Empirical Survey of Price-Fixing Conspiracies*, 17 J.L. & ECON. 13 (1974). In these cases, there typically were highly explicit communications among the defendants, the industries tended to be concentrated and otherwise quite conducive to coordination, and oligopolistic pricing was generally achieved. From this, one might infer that coordination is indeed rarely if ever so easy that it can be accomplished without highly explicit interactions. See, e.g., Hay & Kelley, *supra*, at 23–24 (“Despite the writings of Stigler and Posner, it has frequently been assumed that conspiracy would be largely restricted to relatively unconcentrated industries, since high concentration would permit extensive non-collusive coordination through what has been termed ‘conscious parallelism.’ . . . The results of the present study however, suggest that the low cost of planning and enforcing a conspiracy and the smaller likelihood of being caught in concentrated markets, are equally if not more significant factors in stimulating conspiracy.”); *id.* at 26–27 (“We suspect these results will conflict with at least some previously held opinions on the expected locus of conspiracy, and conversely on the ability of oligopolists to regularly attain monopoly profits through tacit collusion.”); Motta, *supra* note 24, at 318 (supporting his claim, previously quoted in note 192, by the observation: “After all, firms have known for a long time that they can sustain collusion without express agreements and yet agencies keep on uncovering documental evidence of meetings and communication among firms’ managers. This observation somehow reduces the importance of the question of how to treat tacit collusion, and refocuses our attention on the issue of how to break and deter cartels (i.e., explicit collusion).”). Nevertheless, one should be cautious because the universe of unprosecuted cases could be quite large and its characteristics are unknown; those who were caught may be an unrepresentative subset, and unsurprisingly (given the fact of detection and successful prosecution) one in which frequent explicit communications were present.

194. Posner, whose academic writing favors reaching successful interdependent oligopoly pricing, has a different take. “Anyway there probably are few cases of purely tacit collusion. What is being proposed is less the alteration of the substantive contours of the law than a change in evidentiary requirements to permit illegal price fixing to be found in circumstances in which an actual meeting of the minds on a noncompetitive price can be inferred even though explicit collusion cannot be proved. In most of these cases there will be explicit although well-concealed collusion that can certainly be deterred by threat of punishment.” POSNER, ANTITRUST, *supra* note 2, at 97–98.

195. For example, *Twombly* was quoted in Subsection B.2 for the proposition that the plaintiff’s evidence must “tend to rule out the possibility” of action not based on agreement, but if the plaintiff’s evidence of oligopolistic behavior renders that possibility remote (even if agreement

Second, the small actual difference in outcomes would seem, on its face, to favor the interdependence rule, for the divergence involves only the cases posing the most extreme danger (a subject taken up further in Section IV.C).¹⁹⁶

A related difficulty is that no sensible view on the likelihood of the use of at least some acts in X for a given degree of ease of coordination (and other types of evidence) can be formulated without specifying the content of the law with some precision—that is, stating which acts are deemed to be in X rather than XN.¹⁹⁷ Yet, as is apparent from the rest of this Article, neither courts nor commentators offer anything close to a canonical definition of agreement; they give little operational clue as to what the law currently is or is advocated to be. Accordingly, it is hard to know how courts, juries (instructed as described in Subsection 3), or commentators reach their conclusions about the existence of an agreement in particular cases or in hypothetical examples (if the requisite inference process is thoughtfully employed). Furthermore, even regarding many statements confined to the probative value of particular pieces of evidence, it is difficult to make sense of such claims because, as we have seen, many sorts of evidence could cut in favor of either outcome. Hence, if an agreement requirement more restrictive than interdependence is taken seriously, working out its practical implications requires substantial further effort. Equally important, it requires subtle empirical evidence on the likelihood of the use of acts in X (however that set is defined) for different degrees of ease of coordination in different settings, which seems by its nature extremely difficult to obtain.

is defined narrowly), it a fortiori “tend[s] to rule [it] out.” Interestingly, part of the rationale of *Matsushita* is that lower courts are directed to be more cautious about allowing cases to proceed when the plaintiff’s theory is less economically plausible. This thrust renders ironic an agreement requirement more stringent than interdependence because, as explained with regard to the paradox of proof, such a requirement tends to screen out cases with the greatest danger of oligopolistic coordination. Indeed, plaintiffs will often need to argue that defendants’ coordinated oligopoly pricing is less, not more, economically plausible in order to prevail. Thus, *Matsushita*, which is embraced by *Twombly*, seems to oppose the conventional interpretation of Section 1’s agreement requirement.

196. A further implication of the analysis of the paradox of proof is to make it difficult to sustain the view that fact-finding will be less economically complex and more reliable if the law employs a concept of agreement more restrictive than interdependence.

197. It should be apparent that the level of enforcement will matter as well. Notably, the argument that acts in X would not be employed in various circumstances involves deterrence logic, and deterrence depends on the probability and magnitude of sanctions in addition to ascertaining which acts are subject to the prohibition. Furthermore, which acts firms would use, taking as given sets X and XN, will also depend on what inferences fact-finders are expected to make. To suggest the complexity of the problem, if indeed fact-finders never infer the use of acts in X when the ease of coordination is sufficiently high, then firms may well find it rational to use acts in X after all, which would negate the logic underlying the initial inference. See *supra* page 746; Kaplow, *supra* note 93, § 3.4.6.

E. On the Meaning of the Law

Section C, on the lower courts, indicates that the difficulties and ambiguities related to the Supreme Court's pronouncements on the agreement requirement have not been resolved. Moreover, along a number of dimensions, including the paradox of proof explained in Section D, the conventional view of the agreement requirement seems inconsistent with how the legal system actually functions. This Section comments on the resulting tension and juxtaposes the foregoing with other indicators of the law in action.

To start, it is helpful to consider different senses in which one could identify what is the law of horizontal agreement. One could read the statute (section A). One could examine commentary. One could look to courts, which examination might encompass canonical statements (of the sort discussed in Section B on Supreme Court pronouncements), the actual decisionmaking of intermediate appellate courts (Subsection C.2) or of trial courts in granting motions to dismiss or for summary judgment, the instructions given to fact-finders (juries, Subsection C.3), actual liability determinations (allowing for the possibility that fact-finders may deviate from legal commands), and the assessment of damages (Subsection C.4). Relatedly, one could also consider the behavior of firms and their lawyers as well as plaintiffs (including prosecutors) and defendants in the conduct of litigation with regard to the types of allegations, arguments, and evidence they typically present.

Regarding the latter, it seems that, even in the simplest setting regarding the paradox of proof (see Section D), what we typically see is not in accord with what the paradox-of-proof logic predicts. Consider a plaintiff whose allegations and proof consist solely of two points: pricing exhibits oligopolistic coordination, and collusion is very difficult in the particular industry (in the absence of requisite communications). As explained, this may imply that the existence of an agreement (defined in whatever fashion is deemed appropriate) is more likely than not. Indeed, such allegations would seem to constitute a standard case built on circumstantial evidence, just as the negation of the second point is increasingly taken to be a standard defense. Yet it is hardly clear that plaintiffs' cases, beginning with their complaints, typically take this approach. Furthermore, suppose that one accepts the common conjecture mentioned in Section D that implies the rarity of cases in which interdependence alone is sufficient for successful coordination. Then a plaintiff's claim would be provisionally likely even if all that the plaintiff alleges is the existence of coordinated oligopolistic pricing. After all, such is presumed typically to be difficult if not impossible absent the requisite communications. But such a case, rather than being routinely accepted, seems to generate skepticism or even derision from courts and commentators, which logically contradicts the notion that the law is what it is often stated to be.¹⁹⁸

198. Consider also the most straightforward defense that relies on the logic of the paradox

Two observations are apparent. First, as already noted with regard to certain perspectives, what is taken in various settings to be the standard of horizontal agreement may vary, possibly substantially. Second, most of the answers implicit in what we observe in these contexts contradict the logical implications regarding the paradox of proof. The paradox of proof involves more than the possible existence of a counterintuitive inference in one type of setting. Rather, conflicts may be widespread, and much of the inference process is at odds with what is generally taken to be the statements and operations of most components of the relevant legal environment.

As already suggested at many points in this Part, the legal system broadly operates in many respects as if the legal definition of agreement is akin to successful interdependent oligopoly pricing. As Section C explains, from this perspective lower courts' use of plus factors would make sense, jury instructions would reflect the state of the law, and damages determinations would be consistent with the rules governing liability. Regarding the paradox of proof in Section D, the strange and complex inferences that do not seem to be indulged would no longer arise under an interdependence standard for agreement. By contrast, the more restrictive understanding of the horizontal agreement requirement that is commonly advanced seems to describe the actual law in at most a limited and formal sense: it reflects what many assert the law to be.¹⁹⁹

of proof. Why don't defendants frequently, beginning with their answers to complaints and running through to closing arguments before a fact-finder, argue roughly as follows: "We have been charging a monopoly price for years and expect to do so forever after. We have no price wars, no discord. It's just incredibly simple given how conducive are our industry conditions. Moreover, we all have key employees and consultants trained at the same business schools and who attend the same conferences. They use a well-known playbook, so coordinated behavior is easy as pie." See Kaplow & Shapiro, *supra* note 5, at 1126–28; see also ELHAUGE & GERADIN, *supra* note 129, at 836 ("To this day, one does not see firms proudly proclaiming that they are engaged in oligopolistic coordination. To the contrary, they tend to deny it . . . even in cases where acknowledging it would support their claims."). One possibility is that defendants fear that fact-finders and legal decisionmakers would be prejudiced, see Baker, *supra* note 54, at 190 n.95, in which case the law arguably is closer de facto to a successful interdependence standard. Another is that, conditional on losing liability, defendants fear higher damages. However, the analysis of Subsection C.4 indicates that damages should approach zero in this case, even if a plaintiff can show that some employee slipped and engaged in forbidden communication—again, unless the damages rule is more consistent with a liability standard that de facto prohibits interdependence. Yet another explanation is that defendants and their lawyers do not believe that the rule thus excuses successful coordinated oligopoly pricing when it is so readily accomplished, despite assertions that the law is otherwise. Finally, they may find such a defense to be one that would lose on the facts; that is, they expect a persuasive plaintiff's rebuttal proving that effective coordination is sufficiently difficult that it requires the use of prohibited communications. (Perhaps they reserve the paradox-based argument for legal briefs, when it is more difficult for a plaintiff to mount a factual response.) Observe that, if the law is indeed such that the paradox of proof strongly holds and if, moreover, defendants are reluctant to take strategic advantage of what it offers them, then we might expect plaintiffs to be even more aggressive in advancing from the outset the sort of argument sketched in the text.

199. Going forward, however, one could speculate that everything will change greatly in light of *Twombly*. Such an argument would take an aggressive interpretation of that decision, emphasizing that because the plaintiffs obviously did allege what seems to be required, the

One consequence is that, if one wished the law in action to implement a more restrictive notion of agreement, fairly substantial reform would be required.

The reason for this state of affairs has been noted at a number of points. If the agreement requirement rests only on interdependence or successful interdependence, it is sufficient to assess market conditions (itself a formidable task). However, if more is required to establish an agreement, then it is necessary to make inferences about whether the firms' meeting of the minds was achieved by some means (acts in X) rather than others (acts solely in XN). Because the means employed cannot directly be observed—we are considering cases in which circumstantial evidence is important—and because there are so many sorts of means whose functionality varies greatly by context and in ways that are difficult for fact-finders to appreciate, it should not be surprising that requiring this distinction to be made poses tremendous challenges. We have little idea how much communication is required and even less of what means were employed to accomplish it when the most that we can observe (absent direct evidence) is whether the defendants were successful. Recall also that the variety, complexity, and flexibility of means of communication complicate the very effort to articulate a definition of agreement in the first instance.

A complete assessment of the law in action requires that one also look beyond adjudication to the law's everyday influence in the regulated world. First, legal counselors advise their clients on what sorts of behavior are legally prudent. Interestingly, some practitioners warn clients against types of behavior that many academic commentators assert do not give rise to liability; much

outcome implicitly adopts a far stricter rule than meets the eye. Specifically, one could assert that the new doctrine is not far from a regime in which no proof by circumstantial evidence is permitted, which would render irrelevant the inference process involved in the paradox of proof. A complicating factor, noted in Subsection C.1, is that much so-called direct evidence is ambiguous or otherwise suspect, raising again the need to make inferences from circumstantial evidence. Note also that, under this aggressive interpretation of *Twombly*, private suits that are not follow-ons to successful government prosecutions would perhaps be almost entirely eliminated, for a plaintiff would have to state, before any discovery, such particulars as exactly what words were said to whom by various of the defendants. With informants, public confessions, or crystal balls, this would be possible, but it is hard to see how one could otherwise make the necessary allegations if direct evidence is demanded. *See also supra* note 143 (further discussing how *Twombly*'s requirements might be met if agreement is defined narrowly). Regardless of the wisdom of such a regime (a subject not considered in this Article), it should be noted that it would be a radical departure from the long-established and uncontroversial blackletter law of conspiracy generally and antitrust in particular that circumstantial evidence may be used to prove the existence of a conspiracy. *See supra* notes 152–53; *see also* 2 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW 84–85 (3d ed. 2007) (“Discovery is most clearly required when the key facts supporting a claim are peculiarly within the other party’s knowledge. Because conspiracies, for instance, are usually concealed, conjecture may be inescapable until after the discovery process.” (interestingly, this passage was published after *Twombly* and begins on the same page in which *Twombly* is cited, although the decision is not mentioned with regard to the quoted point; of further interest, the Supreme Court in *Twombly*, although citing the Areeda and Hovenkamp treatise as authoritative on another point, *see supra* note 141, did not reference this highly relevant passage, which also appears verbatim in the prior, pre-*Twombly* edition, 2 PHILLIP E. AREEDA, HERBERT HOVENKAMP & ROGER D. BLAIR, ANTITRUST LAW 67–68 (2d ed. 2000))).

advice seems to operate on the assumption that purely interdependent behavior is legally risky.²⁰⁰

Second, it is important to inquire into the beliefs and practices of firms in the marketplace who are the real audience for the law because the purpose of the price-fixing prohibition is to deter undesirable behavior. It may be difficult to ascertain directly what firms generally believe. One plausible conjecture is that firms' views are in part a product of the just-mentioned advice from their lawyers. Additionally, some managers may have absorbed lessons about the legal risks of various strategies in business school. The advice offered by competitive strategy texts is rather mixed in this regard.²⁰¹

200. See, e.g., ABA SECTION OF ANTITRUST LAW, ANTITRUST COMPLIANCE: PERSPECTIVES AND RESOURCES FOR CORPORATE COUNSELORS 66 (2005) (agreements include "written agreements, verbal agreements and even tacit understandings that are reached through a course of conduct or other form of communication"); Office of the General Counsel, DaimlerChrysler Corporation, *Corporate Guide for Antitrust Compliance, in id.*, Manual 2, at 4 ("An agreement need not be written or even spoken," it "may be inferred from the conduct of the parties without showing any direct meeting of the minds," and, "[f]or example, if one company's executives tell a newspaper reporter that they would like to stop giving discounts if their competitors would, the story is printed, and all competitors then simultaneously announce they are dropping their discount programs, this may be seen as an illegal agreement . . ."); Jeffrey L. Kessler & Ronald C. Wheeler, *An Old Theory Gets New Life: How to Price Without Being a "Price Signaler,"* ANTITRUST, Summer 1993, at 26 (warning against anticompetitive price signaling, including through advance public pricing announcements, describing press releases and interviews as dangerous, and suggesting that such behavior in concentrated industries is particularly suspect); John Q. Lawyer (pseudonym), *How to Conspire to Fix Prices*, 41 HARV. BUS. REV. 95, 98 (March–April 1963) (in advising the use of less explicit forms of interdependence, offers the rule: "Conscious parallelism may be illegal, but it is certainly not as illegal as conspiring. Moreover, it is hard to prove."); RMA Antitrust Guidelines, RISK MGMT. ASS'N, http://www.rmahq.org/RMA/RMAUniversity/KnowledgeandTrainingCenter/KnowledgeCenter/PeerSharingEvents/RoundTables/antitrust_guidelines.htm (last visited Nov. 22, 2010) ("An anticompetitive agreement need not be formal or even express and can be proven by circumstantial evidence. Thus, if such circumstances as the exchange of pricing plans permit the inference of a tacit understanding to 'act in concert' or 'follow the leader,' a jury may be allowed to find intentional violation of the law."); see also TEFFT W. SMITH, KIRKLAND & ELLIS LLP: A BUSINESSPERSON'S GUIDE TO THE ANTITRUST IMPLICATIONS OF MERGERS, ACQUISITIONS, JOINT VENTURES, AND STRATEGIC ALLIANCES 6 (2005), available at http://www.kirkland.com/siteFiles/kirkexp/publications/2354/Document1/Business_persons_guide.pdf (in addressing "What Is An 'Agreement' Among Competitors?," states that agreements in antitrust law are referred to using terms that include "understanding," "meeting of the minds," and "common scheme"; that they "need not be expressly stated" and "may be found to exist with no actual offer or acceptance"; and that they "may be proven entirely by indirect or 'circumstantial' evidence"); *AntiTrust [sic] Guidelines*, INT'L TITANIUM ASS'N, <http://www.titanium.org/Category.cfm?CategoryID=161> (last visited Nov. 22, 2010) ("'Agreements' on such matters are not limited to written documents, and also include informal, unwritten, and even unspoken agreements or understandings."); see also ANTITRUST DIV., U.S. DEP'T OF JUSTICE, *supra* note 155, at 1–2 ("Proving such a crime does not require us to show the conspirators entered into a formal written or express agreement.").

201. See, e.g., DRANOVE & MARCIANO, *supra* note 81, at 119 (suggesting, shockingly, that: "Firms may . . . privately voice that if their rivals toe the line, they will, too. (Public utterances of that sort would be blatant violations of antitrust law.)"); *id.* at 138–39 (advising price leadership as the best example of a facilitating device, but warning that "when a preannouncement has no obvious benefit for customers, antitrust agencies are sure to take a close

The best source of information on what firms believe, however, is probably what they do—and refrain from doing. On one hand, the use of price signs by adjacent gasoline stations depicted in Subsection I.A.1 is routine. On the other hand, detailed discussions about prices and other terms of competition via press conferences, with carefully lawyered language and so forth, seem to be rare. In the *Airline Tariff* case (mentioned in Subsection II.B.3), airlines went to great efforts to hide such signaling, were the subject of an investigation, and ultimately agreed to cease the practices in question. One might ask why behave secretly, why settle, and why not subsequently resume detailed negotiations, so to speak, in public view. Nor is it common before a secret-bid auction for a firm to suggest publicly what its bid will be, with other firms responding in kind.²⁰² One might wonder why price signs, like those used by gasoline stations, are not widely used as signaling devices. One might say that the price postings in *Airline Tariff* had this character, but that was

look”); *id.* at 143–44 (offering a list of do’s and don’t’s); PORTER, *supra* note 81, chs. 4, 5 (in an extensive discussion of market signals and competitive moves, offers the only mention of antitrust liability in a footnote (at 100 n.6), which warns: “Nevertheless, some modes of signaling and establishing commitments are under review by the U.S. antitrust authorities because of the concern that they may be effective in leading to tacit collusion in industries. Although this interpretation is novel and unproven, managers must be aware of its existence.”); GARTH SALONER, ANDREA SHEPARD & JOEL PODOLNY, STRATEGIC MANAGEMENT 206–07, 211–13 (2001) (offering examples of sequential price announcements in the steel and airlines industries and discussing the ambiguity of antitrust law’s agreement requirement); Luis Garicano & Robert Gertner, *The Dynamics of Price Competition*, in FINANCIAL TIMES, MASTERING STRATEGY 39, 45 (2000) (in discussing “attempts to create market segmentation, commitments to published price lists, advanced announcement of price changes, and price leadership” cautions that: “The antitrust treatment of such actions is very complex, so none of them should be taken as a strategic recommendation by the authors.”); Heil, Day & Reibstein, *supra* note 81, at 285–86 (“Companies don’t have the option of saying to competitors: ‘I’m raising my price, and if you follow, we can all enjoy higher margins.’ Instead, they must simply raise the price and hope the competitor interprets the move properly.”); see also Robert A. Garda & Michael V. Marn, *Price Wars: No-Nonsense Advice on How to Avoid the Death Spiral of Permanently Lost Profit, Declining Value, and Heightened Price Sensitivity*, MCKINSEY Q., no. 3, 1993, at 87, 97 (“But, of course, do not ‘price signal’ to your competitors. There are laws against it. But if you find yourself taking actions that might be construed by your competitors as price slashing, it is proper to include in your normal price communications to the market a clear description of all qualifiers and limitations and, in some circumstances, an explanation of your action—for instance, ‘This price will remain in force until our inventory of obsolete goods is exhausted.’”).

202. Indeed, as explained in note 155, such a public announcement may be a clever defense tactic if firms are actually discussing bid prices secretly, for the public statement of the agreed-upon bid would negate the inference that identical sealed bids could only have been the product of secret discussions. More broadly, any coincidences that prospective defendants are worried might look excessively suspicious and thus be evidence of conspiracy might be “explained” by appropriate unilateral public statements. If such statements are clearly legal, then, there is all the more reason we should see them. There is the caveat that this cleverness can be reversed, by a plaintiff arguing that the unilateral statement is suggestive of secret meetings. But if one is inclined to suppose that interdependence alone (where alone is now understood to include quite a bit of public give and take) can explain successful oligopolistic coordination, absent strong evidence of the use of prohibited acts (those in set X), and if accordingly such public signaling was widespread, it would no longer be true that one could infer from such statements the existence of secret meetings.

exceptional and is not ongoing. Perhaps gasoline stations cannot help but post their prices in such communicative ways, so it is understood to be allowed, whereas anything more contrived is thought to be legally dangerous. Put another way, firms might perceive the set X of prohibited acts very broadly, or at the least be worried that many acts in the set XN are sufficiently likely to be classified as belonging to set X that they too are overly risky. In sum, observed behavior seems to be much more cautious than one might expect if a wide swath of public comment and signaling was generally regarded to be plainly legal.²⁰³

F. EU Article 101

It is typical of competition policy regulation throughout the world that price-fixing and related agreements are illegal, so the question of what constitutes such an agreement is hardly confined to the United States. Therefore, it is natural to inquire whether the challenges in defining horizontal agreement are unique to Sherman Act Section 1 or rather are pervasive. It seems fairly clear that the latter is and, indeed, must be the case—that is, if the law attempts to limit the price-fixing prohibition to a narrower class of arrangements than all those involving successful interdependence. After all, the difficulty is not just with the statutory language; the term agreement, not even in the statute, and the other concepts examined in Part II are elusive. The difficulty of dealing with the sorts of examples presented in Section I.A does not arise on account of legal authorities and commentators being confined in their answers and rationalizations to a handful of particular terms in the English language.²⁰⁴ Thus, it seems likely that a careful analysis of other laws' provisions is likely to reveal similar problems (if agreements require more than interdependence). U.S. law is the focus in this Article for concreteness and because of the author's familiarity. It is useful, nevertheless, to test the hypothesis of similarity by considering other jurisdictions. Here, attention will be confined to a brief examination of the most closely corresponding provision in the law of the European Union.²⁰⁵

Article 101(1) (formerly 81(1)) covers “all agreements between undertakings, decisions by associations of undertakings and concerted

203. Likewise, if all such behavior was widely believed to be legally unproblematic, we might expect to see far fewer price-fixing prosecutions with secret meetings. Why risk treble damages and time in prison if one can be protected by moving one's discussions into the open? Although some of the explanation could be that pressure, political or otherwise, might be expected to follow, given the large gains it seems we should see substantially more of such activity, even if it is less than completely detailed.

204. Indeed, a hypothetical involving gasoline stations (but now “petrol” stations) is used to illustrate the challenge in Gerwin van Gerven & Edurne Navarro Varona, *The Wood Pulp Case and the Future of Concerted Practices*, 31 COMMON MKT. L. REV. 575, 577–78 (1994).

205. It has been remarked that “on both sides of the Atlantic [i.e., in both the United States and European Union], the conclusions drawn about this distinction [between parallel separate action and agreement/concerted action] in the cases often seem obscure or conclusory.” ELHAUGE & GERADIN, *supra* note 129, at 801.

practices . . . which have as their object or effect the prevention, restriction or distortion of competition,” including “in particular those which: (a) directly or indirectly fix purchase or selling prices or any other trading conditions.”²⁰⁶ Article 101(1), like Sherman Act Section 1, offers a trilogy of overlapping categories.²⁰⁷ Interestingly, the first is “agreements,” the term used to refer to

206. Consolidated Version of the Treaty on the Functioning of the European Union art. 101(1), Jan. 5, 2008, 2008 O.J. (C 115) 88. If firms’ relationship does not fit any of the categories, there remains the question of whether their behavior may be reached under Article 102 (formerly 82), which covers “[a]ny abuse by one or more undertakings of a dominant position,” where the named abuses include “directly or indirectly imposing unfair purchase or selling prices.” *Id.* art. 102. (By contrast, Sherman Act Section 2 is understood not to reach elevated prices charged by a dominant firm.) The European Court of Justice articulated the concept of collective dominance as requiring “that from an economic point of view [the firms] present themselves or act together on a particular market as a collective entity.” Joined Cases C-395/96 P & C-396/96 P, *Compagnie Maritime Belge Transports SA v. Comm’n*, 2000 E.C.R. I-01365 ¶ 36. It elaborated that “the existence of an agreement or of other links in law is not indispensable to a finding of a collective dominant position; such a finding may be based on other connecting factors and would depend on an economic assessment and, in particular, on an assessment of the structure of the market in question.” *Id.* ¶ 45. The 2002 decision of the Court of First Instance in Case T-342/99, *Airtours PLC v. Comm’n*, 2002 E.C.R. II-02585, as well as discussions in certain previous cases, suggests that successful interdependent oligopoly behavior is reached by Article 102. The case involved a merger, and the Court overturned the Commission’s prohibition; however, its reasoning was that the collective dominance standard was not met on the facts because the market was not one sufficiently conducive to successful and sustained oligopoly pricing. *See, e.g.*, SIGRID STROUX, US AND EC OLIGOPOLY CONTROL 109–10, 114–15 (2004) (suggesting that the *Compagnie Maritime Belge* decision and other sources do seem to support application of Article 102 to oligopolistic interdependence, but questioning the wisdom of this approach); RICHARD WHISH, COMPETITION LAW 564 (6th ed. 2009); Albertina Albors-Llorens, *Collective Dominance in EC Competition Law: Trojan Horse or Useful Tool?*, in 5 THE CAMBRIDGE YEARBOOK OF EUROPEAN LEGAL STUDIES 151, 166–68 (John Bell, Alan Dashwood, John Spencer & Angela Ward eds., 2004); *see also* DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses ¶¶ 46–47 (2005) (“However, the existence of an agreement or of other links in law is not indispensable to a finding of a collective dominant position. Such a finding may be based on other connecting factors and depends on an economic assessment and, in particular, on an assessment of the structure of the market in question. . . . Undertakings in oligopolistic markets may sometimes be able to raise prices substantially above the competitive level without having recourse to any explicit agreement or concerted practice. . . . Indeed, they may be able to coordinate their behaviour on the market by observing and reacting to each other’s behaviour. In other words, they may be able to adopt a common strategy that allows them to present themselves or act together as a collective entity.”). *But see* Barry E. Hawk & Giorgio A. Motta, *Oligopolies and Collective Dominance: A Solution in Search of a Problem*, in ANTITRUST BETWEEN EC LAW AND NATIONAL LAW 59, 87–94 (Enrico A. Raffaelli ed., 2009) (arguing that the Commission and courts would not treat oligopolistic interdependence as collective dominance). To the extent that Article 102 does cover interdependence that effectively sustains joint profit maximization, limitations on the ability to reach successful coordinated oligopolistic pricing under Article 101(1) may largely be moot.

207. As discussed in Subsection A.1 with regard to Sherman Act Section 1’s trilogy, it is tempting to interpret the overlapping categories in Article 101(1) as an all-encompassing directive meaning “in any way, shape, or form.” In fact, perhaps reflecting civil law traditions of statutory interpretation, EU legal authorities give each term or phrase its own construction—although nothing turns on the distinction and “in cartel cases the Commission often states that there is an agreement or a concerted practice, without actually deciding which.” IVO VAN BAELE & JEAN-FRANCOIS BELLIS, COMPETITION LAW OF THE EUROPEAN COMMUNITY 61 (4th ed. 2005).

the requirement under U.S. law even though the term does not actually appear in the U.S. statute. Use of this term, in turn, raises all the problems of interpretation considered thus far. One statement of agreement's meaning under Article 101(1) is that "[a]ll that seems to be required . . . is some form of consensus between two or more undertakings—also referred to as a 'meeting between minds' or a 'concurrence of wills,'"²⁰⁸ an interpretation that appears to be quite broad, embracing pure interdependence. The second category, "decisions by associations of undertakings," is generally regarded to refer primarily to acts of trade associations.²⁰⁹

The third branch, "concerted practices," is (like "agreements") potentially quite expansive, and many of the most important rulings regarding oligopoly behavior have centered here. In *Dyestuffs*, the European Court of Justice stated that this provision brings within the prohibition "a form of coordination . . . which . . . knowingly substitutes practical cooperation between [undertakings] for the risks of competition. By its very nature, then, a concerted practice . . . may *inter alia* arise out of coordination which becomes apparent from the behaviour of the participants."²¹⁰ The emphasis on cooperation rather than competition and the notion that a concerted practice may be inferred from behavior might seem to suggest that interdependent oligopoly behavior (without more) is covered by the prohibition. The Court elaborates the conditions in the *Sugar Cartel* case:

The criteria of coordination and cooperation . . . must be understood in the light of the concept . . . that each economic operator must determine independently the policy which he intends to adopt Although it is correct to say that this requirement of independence does not deprive economic operators of the right to adapt themselves intelligently to the existing and anticipated conduct of their competitors, it does however strictly preclude any direct or indirect contact between such operators, the object or effect whereof is either to influence the conduct on the market of an actual or potential competitor or to disclose to such a competitor the course of conduct which they themselves have decided to adopt or contemplate adopting on the market.²¹¹

The Court later states that the firms had violated this prohibition "because they knowingly substituted for the risks of competition practical cooperation

However, especially given the open-ended nature of the third category, concerted practices, this approach need not imply a limitation on the breadth with which Article 101(1) may be interpreted.

208. MAHER M. DABBAH, EC AND UK COMPETITION LAW 59 (2004) (citing Case T-208/01, Volkswagen AG v. Comm'n, 2003 E.C.R. II-05141).

209. See, e.g., *id.* at 69.

210. Case 48-69, Imperial Chem. Indus. Ltd. v. Comm'n, 1972 E.C.R. 00619 ¶¶ 64, 65.

211. Joined Cases 40-48, 50, 54-56, 111, 113, 114-73, Suiker Unie v. Comm'n, 1975 E.C.R. 1663 ¶¶ 173, 174.

between them, which culminated in a situation which did not correspond to the normal conditions of the market.”²¹²

This final statement bears some resemblance to that offered by the U.S. Supreme Court in *Monsanto* and *Matsushita* in placing emphasis on whether behavior is independent and interprets such behavior as contrasting with that which displaces competition. Accordingly, the problem of the multiple meanings of the term independent is presented, and use of the link to competition may be seen as favoring the narrower meaning, excluding interdependence, as discussed in Subsections I.B.1 and I.B.5. On the other hand, there is also language stating that it is permissible to adapt intelligently to the anticipated conduct of competitors, which might be taken to allow interdependent oligopolistic behavior. Under this interpretation, the risks of competition include oligopoly behavior that is normal under the circumstances. This formulation has a question-begging aspect because in many markets elaborate cartel arrangements would be normal if they were not illegal. Perhaps the line is drawn by the Court’s statement that the statute does “strictly preclude any direct or indirect contact [that can] influence the conduct . . . of competitor[s] or . . . disclose to . . . competitor[s] [an actor’s] course of conduct.”²¹³ This statement seems like a prohibition on some communications, but which ones are covered is hard to say. Including “indirect” means could encompass just about anything, as the discussion in Section II.B indicates. Furthermore, disclosing conduct that a firm has decided to adopt covers readily even an announcement of one’s current price, which would be broad indeed.

Further amplification is provided by the European Court of Justice’s subsequent decision in *Woodpulp II*, which involved, among other practices, advance price announcements.²¹⁴ It holds that oligopoly behavior does not establish the use of concerted practices unless, given the nature of the market, the behavior cannot be explained other than by concerted behavior.²¹⁵ This rule is in an important sense an empty truism, begging the question of what constitutes a concerted practice under Article 101(1). The Court’s discussion of

212. *Id.* ¶ 191.

213. Commentators have struggled with how the rule might be formulated. For example, one commentator, after depicting the European Union as tolerant of interdependent behavior, proceeds to explain that “what is severely prohibited is to directly or indirectly liaise with undertakings with the object of influencing the market conduct of actual or potential competitors or to communicate one’s own market conduct to such competitors.” Hanno Wollmann, *Horizontal Restraints of Competition*, in *COMPETITION LAW: EUROPEAN COMMUNITY PRACTICE AND PROCEDURE* 492, 501 (Günther Hirsch, Frank Montag & Franz Jürgen Säcker eds., 2008). When we reflect on the fact that liaise means to establish mutual understanding and cooperation or interrelationship, we have that interdependence alone is legal but interrelationship is harshly punished, which is certainly no more illuminating than the semantics often used to describe U.S. law (if it is taken to allow interdependence).

214. Joined Cases C-89, 104, 114, 116-117, 125-129/85, A Åhlström Osakeyhtiö v. Comm’n, 1993 E.C.R. I-1307.

215. *See id.* ¶ 71 (“[P]arallel conduct cannot be regarded as furnishing proof of concertation unless concertation constitutes the only plausible explanation for such conduct.”).

the facts, however, indicates that it intends to exclude interdependent oligopolistic behavior in the absence of what it called “artificial” modifications to the market.²¹⁶ Advance price announcements were deemed to be favorable to buyers in light of their need to plan.²¹⁷ It was suggested that the concentrated large buyers contributed to the ease of coordinated oligopoly pricing by sellers because such buyers readily shared price information with each other and with sellers. Additionally, some sellers were also involved in production at the next stage and thus were also buyers and, in that capacity, could learn from the other sellers about their prices. And there were agents who worked for multiple firms and thus could be seen as another conduit for rapid sharing of price information among sellers.

In a sense, the *Woodpulp II* decision adds much clarification because one might view so many of the cited facts as favorable to liability. It is widely known that concentrated buyers placing large orders makes collusion difficult, not easy, and it is surprising to think that a large buyer obtaining a secret price cut would happily offer this information to its competitors so that they too could benefit, depriving the first buyer of any competitive advantage. Perhaps the Court was confused. That it drew much of its analysis from its own appointed experts adds to the mystery.²¹⁸ Or perhaps the cited behavior suggests the existence of a cartel among the buyers, operating jointly with the sellers in some fashion; however, because Article 101(1) explicitly prohibits price fixing by purchasers, the opinion’s suggestion that purchasers freely shared their buying prices would seem to describe illegal behavior on their part. Likewise, many of the other practices might be viewed as violations because they are facilitating practices or because they constitute evidence of price fixing

216. The Court concludes:

Following that analysis, it must be stated that, in this case, concertation is not the only plausible explanation for the parallel conduct. To begin with, the system of price announcements may be regarded as constituting a rational response to the fact that the pulp market constituted a long-term market and to the need felt by both buyers and sellers to limit commercial risks. Further, the similarity in the dates of price announcements may be regarded as a direct result of the high degree of market transparency, which does not have to be described as artificial. Finally, the parallelism of prices and the price trends may be satisfactorily explained by the oligopolistic tendencies of the market and by the specific circumstances prevailing in certain periods. Accordingly, the parallel conduct established by the Commission does not constitute evidence of concertation.

Id. ¶ 126.

217. For critical comments on this frequently expressed idea, see note 280. In addition, the Court stated that the price announcements made to users do not lessen each producer’s uncertainty as to the future attitude of its competitors because, at the time a producer makes its price announcement, “it cannot be sure of the future conduct of the others.” VAN BAEL & BELLIS, *supra* note 207, at 58. By this logic, however, even formal cartel agreements would be legal because they in no way bind others’ future conduct. *See supra* Subsection I.B.5.

218. Serious questions about the reliability of these expert reports have been noted; one commentary describes the Advocate General’s analysis thereof as a “mauling.” *See* CHRISTOPHER HARDING & JULIAN JOSHUA, *REGULATING CARTELS IN EUROPE* 158 & n.43 (2003).

itself.²¹⁹ Finally, although not particularly relevant in identifying the legal boundary, the Court chose to ignore what would normally be viewed as smoking-gun evidence of collusion.²²⁰

In any event, *Woodpulp II* does seem to represent a narrowing of the interpretation of Article 101(1). But the opinion's statements of the rule and applications create much ambiguity and do not resolve apparent contradictions. After all, the Court accepted the broad formulations from the prior cases that appear to have been met or exceeded by many of the cited facts. The practices were nevertheless permitted because they were not "artificial." At this point, however, we have a new ambiguous term that carries all the weight. Furthermore, as mentioned, direct discussions among competitors to fix prices are perfectly normal—as Adam Smith famously proclaimed—and can be expected to occur if not made illegal. If the practices in the case mentioned were deemed illegal and if the law was enforced, they would cease to be normal. Perhaps, then, it is not surprising that after this decision, which many see as firmly limiting the reach of Article 101(1), one still finds prominent depictions of the provision that are quite broad.²²¹

219. The idea that it is permissible for competing firms in a concentrated industry to use common agents who transmit pricing information between firms might seem to legalize cartel activity. Also, if buyers may obtain pricing information from all sellers and, moreover, sellers are simultaneously free to act as buyers (perhaps very small buyers), the ruling seems to offer another invitation to circumvention. In both instances and in others, the Court offered little detail about what actually transpired, although these activities were cited as key reasons that one could not infer concerted practices—which, recall, the *Sugar Cartel* case deemed to cover all contacts, including indirect ones.

220.

First of all, the Court summarily excluded the clear evidence of collusion, based on telex communications, meetings, and documents. It did this because it had asked the Commission to indicate between which producers and for what periods each telex and document was proof of collusion. [The Commission argued that such detail was unnecessary.] The Court did not respond to that argument as such (which was partly the "cartel as a whole" argument) but simply stated in a terse and perplexing non sequitur that "in the light of that reply those documents must be excluded from consideration."

HARDING & JOSHUA, *supra* note 218, at 157. In a footnote, the authors elaborate that: "This assertion by the court is one of the most perplexing. The Commission had in fact supplied further tables containing full details of each individual manifestation of the alleged collusion ([citation omitted])." *Id.* n.40.

221.

Indeed, the intention of Article 81 EC is to catch all forms of collusion having the same nature, focusing on the substance and economic reality of the relations between undertakings rather than their form. Thus the concept of collusion under Article 81 EC "centres around the existence of a concurrence of wills", whereby "it is necessary that the manifestation of the wish of one of the contracting parties to achieve an anticompetitive goal constitutes an invitation to the other party, whether express or implied, to fulfil that goal jointly".

3 MARIO SIRAGUSA & CESARE RIZZA, *EU COMPETITION LAW: CARTEL LAW, RESTRICTIVE AGREEMENTS AND PRACTICES BETWEEN COMPETITORS* 10 (2007) (quoting Joined Cases C-2/01 P & C-3/01 P, *Bundesverband der Arzneimittel-Importeure & Comm'n v. Bayer AG*, 2004 E.C.R. I-00023 ¶¶ 97, 102); see VAN BAEL & BELLIS, *supra* note 207, at 27 ("Article 81 is formulated quite broadly so as to cover not only agreements but all types of collusion between undertakings that restrict competition. Undertakings are to compete with each other, and not cooperate to

IV.

OLIGOPOLY THEORY AND THE AGREEMENT REQUIREMENT

Preceding Parts of this Article have highlighted the horizontal agreement problem, considered definitions of key terms and the role of communications, examined doctrine, and studied the problem of inferring agreements from circumstantial evidence. This Part inquires into the relationship (if any) between various notions of horizontal agreement and the modern economic theory of coordinated oligopoly behavior. Especially because enforcement agencies, courts, and commentators increasingly emphasize the central role of economic analysis in formulating competition law doctrine, it is natural to explore the connection in the case of price fixing under Section 1 and analogous provisions of other jurisdictions' competition regimes. Interestingly, it appears that little prior attempt has been made, perhaps because the prohibition against price fixing is largely uncontroversial from an economic perspective (and many others).

Section A discusses pertinent aspects of contemporary oligopoly theory. It presents neither a primer nor an advanced synthesis; instead, it focuses on aspects that will help illuminate the agreement question. Section B makes the application. Finally, Section C presents the economic rationale for condemning price fixing. Although familiar in general terms, a more precise statement helps to assess the agreement requirement.

A. Theory of Coordinated Oligopoly Behavior

Even though the theories of perfect competition and of monopoly have long been clear, oligopoly theory remained murky well past the middle of the twentieth century. Many conjectured that the results—notably the market price and the quantities supplied—would lie somewhere between those for the two polar cases, but just how these intermediate outcomes would arise was not well articulated. With perfect competition, each firm considers only the market price

influence market conditions to the detriment of competition and ultimately of consumers.”); *id.* at 40 (“The term ‘agreement’ in Article 81(1) is to be interpreted broadly so as to encompass any kind of consensus or understanding between parties as to their future behaviour. . . . [I]t is sufficient that the undertakings have somehow expressed their joint intention to conduct themselves on the market in a specific way. The manner in which such joint intention is expressed (e.g., in writing or orally) does not matter.”); *id.* at 44–45 (stating that seemingly unilateral actions are covered “if there is a ‘concurrence of wills between undertakings’, which is the central element of an agreement”); BELLAMY & CHILD, EUROPEAN COMMUNITY LAW OF COMPETITION 124 (Peter Roth & Vivien Rose eds., 6th ed. 2008) (suggesting that the cases imply that the requirement is of “some positive contact between undertakings, that will often consist of meetings, discussions, disclosure of information, or ‘soundings out’, whether oral or written”; failing to explain how the latter does not readily include the sort of advance price announcements allowed in *Woodpulp II*); *see also supra* note 206 (discussing how Article 102 on collective dominance may reach coordinated oligopolistic behavior even if it is not covered under Article 101(1)); *Argos Ltd. v. Office of Fair Trading*, [2006] EWCA (Civ) 1318, ¶¶ 21–27 (interpreting UK law on concerted practices broadly, citing EU law as in accord).

when making its decisions; with monopoly, the firm takes account of market demand. In neither case is there strategic consideration of competitors' behavior. With oligopoly, by contrast, strategic interaction is central.

For ages, analysis of oligopolistic firms, particularly regarding coordinated behavior, tended to be ad hoc. Often, models were static; that is, each firm set prices or quantities once and for all, based on various assumptions of how other firms were expected to behave. Yet at the same time it was understood that, over time, each firm would observe market outcomes and react to them. Other models were nominally dynamic but did not contain coherent assumptions about how firms expected each other to behave. For example, it might be that firms' postulated conjectures about others' behavior were disconfirmed each period, but nevertheless firms were imagined to continue to move forward based on similar conjectures.

The situation changed rapidly beginning in the 1970s with the development of the theory of repeated games and its application to the problem of coordinated oligopoly behavior.²²² While these newer models still abstract in many ways from the complex world, they offer explicit and consistent depictions of firms' strategic interactions over time. In part, the motivation was to remove widely acknowledged defects in prior analysis. In addition, rough, intuitive accounts of interdependent oligopolistic price coordination had long been articulated whereas the core notions were not captured by existing models.²²³ Accordingly, the new theory aspired to offer a sound logical foundation as well as a framework for explaining and predicting oligopoly behavior in real markets. Although the underlying story has long played a prominent role in academic commentary and court opinions, the modern theory that makes it more precise has been virtually absent in these arenas.²²⁴

222. The seminal article is Friedman, *supra* note 82. On modern game theory in general, see DREW FUDENBERG & JEAN TIROLE, *GAME THEORY* (1991), and MARTIN J. OSBORNE & ARIEL RUBINSTEIN, *A COURSE IN GAME THEORY* (1994). On the application to oligopoly theory, see JAMES W. FRIEDMAN, *GAME THEORY WITH APPLICATIONS TO ECONOMICS* (1986); Carl Shapiro, *Theories of Oligopoly Behavior*, in 1 *HANDBOOK OF INDUSTRIAL ORGANIZATION* 329 (Richard Schmalensee & Robert Willig eds., 1989); JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION*, ch. 6 (1988); and XAVIER VIVES, *OLIGOPOLY PRICING* 301–23 (1999). And on the connection to competition law, see Kaplow & Shapiro, *supra* note 5, at 1103–21, and WHINSTON, *supra* note 24, ch. 2.

223. See, e.g., Kyle Bagwell & Asher Wolinsky, *Game Theory and Industrial Organization*, in 3 *HANDBOOK OF GAME THEORY WITH ECONOMIC APPLICATIONS* 1851, 1872–73 (Robert J. Aumann & Serge Hart eds., 2002) (“Of course, the consideration of the collusive and non-collusive outcomes predated the more recent analyses of the repeated game model. The important contribution of the repeated game framework is in establishing the validity of these as outcomes of rational and far-sighted competition that takes place over time.”); Friedman, *supra* note 82, at 11.

224. Academic commentary by economists makes use of modern oligopoly theory, see, e.g., sources cited *supra* note 222, but little attempt is made to draw out implications for delineation of the horizontal agreement requirement (rather than to refine the understanding of what conditions are conducive to successful coordinated oligopoly pricing or how its presence might be detected). Legal academic commentary, when it refers to oligopoly theory, typically

This Section begins by discussing a central distinction in game theory—between cooperative and noncooperative games—because it bears directly on the agreement concept. Next, it considers briefly how the theory of repeated games captures dynamic interaction that may, under appropriate circumstances, support supracompetitive prices. Finally, it reflects on the notion of equilibrium that is central in game theory because it too may inform the challenge of defining agreement under competition law.

1. Distinction Between Cooperative and Noncooperative Games

From the beginning of modern game theory in the middle of the twentieth century, a sharp distinction has been drawn between cooperative and noncooperative games.²²⁵ This distinction both is critical for understanding the relationship between game-theoretic analysis and any notion of agreement and at the same time is potentially confusing. Hence, it is important at the outset to get certain terminology straight.²²⁶

“The fundamental distinction between cooperative and noncooperative games is that cooperative games allow binding agreements while noncooperative games do not.”²²⁷ That is, in what are formally designated as cooperative games, one studies what sorts of agreements parties might enter under the explicit assumption that whatever agreement they choose will definitely be enforced. The precise mechanism by which the implicitly perfect and costless enforcement is accomplished is outside the analysis. The focus instead is on the question: taking as given that readily enforceable agreements are possible, what agreement would the parties reach?

It is immediately apparent that cooperative games in this formal sense are irrelevant to the main question considered here.²²⁸ Competition law renders all

discusses literature of the earlier generation, supplemented as in the past by informal remarks regarding strategic interaction. *See, e.g.*, HOVENKAMP, *supra* note 182, at 159–65. There are some exceptions, although even then modern theory is not used in an attempt to illuminate the agreement requirement. *See, e.g.*, John E. Lopatka, *Solving the Oligopoly Problem: Turner's Try*, 41 ANTITRUST BULL. 843, 889–96 (1996).

225. *See, e.g.*, John F. Nash, Jr., *Non-Cooperative Games*, 54 ANNALS MATHEMATICS 286 (1951); John F. Nash, Jr., *Two-Person Cooperative Games*, 21 ECONOMETRICA 128 (1953).

226. As will emerge, the possibility for misinterpretation may be due to an unfortunate choice of terminology. *See, e.g.*, OSBORNE & RUBINSTEIN, *supra* note 222, at 2 (“Sometimes models of the first type are referred to as ‘noncooperative,’ while those of the second type are referred to as ‘cooperative’ (though these terms do not express well the differences between the models).”); *see also* Lopatka, *supra* note 224, at 889 (“the terminology can be confusing”).

227. FRIEDMAN, *supra* note 222, at 148. Cooperative games are also sometimes referred to as coalitional games. *See, e.g.*, OSBORNE & RUBINSTEIN, *supra* note 222, pt. IV. “[A] coalition is a subset of players that has the right to make binding agreements with one another” FRIEDMAN, *supra* note 222, at 184; *see* Friedman, *supra* note 82, at 1.

228. If the weight of promises and the like, discussed in Subsection B.3, were sufficiently strong relative to the stakes involved so that firms would never cheat regardless of the profit from doing so, then cooperative game theory, which focuses on the division of profits among the firms, would be directly applicable. In most settings regulated by competition regimes, however, this case seems exceptional.

price-fixing agreements nonbinding. Indeed, this is one of the law's most important effects because in many settings price fixing may thus be rendered infeasible. The oligopoly problem that is at the core of the horizontal agreement question is the possibly quite significant residual: cases in which firms may nevertheless be able to charge coordinated supracompetitive prices despite their inability to enforce cartel agreements in court.

This remaining problem is the subject of what is called noncooperative game theory, which is defined as addressing all situations in which parties cannot use an outside enforcer to ensure compliance. Notice importantly that this branch of game theory is applicable to express cartels of the extreme form (detailed negotiated agreements signed in blood), to purely interdependent behavior (the two gas stations in Subsection I.A.1's example), and to everything in between.²²⁹ Ultimately, for any such arrangements to be successful, they must be self-enforcing in the sense elaborated in the next two Subsections.

A source of confusion is that the terms cooperative and noncooperative are often used to describe *outcomes* of noncooperative games as well as the two *types of games*. Specifically, in a noncooperative game—to remind, one in which no binding, externally enforceable agreements are possible—it is common to describe the situation in which firms successfully engage in sustained, coordinated oligopoly pricing as a cooperative outcome and that in which firms charge competitive prices as a noncooperative outcome.²³⁰ Both

229. See, e.g., KAI-UWE KÜHN & XAVIER VIVES, INFORMATION EXCHANGES AMONG FIRMS AND THEIR IMPACT ON COMPETITION 43 (1995) (report to the European Commission):

With tacit collusion we mean any type of cooperation between firms which is not sustained by legally enforceable contracts. The theories do not distinguish between explicit "agreements" between firms and implicit anticipation of reactions by rivals in dynamic interactions (as for example in what is termed "conscious parallelism" in the competition policy literature). This is because in theory there is no significant difference between these two types of behaviour.

See also Robert Hall, 45 J. ECON. LIT. 1066, 1067 (2007) (review of WHINSTON, *supra* note 24) (Whinston "starts with the familiar proposition that our leading framework for thinking about collusion cannot distinguish tacit from explicit collusion. The framework of Nash equilibrium describes an equilibrium but often says nothing about how the participants got to the equilibrium.").

230. See, e.g., 2B PHILLIP E. AREEDA, HERBERT HOVENKAMP & JOHN L. SOLOW, ANTITRUST LAW 11–15 (3d ed. 2007); HOVENKAMP, *supra* note 182, at 159–65; see also *id.* at 162 n.15 (after using the terms cooperative and non-cooperative to refer implicitly to two different types of play of a noncooperative oligopoly game, referring the reader to references on "the difference between non-cooperative and cooperative game theory, and its relevance to antitrust policy," where, as explained in the text, these two branches of game theory refer to the structure of the game, the latter to games with binding agreements, which are not relevant to the subject under discussion). It is interesting that it has become common to describe firms that fail to coordinate effectively as noncooperative rather than using the more familiar term uncooperative. The choice of the former does seem to derive from its use by game theorists; yet, as the text describes, confusion arises precisely because the technical term coined to depict the structure of the game is being used informally to refer to one type of outcome of the game.

the cooperative result and the noncooperative result, however, are outcomes of noncooperative games.²³¹

The difficulty of keeping terminology straight is augmented when one adds that the term equilibrium, to be discussed further momentarily, can be characterized either by the structure of the game to which it pertains or by the nature of the outcome it describes. Hence, when oligopolists are successful, the equilibrium in which firms charge a supracompetitive price might be called noncooperative (because it is the equilibrium of a noncooperative game) or cooperative (because, within the noncooperative game, the equilibrium reflects a cooperative outcome). Accordingly, mention of a noncooperative equilibrium could refer to any equilibrium of a noncooperative game, including one characterized by cooperation (a cooperative noncooperative equilibrium) that results in a supracompetitive price but also one characterized by a lack of cooperation (a noncooperative noncooperative equilibrium) that results in a competitive price.²³²

It is also worth reflecting further on the distinction between game types, specifically as it pertains to the notion of agreement. As stated, a cooperative game is defined as that in which binding agreements are possible, and a noncooperative game as that in which binding agreements are impossible. Given these definitions, all noncooperative games—regardless of whether the outcome is cooperative or noncooperative—must be described as involving no agreement. After all, if there is an agreement, we by definition have a

231. The contrast is elaborated by Friedman:

There is a cross link between the cooperative game chapters and some of the material on noncooperative games, because a central aspect of the repeated games literature . . . is that a repeated game allows a *cooperative outcome* to be supported by (i.e., be the result of) a *noncooperative equilibrium*. In a way, this causes a blurring of the distinction between cooperative and noncooperative games; however, this blurring need not be confusing if a distinction is kept in mind between cooperative versus noncooperative games (i.e., the structures) on the one hand, and cooperative versus noncooperative outcomes on the other. The presence or absence of binding agreements is the definitive element for cooperative versus noncooperative games. If binding agreements are possible, then the game (structure) is cooperative, otherwise it is noncooperative. A cooperative outcome can be defined as an outcome that is Pareto optimal in a game where not all outcomes are Pareto optimal. A noncooperative outcome is merely an outcome supported by a noncooperative equilibrium. Thus the *cooperative outcome[s]* of repeated games are *both cooperative and noncooperative outcomes*. Such outcomes are noncooperative because they are supported by noncooperative equilibrium strategies and they are the former because they are Pareto optimal. By contrast, a structure is either cooperative or noncooperative but not both. With respect to structure, these properties are mutually exclusive and exhaustive, but with regard to outcomes they are neither.

FRIEDMAN, *supra* note 222, at 20 (emphasis in original; some emphasis omitted); see FUDENBERG & TIROLE, *supra* note 222, at xviii (“‘Noncooperative’ does not mean that players do not get along, or that they always refuse to cooperate. As we explain in chapters 5 and 9, noncooperative players, motivated solely by self-interest, can exhibit ‘cooperative’ behavior in some settings.”).

232. The latter usage (noncooperative equilibrium referring to an equilibrium of a noncooperative game characterized by a lack of cooperation, that is, competitive pricing) is common. See, e.g., Shapiro, *supra* note 222, at 364 (referring to “swift reversion to a noncooperative equilibrium”).

cooperative game, but it was stipulated that the game is noncooperative. Thus, when using the language of game theory, an economist choosing words carefully will say that noncooperative games with successful coordinated oligopoly pricing never involve an agreement. Furthermore, because noncooperative games, as noted, include the case of a classic cartel, these too would be deemed not to involve any agreement.

By contrast, under the law this latter depiction is patently false, whatever may be the uncertainty and dispute over the legal meaning of agreement. Accordingly, this Article follows a common usage in formal game theory by using the paired term “binding agreement” to refer to any agreement associated with a cooperative game and reserves the single term “agreement” to refer to whatever is the notion under the competition law. The latter uncontroversially encompasses at least some equilibria of noncooperative games if those equilibria are reached in particular ways (certainly including at least supracompetitive outcomes that are a product of classic cartels). When reading work by economists on oligopoly theory and on competition law, it is worth noting that usage will not always be so clearly demarcated. Furthermore, it is this author’s belief that, for quite some time, economists have sometimes misapplied the precise, game-theoretic notion of agreement with which they are familiar (which is limited to binding agreements) to legal settings outside their expertise when they see the term agreement being employed, without always appreciating that it is necessarily being used in a different sense.²³³

A preliminary and straightforward conclusion, therefore, is that modern oligopoly theory does have a well articulated, formal definition of the term agreement—binding agreement—but one that is utterly useless in addressing the challenge of defining horizontal agreement under competition law. Indeed, the theory’s definition is worse than useless because it can readily be misleading if its usage is not fully appreciated. In this latter respect, the reader may note an analogy to the potential for confusion discussed in Subsection I.B.5 wherein the term independent is used to refer to truly independent (competitive) behavior but is also sometimes used to refer to interdependent (noncompetitive) behavior. With semantic difficulties set aside, it is now possible to consider whether the substance of modern oligopoly theory, as developed in the analysis of noncooperative games, sheds any light on how one might give meaning to the agreement concept in competition law.

233. A related point is that economists’ frequent association of communications and agreement, *see, e.g.*, sources cited *supra* note 24, may also relate to the distinction between the two types of games. In cooperative games, because it is binding agreements that are being studied, it is natural to suppose that explicit communications of some sort are necessarily involved. By contrast, in noncooperative games, as will be discussed throughout this Part, such communications are not theoretically essential and the question of what sorts of communications might be employed is outside most analyses of the problem.

2. Repeated Games and Dynamic Interaction²³⁴

The motivation for focusing on repeated games is that they allow the analysis of the sort of strategic interaction that can make successful coordinated oligopoly pricing possible. The need to examine a dynamic setting is made clear by considering the familiar result in a one-period pricing game, say, between two identical firms that sell homogenous products that they each produce at the same, constant marginal cost of 10. The competitive price, P_c , would accordingly be 10. Suppose further that the joint profit-maximizing, monopoly price, P_m , is 20. Finally, assume that the firm charging the lowest price captures all the sales, whereas if the two firms charge the same price, sales are divided evenly between them.

The only equilibrium of this one-shot game is for each firm to charge P_c , that is, 10. The term equilibrium refers to a situation in which, taking as given the other players' strategies, no player can gain by deviating from its own current strategy.²³⁵ The claim that the competitive price, P_c , is the unique equilibrium might be rationalized by the argument that, if either firm charges more than 10, the other would charge less, capturing all the sales, which would drive the price down to 10. This story, however, is a dynamic one. In the standard formulation of the one-shot game, it is common to suppose that the firms set their prices simultaneously (and, because the game is only for one period, they are understood to stick with those prices).²³⁶ This interaction could be described as a classic prisoners' dilemma. No price above 10 can be an equilibrium because, if either firm is imagined to charge such a price, the other would select a price that was slightly lower. This leaves as the unique equilibrium the competitive outcome, in which each firm charges 10 and neither firm has an incentive to deviate given that the other is assumed to charge 10.²³⁷

234. See generally sources cited *supra* note 222; Werden, *supra* note 47, at 720–34.

235. For further elaboration on the meaning of equilibrium, see Subsection 3.

236. If firms instead set their prices sequentially, the first firm would know that, at any price above 10, it would be undercut slightly by the second firm, which would thereby capture the market. (Actually, in this formulation, the first-moving firm is indifferent to the price it selects in that it makes zero profits regardless of whether it selects the competitive price of 10 and shares the market or instead sets a higher price and makes no sales.)

237. For more formal discussion that raises interesting subtleties not pertinent to the present task, see, for example, TIROLE, *supra* note 222, at 212–18 (addressing the nonexistence of pure-strategy equilibrium in one-shot pricing games with rising marginal costs); Shapiro, *supra* note 222, at 344–46 (same). In addition, it has long been understood that, under certain alternative assumptions, even if the firms are unable to coordinate, the resulting price will exceed marginal cost even though it will continue to fall short of the monopoly level. See, e.g., FRIEDMAN, *supra* note 222, at 54–57; Kaplow & Shapiro, *supra* note 5, at 1083–86; Shapiro, *supra*, at 333–56; see also Chamberlin, *supra* note 27 (including a history of thought on these models). In a model due to AUGUSTIN COURNOT, RECHERCHES SUR LES PRINCIPES MATHÉMATIQUES DE LA THÉORIE DES RICHESSES (1838), it is supposed that each firm chooses its quantity rather than its price. In that case, each firm finds it advantageous to supply less than half the competitive output for the industry because reducing its supply leads to a rise in price; that is, each firm has some market

Yet it seems clear that sometimes firms are able to charge coordinated supracompetitive prices (despite the absence of binding agreements), and successful coordinated behavior has been observed in a variety of other settings in which similar logic based on a one-period model suggests that it is impossible. It is not surprising, therefore, that commentators have long offered reasons why firms in an oligopoly setting may indeed be able to sustain coordinated supracompetitive prices.²³⁸ The key intuition is that starting, say, at P_m , a price of 20, no firm will wish to cut its price and steal its rival's business if it expects this act to induce its rival to cut its price as well, perhaps matching the first firm's lower price and perhaps undercutting it. Whether, when the dust settles, the price is somewhat lower than P_m or all the way down to P_c , a price of 10, the prospective price cutter will be worse off: it will not wish to share the market at a price of 18, 15, or 10 when it can share the market at 20, which is presumed to be the joint profit-maximizing price. As long as the firm does not expect to profit sufficiently in the short run (before the rival cuts its price as well) to make up for the lost profits in the long run, it will adhere to the price of P_m . Note, importantly, that this logic is equally applicable regardless of whether each firm's expectation about the other's reaction arises from their mutual appreciation of their situation or is a consequence of direct discussions of the matter.

Similar logic can explain how the price might rise to P_m in the first place, whether it starts at P_c or at some intermediate level. A firm may well be willing to brave a price increase if it expects—again, whether by conjecture or as a result of explicit discourse—that its rival will reciprocate. If its rival indeed

power. This outcome, however, is best rationalized in a two-period game wherein the quantity selection, in period one, might correspond to choosing the size of the firm's production facility or a farmer deciding how much crop to plant. Then, in the second period, in which each firm has a limited quantity to sell, it would not find it advantageous to undercut every price above P_c because it would not have the capacity to supply the entire market; as long as it could sell all of its available (and limited) quantity, it would cut prices no further. Without supposing such a capacity constraint, it is not clear why the Cournot quantity-setting equilibrium would persist in real market settings, for as long as the price exceeds P_c , each firm will have an incentive to reduce price in order to capture business from its rival.

In another model—which builds on the view associated with Joseph Bertrand, *Book Review of Théorie Mathématiques de la Richesse Sociale and of Recherches sur les Principes Mathématiques de la Théorie des Richesses*, 67 JOURNAL DES SAVANTS 499 (1883), that firms set prices, as supposed in the text, rather than quantities—it is assumed that firms' products are differentiated rather than homogeneous. As a consequence, 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. In the limit, if the products are not substitutes at all, each firm would have a monopoly over its segment of the market.

Because neither of these models involves the sort of coordination that is the focus in this Article, they are not examined further. However, the possibility of supracompetitive pricing in these sorts of situations is in principle relevant in determining what regime is optimal.

238. Prominent early works include EDWARD CHAMBERLIN, *THE THEORY OF MONOPOLISTIC COMPETITION* (1933), and Chamberlin, *supra* note 27.

cooperates by matching the price increase, the firms will both be better off forever after, supposing that, by the logic of the preceding paragraph, the price increase can be sustained. As long as the first firm does not lose much profit in the interim due to any delay in the other's reaction, the long-run gain will make the venture worthwhile. Moreover, it will expect its rival to follow quickly because its rival understands—again, either because of its grasp of the circumstances or through prior dialogue—that delay will be taken as defection, leading the initiator quickly to drop its price back to the preexisting level.

This logic, unlike that in prominent traditional oligopoly models, is explicitly dynamic. Each firm's strategy does not consist of a single price at a single point in time. Rather, it involves a price pattern over time that, moreover, is contingent on the rival's behavior. Careful economists, finding loose stories not entirely satisfying and also formally inconsistent in previous accounts that were grounded in static models, began innovating in the 1970s, quickly reaching the point where dynamic analysis embodied in explicit repeat-play models became the dominant method of analyzing oligopoly (and other strategic interactions, such as that involved with predatory pricing).²³⁹

The most commonly analyzed model, referred to as a supergame, involves the infinite repetition of a simple, one-period game. In each period, each firm simultaneously chooses its price and, as above, captures the entire market if its

239. See, e.g., TIROLE, *supra* note 222, at 240–45 (criticizing the failures of attempts to make traditional static models dynamic, thereby explaining the need for explicit dynamic models); Bagwell & Wolinsky, *supra* note 223, at 1869, 1882 (“The earlier literature, which preceded the introduction of the repeated game model, . . . lacked a coherent formal model.”); “Non-cooperative game theory has become the standard language and the main methodological framework of industrial organization. [The prior gap relating to the need for an oligopoly model] was filled by verbal theorizing and an array of semi-formal and formal models. The formal models included game models like those of Cournot, Bertrand and Stackelberg, as well as non-game models with strategic flavor such as the conjectural variations and the contestable market models.”); Friedman, *supra* note 82, at 1 (developing a theory of supergames and observing that “[o]ligopoly may profitably be viewed as a supergame”); Kaplow & Shapiro, *supra* note 5, at 1104 (“The basic theoretical framework used to evaluate the presence, absence, or efficacy of collusion is that of dynamic or repeated oligopoly, that is, situations in which an identifiable group of suppliers offering substitute products interact over time. This framework includes infinitely repeated oligopoly games, so-called supergames. Cartel theory requires dynamic analysis because the central elements of detection and punishment inherently take place over time.”); Motta, *supra* note 24, at 315 n.6 (“Modern theory on collusion is based on supergames.”); Shapiro, *supra* note 222, at 352 & n.39, 354–56 (stating that “it is clear that a serious theory of oligopoly behavior cannot be timeless” as was the case in traditional static theories, observing that: “This line of argument suggests that the most appropriate games to study are dynamic ones with price-setting.”, and presenting a subsection entitled “Can there be reactions in a static model?”, a question answered in the negative: “To study reactions, retaliation, price wars, and tacit collusion we require explicitly dynamic models of oligopoly.”). The seemingly excessive quotations in support of this noncontroversial proposition are offered because, as mentioned in the text, the past few decades of game-theoretic work by industrial organization economists has had little penetration in the analysis of competition law and virtually no application to the analysis of the agreement requirement. When economics literature, including game-theoretic work, is mentioned, discussion is still ordinarily based on the prior generation of literature that has been largely displaced in the analysis of coordinated pricing behavior.

price is the lowest and shares the market pro rata in the case of identical prices. Although an infinitely repeated game may strike the uninitiated as complicated, it is actually fairly straightforward to analyze in its most basic form. Moreover, it is a convenient way to capture strategic interaction in a manner that allows for successful coordination in accordance with long-standing intuitions.²⁴⁰

To capture the essence of the story, consider the following strategies that firms might employ.²⁴¹ Each firm will charge the monopoly price P_m in the initial period and in every period thereafter as long as its rival has done the same in preceding periods. However, if a rival ever charges less than P_m , the firm will charge P_c for the next ten periods, after which it will resume charging P_m with the cycle beginning anew, on a clean slate. That is, it will continue charging P_m indefinitely unless and until there is another defection, which the firm will meet by charging P_c for the next ten periods, and so forth.

If both firms play this strategy, they will share the market and the industry-maximizing monopoly profit indefinitely, which is the best they can do collectively. The question is whether an individual firm ever has an incentive to defect. To see whether it might, suppose that a firm contemplates cheating in the next period. It can, by assumption, take the whole market for that period by pricing just under P_m , which will roughly double its profit for that period because it will obtain the whole market rather than half of the

240. By contrast, in simple, finite models, successful supracompetitive pricing is impossible due to the familiar backward-induction argument. If there were two periods, in the second and final period, the situation would be just as in the one-shot game, so a competitive price is the unique equilibrium in period two. Because that result is not contingent on what occurs in period one, in the first period also there will be competitive behavior, for there is no sense in which defection can be retaliated against subsequently because competitive pricing prevails later in any event. In simple enough models like the one considered here, this logic applies to any known, finite number of periods, whereas allowing infinite repetition disrupts this chain of reasoning because there is no final period from which to work backwards. See, e.g., Reinhard Selten, *The Chain-Store Paradox*, 9 THEORY & DECISION 127 (1978) (offering the seminal articulation of the concept in the predation context); Shapiro, *supra* note 222, at 357–60. Further exploration of the relevance of infinite periods and of other variations on the basic model that make coordinated pricing possible even without infinite repetition are beyond the scope of this Article. See FRIEDMAN, *supra* note 222, at 94–103; David M. Kreps & Robert Wilson, *Reputation and Imperfect Information*, 27 J. ECON. THEORY 253 (1982); Roy Radner, *Collusive Behavior in Noncooperative Epsilon-Equilibria of Oligopolies with Long but Finite Lives*, 22 J. ECON. THEORY 136 (1980); Robert W. Rosenthal, *Games of Imperfect Information, Predatory Pricing and the Chain-Store Paradox*, 25 J. ECON. THEORY 92 (1981); Shapiro, *supra* note 222, at 360–61.

241. For a simple exposition of a more standard variant under which punishment continues indefinitely, see Kaplow & Shapiro, *supra* note 5, at 1104–05. The version in the text, in which punishment is imposed for a finite number of periods, is in the spirit of the models in Green & Porter, *supra* note 20, and Robert H. Porter, *Optimal Cartel Trigger Price Strategies*, 29 J. ECON. THEORY 313 (1983). See FUDENBERG & TIROLE, *supra* note 222, at 185–87. These models were developed for the case discussed later in this Subsection in which low realizations of uncertain demand may trigger price wars, a consequence that makes it important for punishment to be limited. See also W. Bentley MacLeod, *A Theory of Conscious Parallelism*, 27 EUR. ECON. REV. 25 (1985) (discussing a model with price announcements and price leadership under which coordinated oligopoly prices are reached and sustained).

market at essentially the monopoly price. However, for the ten periods thereafter, the firm will earn no profits because it expects its rival to charge P_c for the next ten periods. Accordingly, the prospective defector will not wish to cheat as long as it values the gain of one period's profits (the increment in the next period from capturing all rather than half of the market) less than the loss of ten periods' profits spread in the future (from period two through period eleven from the present). Even for moderately impatient firms—that is, firms that do not discount the future very steeply—this trade-off will be disadvantageous, so they would continue to charge P_m .²⁴² Accordingly, this set of symmetric strategies constitutes an equilibrium of this repeated game. That is, given these strategies, no firm would ever find it in its interest to behave differently, which would amount to employing a different strategy. This simple repeated game is therefore able to rationalize successful oligopolistic coordination, indeed, entirely successful in the sense that the firms would perpetually charge P_m , yielding maximal profits. Furthermore, as was true in the preceding, more informal discussion, none of the logic depends on whether firms' strategies are chosen because of a mutual appreciation of the situation or after engaging in explicit communications.

Note that, by similar logic, such a strategy can rationalize other outcomes, including any price between P_c and P_m .²⁴³ If, for example, each firm chose the midpoint, 15 in our example, as the benchmark, we would likewise have an equilibrium. Each firm would charge 15 indefinitely, yielding a positive (supracompetitive) profit, albeit one less than the monopoly (maximal) profit. Defection (charging slightly less than 15) would double the (now lower) profit in the defection period and forfeit that (now lower) profit amount for the next ten periods. Thus, we can see that such an intermediate price also constitutes an equilibrium if firms are not too impatient.²⁴⁴ Indeed, a price of P_c is also an equilibrium. In this case, the reasoning may be short-circuited: no firm would ever wish to undercut this price, for it would incur losses. The result that there can be multiple equilibria is not an artifact of the particulars of the present example but rather arises quite broadly in the theory of infinitely repeated games.²⁴⁵ Further elaboration, with an emphasis on how

242. For example, a firm would defect if it had a discount rate of 50%, which is to say that it valued each period's profits at only half those of an immediately preceding period. The gain of 1 unit in the next period would be traded off against $1/2 + 1/4 + 1/8 + \dots + 1/1024$ from the ten subsequent periods, which sums to slightly less than 1 (approximately 0.999). From this illustration, it is clear that if the firm were even slightly more patient than this, it would not defect.

243. The text here and afterwards indicates that the equilibria include this entire range without stating that they are limited to it; indeed, there exist equilibria in which prices above P_m can be sustained.

244. A firm would not contemplate raising its price above 15 in the postulated scenario because its rival is assumed to stick with its current price (unless the rival undercuts it, which leads to ten periods of pricing at the competitive level).

245. This result is referred to as the "folk theorem" for infinitely repeated games. See, e.g., FUDENBERG & TIROLE, *supra* note 222, at 150–60; OSBORNE & RUBINSTEIN, *supra* note 222, at

an equilibrium might be selected, is one of the central subjects of the remainder of this Part of the Article.

The foregoing model is by no means the only one in the literature analyzing coordinated oligopoly. Numerous extensions, designed to capture a variety of realistic features, have been introduced.²⁴⁶ To get the flavor of this large body of work, consider the problem faced by coordinating oligopolistic firms in detecting defections in markets where each firm's prices are not readily observed—a challenge first explored in depth by Stigler.²⁴⁷ Suppose that firms negotiate orders with individual customers, which is common in some intermediate goods markets. If a firm cheats, how are others to know? Firms might be able to infer that someone cheated from a fall in their own sales, and in simple models this information would be sufficient. But suppose as well that buyers' demand fluctuates in ways firms cannot observe, raising the possibility that a decline in a firm's sales might have been due to cheating or instead to less favorable market conditions. In the presence of such uncertainty, firms need to choose a strategy that trades off rapid, sufficiently harsh punishment of actual cheating—in order to deter it effectively—and avoidance of price wars when there was no actual cheating but just a period of unusually low demand. In models of this problem, coordinated oligopoly pricing is still possible, but it is less effective. Specifically, there will be occasional price wars even when no cheating has occurred. It has also been suggested that this more complicated scenario is more consistent with what has actually occurred in some markets that are characterized by coordinated oligopoly pricing.²⁴⁸

This extension and many others show how repeated games can be used to provide more accurate depictions of oligopolistic markets. These teachings facilitate the examination of such questions as whether conditions are conducive to successful coordinated oligopoly pricing and whether it is occurring, both important inputs into inferences about the existence of an agreement, the subject of Section III.D. Observe, as has been noted at many points throughout, that there is no *direct* relationship between the analysis of this Subsection and the foregoing classifications of firms' interdependence: pure interdependence, highly explicit agreement of a particular type, or any other combination. That is, in this exposition of modern oligopoly theory, it

143–53.

246. See sources cited *supra* note 222.

247. See Stigler, *supra* note 20; see also Spence, *supra* note 20.

248. See, e.g., Green & Porter, *supra* note 20; Porter, *supra* note 241; Robert H. Porter, *A Study of Cartel Stability: The Joint Executive Committee*, 14 BELL J. ECON. 301 (1983); Jonathan B. Baker, *Identifying Cartel Policing Under Uncertainty: The U.S. Steel Industry, 1933–1939*, 32 J. L. & ECON. S47 (1989); Timothy F. Bresnahan, *Competition and Collusion in the American Automobile Industry: The 1955 Price War*, 35 J. INDUS. ECON. 457 (1987); Shapiro, *supra* note 222, at 373–79; see also JEFFREY M. PERLOFF, LARRY S. KARP & AMOS GOLAN, ESTIMATING MARKET POWER AND STRATEGIES 104 (2007) (finding the evidence more mixed).

was not necessary at any point to address how the particular interdependent behavior arose.

In this regard, it is important to recall and emphasize a central idea from Subsection 1, namely, that both extreme, old-fashioned cartels (stripped only of the ability to legally enforce their agreements) and pure interdependence, along with everything in between, are all analyzed as noncooperative games. The current Subsection presents the basic contours of that analysis. The core model, the variations mentioned, and many more in the literature are each, on their face, applicable without distinction to any of these sorts of agreement. 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.²⁴⁹ Firms are assumed to act in their own best interests, to maximize profits, in either case. If the gains from cheating exceed the costs, it is supposed that a firm will cheat, and otherwise not. Period.

Section B will take up the question of whether, despite this void, anything more can be said about the connection between oligopoly theory and the notion of agreement. In order to do so, it is helpful to contemplate further the concept of equilibrium that is employed in game-theoretic analysis.

3. *Equilibrium Elaborated*

The structure of the game dictates firms' possible strategies. In the one-period version of the above game, strategies consist of the prices to be charged for that period. In the repeated game, strategies consist of a specification of prices over time, including how such prices depend on rivals' past behavior.

One might end the analysis at that point, throwing up one's hands. Firms might be said to be able to do anything that is feasible. But in game theory and in real life, analysts and actual players do more. Thus, in the example with repeated play, we could imagine that one firm would perpetually charge 20 and the other 19.99, with the latter reaping essentially the full monopoly profit from the market and the former earning nothing. Yet it seems implausible that this state of affairs is sustainable. Firms are assumed to be rational profit maximizers. They will react in light of their self-interest.

Accordingly, it is conventional to confine attention to equilibria of the game under investigation. As mentioned, the standard definition of

249. See WHINSTON, *supra* note 24, at 21 (in discussing oligopolists' attempts to collude, even if freely permitted to communicate, states that: "The incentive problem can be formally stated as follows: To be credible, any agreement must be a subgame perfect Nash equilibrium. If it were not, then some party to the agreement would find it profitable to cheat. But note that this is exactly the same condition that economic theory uses to identify the set of outcomes that are sustainable without any direct communication . . .").

“equilibrium” is a situation in which, given each of the other player’s strategies, no player can gain by adjusting its own strategy. This concept, often referred to as Nash equilibrium—or, with play spanning multiple periods, subgame perfect Nash equilibrium—embodies the core of the dissatisfaction with the idea that firms might just do anything.²⁵⁰

Subsection 2 illustrates the further idea that some games, including standard repeated games used to model coordinated oligopoly, involve multiple equilibria. In the basic example, any price from P_c to P_m , from 10 to 20, was an equilibrium. This range of possibilities immediately raises the question of which equilibrium the firms will choose.²⁵¹ This question has received substantial attention, formal and informal, for quite some time.²⁵² A few intuitive points that are most relevant for present purposes will be mentioned.

Following Schelling’s famous exposition,²⁵³ it is often suggested that equilibria that constitute focal points are more likely to be selected than are others.²⁵⁴ The focal-point notion derives from examples such as the problem of two individuals who have agreed to meet for lunch but have not selected a time. Twelve noon is more likely to emerge in both of their minds than 12:23 p.m. For prices, round numbers, like 10, 15, and 20 might be focal. Or perhaps 19.95

250. See, e.g., John F. Nash, Jr., *Equilibrium Points in N-Person Games*, 36 PROC. NAT’L ACAD. SCI. 48 (1950); FUDENBERG & TIROLE, *supra* note 222, at 11, 73–74; OSBORNE & RUBINSTEIN, *supra* note 222, at 14–15, 97.

251. In most game-theoretic analysis in economics, including applications to oligopoly theory, it is generally supposed that players will be in some (i.e., common) equilibrium. Cases in which some firms play a different equilibrium (each believing, at least initially, that other firms are playing that same equilibrium) have received little attention although they are of interest. Consider, for example, a case in which the competitive price is 10, the monopoly price is 20, and any price from 10 to 20 would be an equilibrium; in the first period, firm 1 prices at 20 and firm 2 at 19. In reflecting on what transpired in the first period, firm 1 must consider whether firm 2 thought it was charging an equilibrium oligopoly price of 19 or imagined that firm 1 would indeed charge 20 but was cheating; firm 1’s pricing decision in period 2 might, for example, be more aggressive in the latter case. For general, formal treatments of the notion that not all players will play the same (or any) equilibrium, see FUDENBERG & TIROLE, *supra* note 222, at 22 & n.12, 45–63; Robert J. Aumann, *Correlated Equilibrium as an Expression of Bayesian Rationality*, 55 ECONOMETRICA 1 (1987); B. Douglas Bernheim, *Rationalizable Strategic Behavior*, 52 ECONOMETRICA 1007 (1984); David G. Pearce, *Rationalizable Strategic Behavior and the Problem of Perfection*, 52 ECONOMETRICA 1029 (1984). In such cases, there would not be a meeting of the minds in the sense described below when all play the same equilibrium. Subsection B.2’s discussion of communications as potentially influencing equilibrium selection (in the case of multiple equilibria) could also be applied to consideration of the likelihood that all play the same equilibrium from the outset.

252. See, e.g., FUDENBERG & TIROLE, *supra* note 222, sec. 8.4, ch. 11; OSBORNE & RUBINSTEIN, *supra* note 222, at 243–53.

253. See SCHELLING, *supra* note 16, at 54–57.

254. There is experimental evidence suggesting that even small degrees of asymmetry in payoffs can inhibit coordination on focal points. See Vincent P. Crawford, Uri Gneezy & Yuval Rottenstreich, *The Power of Focal Points Is Limited: Even Minute Payoff Asymmetry May Yield Large Coordination Failures*, 98 AM. ECON. REV. 1443 (2008). However, this result is in a game with no communication whatsoever and no repetition, so even the ability to react, say, to another firm’s price is absent.

and 19.99 where such pricing is conventional. Two prices are particularly focal in our example: 10 and 20. Not only are they both round numbers, but one is the worst and the other the best (the Pareto optimal) price for the two firms, and each corresponds to a well-understood concept, competition and monopoly respectively.

The parties may employ other criteria as well. Notably, among all equilibria, or perhaps among focal-point equilibria, parties may well be inclined to select more advantageous equilibria. Thus, in our present example, a price of 20 seems most compelling. Also of great importance, the parties might communicate directly on the subject, a topic to which we will return in subsection B.2. For the present, it is useful to keep in mind that parties' statements may lack credibility and, indeed, might be designed to deceive, such as by stating that one will sell at 20 but immediately cheating by selling at a price just below that, although such would not be an equilibrium in the present example.

Observe that the parties' efforts in arriving at a particular equilibrium (or at *the* equilibrium, when there is only one) involve an intersubjective process, the conclusion of which may aptly be described as a meeting of the minds, as noted previously.²⁵⁵ To be more precise, strategic thinking necessarily involves getting into other players' minds. One firm needs to think about what the other will do: "If I cheat, the next period my rival will retaliate." Furthermore, to think about what the other will do—because it also is taken to be strategic—requires contemplating what it thinks that you will do. Which in turn requires thinking about what it thinks you think it will do. And so forth ad infinitum. As expressed by Fudenberg and Tirole:

Nash equilibria are "consistent" predictions of how the game will be played, in the sense that if all players predict that a particular Nash equilibrium will occur then no player has an incentive to play differently. Thus, a Nash equilibrium, and only a Nash equilibrium, can have the property that the players can predict it, predict that their opponents predict it, and so on.²⁵⁶

255. The topic discussed in the text is one for which the failure of legal analysis to incorporate modern economic theory generates misconceptions. For example, Hovenkamp asserts that, although "[t]he lawyer's understanding of collusion is fundamentally subjective, . . . the economist is fundamentally objective. . . . Economic theories of oligopoly pricing, such as the one developed by Augustin Cournot in the nineteenth century and widely used, do not depend at all on . . . any knowledge about someone else's subjective state of mind." HERBERT HOVENKAMP, *THE ANITRUST ENTERPRISE* 126–27 (2005); *see also supra* note 237 (on how Cournot behavior differs from that examined by modern oligopoly theory involving repeated interaction); *supra* note 239 and accompanying text (on why it is essential to employ the modern repeated-games approach to study oligopoly behavior). A further irony is that it is commentators like Hovenkamp, who insist that agreements should not be deemed to exist based on pure interdependence but rather require specific sorts of communications, who are the ones that eschew a subjective view of what constitutes agreement.

256. FUDENBERG & TIROLE, *supra* note 222, at 13.

To be in an equilibrium is for the firms to have engaged in such a thought process and somehow to have reached a common conclusion. It is in this sense that one would say two minds have met.²⁵⁷ Or, to use another common expression, such a state of affairs might be called getting on or being all on the same page, yet another synonym for agreement.²⁵⁸

Finally, it is worth recalling just what the choice of an equilibrium entails. With repeat play in the dynamic context, the firms are choosing not just a price or a price pattern over time. They are choosing as well punishment schemes: an implicit understanding as to what will happen if a firm cheats, for how long it will happen, whether then the price will revert all the way back to the originally understood price, whether the firms will at that point start on a clean slate or punish more quickly and harshly in the event of a further defection, and the like. An equilibrium entails a common understanding in these respects without regard to its simplicity or complexity or the manner in which it was reached—that is, without regard to whether there was an old-fashioned cartel, pure interdependence, or some other manner of interaction or communication.

B. Is There a Concept of Agreement in Oligopoly Theory?

As Subsection A.1 on the distinction between cooperative and noncooperative games makes clear, there is a concept of agreement in oligopoly theory. But, as explained, it is equally obvious that this concept is irrelevant for present purposes because the agreements that are taken to be feasible in cooperative games are ones that are legally binding. When such agreements are not possible—which is certainly the case given that competition law renders any purported agreement void—we are in the realm of noncooperative games, where by definition there are no such agreements in the game-theoretic sense. And, as mentioned, this conclusion holds equally for traditional cartels, plain interdependence, and everything in-between.

Accordingly, the reformulated question becomes whether there is a concept of nonbinding agreement in the theory of coordinated oligopoly behavior. In light of the foregoing point as well as the fact that no such notion leaped out of the exposition of the applicable modern theory in Subsection A.2, one might be skeptical. Indeed, one might wonder why the question should even be asked.

257. Players are not actually in each other's minds, which is impossible short of psychoanalysis, hypnosis, or fMRI scans, none of which are taken to be pertinent here or in other settings in which such characterizations are offered. Cf. Posner, *Oligopoly*, *supra* note 2, 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.”).

258. See, e.g., *All on the Same Page Definition*, ABBREVIATIONS.COM, <http://www.abbreviations.com/b1.asp?KEY=392313&st=All%20on%20The%20Same%20Page> (last visited Nov. 22, 2010) (“To be in agreement with; all of one accord . . .”).

The motivation is based on three observations. First, competition law in the realm under consideration insists that there is a category we are calling agreement that serves as a necessary condition—and, for plain price fixing, a sufficient condition—for liability. The legal doctrine is thus based on the supposition that, in reality, there is some substantive distinction between nonbinding agreements and non-agreements.

Second, modern oligopoly theory is understood by economists to offer a general set of tools for making sense of firms' interactions in markets. Although no particular model is comprehensive, the theory attempts to be so. Thus, if there is some key distinction that exists between one and another type of oligopolistic behavior, that distinction should be present in the theory.²⁵⁹ Moreover, given the importance the distinction plays as a matter of regulatory policy, one would suppose that it would not merely be present but play a central role.

Third, modern competition law and policy, particularly in the United States, affirmatively embraces modern economics, both for understanding behavior in particular cases and for formulating legal rules. Courts, other government officials, lawyers, and academic commentators all assert that the law is grounded importantly in economics. A leading exemplar of the U.S. Supreme Court's embrace of this view is *Sylvania's*²⁶⁰ reversal of *Schwinn*.²⁶¹ "The Court's [*Schwinn*] opinion provides no analytical support for these contrasting positions. Nor is there even an assertion in the opinion that the competitive impact of vertical restrictions is significantly affected by the form of the transaction."²⁶² The Court further observed that "even the leading critic of vertical restrictions concedes that *Schwinn's* distinction between sale and

259. It is difficult to view economic analysis of oligopoly as a priori restrictive in any way, all the more so because modern oligopoly theory is an application of game theory, which itself is a highly general set of ideas designed to encompass any manner of strategic interaction involving more than one party.

260. *Continental T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 53 (1977).

261. *United States v. Arnold Schwinn & Co.*, 388 U.S. 365 (1967).

262. 433 U.S. at 53. Some see the roots much earlier; writing shortly after the Court's decisions in *American Tobacco* and *Paramount* (discussed in Subsection III.B.1), Rahl concluded that, with respect to the conspiracy requirement, "the courts are really attempting to turn the Sherman Act into something of the economic document that it needs to be." James A. Rahl, *Conspiracy and the Anti-Trust Laws*, 44 ILL. L. REV. (NW. U.) 743, 768 (1950); see *id.* at 759–60 (attempting to distinguish coordinated behavior from formal agreements "is 'artificial' in an economic sense" because "the competitive policy of the Sherman Act is as offended [by naturally arising behavior] as when a formal conspiracy exists"); but see James A. Rahl, *Symposium on "Price Competition and Antitrust Policy"*, 57 NW. U.L. REV. 137, 147–48 (1962) (arguing that oligopoly behavior in the absence of an agreement should not be addressed by the antitrust rule against price fixing). Writing subsequently, Posner finds that "the law relating to collusive pricing became emptied of economic content. . . . Since lawyers and judges are more comfortable with conspiracy doctrine than with price theory, the displacement of emphasis from the economic consequences to the fact of conspiring was natural. But it was harmful to an effective antitrust policy." POSNER, ANTITRUST, *supra* note 2, at 53 (the quotation is from the 2001 edition; similar language appears in the 1976 edition at pages 40–41); see also *infra* note 286 (quoting Whinston).

nonsale transactions is essentially unrelated to any relevant economic impact.”²⁶³ The *Sylvania* Court insisted that if Sherman Act Section 1’s agreement requirement was to be the basis of a difference in legal treatment, that difference needed to be justified in terms of the contrasting economic effects of the practices under consideration.²⁶⁴ The Court’s *Matsushita* decision (discussed in Subsection III.B.2) is also probative, particularly because it is a leading modern pronouncement on the agreement requirement. The Court was specifically concerned about allegations that made no “economic sense,”²⁶⁵ notably a situation in which defendants “had no rational economic motive to conspire”²⁶⁶ in the fashion that a plaintiff suggested, not about claims that are wholly in accord with economic rationality but fail to satisfy formalistic legal requirements arising from the Court’s interpretation of the statute. Even more recently, *Leegin*’s²⁶⁷ reversal of *Dr. Miles*²⁶⁸ was defended on the ground that the latter “Court justified its decision based on ‘formalistic’ legal doctrine rather than ‘demonstrable economic effect’” (quoting *Sylvania*).²⁶⁹

These three points, taken together, seem to make it obligatory in interpreting Section 1 of the Sherman Act to find a concept of nonbinding agreement in the heart of oligopoly theory. Starting with the two examples in Section I.A and running through the discussion of both definitions and doctrine, we saw that it was fairly easy to distinguish interdependent oligopolistic behavior from purely independent competitive behavior—as a matter of language and actual behavior—but nearly impossible to make meaningful distinctions within the category of interdependent behavior. This Section explores whether an examination of oligopoly theory reveals new possibilities of distinguishing between types of interdependent behavior or mirrors the difficulties that we have previously encountered in attempting to do so. Subsection 1 revisits the concept of equilibrium, the aspect of oligopoly theory that seems most related to the idea of agreement (keeping in mind that neither agreement nor any even loose synonyms appear directly in noncooperative

263. 433 U.S. at 56.

264. With regard to horizontal price fixing, no one suggests that the distinction between pure interdependence and interdependence resulting from various forms of communications or other interactions produces a different economic effect. In given circumstances, there may be differences; notably, in light of the paradox of proof, discussed further in Section C, successful coordination achieved via pure interdependence may be present in settings posing the greatest danger, not a lesser one.

265. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986).

266. *Id.* at 596.

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

268. *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911).

269. 551 U.S. at 887–88. The *Leegin* Court further emphasized that antitrust principles on vertical restraints were to be formulated by reference to “differences in economic effect” so that “it is necessary to examine . . . the economic effects of vertical agreements to fix minimum resale prices” to determine what legal rule should apply. *Id.* at 888–89; see *id.* at 902 (“The *Dr. Miles* rule is also inconsistent with a principled framework, for it makes little economic sense when analyzed with our other cases on vertical restraints.”).

game theory). Subsection 2 considers communications (previously addressed in Section II.B), and Subsection 3 explores promises and related acts; both appear in legal discussions about agreements, so it makes sense to examine what role if any they may have in oligopoly theory.

1. *Equilibrium*

In searching for a concept of legally nonbinding agreement in modern oligopoly theory, it seems appealing to find one, if it is to be found anywhere, in the idea of an equilibrium in dynamic interaction. After all, many, including courts and dictionaries, define an agreement as a meeting of the minds, and this notion is at the core of the definition of an equilibrium, as elaborated in Subsection A.3. As discussed, two or more firms that arrive at and maintain prices at a supracompetitive levels are imagined to have achieved a common understanding—a meeting of the minds—about the current price and the consequences of defection. This definition of agreement does not, as the prior exposition makes clear, contain any distinction among modes of interdependence, ranging from plain interdependence to old-fashioned cartel arrangements.²⁷⁰ To be sure, as Section III.D discusses, under various market circumstances one or another means might be more or less likely, but that inquiry is addressed to how an equilibrium might have come about rather than to whether or what sort of an equilibrium exists.

There are, however, some respects in which equating equilibrium with agreement appears to be problematic. One issue concerns the fact that, in any equilibrium of a noncooperative game, including one involving successful coordinated oligopoly pricing, each firm at every point behaves in its own self-interest, taking as given what it expects other firms to do in reaction to its own behavior. Recall the discussion of independent interdependence in Subsection I.B.5. As explained there, this is necessarily true of any nonbinding agreement that succeeds, including a traditional cartel. After all, if it is not in every firm's self-interest to abide by the firms' mutual understanding, firms will not do so, in which case the coordinated oligopoly price will not be sustainable—that is, it will not really be an equilibrium. To restate, this point about equilibria is always true, whether an equilibrium reflects purely interdependent behavior or something else. All nonbinding agreements that work are equilibria, and all equilibria are nonbinding agreements that work.

Another point is that not every equilibrium involves supracompetitive oligopoly pricing. As noted in Subsection A.2, in one equilibrium of the repeated-game example, every firm charges the competitive price, P_c , indefinitely. Although such could be viewed as a nonbinding agreement, it is obvious that one may not wish to deem it to be an illegal one—although under competition law it is generally illegal to fix any price, including a competitive

270. See *supra* note 229 (quoting economists).

one.²⁷¹ One distinction is that competitive pricing can be seen as resulting from other processes as well. In particular, it can arise in the simple model of Subsection A.2 if one firm (or many) adopts the view that it will charge the competitive price no matter what other firms do. Thus, the result is no different from that in which each firm reasons independently; that is, the result does not require a meeting of the minds.

Another distinction could be based on the process of equilibrium selection. As mentioned, when there are multiple equilibria, as in our simple example, the firms ultimately must choose some particular equilibrium. The process of equilibrium selection could itself be seen to constitute agreement. Think about a firm that reasons as follows: "Among the many equilibria available, I will choose one with supracompetitive prices, say, that with the monopoly price, because this will be mutually advantageous and accordingly I imagine that my competitors will reason likewise—and they will suppose that I am thinking this way, and so forth." Thus, one might refer to only those meetings of the minds that involve mutually advantageous cooperation as agreements.²⁷²

An equivalent result through somewhat different reasoning could be reached by attending to Sherman Act Section 1's full provision, which prohibits (only) agreements that are "in restraint of trade."²⁷³ A competitive equilibrium would be viewed as not involving any such restraint whereas an equilibrium with supracompetitive pricing would.²⁷⁴ After all, 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.²⁷⁵

Each of these modes of reasoning produces the same conclusion: that one could view as agreements firms' mutual understanding that involves supracompetitive pricing. In any case, there are two basic reasons to connect the agreement concept with the notion of equilibrium. One is the overlap in underlying definitions and ideas: both terms are fundamentally concerned with a meeting of the minds or mutual understanding. The other is the lack of

271. See, e.g., *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150 (1940); *United States v. Trenton Potteries*, 273 U.S. 392 (1927).

272. On the possibility of uncooperative behavior that results in prices above purely competitive levels, see note 237. Consider also the distinction in the U.S. Horizontal Merger Guidelines between unilateral and coordinated effects. See U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES §§ 6, 7 (2010).

273. Consider, for example, the language from *American Tobacco*, quoted at page 732.

274. Although price fixing is per se illegal in the United States, its prohibition is understood as a rule that directs the usual outcome that would be expected under the rule of reason, which in turn employs a test that examines whether practices promote or suppress competition. See cases cited *supra* note 59.

275. When the firms charge the monopoly price, P_m , this is clear. When they charge a price between the competitive and monopoly prices, the problem is partial, but price-fixing prohibitions have never been limited to cases in which the conspirators charge the full monopoly price.

alternatives. As the introduction to this Section emphasizes, modern competition law needs to ground a definition of agreement in some core feature of modern oligopoly theory, and there does not appear to be any other candidate.

The point is not that the language of the economic theory has no corresponding term. As we saw, it does—legally binding agreement—but one that is entirely inapt. Rather, the substance of the theory, which is designed to illuminate the behavior that the law seeks to regulate, does not recognize any other ideas that plausibly relate to a definition of agreement. This resolution works if agreement is defined as interdependence, particularly successful oligopolistic interdependence. The present Subsection elaborates how this concept is a coherent, central aspect of the pertinent economic theory. And Parts I through III of this Article explain that a wide range of difficulties are due to attempts to define agreement as more restrictive than interdependence. Thus, the economic theory designed to illuminate the oligopoly problem is substantially in harmony with what one learns from other perspectives on the agreement requirement.

2. *Communications*

Subsection I.B.4 indicates that many commentators view communications as central to the existence of a horizontal agreement. We have already seen in Section II.B, however, that communications are not really related to any ordinary meaning of the term agreement, or conspiracy and so on. Nevertheless, perhaps communications can in some fashion be seen as part of the definition given that the law sometimes uses terms in entirely specialized, even fictitious ways, particularly when such an interpretation helps to implement the underlying purpose of a legal rule. Furthermore, the introduction to this Section emphasizes that the law seeks to ground competition rules in pertinent economic theory. Accordingly, this Subsection asks whether modern oligopoly theory provides a basis for viewing the use of certain sorts of communications, but not others, as agreement.

A review of Section A immediately raises a substantial obstacle to any such attempt: namely, communications do not even appear directly in the pertinent theory of oligopolistic behavior. Therefore, it seems difficult to suppose a priori that communications would be the linchpin of the legal regulation of oligopolistic pricing. Whether supracompetitive prices are sustainable—that is, constitute an equilibrium—depends most directly on whether firms are sufficiently patient that they are unwilling to defect, which provides short-term rewards at greater long-run sacrifice, and on the magnitude of immediate gains and subsequent losses, which depend on such matters as the ease of detecting cheaters and the efficiency of punishment.

It is hardly the case, however, that communications are unimportant to coordinated oligopoly behavior. Indeed, they might be relevant in a number of

ways.²⁷⁶ First, consider the problem of equilibrium selection, recalling that in basic settings there are multiple possible equilibria, including notably the range from the competitive price, P_c , to the monopoly price, P_m . In the absence of communications—other than pricing itself, such as in the example in Subsection I.A.1 with the two gas stations—the firms might well choose the monopoly price because it is a focal point and, among the set of focal points, the one that is mutually most attractive. Or perhaps they will not. In such cases, it might be supposed that more explicit communications would be helpful. The firms might, for example, disagree on the monopoly price because they have differing costs or different views about buyers' demands. More broadly, when firms sell multiple products, some of which may be differentiated, the necessary common understanding will be more intricate than mere assent to a single price. In these and other circumstances, negotiations could assist in coming to a common, mutually advantageous conclusion.²⁷⁷ Of course, they could also interfere in some cases. For example, if left to simple price signaling, the firms may quickly reach a common price that is a round number close to what each views to be its ideal price, whereas extended negotiations could break down.²⁷⁸ A plausible presumption, however, is that firms would only attempt more elaborate negotiations when they expected them to be helpful, although miscalculations are possible. However, the theory underlying this commonsense view is not well developed.²⁷⁹

276. See, e.g., WHINSTON, *supra* note 24, at 23–26; Paolo Buccirossi, *Facilitating Practices*, in HANDBOOK OF ANTITRUST ECONOMICS 305, 311–17 (Paolo Buccirossi ed., 2008); Kaplow & Shapiro, *supra* note 5, at 1106–08, 1124–26.

277. Determination of applicable punishments (notably regarding how steep are the price cuts and their duration) is part of the problem of equilibrium selection because, as Subsection A.2 makes clear, the pattern of punishments is part of players' strategies, which are taken to be in some equilibrium. In this regard, Schelling has suggested that actions may be more important than words in demonstrating that punishment will in fact be employed. See Schelling, quoted *supra* at pages 723–24.

278. An interesting possibility is that one-way communications might be in a party's interest and also might better facilitate a cooperative outcome than would two-way communications, which are the focus of those seeking to tie the definition of agreement to communications. See, e.g., SCHELLING, *supra* note 16, at 58–59 (discussing how a party may prefer one-way communications); Russell Cooper, Douglas V. DeJong, Robert Forsythe & Thomas W. Ross, *Communication in the Battle of the Sexes Game: Some Experimental Results*, 20 RAND J. ECON. 568, 574–78 (1989) (reporting results in a coordination game in which a beneficial equilibrium was achieved 48% of the time with no communication, 55% of the time with two-way communication, and 95% of the time with one-way communication); Russell Cooper, Douglas V. DeJong, Robert Forsythe & Thomas W. Ross, *Communication in Coordination Games*, 137 Q.J. ECON. 739 (1992) (finding in a simple coordination game that two-way communication was much more effective than one-way communication, but that in a more complicated coordination game, cooperation was much higher with one-way than two-way communication). In addition, because imperfect information about other firms' behavior can sometimes help to sustain successful oligopolistic coordination, see Rosenthal, *supra* note 240 (showing how uncertainty about whether other players engage in flawless, forward-looking calculation can sustain coordination in a finitely repeated game), direct, two-way communication could undermine coordination by eliminating this sort of uncertainty.

279. See, e.g., WHINSTON, *supra* note 24, at 21 (“[E]conomic theory has relatively little to

Second, communications may influence the enforceability of an equilibrium. As discussed in Subsection A.2, an important difficulty in some settings is that firms' prices may not be observable, leaving firms to infer others' cheating from declines in their own sales; but such drops could be due to reductions in buyers' demand rather than others' cheating, making accidental price wars possible. Communications might help if firms are able to convey information credibly.²⁸⁰ For example, firms unconstrained by the law might

say about the process of coordination among equilibria. It is natural to think that talking may help with this coordination, but exactly to what degree and in what circumstances is less clear.”); *see also* KÜHN & VIVES, *supra* note 229, at 43–44 n.12 (“Explicit agreements may help in solving coordination problems in selecting an equilibrium. However, this coordination can be achieved by unilateral communication by just one firm Furthermore, there is no satisfactory economic theory that would explain why communication would resolve coordination problems in a determinate way.”); *id.* at 54–55 (“However, theoretical research on the subject has not succeeded in sustaining the intuition that communication facilitates coordination. . . . On the other hand, it should be noted that it is hard to find any argument why private communication between firms about future planned prices or production would be beneficial. It appears that despite . . . the lack of formal theoretical support the only way one can explain such [b]ehavior is that firms use communication to coordinate their future market conduct.”). Although any such communications constitute “cheap talk,” they may nevertheless be useful, which possibility is suggested by the example on price determination in note 282.

280. *See, e.g.,* David Genesove & Wallace P. Mullin, *Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case*, 91 AM. ECON. REV. 379 (2001). In this instance, the role of information is sometimes misunderstood. Specifically, price information that is made public and, in particular, available to all buyers, rather than kept more secret, is often viewed as more benign or even desirable from a social perspective, perhaps because secrecy breeds suspicion. This impression seems often to be mistaken because secrecy undermines successful collusion by making cheating more attractive whereas publicity facilitates collusion. This point is familiar from situations like that in the *Container* case, in which firms verified with competitors various assertions by buyers that they had been offered lower prices, and that posed by many government-run auctions in which bidders' prices are made public afterwards, thereby alerting firms immediately of any cheating that has transpired. *Cf.* Svend Albæk, H. Peter Møllgaard & Per Baltzer Overgaard, *Government-Assisted Oligopoly Coordination? A Concrete Case*, 45 J. INDUS. ECON. 429 (1997) (describing Danish competition authority's gathering and publishing of prices of concrete, motivated by a belief in the desirability of price transparency, with the result that prices increased due to eased oligopolistic coordination). In other settings, public pricing can help buyers, such as when each customer is a small, nonrepeat purchaser who finds it costly to determine sellers' prices, which is why some competitors have attempted to suppress price advertising. *See, e.g.,* Lee Benham, *The Effect of Advertising on the Price of Eyeglasses*, 15 J. L. & ECON. 337 (1972). Note that the spread of the Internet may significantly influence consumers' and firms' behavior, which may alter both the use of various forms of price dissemination and their effects.

A point to keep in mind is that firms' decisions whether to have highly public prices or more private ones, to the extent that the choice is under their collective control, will tend to be made in a way that is contrary to consumers' interests. Relatedly, buyers may individually prefer to have advance notice of their suppliers' price increases, but buyers as a whole will generally be worse off in the long run if advance price announcements facilitate supracompetitive pricing. Regarding sellers' motives, it is noteworthy that in Porter's text on competitive strategy, giving buyers advance notice is not on his long list of strategic reasons for advance announcements, which is dominated by concerns with communication between competitors. *See* PORTER, *supra* note 81, at 76–80; *id.* at 79 (“Similarly, trading announcements back and forth can settle the size of a price change or form of a new dealer rebate program without the need to disrupt the market and risk a battle by actually introducing one scheme and then having to change or withdraw it later.”); *id.* at

allow independent audits of invoices or other records to verify that they have adhered to the understood price. More casually, firms might merely inform each other that they have not cheated. This lesser method, which economists refer to as “cheap talk,”²⁸¹ is obviously problematic because a firm that has in fact cheated will hope not to be detected and thus would be expected to lie if its statements cannot be validated.²⁸² Thus, with regard to the detection of cheating, verification rather than communication per se is particularly important.

As with the case of equilibrium selection, communications are not unambiguously helpful in enforcing coordinated oligopolistic pricing. For example, when a price war does occur, firms will find it in their interest to shorten it (competitive pricing lasts ten periods in the example in Subsection A.2), which negotiations might help to make possible. Quicker restoration of the monopoly price may seem desirable from the firms’ point of view at that moment in time. However, if such negotiations are anticipated, then any firm that contemplates cheating will expect punishment to be brief rather than sustained, and this prospect will make cheating more attractive ex ante. Hence, better communications can make it more difficult to sustain supracompetitive prices.²⁸³

Communication may be relevant in other ways as well. Suppose, for example, that there is a decline in demand, so that the former monopoly price is

80 (“A prior announcement to a broad audience may be a way of establishing a ‘public’ commitment to do something that is perceived by competitors as being hard to back down from, with the consequent deterrent value.”). *But see* DRANOVE & MARCIANO, *supra* note 81, at 139 (“Preannouncements often help customers plan their future purchases, such as [by] allowing contractors to better budget . . .”). Porter emphasizes that making statements publicly can be a way to enhance the effective commitment. *See* PORTER, *supra* note 81, at 103–04 (“Declaring commitments to the industry or financial community in public statements, publicizing targets for market share, and a variety of other devices can let competitors know that a firm will be embarrassed publicly if it has to back down. This knowledge will tend to deter them from trying to force it to do so.”); *see also* SCHELLING, *supra* note 16, at 29–30 (discussing how publicity rather than secrecy is necessary for reputation to be effective). Another view is that firms may have their cake and eat it too by making statements that are public to each other yet less likely to be noticed by buyers. *See* Heil, Day & Reibstein, *supra* note 81, at 281 (“Announcing plans is particularly effective when it is conducted outside the public eye (in a trade journal, for example). This way, the announcements will not delay consumers’ purchases or damage consumers’ willingness to pay.”).

281. *See, e.g.*, Crawford, *supra* note 65; Joseph Farrell & Matthew Rabin, *Cheap Talk*, 10 J. ECON. PERSP. 103 (Summer 1996).

282. Cheap talk is more widely regarded to be potentially useful in selecting among equilibria, each of which is, by definition, self-enforcing and thus compatible with parties’ self-interest. For example, suggestion of a price—notably, a non-round number, like \$3.47, that was not already a focal point—may make it one and thus more likely to be selected. For some general reservations about the ability of pre-play “agreements” to facilitate coordination on an equilibrium in a game, *see* Robert J. Aumann, *Nash Equilibria Are Not Self-Enforcing*, in *ECONOMIC DECISION-MAKING: GAMES, ECONOMETRICS AND OPTIMISATION* 201 (Jean J. Gabszewicz, Jean-Francois Richard & Laurence A. Wolsey eds., 1990).

283. *See* Ola Andersson & Erik Wengström, *Do Antitrust Laws Facilitate Collusion? Experimental Evidence on Costly Communication in Duopolies*, 109 SCAND. J. ECON. 321 (2007); Barbara McCutcheon, *Do Meetings in Smoke-Filled Rooms Facilitate Collusion?*, 105 J. POL. ECON. 330 (1997).

now higher than that which is jointly profit-maximizing. It makes sense for firms to reduce their prices. But any firm that does so may fear that its reduction will be viewed by others as cheating rather than as an invitation to all to adjust the industry price.²⁸⁴ The more the leader can act openly, maybe with an advance public price announcement, perhaps accompanied by an explanation as well, the less likely is misunderstanding.²⁸⁵ From the perspective of consumer and total social welfare, the present example is ambiguous regarding the virtues of prohibiting facilitative communication. On one hand, if communication is not allowed and a firm nevertheless reduces its price in an attempt to move the industry to a new, superior equilibrium, there is the prospect of a price war, which would tend to be socially beneficial. On the other hand, the prospect of such a price war may delay or deter the attempt to reduce the equilibrium price, which would tend to be detrimental.

The foregoing list is not exhaustive but should be sufficient to reinforce the conventional wisdom that communication often is helpful to oligopolistic firms seeking to sustain supracompetitive prices, while at the same time to suggest that standard views are oversimplified and not without important qualifications. Modern oligopoly theory allows various intuitions to be made more precise, which helps to ascertain whether and when they are correct and to determine what sort of communications may be important in particular circumstances. In many instances, the analysis is a good deal more complicated than is usually recognized, although in any case it seems clear that communications are often relevant. Unfortunately, modern oligopoly theory has not yet systematically explored the relevance of communications (although a number of specific studies of limited scope have appeared).²⁸⁶ In addition, empirical evidence, largely based on volunteer subjects playing simplified

284. Interestingly, much discussion of the role of communications in facilitating successful coordinated oligopolistic pricing emphasizes future price increases, but in that setting the risk of misunderstanding is less serious. An unexpected price increase will not be mistaken for cheating and is likely to be understood as an invitation to follow—and, if it is not, the initiator may lose little if the price increase can be rescinded rapidly. By contrast, once a price war is triggered, even accidentally, it may be difficult to put the genie back in the bottle quickly.

285. See, e.g., Farrell & Rabin, *supra* note 281, at 116 (“Because talk can help avoid misunderstandings and coordination failures, it often improves outcomes (for the players), but even unlimited cheap talk does not reliably lead to a Pareto-efficient outcome.”). There also exist substitutes for such explicit communications. For example, if an immediately effective price cut is implemented during a period of conspicuously low demand—for some industries, this might be over a weekend or a holiday, see DRANOVE & MARCIANO, *supra* note 81, at 139 (describing the airline industries’ practice after settling the government’s antitrust suit)—competitors, upon observing that the initiator is attempting to gain as little as possible, may thus infer that the move is an invitation rather than a defection.

286. See sources cited *supra* note 276. Whinston concludes his discussion of the theory of price fixing by stating, “It is in some sense paradoxical that the least controversial area of antitrust is perhaps the one in which the basis of the policy in economic theory is weakest.” WHINSTON, *supra* note 24, at 26. In similar spirit, Vives concludes: “The research on the effect of communication on collusion is not yet conclusive. . . . However, in general, the presumption is that communication abets collusion.” VIVES, *supra* note 222, at 321.

games in a laboratory setting, has only yielded modest results of uncertain relevance to actual firm behavior.²⁸⁷

What, then, is the implication of the foregoing for the definition of agreement under competition law? As discussed in Subsection II.B.1, it is difficult to equate communications with agreement, and the present discussion of the possible relevance of communications to oligopoly behavior in different contexts does not provide any reason to revise that conclusion. Furthermore, when one focuses on settings in which communications might be helpful to oligopolistic firms, the form or mode of communication, which seems to be the focus of those who attempt to make the agreement-communications link at all concrete, has no direct role.²⁸⁸ What sorts of communications will be helpful is an entirely contextual, empirical question, and one that Section II.B suggests is difficult to answer and almost certainly cannot be answered by reference to an a priori general classification.

Second, as discussed in Subsection II.B.2, various sorts of communications might be viewed as facilitating practices that themselves could be prohibited, that is, independently of whether the underlying price fixing that might be facilitated is deemed illegal. As previously explained, however, there remains the question of whether there is an agreement to use the facilitating practices, the means of communications, themselves. An affirmative answer could readily be given only if interdependence is deemed sufficient to constitute agreement.

Accordingly, the present analysis of communications seems relevant to price-fixing inquiries, but not because communications constitute agreement or illuminate that concept. Instead, a better understanding of communications is

287. A half century ago, Schelling stated:

One such question [for research] would be this: by and large, does it appear that the players are any more successful in reaching an efficient solution, that is, a mutually nondestructive solution, when (a) full or nearly full communication is allowed, (b) no communication or virtually none is allowed, other than what can be conveyed by the moves themselves, or (c) communication is asymmetrical, with one party more able to send messages than he is to receive them? There is no guaranty that a single, universally applicable answer would emerge; nevertheless, some quite general valid propositions about the role of communication might well be discovered.

SHELLING, *supra* note 16, at 166. Unfortunately, what has been subsequently learned leaves these questions largely unanswered. For surveys, see Crawford, *supra* note 65; Davis & Wilson, *supra* note 155; Charles A. Holt, *Industrial Organization: A Survey of Laboratory Research*, in THE HANDBOOK OF EXPERIMENTAL ECONOMICS 349 (John H. Kagel & Alvin E. Roth eds., 1995); Charissa P. Wellford, *Antitrust: Results from the Laboratory*, in EXPERIMENTS INVESTIGATING MARKET POWER, *supra* note 155, at 1. For skepticism about the real-world applicability of such experimental research, see WHINSTON, *supra* note 24, at 24 (questioning "whether the results of these experiments, usually with college students as subjects, are indicative of the actual market behavior of businessmen and women").

288. That is, although a case study or a laboratory experiment will involve particular forms of communication, modern oligopoly theory itself—including plausible extensions one might imagine to address the role of communications more explicitly—does not provide any basis for deeming specific modes of communication to be of central importance, if indeed they would be relevant at all.

useful if indeed communications are to be attacked directly under Sherman Act Section 1 and similar provisions in other jurisdictions. In that case, the central question will be whether the communications at issue in a particular case are more likely to promote or suppress competition, and modern oligopoly theory offers the best set of tools for undertaking that inquiry, although as mentioned the toolkit is limited. Second, if agreement, however defined, is to be inferred from circumstantial evidence, as explored in Section III.D, modern oligopoly theory informs the interpretation of circumstantial evidence, which may include various communications.²⁸⁹ In sum, communications are important in understanding oligopoly but are not directly pertinent in elaborating the notion of horizontal agreement.

3. Promises

Promises are central to binding, legally enforceable contracts as well as to informal agreements between individuals. If competition law had taken formal contracts as the core model of agreement—which it has not, as discussed in Subsection III.A.1—then the existence of a promise might have been seen as determinative. The question remains whether promises and related notions, like assurances or indications of commitment, might nevertheless be important (as a few commentators suggest²⁹⁰) and how this possibility relates to modern oligopoly theory.

289. The observation of various forms of communication raises the core paradox of proof. Notably, if a certain sort of communication that would facilitate collusion in a given setting is identified, it is more likely that successful oligopolistic coordination is taking place, but the need to resort to such communication, especially if it raises legal risk, indicates that, *ceteris paribus*, the industry must be less susceptible to successful oligopolistic pricing.

290. The notion of a commitment is central to Areeda and Hovenkamp's view of the law on horizontal agreement. (See also Jonathan B. Baker, *Identifying Horizontal Price Fixing in the Electronic Marketplace*, 65 ANTITRUST L.J. 41, 47–48 (1996) (agreement only includes outcomes reached by “what may be termed the ‘forbidden process’ of negotiation and exchange of assurances”).) They see pure interdependence as insufficient and the existence of commitment or assurances as providing the necessary additional ingredient. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 6–7 (“The second step . . . is to look for some evidence of commitment, whether weak or strong, among the alleged conspirators.”); *id.* at 59–60 (“The traditional agreement sought by conspiracy law involves some kind of commitment to a common cause.”); *id.* at 63 (“[W]e know what we are looking for: some level of commitment to a common course of action.”); *id.* at 96, 205. They do not insist on the use of magic words expressing commitment. See, e.g., *id.* at 7 (“Sometimes there will be an express commitment indicated by words or nonverbal communication.”); *id.* at 60 (“The commitment may be weak or strong, express or implied.”); *id.* at 63 (“[R]eciprocal assurances can be communicated by conduct rather than by words and remain ‘agreements’ even though vague, incomplete, and riddled with qualifications and exceptions.”); *id.* at 64 (offering four examples in which an illegal conspiracy would be found, the first and third of which contain no language of assurance or commitment). Yet sometimes it appears that they do not insist on anything beyond coordination. See *id.* at 19 (“Although collective decision making *plus* mutual assurance of compliance is the principal vice, *either element alone* may suffice to establish an antitrust agreement.”) (emphasis added); *id.* at 19–20 (“An exchange of information, views, or complaints does not necessarily imply any jointly reached decision or assurances on any course of action, *but it may do so when the discussants are competitors.*”) (emphasis added); *id.* at

With formal contracts, the existence of a clear exchange of promises plays the important role of triggering legal enforcement, thereby distinguishing suggestions, predictions, statements of intentions, and preliminary indications of an interest in the making of binding commitments. Since price-fixing agreements of any form are unenforceable, this function is irrelevant. Nevertheless, promises and related notions play an analogous role in informal settings. There is a difference between stating that you expect to be able to attend a meeting or a party and that you promise to attend. With the latter, nonperformance may trigger informal psychological and social sanctions, such as guilt feelings, shame, and disapprobation by others.²⁹¹

If the law were to make promises, assurances, or other indications of commitment a necessary and sufficient condition (or an important factor) for deeming an agreement to exist, it would be essential to identify when such has occurred. With both formal contracts and informal arrangements, parties often will be clear about their intentions; indeed, clarity and publicity may aid in enforcement, both formal and informal. With price fixing, however, parties will seek to keep their intentions secret.

If liability depended on the use of actual promissory language, then carefully lawyered communications could provide complete immunity. Moreover, because most activity will be hidden, it would be exceedingly difficult to determine from circumstantial evidence what language parties used in some alleged communication (recall the analysis of the paradox of proof in Section III.D).²⁹²

20 (offering a formulation close to the interpretation of *Interstate Circuit* that encompasses mere interdependence: “To be sure, an addressee of a proposal for common action who behaves in accordance with the proposal may find it difficult, to say the least, to persuade us that it acted unilaterally and without regard to the proposal.”); *cf. id.* at 65 (“Although the line between coordination through recognized interdependence and some commitment is shadowy, the distinction is important so long as antitrust law allows the former but condemns the latter.”). For the most part, they take it to be self-evident that commitment is central to agreement. Notably, they do not offer a direct justification, quote cases in support of their interpretation, or trace its implications. Surprisingly, despite their insistence that the cases require more than interdependence and that the key additional element is commitment, they rarely mention the notion in their many and often lengthy discussions of Supreme Court and lower court cases, either when they praise a court’s reasoning or when they are critical.

The most extensive legal examination of the problem is by Leslie, who argues that interactions that enhance trust increase the likelihood that oligopolies will be successful, a focus different from the question whether the existence of trust or the manner in which it might have come about, such as through an assurance, is central to the definition of horizontal agreement. *See* Christopher R. Leslie, *Trust, Distrust, and Antitrust*, 82 TEX. L. REV. 515 (2004).

291. *See generally* DAVID HUME, TREATISE OF HUMAN NATURE 521–23 (Prometheus Books 1992) (1739); LOUIS KAPLOW & STEVEN SHAVELL, FAIRNESS VERSUS WELFARE 204–07 (2002). The application to oligopoly theory is made in FRIEDMAN, *supra* note 222, at 70–71 (quoting Hume).

292. The discussion of language in Subsection II.B.3 suggests additional difficulties with an approach linked to magic words. And the point that actions often speak louder than words seems especially pertinent to the force of promises and the notion of commitment. A standard definition of assurance, indeed, the one that seems to motivate Areeda and Hovenkamp’s argument, *see*

Alternatively, liability might depend on successfully conveying the idea of a commitment. Here, the problems may be even more challenging. The analysis depends critically on just what one means by an implicit promise or commitment. On one hand, such a mutual understanding might be seen to exist whenever there is successful interdependent behavior, that is, whenever firms are in an equilibrium that supports coordinated supracompetitive pricing. As explored in Subsections A.2, A.3, and B.1, there is a meeting of the minds under which each firm expects the others to adhere to the coordinated oligopoly price, the others expect it to comply, and so forth.²⁹³ If this view is accepted, then the idea of agreement as (implicit) promise is equivalent to accepting pure interdependence as agreement.

This view might be rejected, however, because, as explained, in an equilibrium each firm by definition is simply acting in its self-interest given how it expects other firms to react. The idea of an implicit state of commitment might be taken to involve something more: specifically, that parties will stick to the supracompetitive price even when it is in their interest to cheat. But firms are taken to be self-interested, neither moralists nor altruists toward their competitors; competition law generally imputes rational maximization in gauging firms' behavior. If a given oligopoly price is not in firms' interest to maintain—cheating is profitable, even taking likely reactions into account—then it is not an equilibrium and thus not something we would expect to observe. By this account, the posited notion of promise would be a phantom in the relevant context. Therefore, if agreements required the demonstration of operative promissory behavior, they would never be deemed to exist, with the result that price fixing would be *per se* legal.

Nevertheless, it is possible to augment standard models of oligopoly to make room for an informal notion of promising.²⁹⁴ In other realms of business

supra note 290, refers to something that inspires or tends to inspire confidence, which deeds may do more effectively than assertions. In this regard, it is interesting that Areeda and Hovenkamp, despite their arguing for the centrality of commitment, above and beyond interdependent behavior, acknowledge this sort of qualification: "Stated another way, we can ask whether a history of price leadership or of maintaining noncompetitive price levels is any less of a commitment to continue doing so than is a clearly unlawful exchange of unenforceable express commitments among cartel members, who, after all, remain legally free to defect and often do whenever net self-interest is served (taking prospective rival behavior into account)." AREEDA & HOVENKAMP, *supra* note 9, at 221; *see also id.* at 226 ("[T]he mind-set of oligopolists who have long followed a pricing leader may approach that of cartel members, especially where many trade association, lobbying, or social meetings have generated mutual trust.").

293. In this regard, it is worth noting that standard definitions of assurance include the state of being assured and being in a certain state of mind, and a common definition of commitment is the state or an instance of being obligated or emotionally impelled. All of these definitions refer to subjective states. A further implication of this point is that there is no necessary connection between promises and commitment on one hand and forms of communication on the other hand. *See also supra* Section II.B (on the relationship between agreement and communications more generally).

294. *Cf.* Leslie, *supra* note 290 (emphasizing how the degree of trust affects the likelihood that oligopolies succeed).

behavior, such as contracting with suppliers, it is generally supposed that honor and trust may play a role. Not everything need be in writing. When a party promises to make a delivery, their word may be worth something, particularly if they have behaved well in the past. Observe that promises and commitment can readily be unilateral and that their force is not obviously diminished on this account.²⁹⁵ Heads of state, businesses, and friends frequently make unilateral commitments or offer assurances without the exchange of promises associated with contracts, or the bi-directional understanding associated with agreements more broadly. Thus, if a firm would only take the lead in raising its price if it had a commitment that its rival would quickly follow, by stipulation a one-way assurance from the rival is what is relevant.

An important caveat is that such behavior is often indistinguishable from narrowly self-interested maximizing behavior in a repeated game. Parties who break their commitments will jeopardize future business with their counterparts and may damage their reputation more widely; hence, keeping promises can constitute equilibrium behavior.²⁹⁶ Even so, sometimes business honor carries more weight. Parties might be trusted even when future business and reputational concerns are insufficient in themselves to provide the necessary incentives for reliability.

A question remains whether informal commitments are possible among competitors, whose general interactions are expected to be rivalrous rather than cooperative. Supposing that they are, then promises, even implicit ones, might help support coordinated oligopoly pricing. In particular, assume that, in the sort of repeated game described in Subsection A.2, a given oligopoly price is not quite sustainable. Perhaps firms are a bit too impatient or the possibility of secret defections is just great enough that the mutually desired price is not an equilibrium. In that case, the existence of a psychological or social commitment might be enough to alter firms' calculations about cheating, in which case the posited price would be an equilibrium after all.²⁹⁷

295. See *id.* at 568–73 (discussing cartel members use of goodwill gestures and benevolent moves to build trust).

296. This familiar maxim is captured by the phrase, “honesty is the best policy,” which is drawn from MIGUEL DE CERVANTES, *DON QUIXOTE*, pt. ii, ch. xxxiii (1615). An early modern articulation of this notion is offered by Schelling:

While the possibility of “trust” between two partners need not be ruled out, it should also not be taken for granted; and even trust itself can usefully be studied in game-theoretic terms. Trust is often achieved simply by the continuity of the relation between parties and the recognition by each that what he might gain by cheating in a given instance is outweighed by the value of the tradition of trust that makes possible a long sequence of future agreement.

SHELLING, *supra* note 16, at 134–35; see also HUME, *supra* note 291, at 521–22; KAPLOW & SHAVELL, *supra* note 291, at 205. The point to follow in the text is likewise distinguished in HUME, *supra* note 291, at 523 (“Afterwards a sentiment of morals concurs with interest and becomes a new obligation upon mankind.”), and KAPLOW & SHAVELL, *supra* note 291, at 205–07.

297. Stated more explicitly, the argument supposes that, when firms cheat, they bear an additional cost due to their violation of their commitment, and that this cost is large enough to tip

This possibility raises a number of issues. First, as already noted, there is an important empirical question of the magnitude of such informal sanctions in the present context. Second and related, what does the weight of such promises (perhaps implicit) depend on? Might it matter how long the particular individuals with relevant price-setting authority have been at a firm?²⁹⁸ How well they are known to their counterparts with rivals?²⁹⁹ Whether they interact or have previously met informally in other settings, such as business school, community activities, or trade association meetings?³⁰⁰ To what extent firms as distinct from particular individuals have externally identifiable corporate cultures that are associated with trustworthy behavior? What was the nature of firms' interactions that produced the state in which the firms felt committed?³⁰¹ Little is known about the answers to these and related queries. Moreover, one would need to determine how such matters could be assessed in a particular case.

Third, there is the practical question of how one could infer whether such commitments are operative, aside from the question of whether the parties are capable of making a commitment having a given weight. Once again, commitments could be seen as present whenever there is successful interdependent behavior.³⁰² When firms engage in coordinated oligopoly pricing, they all recognize their mutual gain from adhering to the supracompetitive price and avoiding cheating. If firms were capable of commitments, one would suppose that they would probably be operative in any such instance. Secret price cuts are ordinarily described as cheating or defections, moralistic language that is undoubtedly appreciated by the relevant actors. That is, when a firm cheats, it probably sees its behavior as such and expects other firms to view it that way. When other firms, enjoying

the balance against defection.

298. See, e.g., PORTER, *supra* note 81, at 90 (in discussing how the "continuity of interaction among the parties can promote stability since it facilitates the building of trust," notes that such continuity "also is aided by a stable group of general managers of these competitors"); Leslie, *supra* note 290, at 565–68 (discussing personal relationships among key actors in some notable cartels).

299. See, e.g., Edward L. Glaeser, David I. Laibson, José A. Scheinkman & Christine L. Soutter, *Measuring Trust*, 115 Q.J. ECON. 811, 834 (2000) (in experiment on trust and trustworthiness, finding higher levels when participants knew each other longer).

300. See, e.g., Leslie, *supra* note 290, at 599, 661.

301. Hume's discussion of promises in informal settings refers to conventions under which individuals communicate their intentions through "certain *symbols* or *signs*," suggesting a broad array of triggering devices, the particulars of which emerge in specific contexts. HUME, *supra* note 291, at 522 (emphasis in original). In the context of cooperative oligopoly pricing, it is hardly apparent that magic words communicated secretly are essential to create whatever degree of commitment is possible. For example, Porter notes that one function of public discussions of industry conditions by competitors may be to make "implicit promises to cooperate if others act 'properly.'" PORTER, *supra* note 81, at 81.

302. The argument in the text does not rule out its presence as well in cases in which interdependent behavior is unsuccessful, just as there can be elaborate cartel arrangements that fail.

supracompetitive profits, see that one of their collaborators has cheated, and a price war breaks out, one suspects that they are angry—to the extent such moralistic, emotional responses are pertinent in this setting, and we are for present purposes supposing that they have some relevance. Thus, if commitment is deemed to equal agreement, this route readily leads once again to the conclusion that any successful interdependent behavior is sufficient.³⁰³

Another possibility would be to deem an agreement qua commitment to exist only when commitment was not merely present but also was necessary to sustain the equilibrium involving a coordinated oligopoly price. Why one would adopt this approach, except out of the felt necessity of avoiding the result that interdependence is enough, is unclear. Moreover, in this instance, the proof problem would be severe. Recall the analysis of the paradox of proof in Section III.D. Here, a plaintiff would have to show, taking other factors as given, that the ease of coordination was in a quite narrow band. Specifically, the ease of coordination would have to be high enough that the incremental oomph from commitment was sufficient to make a documented oligopolistic equilibrium sustainable but the plausibility of successful coordination could not be so high that such an equilibrium was sustainable without that additional support.³⁰⁴ Supposing that the psychological and social weight of commitment is modest relative to the direct profit-loss calculus, the plaintiff's case would have to hit a small bull's-eye. Moreover, the location of that bull's-eye—which would be at the degree of ease of coordination that was the tipping point between the coordinated oligopoly price being unsustainable and sustainable—would itself be in dispute.³⁰⁵ Accordingly, what the plaintiff would have to show on one dimension would depend on the fact-finders' determination on the other. Note further that, if the case were at all close, both the plaintiff and defendants would be quite uncertain regarding which evidence and arguments

303. One may suppose that the degree of commitment—in contrast to a mere recognition of being in an equilibrium governed entirely by narrowly viewed self-interest—varies across contexts, depending among other things on the sorts of empirical questions raised previously. The present suggestion is merely that there would be some (perhaps trivial) level in (nearly?) all cases. The text to follow explores the possibility of making the weight of the felt commitment relevant.

304. Although described somewhat differently, this requirement seems to be close to what Areeda and Hovenkamp (whose general view is described in note 290) have in mind when they refer to acts sufficiently perilous that firms would not undertake them without an exchange of commitments or comforting assurances. *See, e.g., AREEDA & HOVENKAMP, supra* note 9, at 96. The emphasis on two-way communications rather than on unilateral pronouncements (noted previously in the text) or on context is largely taken for granted. To illustrate the latter, the widespread use of white flags in war and in some other settings involves individuals placing themselves at extreme peril based on an implied commitment that ordinarily is not communicated by the other side.

305. In finite repeated games, in which backward induction ordinarily disrupts equilibria reflecting cooperative behavior (*see supra* note 240), small differences in payoffs can be quite important. *See, e.g., FRIEDMAN, supra* note 222, at 100–03; Radner, *supra* note 240. In some such settings, successful interdependence would imply the existence of promises, commitment, or whatever else was hypothesized to make firms somewhat more reluctant to cheat.

avored which party; small shifts in the perceived weight of one item of proof would reverse parties' tactical positions on others.³⁰⁶

In principle, promises, like communications, might be relevant to the feasibility of successful coordinated oligopoly pricing in some contexts. It follows that it may be desirable to regulate interactions that facilitate achieving an intersubjective state in which commitments are firmer, just as it makes sense to regulate some forms of communication as facilitating practices.³⁰⁷ However, once the potential role of promises in oligopoly theory is understood, it is difficult to see them as central to a legal definition of horizontal agreement.

C. Rationale of Price-Fixing Prohibition

Sections A and B explore the relationship between modern oligopoly theory and the agreement requirement by asking whether there is something in economic (game) theory that corresponds to the law's notion of agreement. Since it has been recognized for a century that U.S. antitrust law (and Section 1 in particular) is to be given a purposive interpretation, which for many decades has been explicitly linked to economics,³⁰⁸ it is also natural to consider the justification for the price-fixing prohibition and its relationship to the idea of agreements. This Section briefly considers why oligopoly pricing is

306. This observation provides another reason to be highly skeptical of the claim that the postulated theory accurately describes the (implicit) current state of the law. An additional reason, suggested in note 290, is that if current law depends on the existence and weight of promises, commitments, and the like, one would expect to see them addressed directly in cases on a routine basis rather than being mentioned only occasionally, in passing, and not subject to direct dispute by the parties, including, for example, in the presentation of expert evidence.

307. Such regulation might include restriction of direct, elaborate interactions in which parties might convey commitments but also limitation of what is usually regarded to be benign activity, such as competitors' agents serving together on trade associations or boards of civic organizations or playing golf, for direct social interactions may be relevant to the feasibility of explicit or implicit commitments and to the strength of their psychological and social pull. Although not commenting on the merits of such an approach, Areeda and Hovenkamp advance a view that suggests the relevance of this sort of intervention. See AREEDA & HOVENKAMP, *supra* note 9, at 226 ("[E]ach oligopolist is 'implicitly' negotiating with its rivals through the medium of the price it charges or changes from time to time. Such 'implicit bargaining' attempts to reach a noncompetitive market price that is reasonably satisfactory to all and thus sustainable. Though less refined, it resembles the negotiation that occurs around a cartel bargaining table, and the mind-set of oligopolists who have long followed a pricing leader may approach that of cartel members, especially where many trade association, lobbying, or social meetings have generated mutual trust."). Leslie, who argues that the degree of trust is important to oligopoly success, advocates that significant efforts be made to regulate interactions that facilitate trust but otherwise might be viewed as competitively benign. See Leslie, *supra* note 290, at 656-73. Of course, if the present theory is deemed too far-fetched or insufficiently weighty, these sorts of limitations would not make sense. Likewise, as with other facilitating practices, see *supra* Subsection II.B.2, heavier regulation tends to be favored the more difficult it is to reach coordinated oligopolistic pricing directly.

308. Although conventional wisdom suggests that this connection has emerged and grown in the past few decades in the United States, it arguably was central pretty much from the beginning. See, e.g., Louis Kaplow, *Antitrust, Law & Economics, and the Courts*, 50 L. & CONTEMP. PROB. 181, 184-87 (1987).

objectionable, how monopoly (which, standing alone, is not generally condemned) is distinguishable, and what the relationship is between the identified evil and different interpretations of the agreement requirement. Regarding the latter issue, it is important to keep in mind that this Article does not seek to identify the optimal regime or to carefully analyze and compare leading alternatives,³⁰⁹ nevertheless, some attention to the relationship between problem and solution is helpful for present purposes and to motivate subsequent inquiry.

The core objection to oligopoly pricing is that prices are higher: higher than the competitive level and higher than is ordinarily necessary to induce producers to supply goods and services to consumers.³¹⁰ Such high pricing is generally regarded to be undesirable in itself, which makes sense if the objective of competition policy is taken to be the maximization of consumers' welfare. If instead the objective is overall efficiency or social welfare—which includes as well producers' profits, which ultimately are enjoyed by individuals, be they owners, workers, or others—then oligopoly pricing is likewise objectionable because, despite firms' gain in profits, the excess of price over marginal cost destroys value. Sales that would have occurred at the lower, competitive price and are choked off by oligopoly pricing have the character that buyers' valuations, which by assumption are above the competitive price, exceed marginal cost.³¹¹

309. Relatedly, this Article does not advance a position on what, if any, should be the role in an optimal regime of an agreement requirement, however interpreted. Of course, interpreting agreement as successful oligopolistic interdependence—which previous Parts of this Article suggest to be plausible semantically and in a number of other respects—does at first blush align the law with the economic concern. This observation suggests that an agreement notion is not obviously at odds with a purposive interpretation of the law.

310. There is an important complication in the presence of fixed costs if marginal costs are constant (or nearly so). See, e.g., Kaplow & Shapiro, *supra* note 5, at 1079–80, 1089, 1093–94, 1098. This consideration, however, is unrelated to the agreement question, for whether or not there is a need to cover fixed costs is a priori independent of whether the means of doing so may involve one or another form of agreement.

311. On the choice between consumer and total welfare as objectives of competition policy, see Louis Kaplow, *On the Choice of Welfare Standards in Competition Law*, in GOALS OF COMPETITION LAW (Daniel Zimmer ed., forthcoming 2011). Even if consumers are to be favored on distributive grounds, perhaps because they are on average less well off than beneficiaries of firms' profits, it does not make sense to ignore producers' surplus entirely. In any event, it tends to be advantageous to achieve distributive objectives more directly, through redistributive taxation and transfers. See, e.g., Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667 (1994). The commonly advanced view that consumer welfare should be the exclusive objective is also in tension doctrinally with the per se condemnation of price-fixing on the buyers' side of the market, which reduces rather than raises prices to the immediate consumer (although not to ultimate consumers, if they are different)—which rule is generally praised by commentators, despite their professed adherence to the view that only consumer surplus should count. Cf. *Weyerhaeuser Co. v. Ross-Simons Hardwood Lumber Co.*, 549 U.S. 312 (2007) (applying the test for predation by sellers to predation by buyers, grounding this holding on the close similarity between monopoly and monopsony).

Up until this point, the objection to oligopoly pricing is that it is akin to monopoly pricing. If multiple firms successfully engage in interdependent oligopolistic coordination, instead of behaving competitively, they act as if they are a single firm, reaping monopoly profits at the expense of consumers and, as explained, total efficiency or welfare. Monopolies are regulated to varying degrees in different competition regimes and through other means, such as utility regulation that may control prices, entry and exit, and other behaviors. Competition laws tend to regulate exclusionary practices that create, enhance, or maintain monopoly power, but not for the most part the simple act of being a monopoly and charging monopoly prices. This distinction, of course, is controversial and is followed in varying degrees across regimes.

There are important differences between price fixing by independent firms and monopolistic pricing by a single firm. Some involve administrative considerations that, although very important and central to some arguments about how the agreement requirement should be interpreted,³¹² are set aside here (yet it should be kept in mind that much of this Article, especially Section III.D, raises serious administrative concerns about conventional articulations of the agreement requirement³¹³). Instead, consider the core conceptual distinction—undoubtedly a significant practical one as well—regarding the function of profits in a market economy. Monopolization doctrine in U.S. antitrust law, for example, recognizes that monopoly profits due to efficient behavior, such as good management or innovation, should not be punished because the prospect of such reward induces desirable behavior *ex ante*.³¹⁴ Such behavior advances total social welfare and tends to be good for consumers as well, particularly when firms attain or retain monopoly status by outperforming past, present, and potential rivals by offering superior products at attractive prices.

Price fixing by oligopolists, by contrast, lacks this core virtue. Additional reward is produced by successful interdependent interaction rather than by selling higher quality products at lower prices than other firms are able to offer. When multiple firms thus act as if they are one, consumers and society as a whole (as a crude first approximation) suffer the cost of monopoly but do not

312. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 8, 232–34; Turner, *supra* note 30, at 668–70.

313. Recall specifically that conventional approaches, in the absence of unambiguous smoking-gun evidence of acts in the requisite set X, seem to require all of the analysis necessary to identify successful interdependence and also to demand difficult inquiries into the ease of coordination (independently, that is, of whether it is actually taking place) as well as to raise challenges in determining what inference (notably, what probability of agreement, however defined) is appropriate even after all pertinent market conditions are determined. Setting damages also poses its own difficulties, as suggested by the analysis in Subsection III.C.4.

314. See, e.g., *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 430 (2d Cir. 1945) (“The successful competitor, having been urged to compete, must not be turned upon when he wins.”); *United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966) (referring to “the willful acquisition or maintenance of that [monopoly] power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident”).

reap the benefits.³¹⁵ Indeed, oligopoly may directly reduce these potential gains: when some oligopolists are more efficient or offer products superior to those of others, successfully coordinated pricing tends to interfere with the tendency of better firms to serve a larger share of consumers. In addition, firms have less incentive to become more efficient and innovative because they may not greatly benefit from such activity unless they will be willing to defect from the interdependent arrangement, which they may be reluctant to do if the oligopoly profit margin is substantial. Also, economies of scale that reflect given production technologies rather than distinctive management or useful invention are not as fully realized by successful oligopolists. A corollary of this point is that successful interdependent oligopoly pricing can be worse than old-fashioned explicit cartels because the latter might be able rationalize production and thus achieve some efficiencies that will not result from mere coordinated price elevation.³¹⁶ Competition laws often allow competing firms to merge or enter into joint ventures precisely because of the potential to realize efficiencies; moreover, such actions are only permitted subject to review designed to determine whether the gains are sufficient to justify any anticompetitive effects.

Although the foregoing account is conventional, it is not always kept fully in mind when examining the horizontal agreement requirement. For example, some commentators suggest that condemning mere successful interdependence would be problematic because it would be akin to prohibiting monopoly pricing, which is often tolerated.³¹⁷ This point overlooks the core distinction just described. In addition, once this equation is made, it is difficult to see why coordinated oligopoly pricing even when accomplished through various forms of explicit communication, promises, and the like—that is, including classic cartels—should be deemed illegal, for by assumption the economic substance is

315. A classic statement of the *ex ante* investment benefits of the prospect of market power, and their inapplicability to coordinated oligopolistic pricing, is offered by Demsetz:

To destroy such power when it arises may very well remove the incentive for progress.

This is to be contrasted with a situation in which a high rate of return is obtained through a successful *collusion* to restrict output; here there is less danger to progress if the collusive agreement is penalized.

Harold Demsetz, *Industry Structure, Market Rivalry, and Public Policy*, 16 J. L. & ECON. 1, 3 (1973).

316. Cf. Richard Schmalensee, *Competitive Advantage and Collusive Optima*, 5 INTL. J. INDUS. ORG. 351 (1987) (elaborating how collusion with production by the most efficient producer, who makes side payments to less efficient firms, is more efficient than collusion in which firms share the market in various ways).

317. See, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 8–9 (offering reasons for attacking price fixing, most of which do not distinguish monopoly pricing); *id.* at 232 (arguing against prohibition of pure interdependence because such would be inconsistent with rules on monopoly); *id.* at 272 (same); Turner, *supra* note 30, at 668 (“It would make no sense to deprive lawful oligopolists—those who have achieved their position by accidental events or estimable endeavor—of the natural consequence of their position if the lawful monopolist is left with his.”). *But see* Lopatka, *supra* note 224, at 854–55 (criticizing this view). As suggested previously, this argument is not the only one offered by such commentators.

indistinguishable. As just mentioned, cartels might even be more efficient than pure interdependent behavior. As a doctrinal matter, this suggested equivalence is also puzzling. U.S. antitrust law, as well as competition law in the European Union and other jurisdictions, places additional restrictions on group behavior as distinguished from single-firm behavior. But if prohibitions on group behavior were automatically construed to be no broader than those applicable to single firms, the former prohibitions would be redundant.³¹⁸

The underlying reasons that oligopolistic pricing is harmful are also directly relevant in comparing different approaches to the agreement requirement. This point is most apparent when considering the paradox of proof, as developed in Section III.D. For example, recall the view that many commentators seem to hold, although the empirical basis is unclear, that prohibited communications are almost always necessary for successful coordinated oligopoly pricing. In that case, it is explained that the only distinguishing feature of an agreement requirement beyond mere interdependence is that it would exonerate coordinated oligopoly pricing in those few cases in which the danger of successful—more likely, more prolonged—coordination is greatest. A priori, it seems difficult to rationalize the introduction of possibly significant additional administrative burdens in order to exempt a small slice consisting of the most harmful cases.

For a broader paradox region, there is more at stake, but the alignment seems backwards. A stricter agreement requirement relieves from liability a wide swath consisting of all of the cases posing the greatest danger, while providing liability for cases in a middle range. There seems to be a powerful a priori argument for reversing such results—that is, condemning rather than exempting firms posing the greatest danger and exempting rather than

318. If the equation of monopoly pricing, which is legal, and oligopoly pricing, which is regulated by Section 1 and analogous provisions in other regimes, is accepted, an interpretative approach grounded in economic substance may be foreclosed, which may help to explain why commentators seem attracted to a formalistic approach based on attempts to define agreement in a nonfunctional manner—on which see also the discussion in Subsection II.B.1 of functional equivalents to forbidden modes of communication.

Many commentators, at least since Turner's article, seem also to be taken by the idea that firms engaging in simple interdependent oligopoly pricing are morally pure because they cannot help but be rational, whereas if they communicate we can then identify evil acts for which we can hold them accountable. Turner, *supra* note 30, at 65–66; see, e.g., AREEDA & HOVENKAMP, *supra* note 9, at 227–35. Although this argument goes to the ultimate question of the best legal test, which is not the focus of this Section or the Article as a whole, it is worth noting that the claim is question-begging. After all, rational profit-maximizing firms can hardly refrain from polluting (say, by failing to clean wastes from their effluents) when such is more profitable, from committing fraud on unsuspecting consumers, and so forth—that is, if such practices are deemed permissible and not subject to any sanctions. If interdependent oligopolistic pricing can practically be identified and made subject to effective penalties (a point on which many differ, but also which poses serious problems for stricter agreement requirements), then it no longer would be the case that interdependent oligopolistic pricing would be either profitable or beyond whatever moral opprobrium accompanies violations of the law.

condemning those posing only a moderate danger.³¹⁹ In all, the core grounds for attacking oligopoly pricing in the first place seem directly opposed to the pattern of results generated by agreement requirements that go beyond mere interdependence. This point has not gone entirely unnoticed, but, as previously noted, the paradox of proof and its implications have not been pursued in depth in prior work.³²⁰

The foregoing discussion is not meant to suggest that one or another horizontal agreement requirement is best. As stated repeatedly, this Article does not attempt to answer this question. It does seem true, however, that consideration of the core rationale of the price-fixing prohibition raises serious doubts about whether many proposed approaches to the agreement requirement make sense. In order to determine the best legal approach, substantial further analysis is necessary. For example, administrative considerations and empirical questions, including those raised in Section III.D on the paradox of proof, require further examination.

In addition, the entire orientation toward the problem requires realignment, especially in light of the fact that firms' behavior is endogenous to the legal regime. It is insufficient to examine errors in adjudication, notably, the likelihood of false condemnation and of mistaken exoneration. Of central relevance is the influence of the prospect of adjudication on firms' behavior, that is, the deterrent effect of a regime on price fixing and the chilling effect of the system on otherwise desirable behavior. For example, if deterrence is quite successful, there may be few cases, and those that are brought may well involve innocent behavior—but that latter feature would be a signal of success rather than failure. By contrast, large numbers of cases involving defendants who have behaved badly may well indicate system malfunction.³²¹ This Article's inquiries are a prerequisite for much of the necessary analysis, but undertaking it must be left to other work.³²²

CONCLUSION

This Article examines the concept of horizontal agreement in competition law from a diverse range of perspectives. What emerges is a remarkable consilience under which agreement understood as interdependence is broadly sustainable whereas conventional views defining agreement more narrowly, as

319. The suggestion of flipping the outcomes is meant to be provocative. Moreover, the argument in text simplifies in numerous ways, such as by supposing that there are a similar number of cases in the two regions and by ignoring that changing the rules would alter firms' behavior.

320. See *supra* note 188 and the accompanying text.

321. The subject of this paragraph is explored in much greater depth in my current research on how optimally to set proof burdens.

322. See Louis Kaplow, *An Economic Approach to Price Fixing*, 77 ANTITRUST L.J. 343 (2011) (addressing the optimal legal regime for price fixing); Kaplow, *supra* note 93 (comparing such a regime to that conventionally advocated).

involving something more, consistently run into foundational difficulties. As will be remarked below, the relationship between this finding and sound competition policy is hardly obvious, but for the moment it is useful to bring together conclusions from the wide range of inquiries that are undertaken here.

The two opening illustrations foreshadow what follows and arguably in themselves cast serious doubt on notions of agreement other than interdependence. After all, in canonical settings in which the agreement requirement is understood to provide sharp distinctions, it is hard to imagine how to give content to the notion in a way that would provide any plausible distinction at all. Strong, archetypal instances of express agreement readily blur into pure interdependence. This difficulty, in turn, not only mirrors but helps to explain why semantics, drawing on conventional definitions of key terms, and theories and studies of human language likewise indicate that the proffered distinction is difficult to render coherent.

Competition law doctrine appears similar. Statutes in the United States and European Union use language of agreement, conspiracy, and concerted practice that is shown to align comfortably with interdependence. Likewise, the term conspiracy in particular, by far the most mentioned component of Sherman Act Section 1's trilogy, has a long-established meaning that is consonant with interdependence—referring notably to a meeting of the minds and related subjective notions and specifically rejecting the idea that understandings must be express or otherwise constituted in particular, restrictive ways. In the first century after the Sherman Act's passage, Supreme Court opinions almost uniformly embraced this view. Leading Section 1 cases most known for articulating a broad interpretation of the agreement requirement, *Interstate Circuit* and *American Tobacco*, are also viewed as definitive articulations of the agreement element in conspiracy law more generally. Importantly, two recent cases state differing views, although in those decisions the meaning of horizontal agreement was not before the Court.

Furthermore, lower courts, which of late often state a narrow view of agreement, at the same time ground their decisions in “plus factors” that are tantamount to defining agreement as interdependence. Jury instructions and damages doctrine also seem to reflect such a definition of agreement. In addition, the uncontroversial principle of blackletter law—under which conspiracies can be and, due to parties' efforts to maintain secrecy, often must be inferred from circumstantial evidence—is seen to have remarkably complex and surprising implications for the course of adjudication, the substantial absence of which casts doubt on the extent to which conventional articulations of the doctrine characterize legal practice. Finally, neither lawyers' advice to clients nor firms' routine behavior reflects the view that only express agreements approaching secret cartels give rise to liability.

It is natural to contemplate whether the high consistency in these conclusions from such diverse starting points can be explained. The affirmative

answer, it is suggested, can be found in modern oligopoly theory. Courts and commentators alike broadly endorse grounding competition policy in economic understandings rather than formalistic maxims. Thus, we should expect any sensible understanding of the agreement requirement in price-fixing cases to be in accord with some central, substantive distinction in the pertinent economic analysis. It turns out, however, that the modern theory of repeated games, which forms the core of contemporary oligopoly theory, does not distinguish at all between express agreements and pure interdependence: there is no concept in the relevant theory that grounds the distinction at the heart of conventional views of a narrow agreement requirement. The notion closest to agreement is an equilibrium involving coordinated supracompetitive pricing, but that corresponds to (successful) interdependence, nothing more. In addition, as already mentioned with regard to the paradox of proof, examination of the economic basis for condemning price fixing, in terms of its adverse effects on social welfare, also equally condemns supracompetitive prices achieved through pure interdependence.

This effort at triangulation suggests that the whole is greater than the sum of its parts. Although qualifications are noted at many points in the analysis and some readers may find particular arguments unconvincing, it is difficult to see how all of the divergent inquiries could be largely negated, much less in a fashion that directed one to a common conclusion supporting the conventional, narrow view of agreement. The economic analysis is perhaps most damaging to such an endeavor because it goes to the underlying purpose of the prohibition. Also telling is the failure of most courts or commentators even to attempt to undertake sustained efforts to delineate the category of acts they deem to constitute agreements—which failure may well be rooted in the nonexistence of a relevant concept to be elaborated.

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. The design of optimal policy is not dictated by definitions but rather by direct assessment of the consequences of different regulatory approaches. The primary benefit of stricter rules is the deterrence of supracompetitive pricing. The main cost is the chilling of desirable economic activity as a consequence of the prospect of mistaken condemnation of competitive behavior and of firms bearing high costs in demonstrating that their behavior is actually innocent. Furthermore, whatever turns out to be the best rule in principle may well differ from the best rule for any particular government agency—for example, for internal enforcement decisionmaking or for adjudication by specialized commissions, which is common in many countries outside the United States—which in turn may deviate from the best rule for courts, particularly in a system with extensive and expensive discovery and with fact-finding by lay juries.

The present Article focuses on possible meanings of the horizontal agreement concept. Although some of the analysis undoubtedly bears on how sound policy should be formulated, that important question is largely left to another day.³²³ Currently, much analysis of legal policy in this area accepts the consensus that we should heavily punish all horizontal price-fixing agreements but exonerate non-agreements, so that everything turns on the highly problematic question of what the term agreement is taken to mean. The present investigation suggests that defining or contorting the term agreement is unlikely to be a fruitful avenue for policy-making.

Nor is the fact that the term or close synonyms appears centrally in relevant statutes likely to be an obstacle. As is clear throughout, interdependence can be taken as the meaning of such terms, if one wishes. Turner, one of the earliest and strongest proponents of a narrow prohibition, endorsed this view as a matter of language while rejecting it as a matter of policy. Doctrinally justifying a narrower prohibition, if such proves to be sensible, may be accomplished by a mix of establishing high proof burdens—a *prima facie* sensible response when the main cost of excess is likely due to the prospect of false positives—and relying more on the substantive aspect of legal proscriptions, under U.S. law the requirement that there be an unreasonable restraint of trade. The latter approach is also the natural route for regulating facilitating practices, including the sorts of communications that are often the focus of elaborations of the agreement requirement. Conventional wisdom more often endorses an aggressive approach toward facilitating practices, one that is explained to be tantamount to declaring naked price fixing to be *pe se* legal, with penalties confined to particular means of bringing about coordinated oligopolistic price elevation. Moreover, it will often be necessary to define agreement as interdependence if one is to reach such practices because, as explained, their use may well come about through the same sorts of implicit understanding that is associated with oligopolistic coordination on price itself.

It is commonplace in criticizing legal doctrine, including in competition law, to place much of the blame for unsound rules on courts, or in some countries, on commissions with analogous authority. The strong criticism levied throughout this Article does not, however, entail such a view. It falls primarily to analysts and other commentators—and secondarily, as intermediaries, to legislators, enforcement agencies, lawyers in private practice, consultants, and so forth—to translate the teachings of modern economics into workable legal rules. A casual empirical observation is that there is ordinarily a two or three decade lag between the development of ideas in economics and their impact on the formulation of competition policy. Given that modern analysis of oligopoly took off in the 1970s, one might argue that we are only a decade or so behind schedule. Moreover, delay does not appear to be primarily

323. It is the subject of the sequels cited in the preceding footnote.

the fault of courts. In the United States, the relevant ideas have not for the most part been presented and, as suggested, by and large have not been developed in the first instance. To the extent that courts offer problematic pronouncements, they are able to find support, often near consensus, from commentators as well as government policy-makers. In this regard, academics' and others' almost complete disregard, for forty years, of Posner's academic contributions—often his core ideas and nearly always his analysis in support of them—is regrettable.

The purposes of this Article are to stimulate new work on optimal competition policy toward price fixing and to allow it to begin somewhat further along by clarifying issues and analyzing certain aspects of the problem. Indeed, because the policy favored by most commentators and asserted by many to constitute existing law is not even readily defined, it is quite difficult to assess its desirability and compare it to various alternatives without first clearing away substantial underbrush. With that task advanced, it is hoped that the need to construct a superior competition regime is better appreciated and that progress is closer at hand. It is ironic that the prohibition on price fixing is the least controversial and regarded to be the most well grounded economically, yet the domain of the prohibition is so little understood and the basis for its boundaries remains so unanalyzed. Regarding an agreement to fix prices, everyone believes that it's bad and warrants strong penalties. All that remains to determine is just what the "it" should be deemed to be—which is to say that there is much work ahead.