

A THEORY OF LITIGATION SIGNALS

*Avraham Tabbach and Shay Lavie**

ABSTRACT

Conventional wisdom suggests that forced information-sharing procedures, namely, discovery proceedings, are the only way to rectify information asymmetries between parties to a legal dispute. This Article challenges this notion. It argues that litigants can convey information indirectly, through a variety of vehicles we call “litigation signals.” For instance, by committing to “disarm” themselves of important preliminary claims, litigants convey confidence to their rival. We employ a game-theoretical model to provide a comprehensive account and typology of litigation signals and to identify conditions under which different classes of signal are actually workable.

A discussion on litigation signals entails wide policy implications. First, the Article shows how litigation signals advance settlement by facilitating information flow between litigants. Second, it sheds new light on the heated debate over discovery proceedings. Given the availability to voluntarily transmit information, the detrimental effects of narrow discovery are more modest than they seem to be; and the costs of broad discovery are exaggerated. Third, the Article reveals specific litigation tactics that can be used as informative signals, suggesting a more nuanced judicial treatment thereof. Finally, the Article delineates procedures that courts could adopt to help parties transmit information more effectively.

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* Professor and Assistant Professor, Tel Aviv University Faculty of Law. We are grateful to Giuseppina Gianfreda, Dan Klerman, Roy Shapira, Kathy Spier, Jennifer Shkabatur, and participants in the Law & Economics Workshop at Tel Aviv University and the Hebrew University for helpful discussions and comments. We are grateful to two leading law firms, for the opportunity to present our research and interview attorneys from their litigation departments. We thank Ofir Givati, Sharon Salinas, and Shir Shrem for excellent research assistance. This research project was supported by the Israeli Science Foundation (grant No. 1708/16).

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INTRODUCTION

In 2015 new amendments to the Federal Rules of Civil Procedure took effect. The most important of which constrain the right to discovery in civil proceedings. These changes have roused “passionate” responses from different stakeholders,¹ and they reflect a fiery debate on plaintiffs’ rights to force defendants to share information. The most divisive debates revolve around asymmetric information situations. In these settings, the plaintiff lacks information on the merits of her case, which resides with the defendant—for instance, typical medical malpractice cases. On the one hand, discovery imposes extensive expense on informed defendants, inviting opportunities for abuse and pushing defendants to settle non-meritorious cases.² On the other hand, absent broad discovery uninformed plaintiffs may choose to drop meritorious claims, leading to “a significant decrease in enforcement and vindication” of rights.³ Indeed, asymmetric information situations, and the scope of desired discovery therein, are apparently “[t]he most important problem in dispute resolution”⁴

This Article proposes a new theoretical basis for this debate. The current discourse presupposes that in asymmetric information situations formal

¹ Patricia W. Hatamyar Moore, *The Anti-Plaintiff Pending Amendments to the Federal Rules of Civil Procedure and the Pro-Defendant Composition of the Federal Rulemaking Committees*, 83 U. CIN. L. REV. 1083, 1112 (2015).

² *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 559 (2007).

³ Howard M. Wasserman, *Iqbal, Procedural Mismatches, and Civil Rights Litigation*, 14 LEWIS & CLARK L. REV. 157, 157 (2010).

⁴ Robert J. Rhee, *Toward Procedural Optionality: Private Ordering of Public Adjudication*, 84 N.Y.U. L. REV. 514, 548 (2009).

discovery is essential to force defendants to reveal privately-held information, which can be “only gained through some court-supervised discovery.”⁵ Our point of departure is different. We argue that informed defendants can “signal” relevant information to uninformed plaintiffs without formal discovery.

Consider an uninformed victim who files a lawsuit against a doctor without knowing whether the defendant-doctor is negligent. A non-negligent doctor is motivated to indicate the strength of her defense to the plaintiff—since if she can convince the uninformed plaintiff of her merits, the plaintiff will be induced to drop the suit or agree to a smaller settlement. In fact, an informed party can employ a variety of litigation strategies to achieve this goal. For instance, a non-negligent doctor can send the plaintiff the following message:

You sued me in a state court. I can remove the case to a federal court, which is, as we both know, a better forum for defendants. Nonetheless, I forego my right to transfer the case. I am willing to do so because I know that I was not negligent and I would like to convince you that if you move forward you will lose the case.⁶

The defendant’s willingness to voluntarily drop a useful litigation right is puzzling. Perhaps, but we claim that it is rational. Negligent defendants would not hasten to “disarm” themselves of the right to litigate in a pro-defendant, federal forum. In contrast, non-negligent doctors are more confident about their odds at trial and, hence, are more willing to offer this type of proposal. Moreover, by doing so, they indicate their strength to their rivals.

Other common litigation strategies potentially fulfill a signaling function. Different waivers of procedural rights can indicate the strength of the waiving party.⁷ One-way fee-shifting stipulations can have a close signaling quality and convey a litigant’s confidence by voluntarily promising to pay her rival’s expenses in case of a loss.⁸ Likewise, defendants sometimes agree to a partial settlement in which they stipulate to generous damages while the case is being tried on the question of liability only.⁹ Such a defendant asserts, in essence, that she is not liable. In a similar vein, in mediation and arbitration proceedings parties are occasionally asked to “bet” on their settlement offers, such that they are penalized in case the judge or arbitrator rules against

⁵ Wasserman, *supra* note 3, at 169.

⁶ See *infra* notes 189-198 and accompanying text (discussing the actual case that inspired this example).

⁷ *Infra* Part II.B.2.

⁸ *Infra* Part II.B.1.

⁹ *Infra* Part II.B.3.

them.¹⁰ On the face of it, these litigation strategies appear incomprehensible—but we claim that they can be understood as mechanisms to transmit information between the parties without judicial intervention. Broadly speaking, we refer to these moves as “litigation signals.”

This Article is the first to offer a comprehensive theory of litigation signals. To do so, we recognize different types of signals and use these distinctions to identify workable and non-workable signals. Given the heated debate over the acceptable scope of discovery, and the potential of litigation signals to convey information without formal, judge-supervised discovery, the scholarly disregard for litigation signals is unfortunate. A better understanding of litigation signals has important and timely implications for the desirable design of civil procedure and court rules. More generally, literature tends to treat settlements simplistically, without heeding to the possibility of more complex agreements, e.g., conditional commitments dependent success. In this sense, this Article further develops a contemporary line in literature that studies more sophisticated settlements.¹¹

Part I provides background for the Article, explicating the nature of asymmetric information situations. Part II explains the concept of “signaling,” which is used more often in other disciplines. As this Part shows, several litigation strategies can serve as signals; one-way fee-shifting, dropping claims, and generous liability-only agreements are paradigmatic examples.

Part III analyzes litigation signals more closely, relying on a game-theoretical model of settlements (the accompanying Mathematical Appendix provides a better detailed and technical discussion). We examine three types of signals: unilateral, third party, and cooperative. Unilateral litigation signals are strategies that convey information—but do not require cooperation between parties, e.g., “I drop my statute of limitations claim to signal my strength.” While these signals seem intuitive, we show that in fact they are not likely to occur in practice as they are typically costly to employ. Informed defendants—those who use unilateral signals—are more likely to settle. With that, once “disarmed,” and taken to trial, they can expect to pay higher compensation. For similar reasons, a plaintiff who receives a unilateral signal has more leverage in settlement negotiations as going to trial becomes more attractive to the plaintiff. Third-party signals involve promises related to parties—other than the plaintiff and the defendant, e.g., “If you pursue adjudication and I lose, I promise to donate a certain amount to charity as a

¹⁰ *Infra* notes 96-98 and accompanying text.

¹¹ See J.J. Prescott & Kathryn E. Spier, *A Comprehensive Theory of Civil Settlement*, 91 N.Y.U. L. REV. 59 (2016) (studying more sophisticated, partial-settlements, but assume no asymmetric information).

signal of my strength.” We demonstrate that these signals are less costly for informed defendants and hence more likely to be used than unilateral signals. This is because they prevent the plaintiff from taking advantage of the defendant’s signal (the money goes to charity, rather than to the plaintiff). Nonetheless, in typical cases, informed defendants will refrain from employing these signals—if the dispute is tried, these signaling defendants will have to pay more than they should (with the additional money going to charity). “Cooperative” signals require more intricate agreements between parties, e.g., “If you take me to trial, I will waive my jurisdiction defense, but in exchange you will pay me a specified amount.” These signals solve the problems associated with unilateral and third-party signals, and in principle, they can always benefit informed defendants who desire to indicate their strength. However, the cooperative nature of these signals requires increased transaction costs and greater sophistication. Against this backdrop, Part III proceeds to discuss litigation signals in actual settlement negotiations. On the one hand, there seem to be several limitations on the use of litigation signals—for example, the most effective cooperative signals require greater transaction costs. On the other hand, while direct empirical data is difficult to collect, real-world evidence supports the use of litigation signals. While litigants rarely fully tap benefits of litigation signals, they do employ them to some extent, especially in the basic form of non-monetary commitments, e.g., dropping important claims.

Part IV discusses the normative implications of our analysis. First, the Article offers an alternative outlook on the contemporary discovery debate. Simply put, we challenge the notion that in asymmetric information situations formal discovery is essential for conveying information. This suggests that the real effect of a narrower right to discovery may be more limited than commonly conceived. In addition, the capacity of litigants to signal information and avoid costly discovery also indicates that the costs of discovery are lower than expected. Second, the discussion on litigation signals pertains to parties’ optimal freedom to choose their own procedures—with greater leeway to drop claims, signaling is easier. While parties can generally fashion their procedures, several rules undermine the use of litigation signals. Some states, for example, forbid voluntary one-way fee-shifting. The Federal Rules of Civil Procedure, to mention another example, allow litigants to freely add claims, weakening the ability of informed parties to signal by credibly dropping claims. This Article suggests therefore a more nuanced application of these rules. Third, discussing litigation signals will hopefully urge courts to create procedures facilitating signaling. A simple mechanism could enable informed litigants to promise to pay, contingent on losing the case, an additional amount into court’s coffers—a signaling device that can be effective in some cases.

We conclude that there is more room to utilize litigation signals, and we end our Article with a call for lawyers to engage in proactive and explicit signaling practices in asymmetric information situations.

I. THE ASYMMETRIC INFORMATION PROBLEM

Parties to a legal process have strong reasons to settle. As litigation is costly to both sides, we should expect the parties to seek a contractual solution—settlement—that saves their joint litigation costs.¹² Indeed, the vast majority of cases settle.¹³ Cases that fail to settle are aberrations. In this reality, and given the vast expenses of litigation,¹⁴ it is all the more important to understand the process leading to settlements and the reasons for settlement breakdowns.

Starting with Bebchuk and Reinganum and Wilde, literature has offered a powerful analytical tool for understanding settlement failures—asymmetric information.¹⁵ The idea is straightforward: in many instances one of the parties holds relevant information, whereas the rival party is unaware of that information. In these situations the uninformed party, who lacks information regarding the value of her suit, is reluctant to agree to settle the case before trial.

Consider the following example. John pursued an unsuccessful medical procedure that left him severely injured. While John may have good reasons to believe that his doctor was negligent, it is also possible that the doctor’s behavior was impeccable, and the medical procedure failed for unrelated reasons. Importantly, the relevant information lies with the defendant/doctor,

¹² The logic is similar to that presented by Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

¹³ In the federal courts, for example, an estimated 2 percent of civil cases go to trial. Kathryn E. Spier, *Litigation*, in 1 HANDBOOK OF LAW AND ECONOMICS 259, 268 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

¹⁴ *Id.*, at 262-64. See also STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 281 (2004) (“[I]n the United States the administrative costs of the liability system are large . . . for every dollar received by a victim, a dollar or more is spent delivering the dollar to him.”).

¹⁵ Lucian A. Bebchuk, *Litigation and Settlement under Imperfect Information*, 15 RAND J. ECON. 404 (1984) (showing how some settlements are prevented under a theoretical model in which defendants have private information and the uninformed plaintiff holds all bargaining power); Jennifer Reinganum & Louis Wilde, *Settlement, Litigation, and the Allocation of Litigation Costs*, 17 RAND J. ECON. 557 (1986) (same, under a model in which plaintiffs have private information and bargaining power). See also Kathryn E. Spier, *The Dynamics of Pretrial Negotiation*, 59 REV. ECON. STUD. 93 (1992) (presenting the same logic, with a model that includes several rounds of negotiation); Andrew F. Daughety & Jennifer F. Reinganum, *Revelation and Suppression of Private Information in Settlement-Bargaining Models*, 81 U. CHI. L. REV. 83 (2014) (surveying the literature).

whereas the other party, the plaintiff John, only knows that with some probability the doctor was negligent.

To demonstrate the effect of this information asymmetry, suppose that the uninformed John files a lawsuit and that the defendant/doctor proposes to settle the case for a miniscule sum. John believes that this is a fair settlement, provided that it comes from a non-negligent defendant. However, uncertain about the actual behavior of the doctor, John suspects that the defendant proposes less than she actually should. Therefore, John may well refuse a low settlement offer and pursue a trial.¹⁶ In some cases, the foregoing dynamic might lead John to completely drop a meritorious suit—meaning that informed defendants can sometimes avail themselves of plaintiffs' ignorance.¹⁷

This simple example also demonstrates other relevant features of the information asymmetry models. First, if the case proceeds to trial, the private information held by the defendant would typically become public, e.g., through testimony or pre-trial discovery.¹⁸ Second, while litigation can reveal the actual behavior of the doctor during the operation, it entails considerable expense to both sides. Third, the parties are typically aware of their strengths and limitations—the doctor knows that John is uninformed regarding the cause of the failure of the medical procedure; and John understands that the doctor knows the reasons for the failure.¹⁹ Fourth, John can assess the likelihood that medical procedures fail due to a doctor's fault; however, he does not know whether *his* surgery did not succeed due to negligent behavior. These assumptions are embedded in virtually all models of this type.²⁰

Indeed, medical malpractice is an area of law widely considered to exhibit

¹⁶ *Infra* Part III.A.1 explains in detail the game-theoretical foundations of this brief description, and the Appendix provides a more formal analysis of this basic model.

¹⁷ This result holds, for example, when John has a good case against negligent defendants, but he is better off not suing non-negligent defendants (*i.e.*, John's claim against the latter is a so-called "negative expected value" suit). See Robert G. Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519, 550-66 (1997) [hereinafter Bone, *Frivolous Suits*] (analyzing these situations).

¹⁸ See, e.g., Robert H. Gertner & Geoffrey P. Miller, *Settlement Escrows*, 24 J. LEGAL STUD. 87, 99 (1995). Relatedly, these models assume that the informed party cannot credibly convey her information to the other party prior to its revelation at the court—in other words, trial reveals information that the parties cannot voluntarily and credibly disclose. *Id.* In some cases it may be feasible for the uninformed to conduct pre-filing investigation and independently reveal the defendant's private information. However, in typical asymmetric information cases—as the example in the text suggests—such independent investigation seems too costly to pursue. *Cf.*, Bone, *Frivolous Suits*, *supra* note 17 (analyzing the capacity of the uninformed to independently acquire information).

¹⁹ In formal terms, the assumption is that aside from the private information all relevant parameters are common knowledge.

²⁰ See, e.g., Daughety & Reinganum, *supra* note 15, at 85-87.

asymmetric information problems. Typically, the “patient has no direct knowledge of what the doctor did,”²¹ while the doctor is well-aware of the merits of the case, “the quality of care actually delivered.”²² In addition to medical malpractice, asymmetric information problems plague other areas of law. A notable example is discrimination in general and employment discrimination in particular. Generally, “unearthing discrimination is difficult [for the plaintiff] because evidence of a defendant’s intent or practices is often in its exclusive possession.”²³ For similar reasons, other areas, such as securities fraud, antitrust, and civil rights litigation are also vulnerable to asymmetric information problems.²⁴ While the foregoing relates to information that only resides with the defendant, the plaintiff can also possess private information, for example, regarding “the level of damages she has suffered.”²⁵

The literature, then, has recognized asymmetric information as a major problem, perhaps even “[t]he most important problem in dispute resolution.”²⁶ It is difficult to validate empirically the predictions that asymmetric information models generate.²⁷ Nevertheless, what we know to

²¹ Bone, *Frivolous Suits*, *supra* note 17, at 550.

²² Patricia M. Danzon, *Tort Liability: A Minefield for Managed Care?*, 26 J. LEGAL STUD. 491, 495 (1997). *See also* Robert G. Bone, *Twombly, Pleading Rules, and the Regulation of Court Access*, 94 IOWA L. REV. 873, 926 n.219. (2009) [hereinafter Bone, *Pleading Rules*] (providing references for the asymmetric information phenomenon in medical malpractice cases).

²³ Suzette M. Malveaux, *Front Loading and Heavy Lifting: How Pre-Dismissal Discovery Can Address the Detrimental Effect of Iqbal on Civil Rights Cases*, 14 LEWIS & CLARK L. REV. 65, 91 (2010). *See also* William H.J. Hubbard, *A Fresh Look at Plausibility Pleading*, 83 U. CHI. L. REV. 693, 714 (2016) (“It is possible that any given one was fired for reasons related to intentional discrimination, but it is also possible that she was fired for entirely separate reasons, such as poor individual performance . . .”).

²⁴ *See, e.g.*, Bone, *Pleading Rules*, *supra* note 22, at 925 & n.217, (explaining why plaintiffs in these situations lack relevant information); Wasserman, *supra* note 3, at 168 (“The two most notable pieces of information that are beyond plaintiff’s reach at the outset are evidence of defendants’ subjective state of mind and evidence of defendants’ private, behind-closed-doors conduct, [particularly affecting] a range of constitutional rights . . . ” (footnote omitted)).

²⁵ Spier, *supra* note 13, at 272. As before, in case plaintiffs have private information, defendants can only know the distribution of possible harm among different plaintiffs.

²⁶ Rhee, *supra* note 4, at 548.

²⁷ “[T]he empirical work so far has to be considered preliminary.” Keith N. Hylton & Haizhen Lin, *Trial Selection Theory and Evidence*, in 8 ENCYCLOPEDIA OF LAW AND ECONOMICS—PROCEDURAL LAW AND ECONOMICS 487, 505 (Chris William Sanchirico ed., 2d ed. 2012). The predictions of asymmetric information models should be compared to other models, and in particular the influential model presented in George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984). In a nutshell, unlike the asymmetric information notion, Priest & Klein assume that both parties have

date seems at least partly consistent with the asymmetric information premise.²⁸

A straightforward remedy for the asymmetric information problem is formal, court-supervised discovery, which forces the informed defendant to provide information to the uninformed plaintiff. This important role of discovery proceedings has garnered considerable attention in the literature.²⁹ As the heated debate over the 2015 amendments suggests, in asymmetric information cases “only formal discovery is able to provide plaintiffs with information necessary” to proceed.³⁰ This Article takes a different approach. Instead of court-supervised formal discovery proceedings to transmit information, we highlight the power of informed parties to independently convey their privately-held information to their rivals, in myriad ways. To do so, we use the concept known as signaling.

II. SIGNALING IN SETTLEMENT NEGOTIATIONS

A. *Signaling and Asymmetric Information*

Asymmetric information is not unique to legal settings. Tools that were

divergent expectations with regard to the result at trial—*e.g.*, mutual uncertainty about the way in which the presiding judge will interpret the law. These two theories entail different predictions. Mutual, divergent expectations “impl[y] that the selection of cases that go to trial involves cases wherein the likelihood of either side winning approaches 50%”; in contrast, asymmetric information models predict that the failure to settle will result in skewed win rates. Andrew F. Daughety & Jennifer F. Reinganum, *Settlement*, in 8 ENCYCLOPEDIA OF LAW AND ECONOMICS—PROCEDURAL LAW AND ECONOMICS 386, 439 (Chris William Sanchirico ed., 2d ed. 2012).

²⁸ In line with the predictions of asymmetric information models, in areas in which defendants typically possess informational advantages their win rate with respect to cases that made it to trial is higher than 50%. Hylton & Lin, *supra* note 27, at 500-01. Note that the divergent expectations model also gains empirical support. For example, *id.*, at 501-05 (surveying empirical studies); Joel Waldfogel, *Reconciling Asymmetric Information and Divergent Expectations Theories of Litigation*, 41 J.L. & ECON. 451 (1998) (attempting at reconciling conflicting evidence and suggesting that asymmetric information models are more consistent with cases that terminated before discovery); Daniel Klerman, *The Selection of Thirteenth-Century Disputes for Litigation*, 9 J. EMPIRICAL LEGAL STUD. 320 (2012) (presenting evidence that are consistent with both theories).

²⁹ See, *e.g.*, Bruce L. Hay, *Civil Discovery: Its Effects and Optimal Scope*, 23 J. LEGAL STUD. 481 (1994) (discussing the effects of discovery); Amy Farmer & Paul Pecorino, *Civil Litigation with Mandatory Discovery and Voluntary Transmission of Private Information*, 34 J. LEGAL STUD. 137 (2005) (exploring the role of mandatory discovery versus voluntary disclosure); Malveaux, *supra* note 23 (discussing the role of discovery proceedings in civil rights cases).

³⁰ JUDICIAL CONFERENCE ADVISORY COMM. ON CIVIL RULES & COMM. ON RULES OF PRACTICE & PROCEDURE, REPORT TO THE CHIEF JUSTICE OF THE UNITED STATES ON THE 2010 CONFERENCE ON CIVIL LITIGATION 6 (2010), <http://www.uscourts.gov/file/reporttothechiefjusticepdf>. See also *supra* note 5 and accompanying text.

developed in other disciplines can be useful to our understanding of legal disputes. Notably, economics literature utilizes the concept of “signaling” to analyze asymmetric information settings. Signaling refers to the power of informed parties to convey their private characteristics to uninformed parties, where the latter cannot otherwise observe these traits. For simplicity, we can think that, from the perspective of the uninformed party, there are “good” and “bad” types of informed parties, which can diverge, for example, with regard to the merits of their case, the quality of their product or service, etc. In the absence of concrete information, the uninformed party would treat “good” and “bad” types of informed parties identically. Hence, the “good” informed types would have an incentive to signal their quality to the uninformed party, in order to distinguish themselves from the bad types, in anticipation of receiving a better treatment. But in order for the signal to be informative, it has to be a signal that the bad type would not find worthwhile to mimic. Otherwise, the bad types would send the same signal as the good types, and the signal would lose its informative value.

In a seminal article published in 1973, economics Nobel laureate Michael Spence offered the first signaling model. Spence posits higher education as a costly signal—“good” prospective employees use costly education to signal their type in the job market and distinguish themselves from “bad” employees. This strategy can be successful as education is assumed to be more onerous for the “bad” types. Hence, potential candidates in the job market may pursue higher education even if it does not improve their skills and has no inherent value (i.e., education is useful solely for its signaling quality).³¹ Other economists have employed the concept of signaling in the contexts of advertising and paying dividends, costly practices that can convey the quality of firms’ products and their financial strength.³² The concept of signaling has also been developed by scholars from other disciplines. One famous example is the use of signaling in evolutionary biology, where animals indicate their quality through the adoption of seemingly costly traits—the “handicap principle.”³³ To illustrate, by sporting a flashy tail the peacock can signal to potential mates unobservable genetic qualities, “prov[ing] his strength and agility by carrying a heavy load.”³⁴ Another well-known example is conspicuous consumption of luxury goods, which signal

³¹ Michael Spence, *Job Market Signaling*, 87 Q. J. ECON. 355 (1973).

³² See, respectively, Paul Milgrom & John Roberts, *Price and Advertising Signals of Product Quality*, 94 J. POL. ECON. 796 (1986); B. Douglas Bernheim & Lee S. Redding, *Optimal Money Burning: Theory and Application to Corporate Dividends*, 10 J. ECON. & MGMT. STRATEGY 463 (2001).

³³ AMOTZ ZAHAVI & AVISHAG ZAHAVI, *THE HANDICAP PRINCIPLE: A MISSING PIECE OF DARWIN'S PUZZLE* (1999).

³⁴ *Id.*, at xiv.

one's social status.³⁵ Legal scholars have similarly employed signaling to analyze various settings.³⁶

B. Litigation Strategies as Signals

A similar logic applies to litigation settings that suffer from asymmetric information problems. Consider areas such as medical malpractice or employment discrimination, in which defendants are typically informed as to the merits of the case whereas plaintiffs are not. For the same reasons that “good” employees are willing to invest in costly signals, we should expect “good” defendants—those whose actual liability is likely to be small—to strive to signal their merits to uninformed plaintiffs. By doing so, “good” or “strong” defendants can distinguish themselves from “bad,” “weak” ones and achieve a better settlement. Indeed, “good” defendants can indicate their merits by simply proposing low settlement offers.³⁷ Low offers are more likely to be rejected by plaintiffs; hence these defendants assume a greater risk of a costly trial. However, the costs to “bad” defendants from going to trial are higher, and may be much higher. By merely proposing lower settlements, then, defendants signal that they are more confident of their merits.

Low settlement offers are, however, a very basic signaling technique. We argue that mindful parties can employ a wide array of richer and more complex signaling devices. Moreover, these signaling techniques can be far more effective than merely offering a low settlement. We demonstrate this point by discussing three litigation strategies that have a signaling function: one-way fee-shifting provisions, dropping claims, and award-modification agreements.

1. Voluntary one-way fee-shifting

The American rule holds that each party bears its legal expenses. But parties can generally stipulate as to this rule. Consider the following message from an informed defendant to uninformed plaintiff:

Hypothetical I—One-way Fee Shifting. “I offer to pay your legal expenses

³⁵ E.g., Laurie Simon Bagwell & B. Douglas Bernheim, *Veblen Effects in a Theory of Conspicuous Consumption*, 86 AM. ECON. REV. 349 (1996).

³⁶ See, e.g., Daniel A. Farber, *Rights as Signals*, 31 J. LEGAL STUD. 83 (2002) (explaining the wave of constitutionalism in developing countries as a signaling device); Eric A. Posner, *Symbols, Signals, and Social Norms in Politics and the Law*, 27 J. LEGAL STUD. 765 (1998) (hypothesizing that social norms can serve as a signal that distinguishes between cooperators and non-cooperators).

³⁷ Reinganum & Wilde, *supra* note 15. We discuss this benchmark signaling technique in *infra* Part III.A.I.

should you take me to trial and win. In the event that you take me to trial and I win, you are exempt from reimbursing me for my legal expenses. I am willing to do so because I am confident that I am going to win, and to help convince you of this.”

Voluntary one-way fee-shifting provisions are not uncommon, at least in pre-dispute agreements. A study that examined commercial contracts found such asymmetric fee-shifting clauses in approximately 17% of the contracts.³⁸ These provisions are puzzling. Why would litigants voluntarily offer to pay their rival’s expenses in case of a loss, without insisting on the rival’s obligation to pay their expenses should they win?³⁹ The literature has extensively analyzed the reasons behind *mandatory* one-way fee-shifting rules,⁴⁰ but it has neglected the common, voluntary adoption of these clauses.⁴¹ This oversight is unfortunate.

The concept of signaling helps explain one-way fee-shifting agreements. Intuitively, these provisions can serve as a signal, attesting the strength of the defendant’s claims. Consider a medical malpractice case. If the defendant were a negligent doctor, the argument goes, she would not be willing to offer to pay her opponent’s legal expenses should she lose. By contrast, a strong, non-negligent doctor can more easily assume that risk—because she knows that she is likely to prevail. Hence, the doctor’s promise to reimburse the plaintiff in case the latter wins indicates the strength of the doctor’s claims. Strikingly, in actuality voluntary one-way fee-shifting provisions are highly common in situations that typically suffer from asymmetric information—such as loan agreements—where the provision works against the informed party.⁴²

³⁸ Theodore Eisenberg & Geoffrey P. Miller, *The English Versus the American Rule on Attorney Fees: An Empirical Study of Public Company Contracts*, 98 CORNELL L. REV. 327, 352 (2013). *But see* John J. Donohue III, *Opting for the British Rule, or If Posner and Shavell Can’t Remember the Coase Theorem, Who Will?*, 104 HARV. L. REV. 1093, 1110 n.38 (1991) (during the course of litigation there seem to be few, if any, fee-shifting stipulations).

³⁹ *Cf.*, Harold J. Krent, *Explaining One-Way Fee Shifting*, 79 VA. L. REV. 2039, 2043 (1993) (“no companies willingly agree to one-way fee shifting provisions against themselves.”).

⁴⁰ *E.g.*, Thomas D. Rowe, Jr., *The Legal Theory of Attorney Fee Shifting: A Critical Overview*, 1982 DUKE L.J. 651 (1982) (presenting various rationales such as fairness and the desire to incentivize lawsuits).

⁴¹ We found only brief discussions on the adoption of voluntary one-way fee-shifting. *See* Eisenberg & Miller, *supra* note 38, at 370-72 (“in [certain] type[s] of cases . . . imposing the full cost of the harm—including the costs of the other party’s defense in litigation—on the responsible party makes sense.”); Krent, *supra* note 39, at 2043 n.25 (“corporations could agree to such provisions as a type of good faith bond, signaling that they intend to honor contractual . . . responsibilities . . .”).

⁴² In these situations one-way fee-shifting provisions can be found in the majority of contracts. Eisenberg & Miller, *supra* note 38, at 356-57.

2. Waiving claims

A similar logic applies to acts in which one of the parties drops a claim. Consider the following example, based on an actual case:

Hypothetical II—Dropping Claims. A renowned law professor is sued for defamation in a French court, following an unflattering book review published by the journal she edits. The case has no contacts to France and the professor holds a strong, preliminary jurisdiction defense. Nonetheless, she asks the court to drop the jurisdictional issue and move to the merits.

This strategy nicely fits the concept of signaling. A defendant with a weak case on the merits would hesitate to drop her substantial preliminary defense. But a defendant whose merits are strong would forego the preliminary jurisdiction claim with more confidence. Hence, to the extent that the defendant is privately informed regarding the merits, her move conveys information about her strength (on the merits).⁴³

Hypothetical II can be generalized to any case where parties possessing private information on a particular issue have otherwise similar claims. Consider preliminary defenses in areas such as medical malpractice and employment discrimination, which, as pointed out, suffer from asymmetric information about the merits. However, with regard to the preliminary defenses that the defendant might raise—e.g., statute of limitations—neither party has an informational advantage. Hence, the preliminary claim, the value of which is roughly known to both sides, can be used to indicate the value of each defendant's merits. There seem to be many opportunities for signaling along these lines.⁴⁴

3. Award-modification agreements

⁴³ This example is inspired by an actual case in which Joseph Weiler, a professor at New York University and the Editor-in-Chief of the European Journal of International Law was sued in defamation in a French court. The reason was an unflattering book review that Weiler's journal published. The reviewer was a German professor, and the author of the book was an Israeli academic. On its face, the case was unrelated to France and Weiler held a strong, preliminary jurisdiction defense. Nonetheless, he "specifically asked the Court not to examine [the] jurisdictional challenge as a preliminary matter," and proceeded to win the case on the merits. While we use this example to demonstrate signaling the story is more complicated; apparently, Weiler requested to move to the merits in order "to challenge this hugely dangerous attack on academic freedom." Joseph Weiler, *In the Dock, In Paris*. EJIL:TALK! (Jan. 25, 2011), available at <http://www.ejiltalk.org/in-the-dock-in-paris/>.

⁴⁴ Another example, discussed in the Introduction, is dropping the right to litigate in a federal forum. For several other concrete examples of signaling through waiving procedural rights see *infra* note 60.

In many actual contracts the parties agree, in advance, to set the future award of damages at pre-determined levels. These partial settlements can be referred to as award-modification agreements.⁴⁵ Award-modification agreements can be a vehicle to credibly signal information. Consider the following description of an actual agreement:

[I]f the defendant were found by the jury to be not at fault, or less than 50% at fault, the plaintiff would recover \$6,000 . . . if the defendant were found to be over 51% at fault, [the plaintiff] would recover \$22,500.⁴⁶

At first blush, this is a standard agreement that limits the possible award of damages (also known as “high-low agreement”⁴⁷). A closer look suggests that this arrangement is less trivial, as it appears to magnify the liability of defendants who are found to be over 51% at fault, relative to less-negligent defendants.⁴⁸ Yet, this agreement is a potential signaling device. A defendant who is confident regarding her case would be willing to augment the award at trial; by contrast, a defendant with a weak case would hesitate to do so.

A similar effect can be achieved through other award-modification agreements. Take a partial settlement in which the parties stipulate damages and the case is tried on liability only—a common practice.⁴⁹ A defendant who stipulates to generous damages asserts, in essence, that she is not likely to lose on the merits.

Another example along these lines is taken from lawsuits against multiple defendants—the so-called Mary Carter agreements.⁵⁰ As part of these agreements, one defendant settles by guaranteeing a minimum recovery to the plaintiff, but any amount the plaintiff later recovers against the non-

⁴⁵ Prescott & Spier, *supra* note 11, at 85-86.

⁴⁶ Verdict and Settlement Summary, *Clemente v. Duran*, No. L-003405-04, 2006 WL 4643243 (N.J. Super. Ct. Law Div. Dec. 18, 2006). This agreement also held that “if the defendant were found to be 50% at fault, the plaintiff would recover \$11,250.” *Id.* For a discussion of this case see Prescott & Spier, *supra* note 11, at 143.

⁴⁷ Under high-low agreements, “a plaintiff agrees to a cap (the ‘high’) on potential damages in exchange for a guaranteed minimum (the ‘low’).” *Id.*, at 63.

⁴⁸ To illustrate, suppose that less-negligent defendants are on average 25% at fault; and that more-negligent defendants are on average 75% at fault. In that case, given that less-negligent defendants pay \$6,000, we should presumably expect the more-negligent defendants to pay thrice as much—\$18,000. However, the parties stipulated that the more-negligent defendants will pay \$22,500.

⁴⁹ For a comprehensive discussion of similar award-modification agreements, the growing use thereof, and actual examples see Prescott & Spier, *supra* note 11, at 85-94, 110-12.

⁵⁰ The term “Mary Carter” agreements is a reference to a settlement used in *Booth v. Mary Carter Paint Co.*, 202 So. 2d 8 (Fla. Dist. Ct. App. 1967). See also Lisa Bernstein & Daniel Klerman, *An Economic Analysis of Mary Carter Settlement Agreements*, 83 GEO. L.J. 2215, 2215 (1995).

settling defendants is credited to the settling defendant. In essence, the settling defendant agrees to pay the plaintiff conditional on the outcome of the other trials.⁵¹

Why should the settling defendant concede liability early on, and risk paying a considerable amount if the plaintiff loses the case against the others?⁵² Signaling provides a possible explanation—the settling defendant indicates that she is less liable relative to the other defendants, and she backs this assertion through a seemingly unreasonable monetary commitment.⁵³ Similarly to other award-modification agreements, Mary Carter agreements are well-known in practice and seem to be increasingly popular.⁵⁴

Award-modification agreements can be triggered by various reasons. The literature has shown that parties can enter high-low agreements in order to remove the issue of damages from the jury and save litigation expenses.⁵⁵ Others argue that Mary Carter agreements constitute a transaction between an uninformed plaintiff and one defendant, in which the latter provides the former with necessary information to incriminate the remaining defendants.⁵⁶ While we do not challenge these explanations, we believe that the desire to signal private information provides another motivation for the use of award-modification agreements, particularly where the defendant agrees to set the plaintiff's award at a generous level.⁵⁷ The signaling perspective can thus

⁵¹ *E.g.*, RESTATEMENT (THIRD) OF TORTS: APPORTIONMENT LIAB. § 24 cmt. i (2000) (“[T]he more that is recovered by the plaintiff from the nonsettling tortfeasors, the less that the settling tortfeasor is required to pay.”).

⁵² *E.g.*, G. Michael Bourgeois, *There's Something About Mary*, 86 A.B.A. J. 60, 60 (2000) (“[F]or the defendants' lawyers, entering into a Mary Carter settlement can be risky.”).

⁵³ *Cf.*, Bernstein & Klerman, *supra* note 50, at 2227 n.35 (alluding to the signaling function of Mary Carter agreements).

⁵⁴ Bernstein & Klerman, *supra* note 50, at 2215 & n.2.

⁵⁵ For a general discussion on the desirability of partial settlements of this type see Prescott & Spier, *supra* note 11. Prescott and Spier do not discuss asymmetric information—they assume that parties have complete information but they diverge on their expectations regarding their odds of success at trial. *Id.*, at 75-80. *Cf.*, *supra* note 27 (comparing divergent expectations to asymmetric information models).

⁵⁶ *See generally* Bernstein & Klerman, *supra* note 50. One wonders whether such a transaction cannot be consummated through a more simple deal. For a brief discussion see *id.*, at 2225-28.

⁵⁷ To illustrate with regard to a liability-only agreements consider Verdict and Settlement Summary, *Dottolli v. McDonnell's Bar & Grill*, No. CamL-6900-03, 2007 WL 8026005 (N.J. Super. Ct. Law Div. Feb. 2007). The defendant, a tavern owner, agreed to litigate liability and set damages at \$140,000, where the plaintiff, a patron of the tavern, contended that he suffered a severe sprain ankle as a result of walking the stairway. The stipulated damages seem to be high relative to the injury. However, a non-negligent defendant could agree to set damages at an excessive level in order to indicate its strength. Indeed, the jury in this case found that the defendant was not negligent. Importantly, this case appears to implicate asymmetric information. The main issue at trial was whether the

enrich the academic and practical discourse regarding award-modification agreements.

* * *

This Part has shown that common litigation strategies—fee-shifting provisions, dropping claims, and award-modification agreements—can serve as signaling techniques. This list is by no means exhaustive. One can imagine other litigation practices that convey private information. In light of the growing interest in signaling models among legal scholars, on the one hand, and the ongoing debates over asymmetric information in litigation settings on the other hand, it is surprising that the literature has scarcely discussed the power of litigants to signal their merits. The disregard for this issue is particularly astonishing as it encompasses two major bodies of literature—sophisticated game-theoretical models of settlements and policy-oriented legal scholarship.

Several game-theoretical articles have identified distinct litigation features that signal information—examples include filing for costly injunctions, investing in observable pretrial preparation, and utilizing intermediaries such as attorneys and litigation funders.⁵⁸ As it focuses on concrete signaling “technologies” this body of literature underestimates the power of litigants to overcome asymmetric information problems through signaling.⁵⁹ Moreover, the game-theoretical literature is typically oblivious to the legal background and concomitant policy implications. Several legal scholars mention the ability of litigating parties to signal information;

staircase was in compliance with the relevant regulation—information that typically resides with the defendant.

⁵⁸ See Thomas D. Jeitschko & Byung-Cheol Kim, *Signaling, Learning, and Screening Prior to Trial: Informational Implications of Preliminary Injunctions*, 29 J.L. ECON. & ORG. 1085 (2012) (conveying information through filing injunctions); Philippe Choné & Laurent Linnemer, *Optimal Litigation Strategies with Observable Case Preparation*, 70 GAMES & ECON. BEHAV. 271 (2010) (same, through investment in observable pretrial preparation); Shmuel Leshem, *Contingent Fees, Signaling and Settlement Authority*, 5 REV. L. & ECON. 435 (2009) (the signaling effect of delegating control to attorneys); Ronen Avraham & Abraham Wickelgren, *Third-Party Litigation Funding—A Signaling Model*, 63 DEPAUL L. REV. 233 (2014) (signaling through third party financing). More generally, as explained above, *supra* note 37 and accompanying text, low settlement offers also constitute a basic signal.

⁵⁹ A recent exception is the following working paper, William H.J. Hubbard, *Costly Signaling, Pleading, and Settlement* (unpublished manuscript, on file with authors). This paper provides a theoretical account of the ability of informed plaintiffs to signal through costly mechanisms, where this group includes various mechanisms such as elaborate pleadings and filing fees.

however, these discussions are often cursory.⁶⁰ Moreover, like the game-theoretical literature, these discussions only highlight concrete signaling mechanisms without providing a general theory thereof. As a result, this body of literature misses the wide breadth of litigation signals and the intricate ways in which they operate.

Our approach is different. We consolidate the sporadic examples into a general framework, constructing a systematic typology of litigation signals. Our comprehensive theoretical account yields a more precise understanding of this subject—and, as a result, more concrete legal implications.

III. TAXONOMY AND ANALYSIS OF LITIGATION SIGNALS

This Part takes a closer look into the mechanics of litigation signals, relying on a game-theoretical model.⁶¹ After presenting the insights of the model, this Part discusses the limitations of our approach as well as actual implementation in real-world situations. The interested reader can find additional technical discussion in the accompanying Mathematical Appendix.

A. A Model of Litigation Signals

We first discuss a benchmark model, in which no particular signal apart from the offer itself is utilized and then proceed to other classes of signals—unilateral, third-party and cooperative.

1. Benchmark model

The starting point is an asymmetric information setting where defendants are privately informed. There are many representative situations;⁶² for

⁶⁰ See, e.g., Bone, *Frivolous Suits*, *supra* note 17, at 573-76 (suggesting that plaintiffs can commit to pay a bond if their case turns out to be frivolous, deterring at least some frivolous plaintiffs); Rhee, *supra* note 4 (proposing that parties would “elect to shift [their] fees to the loser upon prevailing, so long as the party’s good faith belief in the merit of the case is bonded by the assumption of a higher standard of proof,” and suggesting that such “election may serve an important signaling function.” *Id.*, at 518, 551); Hubbard, *supra* note 23, at 698 (arguing that “plaintiffs with strong claims need a way to credibly signal the strength of their cases [and] [c]ivil procedure itself provides just such a mechanism: pleading!”). Cf., Daphna Kapeliuk & Alon Klement, *Contracting Around Twombly*, 60 DEPAUL L. REV. 1, 20-22 (2010) (arguing that contracting firms can agree on certain pleading standards in order to signal information); Daniel J. Seidmann & Alex Stein, *The Right to Silence Helps the Innocent: A Game Theoretic Analysis of the Fifth Amendment Privilege*, 114 HARV. L. REV. 430 (2000) (discussing the signaling value of the right to remain silent in criminal proceedings).

⁶¹ Cf., Bone, *Frivolous Suits*, *supra* note 17, at 525-27 (discussing the advantages of modeling pre-trial bargaining in legal scholarship).

⁶² *Supra* notes 21-25 (discussing typical situations).

expositional purposes, we will employ a medical malpractice setting. We will refer to the defendants/doctors as females and the plaintiffs as males. The model relates to two possible types of doctors—“careless” and “careful” doctors. While the court is not immune from mistakes, on average careless doctors can expect to pay larger sums following a trial than careful doctors. We can think, for example, that a failed operation results in damages of 150, and the only question is whether the doctor was negligent or not. The careless doctor predicts, for instance, that there is a 66.67% probability that the court will find that she was negligent and rule against her, so that her expected liability is $100 (= 150 * \frac{2}{3})$. Similarly, the careful doctor assesses that there is a 40% probability of a judgment against her, hence her expected liability is $60 (= 150 * 0.4)$. Following the common description of asymmetric information, we assume that before trial the plaintiff cannot distinguish between careful and careless doctors, although he can assess their distribution in the population. For the sake of example, we will assume that the plaintiff knows that the odds that he faces a careful, rather than a careless doctor are 50%.

We assume the following bargaining procedure. First, the plaintiff brings a lawsuit against the doctor. Then, the doctor can make a single take-it-or-leave-it settlement offer to the plaintiff. If the plaintiff accepts the offer the case is settled; otherwise, it goes to trial. If there is a trial, each party incurs his or her litigation expenses. For simplicity, we will assume that litigation costs amount to 25 for each party, defendants and plaintiffs alike. The single offer assumption is of course a simplifying description, as in actuality there may be counteroffers and revisions of the original settlement; however, it is a standard tool that essentially conceptualizes a bargaining process in which one of the parties—in this example the proposing defendant—has superior bargaining power.⁶³

With no private information, we would expect the careless physician to make a settlement offer equal to her expected liability at trial minus the plaintiff’s litigation costs, or, $75 (= 100 - 25)$ under the foregoing

⁶³ For a more elaborate discussion see Daughety & Reinganum, *supra* note 15, at 85, who explain why despite being “a highly stylized story . . . [t]he vast majority of the papers in the settlement literature have employed this canonical form of modeling.” While more sophisticated models have allowed for multiple rounds of negotiation, the main insights of the simple, single-offer model persist. *Id.*, at 89-90; Bone, *Frivolous Suits*, *supra* note 17, at 570-71. As a side note, it seems plausible to assume that those who have private information in the foregoing examples, *i.e.*, doctors and employers, also hold superior bargaining capacities. *Cf.*, Hylton & Lin, *supra* note 27, at 500 (claiming that models in which the informed party makes the offer better approximate pre-trial bargaining); Robert G. Bone, *Party Rulemaking: Making Procedural Rules Through Party Choice*, 90 TEX. L. REV. 1329, 1361 (2012) [hereinafter Bone, *Party Rulemaking*] (“many features of the employment relationship are imposed on a take-it-or-leave-it bases.”).

numerical example. The plaintiff should accept this offer with certainty, as he would gain nothing from rejecting it—this amount, 75, exactly reflects the payoff that the plaintiff receives by going to trial against the careless doctor. As a settlement offer of 75 will be accepted, there is no reason for the careless defendant to offer more than that sum. For similar reasons, the careful defendant has no reason to offer more than her expected liability minus the plaintiff's litigation costs, or, 35 ($= 60 - 25$) in our example. With no informational asymmetries, then, all cases should settle.

However, due to asymmetric information problems the plaintiff *cannot* distinguish, before trial, between careful and careless defendants. The careless defendants may attempt to bluff, claim that they are careful defendants and make a low settlement offer of 35. Hence, the plaintiff cannot trust low settlement offers and must reject at least some of them, leading to costly trials.

This logic results in an equilibrium where the careless doctors make a high settlement offer, 75 in our example. By doing so, careless defendants reveal their type and the plaintiffs can always accept their offers. Careful doctors make a low settlement offer of 35, but the plaintiff is bound to take them to trial sometime.⁶⁴

The intuition for this result is as follows. If the careless doctor attempts to present herself as careful by offering a low settlement, 35, she risks going to trial as the plaintiff rejects some low offers. If brought to trial, she can expect to pay both her legal expenses and, with some probability, the plaintiff's damages. In a state of equilibrium the careless defendant does not find it profitable to bluff. Accordingly, the rate at which the plaintiff rejects low offers of 35 can be derived mathematically—the frequency of rejection should be sufficiently high to guarantee that the careless defendant does not gain from mimicking the careful one. In the foregoing numerical example, the plaintiff can be expected to accept ~55% of the low offers he receives.⁶⁵

Note that for the careful doctor trials are less costly, as her expected liability is smaller than that of the careless doctor. Hence, although the plaintiff rejects many low offers the strong defendant still proposes a low settlement offer. As we found that high offers are definitely accepted and low offers are accepted ~55% of the time, we can now predict the general rate of

⁶⁴ This is a classic result. For a similar result in a more complicated setting see Reinganum & Wilde, *supra* note 15.

⁶⁵ If the careless doctor reveals her type she expects to pay 75 (her settlement offer would be accepted with certainty). If she mimics a careful doctor and offers 35, her payoff depends on the rate at which the plaintiff takes her to trial—if the plaintiff accepts, she pays 35; if the plaintiff rejects, she expects to pay 125 (her expected liability plus her litigation expenses). Suppose that the plaintiff accepts y low offers of 35—in that case, y can be calculated such that the careless doctor is just indifferent between mimicking and revealing her type: $75 = 35 * y + (1 - y) * 125$, hence $y = 0.55$.

litigation in this example, ~22%.⁶⁶ These cases fail to settle due to asymmetric information problems, i.e., the inability of plaintiffs to distinguish between strong and weak defendants before trial.

From this model we can also predict that the greater the litigation costs, the higher the settlement rate; intuitively, when trial is more costly parties will have more incentive to avoid it. Likewise, the larger the gap between strong and weak defendants, the lower the settlement rate. Where that gap is larger, weak defendants profit more from masking as strong ones and the asymmetric information problems are aggravated. These general results are standard in the literature.⁶⁷

This benchmark model describes a simple signaling mechanism—the strong defendant signals her strength by offering a low settlement, where the risk of rejection and trial is more onerous for the weak defendants. Such signaling seems to exist in real-world settings. Although they are not explicit about the use of signaling, attorneys are often guided to convey that they are tough negotiators—e.g., to pose “seemingly excessive opening demands or apparently parsimonious offers” in order to “induce . . . adversaries to reconsider their own preliminary assessments.”⁶⁸

The foregoing presents a basic, even primitive signal, which only uses the amount offered. There is a reason to believe that informed defendants can use mechanisms other than the offer itself to signal their strength more effectively. We classify these more sophisticated litigation signals in three broad groups (i) unilateral signals; (ii) third party signals, (iii) cooperative signals.

2. Unilateral litigation signals

Unilateral signals are one-sided commitments that benefit the rival party if the case proceeds to trial. Litigants with strong cases will be more willing to make such commitments than litigants with weak cases, as the former are harmed to a lesser extent by doing so.

We will illustrate this group of signals through unilateral promises to “double down,” i.e., augment the award at trial conditional on losing. Consider the following hypothetical message that accompanies a settlement offer made by an informed defendant to an uninformed plaintiff:

⁶⁶ As the careless doctor always settles, the careful doctor settles with a 55% probability, and half of the doctors are careful, the rate of litigation is $(1 - 0.55) * 0.5 = 0.22$.

⁶⁷ E.g., Reinganum and Wilde, *supra* note 15.

⁶⁸ Russell Korobkin, *Aspirations and Settlement*, 88 CORNELL L. REV. 1, 27-28 (2002) (quoting CHARLES B. CRAVER, *EFFECTIVE LEGAL NEGOTIATION AND SETTLEMENT* 172 (2d ed. 1993)). See also Gertner & Miller, *supra* note 18, at 90 (“[A]ttorneys report that they often resist being the first to propose a settlement out of fear of signaling weakness”).

Hypothetical III—Multiplier Provision. “As a defendant, the private information that is available to me tells that I am not likely to be found liable at trial. To help convince you of this, I promise to pay you twice your judgment should you reject this settlement offer, go to trial, and win.”

Intuitively, this provision can be an effective signal as it harms weak defendants to a greater extent than strong ones. The strong defendants are less likely to lose at trial; hence, compared to weak defendants, strong ones can more readily promise to augment their liability in the event of losing. Put differently, this message indicates that the promisor is confident with regard to its merits. It relies on the fact that trials convey at least some information—hence a payment conditional on the judgment can serve as an effective signal. As noted earlier, the logic that Hypothetical III expresses has garnered scarce attention from legal scholars.⁶⁹

Moreover, while Hypothetical III employs a multiplier of 2 on the judgment, it in fact generalizes several other litigation strategies. Previously, we noted that voluntary one-way fee-shifting provisions can serve as litigation signals.⁷⁰ Assuming that litigation costs are in the range of a third of the judgment,⁷¹ these provisions resemble a unilateral multiplier of ~1.3 on the judgment, to be paid in the event that the promisor loses. The signaling function fulfilled by waiver of claims,⁷² can also be expressed as an implicit multiplier on the judgment.⁷³ A multiplier can similarly reflect an award-

⁶⁹ See *supra* notes 58-60 and accompanying text. Related to our point are a few papers that use a mechanism design approach to show that settlements can be encouraged if a post-judgment transfer is conditioned on the outcome at trial. Kathryn E. Spier, *Pretrial Bargaining and the Design of Fee-Shifting Rules*, 25 RAND J. ECON. 197 (1994); Alon Klement & Zvika Neeman, *Against Compromise: A Mechanism Design Approach*, 21 J.L. ECON. & ORG. 285 (2005); James D. Miller, *Using Lotteries to Expand the Range of Litigation Settlements*, 26 J. LEGAL STUD. 69 (1997). The mechanism design approach employs a more abstract framework that disregards specific bargaining protocols to study the highest possible settlement rate under different constraints. While this Article is in line with this literature, our analysis provides the specific contractual and legal tools that implement the desired results and demonstrates the contractual and legal tools that are non-workable.

⁷⁰ *Supra* Part II.B.1.

⁷¹ E.g., Herbert M. Kritzer, *The Wages of Risk: The Returns of Contingency Fee Legal Practice*, 47 DEPAUL L. REV. 267, 285 (1998) (“One-third is the ‘standard’ contingency fee figure”).

⁷² *Supra* Part II.B.2.

⁷³ To illustrate consider a case in which the expected liability of the defendant on the merits is 100, and she has a preliminary jurisdiction argument that is likely to be accepted with a 20% probability. Hence, with the preliminary defense, the defendant’s expected liability is only 80. By dropping the preliminary defense, the defendant in fact commits to inflate her liability by a factor of 100/80—akin to a multiplier of 1.25 on the judgment. Of course, waivers of claims and multipliers on the judgment are not identical. One difference is that waiver of claims usually saves litigation costs, while multipliers may increase them.

modification agreement in which the defendant stipulates, in advance, to inflated damages.⁷⁴ Hypothetical III, then, captures a wide range of litigation tactics that are, in fact, unilateral signals. Common to all these strategies is a unilateral commitment by the informed defendant that has the potential to benefit the plaintiff if settlement fails.

The effectiveness of unilateral signals in conveying information is seemingly straightforward.⁷⁵ However, this perception is misleading. A closer analysis reveals that unilateral signals are, in fact, highly unlikely. The Mathematical Appendix provides a complete proof of these claims. The intuition, however, is the following:

Consider our previous example, where careless and careful doctors expect to pay at trial 100 and 60 respectively, and the plaintiff cannot distinguish between the two before trial. Where the careful doctors offer a multiplier on the judgment the incentives of the careless doctors to “bluff” are reduced, as they are more likely to lose and eventually pay the multiplier. Thus, the rate at which careful doctors are taken to trial is lower. In this regard, a commitment to augment the award at trial improves the situation of careful doctors.⁷⁶

But this is only part of the picture. Promising to pay a multiplier in case of a loss at trial is also counterproductive for careful doctors for two reasons. First, careful doctors now expect to pay more at trial if their settlement offer is rejected. Indeed, they expect to pay twice as much if they offer a multiplier of 2 and the plaintiff rejects their offer. Second, and more importantly, once the careful doctor promises to pay a multiplier, the plaintiff demands a higher settlement offer. We showed previously that if the plaintiff believes that he faces a careful defendant he will agree to settle for 35—if he rejects this offer, he goes to trial and expects to gain the same amount.⁷⁷ However, once the careful doctor promises to pay a multiplier, the plaintiff becomes more eager to go to trial and as a result has more leverage during negotiations. To illustrate, with a multiplier of 2, if the plaintiff rejects the offer and goes to trial he expects to gain 95.⁷⁸ Therefore, the careful doctor who promises to pay a multiplier has to raise her settlement to the plaintiff. One can

⁷⁴ For actual examples along these lines see *supra* notes 46 and 57 and accompanying text. The multiplier in these examples can be expressed as the ratio between the augmented award that the defendant promised and her expected liability.

⁷⁵ Indeed, several legal scholars have alluded to the possibility of signaling through unilateral promises. *Supra* note 60.

⁷⁶ In our benchmark example careful doctors settled 55% of the time. *Supra* note 65. This rate rises to ~81% with a (unilateral) multiplier of 1.3 on the judgment.

⁷⁷ A plaintiff that goes to trial against a careful defendant expects to gain 35: the careful doctor’s expected liability, 60, minus the plaintiff’s litigation costs, 25.

⁷⁸ In that case the plaintiff expects to gain the careful doctor’s expected liability times a multiplier of 2, $60 * 2$, minus his own litigation costs, 25.

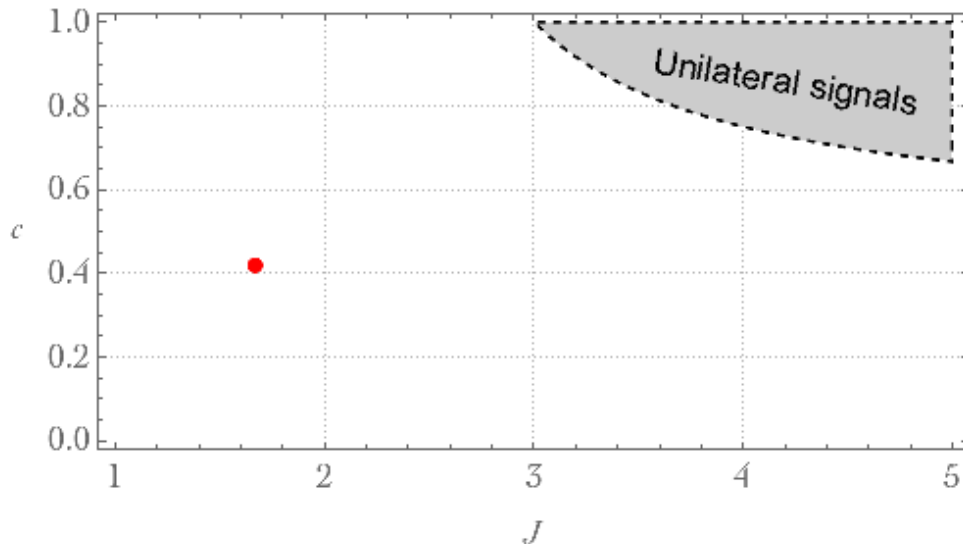
demonstrate that due to these reasons unilateral signals are typically detrimental to strong defendants and hence are rarely used by them.

In summary, there are three moving forces in the background. A careful defendant presenting a unilateral signal enjoys a higher settlement rate; but she has to propose a higher settlement offer, and, if the offer is rejected she expects to pay more. This analysis holds for all unilateral signals, including explicit multipliers, award modification agreements, voluntary one-way fee-shifting provisions, and waiver of claims.⁷⁹ Unilateral signals may seem intuitive, but our closer inspection reveals that we cannot expect these signals to be triggered regularly.

When, then, would we expect the parties to employ unilateral signals? Our mathematical analysis suggests that informed defendants employ these provisions if and only if two conditions are simultaneously met. First, the gap between strong and weak defendants should be sufficiently wide (in particular, the weak defendant's expected liability should be more than three times greater than the strong defendant's liability). Second, litigation costs should be sufficiently large—at minimum, more than half of the strong defendant's liability (and perhaps even greater, depending on the gap between the strong and weak defendants).⁸⁰ Figure 1 illustrates these restrictive conditions:

⁷⁹ With a voluntary one-way fee-shifting provision, for example, the informed defendant gains from the higher settlement rate that accompanies the signal; but she pays more if she loses at trial—the plaintiff's litigation expenses; likewise, as a trial is less costly for the plaintiff, he is now more eager to reject the original offer and the defendant must propose a higher settlement. Award modification agreements that augment the defendant's liability should she lose at trial operate similarly. With a waiver of, say, preliminary defense, the careful defendant again better indicates her strength, enjoying a higher settlement rate; but she is more likely to lose, as she dropped an important claim; and she made the plaintiff more likely to win, hence the plaintiff demands a higher settlement.

⁸⁰ Intuitively, a larger gap between strong and weak defendants intensifies the risk of weak doctors mimicking as strong ones, making costly signals more valuable. Similarly, costly litigation stresses the need to find ways to bridge informational gaps.

Figure 1: The Conditions for Unilateral Signaling

The horizontal axis measures the gap between strong and weak defendants, where J is the ratio between the strong- and the weak-type's expected liabilities. (For convenience, Figure 1 reflects settings in which the weak defendant's expected liability is up to five times the strong defendant's liability). The vertical axis measures the costs of litigation, c , relative to the strong type's expected liability (litigation costs cannot presumably exceed the strong defendant's expected liability). Unilateral signals are possible only in settings that are presented within the upper right corner (the gray area)—apparently, a small slice of the universe of cases.⁸¹

To further demonstrate how unlikely unilateral signals are, consider the foregoing numerical illustration, where the expected liabilities of careful and careless doctors are 60 and 100, and litigation costs are 25. The numerical example reflects values of $J = 1.67$ ($100/60$) and $c = 0.42$ ($25/60$) and it is represented in Figure 1 through a red dot—farther away from the area in which unilateral signals are possible. More generally, empirical evidence suggests that each side's litigation costs are typically lower than half of the expected judgment.⁸² Hence, an essential condition to unilateral signals is

⁸¹ To appreciate how unlikely unilateral signals are suppose that the distribution of the ratio of litigation costs relative to the strong type's liability is triangular on $[0, 1]$ with mode zero (and a mean of $1/3$). Suppose further the distribution of the ratio between weak and strong defendants is uniformly distributed on the interval 1 to 5 (mean of 3). Then, the frequency of unilateral signals in the population of asymmetric information cases is less than 3%.

⁸² As a rough benchmark, contingent fees, which presumably express litigation costs, typically constitute around $1/3$ of the actual judgment, *supra* note 71. Moreover, the total expenses that are associated with litigation—of both parties *and* the court—are estimated to

rarely met.

When they are employed, are unilateral litigation signals effective? It is tempting to think that the answer is yes, but this intuition is deceiving. For the same reasons that they are not likely to be utilized in the first place, unilateral signals are also likely to have a minimal effect when triggered. As unilateral signals harm the position of careful doctors, at best these doctors are likely to utilize a modest signal, e.g., commit to pay a little more than their judgment. With modest signals, the resulting savings in trials are minimal.

This section elaborated on the class of signals that are employed unilaterally and benefit the rival party, using the multiplier provision example to capture a wide range of litigation strategies. This class of signals indicates the strength of the informed defendant's claims, but it also harms her and improves the plaintiff's position. Hence, in general, these signals will be used in narrow enclaves and under restrictive conditions. Moreover, even when they are exercised, they are not likely to bring about a meaningful real-world change.

3. Third-party litigation signals

Litigation signals can be modified to make them less costly for the informed defendant. This goal could be achieved by a commitment that does not benefit the plaintiff, but a third-party. Consider the following hypothetical provision in a settlement offer:

Hypothetical IV—Third Party Multiplier. “My private information tells me that my case is strong. To help convince you of this, if you reject this settlement offer, go to trial, and win, I promise to pay, in addition to the judgment, an equal sum to a charity.”

Hypothetical IV generalizes commitments to spend money on unrelated causes, contingent on losing the case. Third-party signals, in our terminology, can therefore manifest themselves in different other ways, e.g., through a promise by the defendant to “burn” money in case the plaintiff rejects the settlement offer and the defendant loses.⁸³

Third party signals are more likely to be triggered than unilateral signals. The intuition is the following. As before, the commitment to pay in the event of a loss at trial signals the strength of the strong-defendant's claim. However, third-party signals also harm the strong defendant, who now expects to pay

be, by and large, equal to the judgment, SHAVELL, *supra* note 14. Hence it is unlikely that each party's litigation costs are greater than half of the expected judgment.

⁸³ *Cf.*, David Austen-Smith & Jeffrey S. Banks, *Cheap Talk and Burned Money*, 91 J. ECON. THEORY 1 (2000) (discussing how informed parties can signal information through self-imposed losses, e.g., burning money).

more if she loses the case (through a donation to charity). Take a careful doctor who expects, without any signal, to pay at trial 60 (in addition to her legal expenses); with a third party signal similar to Hypothetical IV, this doctor expects to pay as a result of the trial twice as much, 120, where 60 goes to the plaintiff and 60 to charity. These two contradictory forces are identical to both unilateral and third-party signals.

However, in contrast to unilateral signals, third party signals do not directly benefit the plaintiff—the additional sum is paid, after all, to charity and not to the plaintiff’s pocket. Therefore, the defendant need not inflate her settlement offer. Put differently, the plaintiff’s appetite for trial remains the same. To illustrate, consider a careful doctor who commits to a third-party signal along the lines of Hypothetical IV. If she goes to trial under the third-party provision, this strong defendant expects her augmented payments after trial to be 120 ($= 60 * 2$) (plus her legal expenses). However, a plaintiff who faces this strong defendant should agree to settle for 35 ($= 60 - 25$): this is the plaintiff’s gain if he goes to trial under the third-party signal, an amount identical to the benchmark, no-signal case. As a result, the conditions for third-party signals to work are less restrictive than those of unilateral signals.

In summary, self-commitments to third-parties, contingent on losing the case, remove one hurdle for the strong defendants to signal their merits. However, this class of signals still embodies a tradeoff—it enables the strong defendants to better indicate their case and gain more settlements; but the signal is also costly, as it entails the risk of an additional payment where settlement negotiations fail and the defendant loses at trial.

In view of this, when would the parties choose to employ third-party signals? Our analysis shows that while they reduce the rate of trials, third-party signals are typically too costly to pursue. More precisely, third-party signals require litigation costs to be sufficiently large: at minimum, more than half of the strong defendant’s liability. Figure 2 demonstrates this condition:

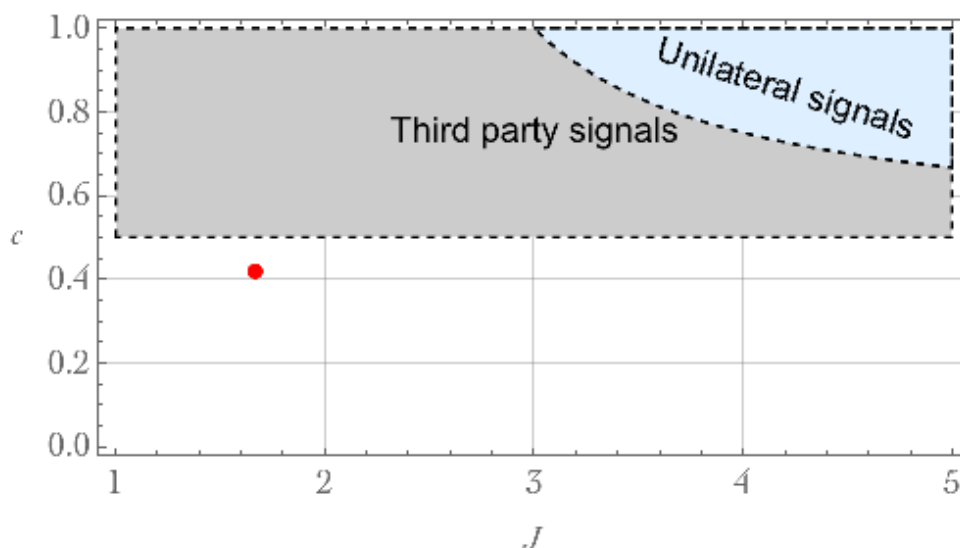
Figure 2: Conditions for Third Party and Unilateral Signals

Figure 2 replicates Figure 1 and superimposes on it the region where third-party signals are operable. As can be easily seen, compared to unilateral signals, third-party signals are more likely to occur. Yet, our running numerical example, represented by the red point, is outside the operable area implying that third-party signals will not occur. As we noted before, evidence suggests that litigation costs are typically smaller than half of the defendant's liability⁸⁴—hence in real world situations third party signals seem unlikely as well.⁸⁵

When third-party signals *are* used, are they effective? Unlike unilateral signals, it turns out that if strong defendants trigger third-party signals they will do so to the fullest possible extent. The larger the multiplier, the better off defendants are and the higher the settlement rate becomes.⁸⁶ Indeed, even relatively modest multipliers generate a non-trivial reduction in the rate of trials.⁸⁷

⁸⁴ *Supra* note 82 and accompanying text.

⁸⁵ To see how unlikely third-party signals are, suppose that the distribution of the ratio of litigation costs relative to the strong type's liability is triangular on $[0, 1]$ with mode zero and a mean of $1/3$ (the distribution of the ratio between weak and strong defendants is irrelevant). Then, the frequency of third-party signals in the population of asymmetric information cases is 25%.

⁸⁶ Intuitively, higher multipliers make the signal more effective, and as the plaintiff does not directly benefit from the multiplier, the higher multiplier does not reflect a higher settlement offer.

⁸⁷ At the benchmark case in our numerical example the acceptance rate of low offers is $\sim 55\%$ and the rate of litigation is $\sim 22\%$. *Supra* notes 65-66 and accompanying text. If a third-party signal is triggered with a multiplier of 1.34 on the judgment (one third of the final

In sum, third-party signals can be more effective than unilateral signals. However, third-party signals are also unlikely. While unilateral and third-party signals require no cooperation,⁸⁸ the next section demonstrates that a more sophisticated signaling technique, which requires cooperation, is more effective.

4. Cooperative litigation signals

In cooperative signals the strong informed party likewise commits to augment her liability should she lose at trial. Unlike unilateral and third-party signals, the defendant is willing to do so only in exchange for a compensation, reflecting the higher risk she bears. Consider the following message from an informed strong defendant to an uninformed plaintiff:

Hypothetical V—Multiplier with Upfront Payment.—“Here is my low settlement offer. You can either (1). Accept it. (2). Reject it and go to trial. (3). Reject the offer and go to trial where, if I lose, I promise to pay you twice your judgment. If you choose option (3) I demand in return an upfront, specified amount.”

The elegant and powerful feature of cooperative litigation signals is that they are costly to careless doctors who disguise themselves as careful ones, but are costless to careful defendants. A payment from the plaintiff to the informed defendant is essential to achieve this goal—intuitively, in Hypothetical V this payment should fully reimburse careful doctors for the risk of losing at trial and paying twice the judgment.

To illustrate, consider the foregoing numerical example, where the careless and careful doctors’ expected liabilities at trial are 100 and 60. Along the lines of Hypothetical V, the careful doctor now offers a multiplier of 2 on the judgment, conditional on losing the case, but in exchange she demands a payment. This fixed payment should equal the careful doctor’s extra expected liability—60. With this cooperative signal provision, the careful doctor expects to pay 120 ($= 60 * 2$) after trial; but she gains 60 as an upfront payment. Hence, overall she expects to pay 60 to the plaintiff, as if she had not committed to a multiplier. The plaintiff, at the same time, is

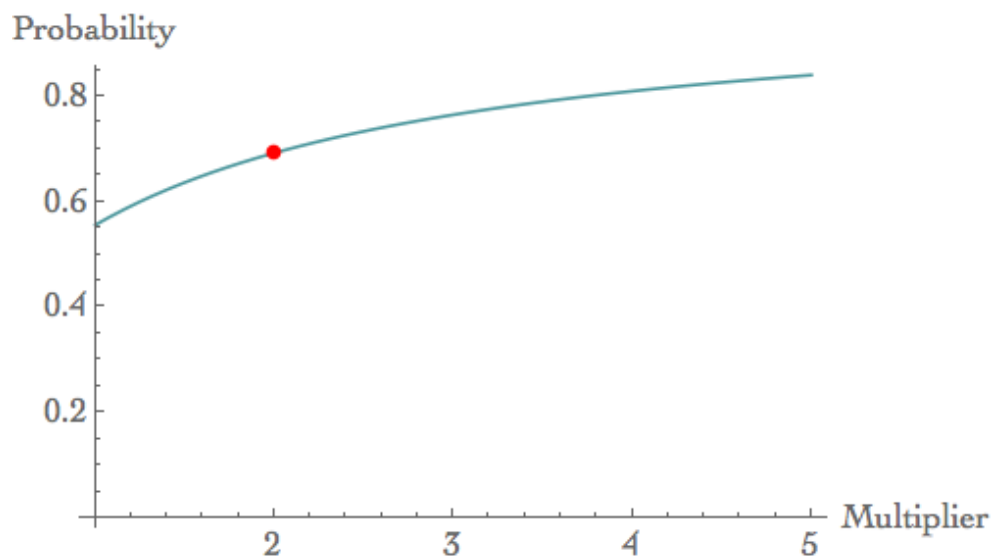
judgment goes to charity), the rate of acceptance of low offers will be ~68% and the rate of litigation will be ~16%. If a multiplier of 2 is triggered, the litigation rate drops to ~10%. We note here that, as aforementioned, in our specific numerical example third-party signals should not be triggered, *supra* text accompanying note 84, and these figures are only illustrative.

⁸⁸ In this sense, third-party signaling is also unilateral. We chose this terminology in order to stress the distinctions between self-commitments that benefit the rival party (“unilateral signaling”) and self-commitments that do not benefit the rival party (“third-party signaling”).

indifferent between going to trial (and expecting a reward of 60) and paying 60 in order to double his expected award. Now consider a careless doctor who presents herself as a careful one, offering the same cooperative signal provision. This bluffing defendant can expect to pay 200 ($= 100 * 2$) at trial; but her gain from the upfront payment is only 60 (because she presents herself as a careful doctor). Hence, a masking defendant who mimics this cooperative signal expects to be penalized at trial and pay, in addition to her litigation expense, 140 ($= 200 - 60$). Importantly, this sum exceeds the bluffing defendant's actual liability, 100. In summary, while strong defendants who offer truthful settlements are not punished by the cooperative signal provision, weak defendants who mask as strong ones and offer the same provision are expected to suffer greater losses. As we prove in the Mathematical Appendix, unlike unilateral and third-party signals, strong defendants always benefit from cooperative signals.

Figure 3 illustrates how cooperative signals can reduce the rate of litigation, using the previous numerical example. The horizontal axis is the multiplier promised by the defendant, from 1, the benchmark situation, to 5. The vertical axis measures probability (0 to 1). The graph reflects the rate at which low offers are accepted as a function of the multiplier. The red point represents Hypothetical V, which uses a multiplier of 2. As the graph demonstrates the acceptance rate increases from ~56% in the benchmark case, with no multiplier, to ~69% with a multiplier of 2:

Figure 3: The Effectiveness of Cooperative Signals



Importantly, Figure 3 shows that even relatively modest multipliers can

generate a considerable increase in the rate of settlements.⁸⁹

Finally, we note that the class of cooperative signals can take many forms. Hypothetical V demonstrates a fixed payment made before trial, but this payment can also take place after trial. In a similar vein, the exchange payment can be a fixed sum or conditioned on losing the case.⁹⁰ In the latter case, a cooperative signal resembles a loser-pays rule, with different post-trial obligations.⁹¹ Moreover, cooperative signals need not use explicit multipliers on the judgment and can be executed through other signaling technologies, such as dropping claims, one-way fee-shifting, and award-modification agreements.⁹² More generally, we have thus far described settlement negotiations between a defendant and a plaintiff, but one can think of a third party who facilitates the transaction through a cooperative signal.⁹³

The following table summarize our findings:

	Unilateral Signals*	Third-Party Signals**	Cooperative Signals***
Rival's gain	Yes	No	No

⁸⁹ The benchmark rate of litigation in this setting is ~22%. *Supra* note 66. A cooperative signal provision in which the strong defendant promises a multiplier of 1.3 on the judgment should the plaintiff win (in exchange for a fixed payment) results in a lower litigation rate, ~20%. A multiplier of 2 on the judgment further reduces the rate of litigation to ~15%—a reduction of almost one third in trials compared to the benchmark situation.

⁹⁰ *Cf.*, Prescott & Spier, *supra* note 11, at 96 & n.141 (high-low agreements involve a side payment, the “low,” which is typically paid as a contingent payment after trial, but can in theory be paid as a separate, fixed payment prior to trial though “in practice this does not happen”).

⁹¹ To illustrate such a cooperative signal: “Should she lose the case, the defendant agrees to pay x in addition to the judgment against her; in return, the plaintiff agrees to pay to the defendant an amount z in case he loses.” Of course, x and z should be calculated such that this commitment is costless for strong defendants while it is costly for weak defendants.

Note that under certain circumstances a simple loser-pays rule will constitute a cooperative litigation signal. Assuming that each side’s litigation costs are similar, where the strong defendant’s expects to win with a 50% probability, the strong defendant’s incurs no additional expenses from a loser-pays rule while the weak defendant, who presumably win with a probability lower than 50%, finds mutual fee-shifting unprofitable.

⁹² To illustrate, waiver of claims can be integrated into a cooperative signal provision through the following message from a strong defendant: “I am offering you a low settlement offer. To convince you that I am a strong defendant, if you reject my offer I am willing to drop my preliminary defense in exchange for a fixed payment.”

⁹³ Theoretically, a third-party could replace the plaintiff along the lines of Hypothetical V—a strong defendant could commit to pay an extra-amount to a third-party should the plaintiff win; and in exchange the third-party could pay the strong defendant a fixed amount, such that the signal becomes costless for strong defendants but costly for weak ones. *Cf.*, Robert Cooter & Ariel Porat, *Anti-Insurance*, 31 J. LEGAL STUD. 203 (2002) (suggesting a contract in which the promisor pays damages to a third-party in exchange for a fixed payment).

Self-harming	Yes	Yes	No
Cooperation	Not required	Not required	Required
Prediction	Highly unlikely	Unlikely (only where litigation expenses are very high)	Can always be triggered, to the extent parties cooperate
Effect if employed	Minimal	Effective	Effective

*—Multipliers on the judgment, award-modification agreements, one-way fee-shifting, dropping claims.

**—Donating to charity conditional on the judgment, burning money upon losing.

***—The unilateral signals examples coupled with a payment from the uninformed to the informed.

B. Litigation Signals in the Wild

Models attempt to roughly approximate real-world situations. We do not purport to claim that our model precisely reflects actual settlement behavior. Like other models, it provides a stylized description of real-world settings. Litigants are not perfectly rational decision-makers, and real-life situations are more complicated than a given theoretical settings, however complex it is. It is plausible to believe, though, that game-theoretical models express, at least roughly, a wide range of actual settlement negotiations.⁹⁴ Specifically, while we discussed a concrete bargaining setting, our analysis ultimately rests on plausible assumptions and it applies more generally to asymmetric information situations in which the informed party has some bargaining power. We have tested the robustness of our model by relaxing some of the underlying assumptions and we found that our general predictions are similar.⁹⁵

⁹⁴ Indeed, empirical evidence corroborates at least some of the predictions of other mathematical models of litigation. *Supra* note 28. For a more elaborate discussion on the fit between game-theoretical models and actual litigation settings see, *e.g.*, Hubbard, *supra* note 23, at 716-17. Hubbard acknowledges that litigants “do not always make coolheaded calculations about litigation costs and benefits.” However, he concludes that motivations such as “[s]pite, [i]ndignation, and [o]ptimism” “surely temper the general results” of game-theoretical models, “but [for various reasons] these considerations themselves ought not be overstated.” *Id.*, at 716.

⁹⁵ Mostly, these extensions were conducted in a companion, technical paper titled *Judgment Contingent Clauses*. First, a more complicated model, with an infinite number of different potential defendants with varying degrees of liability provides similar insights. Second, to the extent the parties’ resources are limited, they cannot credibly commit to a generous multiplier, but they still enjoy the benefit of signaling—as even promises to relatively modest multipliers on the judgment generate a considerable reduction in the rate of trials. *Supra* note 89. Third, we assumed in our model that the plaintiff is better off bringing the lawsuit against all defendants. Similar predictions hold in situations in which

Against this backdrop, to what extent do parties actually use litigation signals? We do not claim that parties find the way to signal their merits in all asymmetric information cases. By contrast, we believe that litigation signals, especially in the form of monetary commitments conditioned on losing the case, are under-used, and we conclude our Article with a call for lawyers to employ them more frequently. However, we do regularly observe other, more primitive forms of signaling.

1. Explicit monetary obligations

Monetary commitments to pay an additional sum contingent on losing the case are not common in actual civil litigation. However, concepts that share the same spirit exist in mediation and arbitration, where parties are sometimes asked to “bet” on their valuations. As part of the mediation technique that is known as “bottom-line wager,” the mediator asks the parties to place a bet on their settlement offers. If the mediation fails and a trial materializes, the loser must pay that wager to the rival party.⁹⁶ In arbitration, the common procedure

the uninformed plaintiff has a good case against the weak defendant; but the suit has a negative expected value against the strong defendant. Fourth, we assumed throughout that each side carries its legal expenses; the results are similar under the British rule, in which the loser has to pay the winner’s expenses. Fifth, we accounted for the rising costs of litigation that are associated with inflating the stakes of the case through a multiplier. Our predictions are similar, under the additional assumption that litigation costs are relatively lower the greater the stakes, *i.e.*, that investment in litigation has a decreasing marginal utility. This assumption is consistent with empirical studies. EMERY G. LEE III & THOMAS E. WILLGING, FED. JUDICIAL CTR., LITIGATION COSTS IN CIVIL CASES: MULTIVARIATE ANALYSIS—REPORT TO THE JUDICIAL CONFERENCE ADVISORY COMMITTEE ON CIVIL RULES 5, 7 (2010). Sixth, we can apply a similar analysis to cases in which the plaintiff is informed and the defendant is not. Seventh, the same results hold when the informed party uses a fixed commitment, rather than a multiplier on the judgment; likewise, in cooperative signals the fixed payment can be paid before or after trial, and it can be supplanted by a contingent payment. For a brief discussion see *supra* notes 90-91 and accompanying text. Eighth, we stress that we do not require courts to be perfect decision-makers. Judges in our model can make errors. It suffices that courts, on average, are able to distinguish between strong and weak parties. Ninth, litigation signals can be risky, as they enhance the repercussions of a trial. Therefore, risk-aversion tempers the tendency to use litigation signals. Nonetheless, we predict that many litigants are approximately risk-neutral, or, at the least, can hedge the added risk of litigation signals relatively cheaply. Tenth, we assumed that the informed party proposes a take-it-or-leave-it offer, meaning that she exploits the entire surplus from any settlement. The take-it-or-leave-it offer is a standard tool in the relevant literature, with independent justifications. *Supra* note 63 and accompanying text. The logic in the text pertains to any situation in which the informed party stands to gain something from revealing information—*i.e.*, any setting in which the uninformed party does not have all bargaining power.

⁹⁶ Michael D. Young, *Make A Bottom-Line Wager to Break A Negotiation Impasse*, 20 ALTERNATIVES TO HIGH COST LITIG. 63, 86-87 (2002) (describing a conditional sum of

known as “baseball arbitration” requires the parties to submit final offers to the arbitrator, where the latter must select one of the offers with no discretion to choose an intermediate value. This process penalizes unrealistic offers—which increase the risk that the arbitrator would pick the rival’s offer. One variation to baseball arbitration, which comes closer to our hypotheticals, includes an explicit stipulation of a penalty, to be paid by the losing party in addition to the amount awarded by the arbitrator.⁹⁷

The strategy of “betting” on one’s claim, then, is not unknown, at least in mediation and arbitration proceedings. Indeed, these practices are considered an effective “impasse breaker.”⁹⁸ These examples notwithstanding, in ordinary litigation we generally do not observe commitments to augment the judgment conditional on losing. Even in arbitration and mediation these procedures do not seem to be widely used. We thus identify several limitations on the actual use of litigation signals.

First, transaction costs may hinder signaling. While unilateral and third-party signals are relatively easy to execute, we have shown that they are not beneficial to strong informed litigants in typical cases, and will not ordinarily be triggered. However, cooperative signals—which in principle are always effective—are more difficult to undertake, as they require the parties to agree on bilateral commitments.⁹⁹ These transaction costs notwithstanding, we should still expect at least some cooperative signaling.¹⁰⁰

Second, the overarching legal environment does not seem to encourage litigation signals. The next Part demonstrates how specific doctrines inhibit signaling, suggesting modifications that can create an environment more conducive to litigation signals.

Third, lawyers may pose the most severe obstacle for the use of litigation signals in general and monetary commitments in particular. Naturally,

\$20,000). For additional examples see also JEFFREY KRAVIS, *IMPROVISATIONAL NEGOTIATION* 290-95 (2006). We thank Dan Klerman for suggesting this point.

⁹⁷ Christian Borris, *Final Offer Arbitration from a Civil Law Perspective: How to Play Baseball in Soccer Country*, 24 J. INT’L ARB. 307, 309 (2007) (“In some clauses, the penalty can be as high as 50 percent of the difference between the parties’ final positions.”).

⁹⁸ Michael D. Young, *Bottom-Line Negotiating*, 49 FED. LAW. 20, 22 (2002) (discussing bottom-line negotiation). See also Michael Carrell & Richard Bales, *Considering Final Offer Arbitration to Resolve Public Sector Impasses in Times of Concession Bargaining*, 28 OHIO ST. J. ON DISP. RESOL. 1, 20-21 (2013) (presenting empirical evidence that shows that baseball arbitration encourages settlements). Baseball arbitration with a stipulated penalty is considered a particularly effective tool. Borris, *supra* note 97, at 309.

⁹⁹ Cf., Donohue, *supra* note 38, at 1109-10 (distinguishing between procedural stipulations that improve both sides’ positions and stipulations that are overall beneficial but require side-payments, and explaining why the latter requires “added negotiation costs that . . . will prevent some of [them].”).

¹⁰⁰ Cf., Bone, *Party Rulemaking*, *supra* note 63, at 1341 (despite negotiating difficulties “side payments are . . . possible during litigation.”).

lawyers have an interest in prolonged litigation;¹⁰¹ this is particularly true for defense lawyers, who are paid on an hourly basis rather than contingency fees. Lawyers, then, may hesitate to take proactive and more sophisticated steps—such as committing to an augmented award—to induce settlements.¹⁰² Litigation signals are also risky, and they seem to require extra-effort from lawyers to explain to their clients.¹⁰³ Relatedly, lawyers seem to fear that the use of signaling would expose them to malpractice claims.¹⁰⁴ Monetary commitments are particularly difficult for lawyers to undertake on behalf of their clients, due to restrictive ethics norms.¹⁰⁵ More generally, there seems to be little innovation in the legal market.¹⁰⁶ In this sense our Article can be read as a call for lawyers to engage in more aggressive signaling in asymmetric information settings, to the benefit of their clients. We briefly discuss these issues at the end of this Article.

2. Other commitments

Monetary commitments conditioned on losing the case are not common. However, it is hard to believe that litigants do not attempt to indicate their strength to their rival, even if they do so in rudimentary ways. Indeed, at least intuitively and implicitly, lawyers use low settlement offers as a basic signaling device that communicates their willingness to face a trial.¹⁰⁷

Importantly, parties do not have to use explicit, monetary multipliers to signal their merits. Signals can be expressed through various other forms, such as voluntary one-way fee-shifting stipulations, procedural concessions, and award-modification agreements. Parties regularly stipulate over default

¹⁰¹ *E.g.*, Christopher R. Drahozal & Peter B. Rutledge, *Contract and Procedure*, 94 MARQ. L. REV. 1103, 1118 (2011) (pointing to the incentives of lawyers to leave certain issues vague in order to encourage disputes.).

¹⁰² *Cf.*, Young, *supra* note 98, at 20-21 (describing how lawyers, in contrast to their clients, hesitate to bet on their settlement offers in mediation proceedings).

¹⁰³ Indeed, bottom-line mediation seems not to fit settings in which the “negotiating representative has no authority to increase the risk to his or her principal [such as] an insurance adjuster or governmental representative.” *Id.*, at 22.

¹⁰⁴ This was a recurrent issue in our discussions with practicing attorneys.

¹⁰⁵ *Infra* note 112 and accompanying text.

¹⁰⁶ *See infra* notes 212-219 and accompanying text.

¹⁰⁷ *Supra* note 68 and accompanying text.

procedures,¹⁰⁸ and award-modification agreements are frequent.¹⁰⁹

The side-payments that are essential to cooperative signaling do not have to be monetary either. Rather, they can be nonfinancial in kind, embedded in the process of pre-trial negotiation over procedural concessions. Where the defendant has private information with regard to its liability, for example, the plaintiff can agree to dismiss a claim whose value is easy to measure in exchange for stipulating to generous damages.¹¹⁰ This agreement is essentially similar to our cooperative signal example (Hypothetical V), in which the defendant committed to augment its liability in exchange for a fixed payment. Interestingly, Prescott and Spier identify a similar practice in the context of high-low agreements.¹¹¹ They predict that a side-payment should typically accompany high-low agreements—but do not find evidence for such payments. While there may be various reasons for the absence of monetary side-payments, including restrictive ethics rules that require explicit client consent,¹¹² Prescott & Spier suggest that non-monetary procedural concessions, which are well-known in practice, supersede monetary side-payments.¹¹³

Taken in this light, the litigation signals approach can explain various

¹⁰⁸ See, e.g., Eisenberg & Miller, *supra* note 38, at 354 (documenting the willingness of commercial parties in pre-dispute agreements to opt out of the default procedures concerning jury trials and attorney’s fees); David A. Hoffman, *Whither Bespoke Procedure?*, 2014 U. ILL. L. REV. 389, 419-20 (summarizing findings regarding pre-dispute procedural agreements). Nonetheless, it seems that parties do not fully employ the opportunities to customize procedures, especially after the dispute began. *Infra* notes 219-226 and accompanying text.

¹⁰⁹ See *supra* notes 49 and 54 and accompanying text.

¹¹⁰ Cf., Prescott & Spier, *supra* note 11, at 97 n.145 (demonstrating procedural concessions in lieu of monetary side-payments through an actual case, in which the parties agreed to forgo expert medical evidence and the plaintiff dismissed her claim for punitive damages; Verdict and Settlement Summary, E.P. v. Gannett, No. 09-cv-02091, 2010 WL 4016047 (N.D. Ohio July 21, 2010)).

¹¹¹ Prescott & Spier, *supra* note 11, analyze the justifications for high-low agreements under settings that do not involve asymmetric information. Recall that these agreements can also be explained by the desire to signal private information. *Supra* notes 47-49, 57 and accompanying text.

¹¹² Prescott & Spier, *supra* note 11, at 130 n.294 (referring to MODEL RULES OF PROF’L CONDUCT r. 1.2(1) (AM. BAR. ASS’N 1983), and stating that “one of the reasons financial side payments are relatively rare . . . is that they require client consent, and thus are more costly for lawyers to negotiate . . . By contrast, [procedural concessions] (e.g., waiving a defense) are within a lawyer’s strategic discretion, making them, all else equal, easier to deploy.”).

¹¹³ Prescott & Spier, *supra* note 11, at 97 (“[P]artial settlements in which an early monetary transfer between the parties would make sense are, in our research, uniformly accompanied instead by a nonfinancial sidepayment [such as] a compensating in-kind partial-settlement term.”). See also Bone, *Party Rulemaking*, *supra* note 63, at 1341-42 (“[Instead of monetary side-payments] parties could trade [procedural] benefits . . .”).

practices. While direct empirical data is hard to collect and future research may shed more light on this issue, existing data seems to cohere with the litigation signals perspective.

First, the desire to signal explains various practices—such as the use of one-way fee-shifting provisions, waivers of claims, and generous award-modification agreements—that are at least somewhat puzzling.¹¹⁴

Second, the litigation signals perspective can explain why we often see early settlements. As we discuss below, most litigants find the way to settle *before* discovery, suggesting that there are important channels to convey information regardless of discovery.¹¹⁵ To further illustrate this point consider a recent study that finds that the *mere filing* of a non-discovery motion encourages settlements.¹¹⁶ This finding is somewhat surprising, as these motions seem to have no direct informational value. The litigation signals perspective provides an explanation.¹¹⁷ Waivers of claims are a signaling device, and they can be consummated implicitly, i.e., refraining from raising a certain defense. In that sense, every filed motion can be utilized to convey valuable information—through the arguments the parties choose *not* to raise, in addition to the arguments they explicitly make. More generally, there seems to be a discrepancy between the fact that the vast majority of cases—“on the order of 95 percent”—are settled and the general predictions of the theoretical models, which suggest that settlements should be less frequent.¹¹⁸ The use of litigation signals can help bridge this gap between the evidence and the theoretical models.¹¹⁹

The foregoing phenomena have, of course, alternative explanations. Litigants may have independent reasons to adopt one-way fee-shifting, waive important procedural rights, agree to generously modify the award at trial, etc. Non-discovery motions can have direct informational value that facilitates settlements, and parties may be able to disclose information voluntarily, before trial, bridging informational gaps in various ways. However, taken overall it is plausible to think that the litigation signals theory

¹¹⁴ See, e.g., *supra* notes 38-41 and accompanying text (discussing one-way fee-shifting provisions and the absence of direct explanation for their use); *supra* note 57 (an illustrative liability-only, generous-damages agreement).

¹¹⁵ *Infra* notes 131-133 and accompanying text.

¹¹⁶ Christina L. Boyd & David A. Hoffman, *Litigating Toward Settlement*, 29 J. L. ECON. & ORG. 898 (2012). Boyd and Hoffman’s sample comprises corporate veil-piercing cases, which may well involve asymmetric information.

¹¹⁷ *Cf., id.*, at 904-05 (proposing theoretical explanations without discussing signaling).

¹¹⁸ Farmer & Pecorino, *supra* note 29, at 157.

¹¹⁹ According to Farmer and Pecorino, the theoretical explanation for this discrepancy is the capacity of litigants to voluntarily disclose pieces of information. *Id.* While this explanation seems plausible in many cases, in many other situations parties cannot credibly convey information, *supra* note 18, and they have to signal it through other means.

that this Article presents can explain at least some of these practices. In sum, litigation signals in the form of monetary commitments and financial side-payments do not seem to exist in real-world litigation. However, theory and evidence suggest that litigation signals are more commonly effectuated through other outlets, in particular, procedural modifications.

IV. LEGAL AND POLICY IMPLICATIONS

The capacity of litigants to signal the strength of their cases, through multiple channels, has various implications. This Part focuses on three issues: substituting for formal discovery; the freedom of parties to fashion procedures; and the creation of court-sponsored mechanisms to facilitate signaling.

A. *Substituting for Discovery*

If litigants can signal information and bridge informational gaps the whole debate on discovery is highly affected. The right to discovery has been curtailed in recent years, and this move has triggered fierce reactions. Narrow discovery, the argument goes, magnifies asymmetric information problems and inhibits access to justice.¹²⁰ Broad discovery, by contrast, entails enormous costs.¹²¹ However, to the extent litigants convey information through signaling, signaling is a substitute for discovery. Our account suggests, then, a more nuanced approach to the debate over discovery. On the one hand, the detrimental effects of the anti-discovery trend may be more modest than those the proponents of broad discovery predict; on the other hand, the costs of broad discovery seem smaller than those suggested by its opponents.

In 2015, the Federal Rules of Civil Procedure were amended to constrain the right to discovery in various ways. Consider, for example, the following two limitations. First, the new rules emphasize that discovery proceedings should be “proportional to the needs of the case” in light of relevant factors.¹²² The stated goal is to “reinforce[] the . . . obligation of the parties to consider [the proportionality] factors.”¹²³ Conceivably, this change will place a greater burden on the requesting party “to show that its discovery request was

¹²⁰ *E.g.*, *supra* note 3 and accompanying text.

¹²¹ As noted by the Supreme Court, in cases in which discovery is employed it “accounts for as much as 90 percent of litigation costs.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 559 (2007) (referring to an empirical study on discovery).

¹²² FED. R. CIV. P. 26(b)(1).

¹²³ FED. R. CIV. P. 26(b)(1) advisory committee’s note to 2015 amendment.

proportional.”¹²⁴ Second, the amended rules now “include an express recognition” for district courts to “allocate expenses for . . . discovery.”¹²⁵ This change threatens to shift the expenses of discovery to the requesting party, typically, the uninformed plaintiff.¹²⁶

The debate over discovery and the 2015 Amendments have inspired strong views from both sides, for and against the right to broad discovery.¹²⁷ On the face of it, as discovery is deemed essential to bridging informational gaps the amendments aggravate the problems associated with asymmetric information. Indeed, numerous stakeholders—including (literally!) scores of scholars—have lamented the “anti-plaintiff” approach reflected by these amendments.¹²⁸ On the other hand, clearly it is exactly in asymmetric information situations that the informed party is charged with the costly burden of responding to discovery,¹²⁹ and these added costs pressure defendants to settle unmeritorious cases.

While we do not seek to argue for or against a broader right to discovery, we offer a fresh perspective to enrich this debate. Our discussion challenges the notion that “the road to achieving a level of information parity must be paved with mandatory disclosure rules.”¹³⁰ We suggest that informed parties, who stand to incur litigation expenses, have independent, strong incentives to convey their private information to the uninformed litigant. Moreover, we showed earlier that informed parties also have at their disposal various techniques to achieve this goal.

Our theoretical account influences the debate over discovery in two ways.

¹²⁴ Moore, *supra* note 1, at 1116.

¹²⁵ FED. R. CIV. P. 26(c)(1)(B) advisory committee’s note to 2015 amendment.

¹²⁶ Moore, *supra* note 1, at 1116. In addition to these two limitations on discovery the 2015 Amendments include other restrictive changes. *See generally id.*, at 1106-29. *But see* Adam N. Steinman, *The End of An Era? Federal Civil Procedure After the 2015 Amendments*, 66 EMORY L. J. 1, 8 (2016) (concluding that “the 2015 amendments do not mandate more restrictive approaches” and that the “key battleground . . . will be in the federal courts, as judges are called upon to interpret . . . the rules in particular cases.”).

¹²⁷ *E.g.*, Moore, *supra* note 1, at 1116 (“Plaintiff’s lawyers almost unanimously opposed [the contraction of discovery under the 2015 Amendments], and defendant’s lawyers almost unanimously favored [it].”).

¹²⁸ Moore, *supra* note 1, at 1112. Notably, during the rulemaking process 171 law professors, led by Janet Alexander, Judith Resnik and Stephen C. Yeazell, “urge[d] th[e] Committee [on Rules of Practice and Procedure] to reject the proposed amendments to the Federal Rules of Civil Procedure that would limit the scope of discovery.” LETTER OF 171 LAW PROFESSORS URGING REJECTION OF CHANGING FEDERAL RULES TO LIMIT DISCOVERY AND ELIMINATE FORMS (2014), *available at* http://www.lfcj.com/uploads/3/8/0/5/38050985/frcp_171_law_professors_urgin_rejection_of_changing_federal_rules_2.18.14.pdf.

¹²⁹ “[T]he burden of responding to discovery lies heavier on the party who has more information.” FED. R. CIV. P. 26(b)(1) advisory committee’s note to 2015 amendment.

¹³⁰ Rhee, *supra* note 4, at 547. *See also supra* notes 5, 30 and accompanying text.

First, we suspect that the gloomy predictions regarding the anti-discovery changes should be qualified; the capacity of privately-informed litigants to convey information in order to save future trial costs can mitigate these effects. Second, our account suggests that a broad right to discovery is not as costly as it seems to be. While discovery proceedings may be expensive in and of themselves, mindful parties can often avoid these costs through pre-discovery signaling.

While our arguments are theoretical, some evidence corroborates our position. Consider the pre-2015 world, an era of broad discovery. In this world, many cases settled at an early stage without the need to conduct discovery.¹³¹ In fact, while in the last decades of the 20th century the right to discovery has become broader,¹³² there was a parallel, sharp increase in the fraction of cases that settled after filing and *before* discovery.¹³³ This trend seems counterintuitive—in light of broader discovery, why would the parties settle *before* it? One can argue that this increase in (very) early settlements is understandable as trials became more costly.¹³⁴ When costs of litigation rise, parties are less motivated to litigate.¹³⁵ Nevertheless, given the innate informational gaps between defendants and plaintiffs, and that discovery is relatively cheap for plaintiffs,¹³⁶ we could expect the uninformed plaintiff to restrain its desire to settle until discovery provides more information. Our theory of litigation signals complements the picture. Facing sizeable costs, parties preferred to settle early, even before discovery; litigation signals enabled the informal flow of information between the parties and facilitated the urge to early settlements. In an era of broad discovery, then, experience suggests that the vast majority of litigants found their way to settle before it. Discovery was costly, but rarely was it realized. Indeed, per filed case, costs of discovery seem to be smaller than expected.¹³⁷

We enrich, then, the usual debate on discovery. In a world with no

¹³¹ “The largest number of settlements occur immediately after a complaint is filed, and *before any motion practice or discovery occurs.*” Hubbard, *supra* note 59, at *2.

¹³² *E.g.* John H. Beisner, *Discovering A Better Way: The Need for Effective Civil Litigation Reform*, 60 DUKE L.J. 547, 561-72 (2010).

¹³³ *E.g.*, Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 1 J. EMPIRICAL LEGAL STUD. 459, 482 (2004).

¹³⁴ Broader discovery presumably increases the costs of litigation. *See, e.g., supra* notes 121, 132 and accompanying text.

¹³⁵ *E.g., supra* note 67 and accompanying text.

¹³⁶ As it is the informed party who typically bears the major costs of discovery. *Supra* note 129. *See also* Geoffrey P. Miller, *Preliminary Judgments*, 2010 U. ILL. L. REV. 165, 181 (2010) (“[I]t is cheap for the plaintiff to file a complaint but expensive for defendants to comply with discovery demands.” (footnote omitted)).

¹³⁷ *E.g.*, Emery G. Lee III & Thomas E. Willging, *Defining the Problem of Cost in Federal Civil Litigation*, 60 DUKE L.J. 765, 779-81 (2010); Charles Silver, *Does Civil Justice Cost Too Much?*, 80 TEX. L. REV. 2073, 2094-95 (2002).

discovery it is in the interest of the parties to inform each other in order to avoid costly trials, and they have a variety of litigation maneuvers to achieve this goal. In a world of broad and costly discovery, we will expect the parties to signal information to avoid its expenses. Therefore, changes in the scope of formal discovery, including the 2015 Amendments, should have a limited effect on the actual position of uninformed litigants and the costs to informed ones. We stress that our argument pertains to formal discovery proceedings, as opposed to other procedural mechanisms that indirectly limit the scope of discovery.¹³⁸

B. Party Rulemaking

The litigation signals perspective emphasizes litigants' ability to convey information through a wide array of voluntary commitments. Therefore, it directly pertains to the debate on the extent to which litigants should be free to fashion their procedures—what Robert Bone refers to as party rulemaking.¹³⁹ The more freedom parties have the easier it is for them to signal information. In this sense, the litigation signals perspective adds another layer, in favor of customized procedure, to the general discussion on party rulemaking. In addition, the litigation signals perspective can provide concrete policy recommendations regarding several procedural dilemmas that courts struggle with.

1. Default or mandatory rules of procedure?

Should rules of procedure be mandatory or default? Can parties, in actuality, customize their own procedures? With regard to the first, normative question, the literature has struggled to define the proper scope of party rulemaking, laying out various for-and-against considerations. The benefits of customized litigation are evident. Contracts in which parties define their procedures break the one-size-fits-all nature of legal procedure. They thus enable parties to benefit from procedures that better suit their taste,¹⁴⁰ and can

¹³⁸ In particular, in the last decade the Court directed trial courts to dismiss—at the outset of litigation and before discovery kicks in—cases that do not present a sufficient factual threshold. *Bell Atl. Corp. v. Twombly*, 550 U.S. 570 (2007); *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009). To the extent defendants can fend off uninformed plaintiffs relatively *costlessly* at the outset, they need not use litigation signals to convey their merits.

¹³⁹ Bone, *Party Rulemaking*, *supra* note 63.

¹⁴⁰ *E.g.*, Jaime Dodge, *The Limits of Procedural Private Ordering*, 97 VA. L. REV. 723, 731 (2011) (describing the argument “that allowing parties to tailor the process to their particular dispute can increase both certainty and efficiency.” (footnotes omitted)). To illustrate, in technologically complex disputes parties can benefit from waiving the right to a jury trial. Bone, *Party Rulemaking*, *supra* note 63, at 1356.

reduce the costs to the court system.¹⁴¹ The capacity to agree on individualized procedures enhances party autonomy and participation,¹⁴² plausibly, core values of adversary systems. These benefits notwithstanding, party rulemaking also raises serious difficulties. Delegating to the parties the power to shape procedure is problematic when consent is not perceived as meaningful and the bargaining capacities of the parties are far from being equal.¹⁴³ And even where there is actual consent, some procedural agreements inflict costs on third parties and/or the legal system.¹⁴⁴ Finally, parties' choices can harm the legitimacy of the legal system.¹⁴⁵ These general arguments form the core of the "sharply divided"¹⁴⁶ debate over party rulemaking, and they pertain, in varying extents, to procedural choices that are made before and after a dispute arises.¹⁴⁷

The literature on procedural contracts has generally failed to identify another consideration—the link between customized procedures and settlements.¹⁴⁸ *Default rules of procedure facilitate signaling. Mandatory procedures do not.* This distinction stems from the fact that strong informed parties can indicate their strength by undertaking a commitment to change a default rule—to agree to a one-way fee-shifting provision, waive a statute of limitations defense, etc. A mandatory requirement applies to all defendants, strong and weak alike, and it does not allow the strong ones to convey their strength by undertaking additional obligations.¹⁴⁹ Therefore, greater

¹⁴¹ Procedural contracts reduce the costs of the parties, and to the extent private and public costs are correlated they also reduce the costs to the legal system. *Id.*

¹⁴² See, e.g., *id.*, at 1357-59 (critically examining these arguments).

¹⁴³ See, e.g., *id.*, at 1360-69. See also Michael L. Moffitt, *Customized Litigation: The Case for Making Civil Procedure Negotiable*, 75 GEO. WASH. L. REV. 461, 516 (2007) ("customization could strip litigation of procedures designed to protect the weakest . . .").

¹⁴⁴ E.g., Bone, *Party Rulemaking*, *supra* note 63, at 1372-78. Thus, "litigants could not mutually agree to a process that triples the number of days spent in trial." Moffitt, *supra* note 143, at 508.

¹⁴⁵ Certain procedures "like a coin flip . . . seem sharply at odds with what courts are supposed to do . . . [and] should be categorically forbidden . . ." Bone, *Party Rulemaking*, *supra* note 63, at 1384.

¹⁴⁶ Bone, *Party Rulemaking*, *supra* note 63, at 1333.

¹⁴⁷ A separate issue, which we do not discuss, is whether the parties are more likely to enter into procedural agreements before or after the dispute arises. *Cf.*, *id.*, at 1340 ("Some commentators assume that cooperation is nearly impossible during litigation, but they tend to exaggerate the difference between ex ante and ex post").

¹⁴⁸ "[O]ther than a few hints here and there, th[e] connection [between procedure modification agreements and settlements] has never been identified." Prescott & Spier, *supra* note 11, at 83 (footnote omitted).

¹⁴⁹ To further illustrate this point, take the American rule, which holds that each party bears its legal expenses. Under a regime which allows modifications to this rule, the strong defendant may signal by committing to one-way fee-shifting. She could do so through unilateral, third-party, or cooperative signaling, under the conditions we defined in Part III.A.

procedural freedom expands avenues to signal information, generating more settlements. The litigation signals theory adds, then, a deeper understanding of the stakes to the general for and against arguments.

This conclusion entails a host of policy implications as current procedures do not fully endow the parties with the power to modify the rules. On the face of it, the rules of procedure seem largely as default rules.¹⁵⁰ Indeed, we do believe that there are many situations in which parties use procedural modifications to signal information, implicitly or explicitly.¹⁵¹ However, things are more nuanced, and in the capacity of parties to stipulate over the rules is more limited than it first seems. First, some notable procedures are mandatory. Subject matter jurisdiction is a classic example—parties cannot agree, explicitly or implicitly, to litigate in a court that lacks jurisdiction.¹⁵² There are other examples. Previously, we noted the signaling power of one-way fee-shifting stipulations.¹⁵³ However, several states—most notably California—specifically forbid these agreements.¹⁵⁴

But even beyond these specific enclaves of mandatory provisions parties do not seem to exercise considerable freedom in shaping their disputes. Perhaps surprisingly, it seems that “most lawyers and potential litigants do not *think* of the rules of litigation as default rules,”¹⁵⁵ and in practice opportunities for customized litigation appear to be largely unfulfilled.¹⁵⁶ We suspect that lack of innovation in the legal market is one important explanation.¹⁵⁷ But another plausible part of the story is the restrictive attitude of policymakers and courts. Even if procedural customization is not explicitly forbidden, courts that are reluctant to enforce procedural understandings deter

In a regime that does not allow stipulations to the American rule, the strong defendant does not have the option to signal through committing to one-way fee-shifting. Under a regime that *mandates* one-way fee-shifting, both weak and strong defendants are committed to pay their rival should they lose, and the strong defendant again cannot distinguish herself from the weak one.

¹⁵⁰ See, e.g., STEPHEN C. YEAZELL, CIVIL PROCEDURE 144 (6th ed. 2004) (“One of the hallmarks of U.S. law is the extent to which the rules of procedure are ‘default’ rules . . .”). Several rules explicitly authorize the parties to modify the rules. E.g., Colter L. Paulson, *Evaluating Contracts for Customized Litigation by the Norms Underlying Civil Procedure*, 45 ARIZ. ST. L.J. 471, 483–84 (2013) (noting rules that allow parties to stipulate the scope of discovery and amend pleading, FED. R. CIV. P. 26(f), 29, 15(a)).

¹⁵¹ *Supra* Part III.B.

¹⁵² E.g., Shay Lavie, *Are Judges Tied to the Past? Evidence from Jurisdiction Cases*, 43 HOFSTRA L. REV. 337, 343–46 (2014).

¹⁵³ *Supra* Part II.B.1.

¹⁵⁴ CAL. CIV. CODE § 1717(a). Other states with similar restrictions include Oregon, Washington, and New York. Eisenberg & Miller, *supra* note 38, at 329 n.6, 342.

¹⁵⁵ Henry S. Noyes, *If You (Re)build It, They Will Come: Contracts to Remake the Rules of Litigation in Arbitration's Image*, 30 HARV. J.L. & PUB. POL’Y 579, 612 (2007).

¹⁵⁶ *Infra* notes 219–226 and accompanying text.

¹⁵⁷ We briefly discuss this issue below. *Infra* notes 212–218 and accompanying text.

litigants from entering into such agreements. Indeed, courts seemingly hesitate to enforce various agreements, such as stipulations regarding the scope and timing of discovery, agreements on the admissibility of evidence, and commitments not to file amended pleadings.¹⁵⁸ “[W]ithout formal assurance of legal enforcement, parties would have trouble making credible commitments.”¹⁵⁹

Particularly, we observe difficulties in enforcing stipulations that we identify as potential signals. Courts often “find ways to avoid” fee-shifting stipulations, such that it is “difficult for parties to depend on the enforcement” of such provisions.¹⁶⁰ Some courts reject contractual understandings to forego a statute of limitations defense,¹⁶¹ and limit agreements that modify the award at trial.¹⁶² Mary Carter agreements, which can be used by co-defendants to signal information, are prohibited in several jurisdictions.¹⁶³ Finally, there are reasons to believe that courts will hesitate to enforce explicit monetary commitments that are conditional on the judgment, especially those that specify a non-trivial augmentation of the award. A fee-shifting agreement “that explicitly calls for unreasonable fees will be struck down as punitive”,¹⁶⁴ and in contract law liquidated damages, an analogous monetary commitment, are disfavored when they are “deemed to constitute a penalty.”¹⁶⁵

The general upshot is clear: Litigation signals provide another justification for party rulemaking, where courts and policymakers do not seem to fully facilitate it. The restrictions on parties’ freedom to fashion their procedures definitely have independent policy reasons. Subject matter jurisdiction is an external limit on the power of courts.¹⁶⁶ Restrictions on one-way fee-shifting agreements seem to be motivated by the desire to prevent powerful parties from drafting disadvantageous provisions.¹⁶⁷ Mary Carter provisions also raise concerns.¹⁶⁸ More broadly, there are many reasons to

¹⁵⁸ Moffitt, *supra* note 143, at 471, 473, 468.

¹⁵⁹ Bone, *Party Rulemaking*, *supra* note 63, at 1351 (discussing the lack of case law in the field and the capacity of judges to refuse to enforce procedural agreements).

¹⁶⁰ Paulson, *supra* note 150, at 507, 510. For a survey of the doctrine see *id.*, at 506-11.

¹⁶¹ *Id.*, at 500.

¹⁶² *Id.*, at 501.

¹⁶³ Bernstein & Klerman, *supra* note 50, at 2216-18.

¹⁶⁴ Paulson, *supra* note 150, at 510.

¹⁶⁵ *Id.*, at 504 (internal quotation marks omitted). “[L]iquidated damages are disfavored . . . even when the transaction was voluntary and the parties have equal bargaining.” *Id.* See also *infra* Part IV.B.2.a.d (discussion aversion to self-penalizing commitments; showing that monetary commitments conditional on the judgment can be vulnerable to anti-gambling provisions.).

¹⁶⁶ *E.g.*, Lavie, *supra* note 152, at 343-46.

¹⁶⁷ *E.g.*, Krent, *supra* note 39, at 2043 n.25.

¹⁶⁸ Bernstein & Klerman, *supra* note 50, at 2216-18.

hesitate to enforce procedural contracts.¹⁶⁹ We are not seeking to doubt the wisdom of policies that moderate the scope of party rulemaking. Rather, our goal is to stress that these restrictions narrow the array of signaling options available to informed parties. In sum, parties do seem to signal information through procedural modifications, but the opportunities to do so are not fully available in the current legal climate.

2. Lessons from the litigation signals perspective

In addition to the general argument in favor of procedural freedom, the litigation signals perspective can contribute to the understanding of specific procedural dilemmas.

a. Self-penalizing commitments

Effective signaling requires the “good” defendants to commit to a penalty, in order to distinguish themselves from weak ones. The greater the penalty, the more effective the signal is—and thus we should expect parties to undertake onerous commitments.¹⁷⁰ However, it seems that courts loath such penalizing commitments. For example, seemingly “punitive” fee-shifting and liquidated damages agreements are regularly not enforced.¹⁷¹ Likewise, courts limit the enforcement of voluntary, meaningful penalties for discovery abuse.¹⁷²

We can speculate as to the reasons for this strong aversion to voluntarily commit to penalties. Courts appear to treat these agreements as unfair as the penalty seems excessive at the time in which it is realized; but judges give little weight to the incentives of parties to enter into these agreements at the outset.¹⁷³ Relatedly, courts often prefer not to constrain their decision-making, and they favor a merits decision over a procedural penalty.¹⁷⁴

The aversion to self-penalizing commitments presumably has policy

¹⁶⁹ *Supra* notes 143-147 and accompanying text.

¹⁷⁰ *E.g.*, *supra* note 89 and accompanying text.

¹⁷¹ *Supra* notes 164-165 and accompanying text.

¹⁷² *E.g.*, *TransAmerican Nat. Gas Corp. v. Powell*, 811 S.W.2d 913, 918 (Tex. 1991) (“Sanctions which are so severe as to preclude presentation of the merits of the case should not be assessed absent a party’s flagrant bad faith or counsel’s callous disregard for the responsibilities of discovery under the rules.”).

¹⁷³ *See Paulson*, *supra* note 150, at 525 (“courts usually determined the reasonableness of the procedure by reference to the fairness of its effect in the lawsuit, rather than the ex ante fairness of the contractual bargain.”).

¹⁷⁴ *Id.*, at 523, 524 (“Clauses that limit the relief that a judge may impose are greatly disfavored” and courts “usually bend over backward to decide cases on the merits.”). *See also supra* note 172.

reasons. Our goal is to highlight the other side of the ledger: restrictive judicial policy undermines effective signaling—through monetary and procedural concessions alike. Against the interest in ex-post fairness, there exists a social interest in respecting the ex-ante commitments of the parties; against the interest in a merits decision one should consider the savings in trial expenses.

b. Credible commitments, renegeing, and rigid procedures

A related point is the capacity of parties to renege on their stipulations. At the core of effective signals lies the “good” party’s promise to undertake an obligation that the “bad” defendant is unwilling to offer. If the plaintiff knows that defendants can later change their mind the signal loses its informative value. To fully tap the benefits of contractual freedom, then, courts should not allow parties to renege on their contractual stipulations. Rigid rules and deadlines preclude the possibility of late changes of mind and ensure that parties can commit to irreversible choices.¹⁷⁵

To illustrate consider the following. A strong defendant plans to signal her strength by dropping a preliminary, statute-of-limitations claim. The Federal Rules of Civil Procedure hold that this defense must be raised by the defendant at an early stage—within her answer to the plaintiff’s complaint.¹⁷⁶ Accordingly, an answer that fails to raise a statute of limitations defense should indicate to the plaintiff that the defendant implicitly waived the defense. However, this strict rule is subject to the generally permissive approach that the Rules embrace. Rule 15(a), which governs the issue of amendments to pleadings, allows defendants to raise arguments tardily, notwithstanding the rival’s opposition, “when justice so requires.”¹⁷⁷ This liberal approach neuters the informative value of implicit waivers of this type.

In response, more sophisticated parties can explicitly commit not to raise certain claims. However, such contracts can be more complicated to draft. More importantly, it seems that even explicit commitments will not be respected—as courts will again tend to allow parties, at least in certain cases, permission to amend pleadings. Accordingly, scholars lamented that “[t]he current rules provide no reliable mechanism for parties to assure themselves early on that the scope of litigation has been (and will remain) contained.”¹⁷⁸

¹⁷⁵ Cf., Rhee, *supra* note 4, at 540 (discussing the capacity of parties to offer a “bond of good faith [by] the assumption of a higher standard of proof” and maintaining that the “bond is useless if it can be canceled [later]”).

¹⁷⁶ FED. R. CIV. P. 8(c)(1).

¹⁷⁷ FED. R. CIV. P. 15(a)(2).

¹⁷⁸ Moffitt, *supra* note 143, at 468. See also 83 C.J.S. *Stipulations* § 60 (2016) (“A stipulation not to amend a pleading . . . does not prevent the court from granting an amendment at the trial in the furtherance of justice.”); Paulson, *supra* note 150, at 524

This permissive approach prevents litigants from committing to “lash themselves to the mast”¹⁷⁹ and frustrates signaling. Indeed, while litigants are presumably interested in committing not to raise new claims,¹⁸⁰ it is hard to find cases in which parties explicitly contracted to waive their right to amend.¹⁸¹

Rule 15 and the liberal approach to tardy amendments reflect a more general tendency to allow aggrieved litigants to deviate from procedural agreements.¹⁸² This approach has merits, as it assigns greater weight to fairness at the expense of strict, technical pleading.¹⁸³ However, it is destructive to litigation signals. Our perspective, then, highlights the overlooked, subtle benefits that strict procedures entail.

The analysis in this Article therefore suggests a more nuanced application of Rule 15(a). Currently, courts have interpreted it broadly, refusing to grant leave to amend only in extreme circumstances. In particular, the current inquiry focuses on the plaintiff-defendant pair, asking whether the party who wishes to amend harms the opposing party.¹⁸⁴ The litigation signals perspective, in contrast, looks at the different groups of informed parties. Late amendments enable an informed negligent doctor to mask the weakness of her case and blend a truthful message that a careful doctor could have sent. The possibility of late amendments, then, creates uncertainty and prevents plaintiffs from settling with those who chose to genuinely drop important claims. Particularly, courts should be suspicious of tardy assertions when there are asymmetries of information in the background. Likewise, renegeing on implicit waivers, which serve as unilateral signals,¹⁸⁵ is particularly

(“courts regularly allow parties to avoid stipulations they make at pretrial conferences based on changed circumstances and fairness.”).

¹⁷⁹ Moffitt, *supra* note 143, at 471. The famous analogy is the mythical Odysseus, who tied himself to the mast in order to avoid being lured by the seductive call of the sirens. *Id.*

¹⁸⁰ *E.g., id.*, at 468 (interviewing a litigator).

¹⁸¹ We looked through Westlaw for stipulations not to amend and found no such cases (we tried several search commands including for example: (agree! stipulat!) /s “not to amend”) /p (pleading! answer). Of course, it may be that there are procedural agreements not to amend—perhaps our search did not find them, and/or courts are not faced with the need to decide these stipulations. However, the absence of case law at the least suggests that such agreements are not prevalent.

¹⁸² See Moffitt, *supra* note 143, at 471 (discussing another notable example, “grant[ing] a motion by one litigant to permit discovery beyond that which was mutually negotiated.”).

¹⁸³ *E.g.,* RICHARD L. MARCUS ET AL., *CIVIL PROCEDURE: A MODERN APPROACH* 245 (6th ed. 2013). See also *supra* note 174 and accompanying text.

¹⁸⁴ Courts ask whether the opposing party “was taken by unfair surprise and prejudiced by the delayed assertion.” *S. Wallace Edwards & Sons, Inc. v. Cincinnati Ins. Co.*, 353 F.3d 367, 373-4 (4th Cir. 2003). Another factor is “the bad faith of the moving party.” *O’Connell v. Hyatt Hotels of Puerto Rico*, 357 F.3d 152, 155 (1st Cir. 2004). See generally *Foman v. Davis*, 371 U.S. 178, 182 (1962).

¹⁸⁵ If the signal were cooperative the parties would presumably agree, through an explicit

suspicious where the costs are high relative to the stakes.¹⁸⁶

By the same logic, our Article provides an argument in favor of maintaining rigid deadlines. To illustrate, consider the rule that allows defendants 30 days to remove a case from a state to a federal forum.¹⁸⁷ On the 31st day, the plaintiff can presume that the defendant waived its right to litigate in a federal court. To the extent this waiver signals information, a settlement can be agreed upon immediately after the deadline passed. Courts that interpret the 30-days limit flexibly, to allow removals later on, delay the realization of signaling-induced settlements.¹⁸⁸

c. Bargaining chips

Sometimes parties use “bargaining chips,” i.e., valid claims that are raised and then dropped with the intention to settle. Bargaining chips are a potential signaling tool. However, courts can be hostile to such litigation maneuvers.

The following actual example, *Adams v. United Services Automobile Ass’n*, is illustrative.¹⁸⁹ The plaintiffs in *Adams* brought a class action against their insurer in a state court. The insurer removed the case to a federal court, a more favorable forum for defendants. The case was then stayed in order to allow the parties to reach a settlement.¹⁹⁰ After protracted settlement negotiations the insurer agreed to dismiss the federal proceedings—or, in the foregoing terminology, it dropped its right to litigate in a more favorable forum. Concurrently, the parties went back to the state court and settled.¹⁹¹ This description fits a litigation signal that is based on dropping a procedural right—resulting in an early settlement that saved the need to conduct costly discovery and trial.¹⁹²

stipulation, to disregard the claim.

¹⁸⁶ Recall that a pre-requisite to unilateral signals is that litigation expenses are at least half of the expected judgment. *Supra* Part III.A.2.

¹⁸⁷ 28 U.S.C. § 1446(b)(1).

¹⁸⁸ *Cf.*, *Roth v. CHA Hollywood Med. Ctr., L.P.*, 720 F.3d 1121 (9th Cir. 2013) (deciding in favor of a flexible rule regarding the 30-day deadline while recognizing that “defendants may sometimes be able to delay filing a notice of removal until it is strategically advantageous to do so.” *Id.*, at 1126).

¹⁸⁹ No. 2:14-cv-02013 (W.D. Ark.). For a discussion of this case see Jacqueline Matthews, *Sanctions Imposed on Five Attorneys for Class Settlement Forum Shopping*, CLASS ACTION LAWSUIT DEFENSE (Aug. 15, 2016), available at <http://www.classactionlawsuitdefense.com/2016/08/15/sanctions-imposed-on-five-attorneys-for-class-settlement-forum-shopping/>.

¹⁹⁰ *Adams v. United Services Automobile Ass’n*, No. 2:14-cv-02013, slip op. at 2 (W.D. Ark. April 14, 2016) [hereinafter *Adams*, April 2016 Order].

¹⁹¹ *Adams v. United Services Automobile Ass’n*, No. 2:14-cv-02013 (W.D. Ark. Dec. 21, 2015) [hereinafter *Adams*, Dec. 2015 Order].

¹⁹² The circumstances suggest that this is a cooperative signal—the dismissal from the

Of course, there may well be alternative readings. As is typical in class litigation, once the parties reach a settlement they presumably prefer a more lenient forum—a state court, in that case.¹⁹³ However, the parties could have avoided strict scrutiny of future settlements by staying in a state court. The fact that a defendant removes a case to a federal forum—and then agrees to return to a state court—is at least somewhat puzzling.¹⁹⁴ The litigation signals approach can explain why defendants create a temporary litigation advantage and drop it later, without an apparent change in the surrounding circumstances.¹⁹⁵ Importantly, it seems that dropping federal jurisdiction was essential to reaching a settlement.¹⁹⁶

The federal court in *Adams*, though, denounced this tactic as an “abuse of process in using [the federal court] as a bargaining chip,” an “inappropriate procedural gamesmanship with no intent to actually litigate claims in good faith.”¹⁹⁷ The federal judge’s dissatisfaction is understandable. Apparently, the defendant *did* use the federal court’s jurisdiction “as a bargaining chip.” However, from the litigation signals perspective this strategy is useful for the defendant to convey information to the plaintiff and achieve an early settlement. While the federal judge may have had other, good reasons to condemn the behavior of the attorneys,¹⁹⁸ this story demonstrates how the litigation signals approach can shed a different light on various litigation maneuvers.

d. Anti-gambling provisions

federal docket was negotiated as part of the mediation process that gave birth to the substantive settlement. *Adams*, April 2016 Order, *supra* note 190, at 2.

¹⁹³ *Adams*, April 2016 Order, *supra* note 190, at 12 (“Arkansas courts [where the case was originally filed] do not undertake a rigorous analysis of whether the class certification requirements are met”).

¹⁹⁴ For a similar practice in other cases see *id.*, at 28-29.

¹⁹⁵ The reader may wonder whether a similar signal could have been accomplished by a statement of the defendant in which it commits to never remove the case to a federal court. We suspect, though, that such a statement would not constitute a credible commitment as courts would allow the defendant to renege and remove the case later on. See the discussion on reneging and credible commitments, *supra* Part IV.B.2.b.

¹⁹⁶ The parties “engaged in protracted settlement negotiations” for more than a year. *Adams v. United Services Automobile Ass’n*, No. 2:14-cv-02013 (W.D. Ark. August 3, 2016) [hereinafter: *Adams*, August 2016 Order].

¹⁹⁷ *Adams*, Dec. 2015 Order, *supra* note 191, at 5, 6.

¹⁹⁸ We acknowledge that the act of removing to a federal forum and dismissing thereafter wastes the federal court’s resources—and it may therefore be wise to sanction the attorneys. The judge indeed found that some of the attorneys violated Rule 11 of the Federal Rules of Civil Procedure. *Adams*, August 2016 Order, *supra* note 196. However, as the case required little judicial attention while it was pending, it is plausible to think that the costs the parties inflicted on the federal judiciary were not considerably large.

Finally, we note that similar notions of “gamesmanship” can hamper litigation signals in other ways. In particular, multipliers on the judgment (Hypotheticals III-V) are wagers, as the informed party “doubles down.”¹⁹⁹ As a result, the use of explicit monetary commitments as litigation signals seems to be vulnerable to anti-gambling provisions.²⁰⁰

Several courts have found that third-party investment in litigation, in exchange for a sum contingent on the outcome, constitutes unlawful gambling—“a bet by which two parties agree that a certain sum . . . should be paid . . . on the happening . . . of an uncertain event.”²⁰¹ In addition, several states explicitly criminalize “bet[ting] on result of trial.”²⁰² This logic renders multiplier provisions unlawful.²⁰³ These legal concerns may be the reason why explicit monetary commitments, as opposed to other signaling techniques such as dropping claims, are uncommon.²⁰⁴

Like other litigation maneuvers, the litigation signals approach sheds a different light on such “bets.” A deeper understanding of the utility of these tactics can thus dissipate legal concerns over judgment-contingent commitments.

C. Court Procedures

The previous discussion showed that some signaling mechanisms are frowned upon by courts, and that litigants do not fully achieve the benefits of private contracting. This state of affairs indicates that there is a considerable room for utilizing court-procedures to facilitate bargaining—and signaling—

¹⁹⁹ Cf., Prescott & Spier, *supra* note 11, at 78 (predicting situations in which “litigants will prefer to increase their bets, literally hoping to double down.”).

²⁰⁰ Cf., Donohue, *supra* note 38, at 1111 (discussing a similar argument with regard to stipulations to use a loser-pays rule).

²⁰¹ *Wilson v. Harris*, 688 So. 2d 265 (Ala. Civ. App. 1996) (internal quotation marks omitted). See generally Anthony J. Sebok, *Betting on Tort Suits After the Event: From Champerty to Insurance*, 60 DEPAUL L. REV. 453, 457-58 (2011) (exploring the argument that third-party investment in litigation constitutes illegal gambling).

²⁰² FLA. STAT. ANN. § 849.14 (2016). A similar provision exists in California, CAL. PENAL CODE § 337a (2016).

²⁰³ Interestingly, baseball arbitration, which shares some similarities to litigation signals, *supra* note 97 and accompanying text, “has been criticized for encouraging gamesmanship” and “as a form of legalized gambling.” Respectively, Elissa M. Meth, Note & Comment, *Final Offer Arbitration: A Model for Dispute Resolution in Domestic and International Disputes*, 10 AM. REV. INT’L ARB. 383, 410 (1999) (internal quotation marks omitted); Borris, *supra* note 97, at 315. Bottom-line negotiating, the mediation technique in which parties are asked to commit to pay a sum conditional on the final award, was also described as gambling. Young, *supra* note 98, at 21.

²⁰⁴ A related legal obstacle is the requirement of consideration. RESTATEMENT (SECOND) OF CONTRACTS § 71 (1981). This rule casts doubt on the ability to enforce unilateral, judgment-contingent signals. We thank Daniel Hemel for suggesting this point.

between the parties.²⁰⁵ In particular, the use of court-procedures can streamline third-party signals.

Third-party litigation signals are promises to spend a certain sum, in addition to the judgment, conditional on losing the case. Our analysis suggests that third-party signals may be the easiest to implement. Unlike cooperative signals, third-party signals require little cooperation between the parties. Unlike unilateral signals, third party signals are more likely to be triggered by informed litigants as they entail no direct gain to the rival party.²⁰⁶ However, third-party signals require the uninformed plaintiff to believe that the defendant's promise to spend the money, upon losing the case, is credible.²⁰⁷ Mere promises to pay third parties or spend money can be meaningless, from the plaintiff's perspective. Obligations that are more trustworthy presumably necessitate more elaborate and costly devices. A simple and effective solution is using the court—by allowing the defendant to deposit the additional sum with the court clerk, to be paid into the court funds should the defendant lose the case.

Rigid obligations, as opposed to mere promises, allow the uninformed litigant to better trust the message that its informed rival sends. While we are unaware of court procedures that enable litigants to commit to pay an additional sum, contingent on a judgment against them, this simple mechanism can facilitate the flow of information between the parties.²⁰⁸

CONCLUDING REMARKS—A CALL FOR LITIGATION SIGNALS

This Article illustrates how litigants can transmit information credibly in asymmetric information situations through a variety of litigation maneuvers—“litigation signals.” Some of these techniques are less common, for example monetary commitments to pay upon losing. Others, such as fee-shifting provisions, dropping claims, and award-modification agreements, are more frequent.

²⁰⁵ There is surprisingly little academic and practical interest in this issue. One exception is Gertner & Miller, *supra* note 18, who envision a process in which the court secretly receives offers from both sides to encourage parties to make truthful demands.

²⁰⁶ *Supra* Part III.A.3.

²⁰⁷ *Cf.*, *supra* Part IV.B.2.b (identifying a similar problem in the context of commitments to drop claims). Relatedly, donations to third-parties could indirectly benefit the defendant, again diluting the informative power of the signal.

²⁰⁸ *Cf.*, *Campbell-Ewald Co. v. Gomez* 136 S. Ct. 663 (2016) (Distinguishing, for Rule 68 purposes, between mere promises to pay and “actually deposit[ing] the full amount demanded.” *Id.*, at 671); *Chen v. Allstate Ins. Co.*, 819 F.3d 1136 (9th Cir. 2016) (Distinguishing, for Rule 68 purposes, between depositing the settlement amount in an escrow account and “deposit[ing] [the] money in court,” which “could be treated as the equivalent of an actual payment.” *Id.*, at 1145 (internal quotation marks omitted)).

The capacity of litigants to convey information credibly by various means has a variety of implications. In general, litigation signals are beneficial as they facilitate the flow of information between the parties and encourage settlements.²⁰⁹ In particular, the use of litigation signals can substitute for formal discovery, the goal of which is to compel information-sharing. Litigation signals also justify conferring freedom on parties to shape their procedures. Moreover, litigation signals stress the desirability of court procedures designed to facilitate negotiation.

In addition to highlighting the legal means through which litigation signals may be executed and their potential implications, this Article seeks a better understanding of the mechanics of such signals. Litigation signals can be based on obligations to the plaintiff or a third party and they can require different levels of cooperation between the parties. Accordingly, we classified litigation signals into three groups—the simpler unilateral signals; third-party signals; and the more complicated cooperative signals, in which both parties are directly involved. While simple forms of signals may not be useful, more effective tools require greater sophistication.

We expect parties in asymmetric information situations to signal information, at least to some extent. We provide empirical evidence that corroborates the assertion that litigants signal through simple, non-monetary means such as procedural concessions. However, beyond limited examples in the context of arbitration and mediation, we do not observe the most straightforward litigation signals—i.e., monetary commitments to pay an additional sum, conditioned on losing the case. There may be several reasons why litigation signals in general, and monetary commitments in particular, are not used more widely. Transaction costs and a discouraging legal environment can frustrate the inclination to use signals. Monetary commitments are particularly vulnerable. They can be inhibited by anti-gambling norms,²¹⁰ and restrictive ethics rules that make it harder for lawyers to commit to monetary rewards.²¹¹

²⁰⁹ In addition to encouraging settlements, litigation signals can have various ex-ante effects. On the one hand, signaling saves costly trials and hence dilutes the incentive of informed defendants to take care. On the other hand, signaling improves the position of careful defendants, the “good” types, relative to negligent ones. Analyzing these effects is beyond the scope of this Article. *Cf.*, Ivan P. L. P’ng, *Litigation, Liability and Incentives for Care*, 34 J. PUB. ECON. 61 (1987) (analyzing the ex-ante implications of loser-pays rules along these lines); Prescott & Spier, *supra* note 11, at 138-41 (briefly discussing the broader welfare implications of high-low agreements).

²¹⁰ *Supra* Part IV.B.2.d.

²¹¹ *Supra* note 112 and accompanying text. Another possible concern is that, if settlement negotiations fail, the monetary commitment could be revealed, affecting the decision-maker. *Cf.*, Prescott & Spier, *supra* note 11, at 131 n.296 (discussing a similar issue in the context of high-low agreements).

Notwithstanding these restrictions, we conjecture that a major issue is the lack of innovation in the legal market.²¹² In this sense, our Article serves as a call for greater use of innovative settlement provisions.²¹³ It is not a novel proposition that the legal market suffers from agency problems²¹⁴ and inefficiencies,²¹⁵ resulting in a dearth of innovation.²¹⁶ In general, “the homogeneous nature of the legal profession” mutes and limits “[i]nnovations in dispute resolution.”²¹⁷ Existing practices are entrenched, and new, innovative practices often require exogenous “shocks,” such as “changes in legal interpretations of terms, or technological advances.”²¹⁸ In the absence of such shocks existing practices prevail.

A striking example may be seen in the gap between the theory on customized procedures and current practices. Numerous commentators have pointed to the benefits of customized litigation.²¹⁹ Nonetheless, litigants and their lawyers do not fully tap the benefits of tailor-made procedures. Several scholars who have explored procedural customization in depth conclude that it is far from being prevalent. Michael Moffitt asserts that, with respect to post-dispute agreements, “most customization within the rules is relatively modest.”²²⁰ Similarly, others conclude that post-dispute “agreements are necessarily rare or almost trivial.”²²¹ David Hoffman, who examines

²¹² This point was also raised in interviews that we conducted with practicing attorneys.

²¹³ We thus join Prescott and Spier, *supra* note 11, who maintain that “One would hope that litigants (or their attorneys) would be exploring innovative forms of partial settlement as a matter of course, given the gains these arrangements can offer.” *Id.*, at 79-80 (footnote omitted).

²¹⁴ See generally Larry E. Ribstein, *Ethical Rules, Agency Costs, and Law Firm Structure*, 84 VA. L. REV. 1707 (1998).

²¹⁵ See, e.g., Eisenberg & Miller, *supra* note 38, at 375 (asserting that “no obvious market process exists that would drive out less efficient clauses”).

²¹⁶ In one influential empirical study, for example, John Coates concluded that one should “blame the lawyers” for sub-optimal takeover defense provisions. John C. Coates IV, *Explaining Variation in Takeover Defenses: Blame the Lawyers*, 89 CAL. L. REV. 1301 (2001). This does not mean that there are no legal innovations. Martin Lipton, for instance, has famously devised the takeover defense known as “poison pill.” Lynn A. Stout, *Takeovers in the Ivory Tower: How Academics Are Learning Martin Lipton May Be Right*, 60 BUS. LAW. 1435 (2005). It seems, though, that such innovations are fairly uncommon.

²¹⁷ Gillian K. Hadfield, *The Price of Law: How the Market for Lawyers Distorts the Justice System*, 98 MICH. L. REV. 953, 993-94 (2000). The legal profession is homogenous because it “defines and reproduces itself.” *Id.*, at 993.

²¹⁸ Hoffman, *supra* note 108, at 426 (internal quotation marks omitted).

²¹⁹ See *supra* notes 140-142 and accompanying text (discussing the benefits of party rulemaking); Hoffman, *supra* note 108, at 391-93 (surveying relevant literature).

²²⁰ Moffitt, *supra* note 143, at 495.

²²¹ Prescott & Spier, *supra* note 11, at 85 (describing “the general assumption” among “contract-procedure authors.”). See also Bone, *Party Rulemaking*, *supra* note 63, at 1342 (“I found very few examples of agreements entered into after filing, other than the usual stipulations for additional time and the like.”); Donohue, *supra* note 38 (predicting that

empirically pre-dispute contracts, describes a similar view. Other than specific modifications, “parties almost never use contract terms to vary their post-dispute procedural contests.”²²² Robert Bone concludes that although “[p]arties can benefit from modifying procedural rules in a variety of different ways both before and after a lawsuit is filed,” his survey of cases yields “only a limited range of party rulemaking.”²²³ Notwithstanding the theoretical predictions, then, “the procedural dog . . . has not barked.”²²⁴ While a restrictive judicial attitude toward customized procedures can partly explain this reality,²²⁵ there seems to be a clear link between the inefficiencies of the legal market and the lack of valuable party rulemaking.²²⁶

These lessons pertain to litigation signals. If litigants do not regularly customize litigation, “even in circumstances where we would expect them to,”²²⁷ then we should not be surprised if they do not employ the more sophisticated forms of litigation signals to their full extent.

In summary, while we show that litigation signals can be useful, in practice their precise scope is not clear and future investigation would be able to better specify their actual role. While litigants do seem to employ primitive forms of signaling, the use of more developed forms is currently circumscribed. Given the inefficiencies in the legal market in general, and the lack of innovation concerning procedural contracts in particular, it is not surprising that parties do not fully realize the benefits of litigation signals. At minimum, we hope that our Article will provoke further thought about these issues, among academics and practitioners alike.

parties should stipulate over the default fee-shifting rule, but finding no such post-dispute stipulations. *Id.*, at 1110 & n.38).

²²² Hoffman, *supra* note 108, at 394. Notable exceptions, in which there exists “some use” of contractual modifications of procedure include forum selection, choice of law, attorney’s fees, and jury trial waivers. *Id.*, at 424.

²²³ Bone, *Party Rulemaking*, *supra* note 63, at 1351.

²²⁴ Hoffman, *supra* note 108, at 394.

²²⁵ See *supra* notes 158-165 and accompanying text.

²²⁶ For a detailed discussion along these lines see Hoffman, *supra* note 108.

²²⁷ Hoffman, *supra* note 108, at 394.

1 Mathematical Appendix

The following mathematical appendices contain the proofs of the main claims in the Article.

1.1 Benchmark Model

Consider a standard asymmetric information litigation model.¹ A plaintiff brings a suit against a defendant. The defendant's type is private information. With some probability the defendant is of a strong type with expected judgment, if the case is adjudicated, normalized to 1. With the complement probability the defendant is of a weak type with expected judgment J , where $J > 1$. J reflects the ratio between the expected judgments of the two types of defendants. If the case is adjudicated each party incurs litigation costs c , assumed to be equal to all parties. It is further assumed that $c < 1$, so that the plaintiff has a credible threat to bring a suit against both types of defendants.

Before trial commences and litigation costs incurred, the defendant—the informed party—makes a take-it-or-leave-it settlement offer S to the plaintiff. If the plaintiff accepts it, players' payoffs are in accordance with the settlement offer. Otherwise, the case goes to trial, and a judgment will be rendered according to the expected liabilities of each defendant's true type. Should a trial take place, litigation costs are allocated according to the American rule, namely, each party bears his or her litigation costs. All players are assumed to be risk neutral wealth maximizers. All parameters of the game, aside from the defendant's type, are common knowledge.

Throughout this Appendix we utilize a Perfect Bayesian Nash Equilibrium (PBNE) as the solution concept, which takes into account the strategies of the players and a belief system regarding their actions such that (a) the strategies of the players are sequentially rational, that is, they minimize their costs (or maximize their gains) given the strategies of the other players and the relevant belief system; (b) the belief system is consistent given the strategy profile, that is, it is updated using Bayes' rule and thus realized in equilibrium. We also invoke Cho and Kreps (1987) D1 refinement criterion, and focus

¹The model is a simplified, two-type asymmetric information in the spirit of Reinganum & Wilde (1986), with reverse information structure.

solely on the “unique” separating equilibria.

The following Proposition summarizes the equilibrium outcome of this setup.

Proposition 1 *The following triple $(s^*, y^*(S), b^*(S))$ is the unique Perfect Bayesian Nash Equilibrium.*

(i) *The weak-type defendant makes a settlement offer $J - c$, and the strong-type defendant makes a settlement offer $1 - c$.*

(ii) *The plaintiff accepts settlement offers $S \geq J - c$, rejects settlement offers $1 - c < S < J - c$, accepts with probability $y = \frac{2c}{2c+J-1}$ a settlement offer $S = 1 - c$, and rejects settlement offers $S < 1 - c$. Formally,*

$$y^*(S) = \begin{cases} 1 & \text{for } S \geq J - c \\ 0 & \text{for } S \in (1 - c, J - c) \\ \frac{2c}{2c+J-1} & \text{for } S = 1 - c. \\ 0 & \text{for } S < 1 - c \end{cases}$$

(iii) *The plaintiff’s belief system is such that if $S > 1 - c$, he believes the defendant is a weak type, and if $S \leq 1 - c$, he believes she is a strong type, namely,*

$$b^*(S) = \begin{cases} \text{strong} & \text{for } S \leq 1 - c \\ \text{weak} & \text{for } S > 1 - c \end{cases}$$

Proof. We will prove existence of the PBNE.

Given the strategy of the weak-type defendant to make a settlement offer $J - c$, a best response for the plaintiff is indeed to accept it with certainty, yielding a gain equal to the alternative of rejecting the offer and taking the case to trial. Similarly, given the strategy of the strong-type defendant to offer $1 - c$, a best response for the plaintiff is to accept the offer with probability $y = \frac{2c}{2c+J-1}$, because the plaintiff is indifferent between accepting the offer and rejecting it and taking the case to trial. In both cases the expected payoff for the plaintiff is $1 - c$.

Given the belief system of the plaintiff, a weak-type defendant’s best response (again not unique) is to offer $J - c$. Offering $S > J - c$ makes her clearly worse-off. Offering $1 - c < S < J - c$ or $S < 1 - c$ also makes her worse-off because the plaintiff rejects such offers and pursues adjudication, in which case the costs for the weak-type defendant will be $J + c$, which are higher than $J - c$. Finally, offering $S = 1 - c$ does not make a weak-type defendant better-off, because the plaintiff accepts such an offer with probability $y = \frac{2c}{2c+J-1}$, leaving the weak-type defendant’s expected costs equal to $J - c$.

Given the belief system and the strategy of the plaintiff, a strong-type defendant's best response is to offer $1 - c$. The expected costs from doing so are $1 + c - 2cy$, where $0 < y < 1$. Offering $S < 1 - c$ or $1 - c < S < J - c$ makes the strong-type defendant worse-off, because in this case the plaintiff rejects the offer and pursues adjudication, so the strong-type defendant's cost is $1 + c$, which is greater than $1 + c - 2cy$. In addition, offering $S \geq J - c$ which are accepted with certainty also makes the strong-type defendant worse-off, because $1 + c - 2cy < J - c$.²

Observe finally that the belief system of the plaintiff is realized in equilibrium. Q.E.D.

The intuition for Proposition 1 is as follows: the informed defendants, having the bargaining power, make a revealing settlement offers. Therefore, a weak-type defendant makes an offer $J - c$ and a strong one $1 - c$. These are the offers they would make with complete information given the bargaining protocol. The plaintiff, having no bargaining power, is indifferent between accepting and rejecting a settlement offer, assuming his beliefs are realized, which they should in equilibrium. But to prevent weak-type defendants from masking as strong ones, she accepts only a fraction of the low settlement offers. The probability of acceptance of low settlement offers should just make a weak-type defendant indifferent between making a low settlement offer and a high one, so it should satisfy:

$$\underbrace{J - c}_{\text{High settlement offer}} = \overbrace{(1 - c)y + (J + c)(1 - y)}^{\text{Low settlement offer}} \quad (\text{indifference})$$

Solving for y leads to

$$y = \frac{2c}{2c + J - 1}$$

²To see this

$$\begin{aligned} 0 &< (J - 1)^2 \\ 0 &< J^2 - 2J + 1 \\ -2c^2 + cJ + c &< -2c^2 + cJ + c + J^2 - 2J + 1 \\ -2c^2 + cJ + c + J - 1 &< -2c^2 + cJ + c + J^2 - J \\ -2c^2 + cJ + c + J - 1 &< (J - c)(2c + J - 1), \\ 1 + c - 2c\left(\frac{2c}{2c + J - 1}\right) &< J - c, \\ 1 + c - 2cy &< J - c \end{aligned}$$

The equilibrium costs for the weak-type defendant is $J - c$ and for the strong one is

$$EC^{st} = 1 + c - 2cy.$$

This expression has a simple interpretation. A strong-type defendant incurs the costs of going to trial, $1 + c$, but saves the surplus from settlement (i.e., the total litigation costs $2c$), given the acceptance rate y . By contrast, the weak-type defendant extracts the entire surplus from the settlement, expecting to pay $J - c$.

Comparative statics show that the acceptance rate increases with the litigation costs and decreases with the ratio of the expected judgments, J . Formally, $y'(c) > 0$ and $y'(J) < 0$.

1.2 Unilateral Signals

Consider next the simplest form of litigation signals. A unilateral promise made by the defendant to pay to the plaintiff a multiplier $K > 1$ on the judgment should a trial take place. We assume that such a promise occurs before (or in concert with) the settlement offer phase, and that it is credible and enforceable. If a promise is made and the case goes to trial, a strong-type defendant expects to incur costs of $K + c$, while a weak-type defendant making the same promise expects to incur costs $KJ - c$. The expected payoffs for the plaintiff are $K - c$ and $KJ + c$ respectively. With no promise (i.e., $K = 1$), the costs and payoffs of the players are identical to those in the benchmark model. For the moment we do not impose constraints on the magnitude of K . Observe that making such a unilateral promise is costlier for a weak-type defendant than to a strong-type one.

With a unilateral promise, the strategy for the defendant is a vector function $O : \{1, J\} \rightarrow \{S, K\}$, that specifies for each type of defendant a settlement offer of size S and a multiplier of size K (possibly one). A strategy for the plaintiff now is a function $y(S, K) \rightarrow [0, 1]$, that specifies for each pair $\{S, K\}$ an acceptance probability. As before, the plaintiff must form beliefs about the defendant's type according to the settlement offer pair $\{S, K\}$ he receives. Since we concentrate on a separating equilibrium, the beliefs should assign a unique type of defendant to each pair. $B : \{S, K\} \rightarrow \{1, J\}$.

The following Proposition summarizes the equilibrium when a unilateral promise can be made.

Proposition 2 *If $J \leq 3$ or $c \leq \frac{1}{2} \left(\frac{J-1}{J-2} \right)$ then the Perfect Bayesian Nash Equilibrium is as characterized in Proposition 1. Otherwise, if $J > 3$ and $c > \frac{1}{2} \left(\frac{J-1}{J-2} \right)$, it is characterized by the following triple $(o^{UL}, b^{UL}(S, K), y^{UL}(S, K))$:*

(i) *The weak-type defendant makes no promise and offers a settlement $J - c$, and the strong-type defendant makes a promise of $k^{st} = \frac{\sqrt{2c}\sqrt{2c+J(J-1)-2c}}{J-1}$ and a settlement offer $k^{st} - c$.*

(ii) *The plaintiff accepts settlement offers $S \geq J - c$, rejects settlement offers $K - c < S < J - c$, accepts with probability $y = \frac{2c+J(K-1)}{2c+K(J-1)}$ a settlement offer $S = K - c$, and rejects settlement offers $S < K - c$.*

$$y^{UL}(S, K) = \begin{cases} 1 & \text{for } S \geq J - c \\ 0 & \text{for } S \in (K - c, J - c) \\ \frac{2c+J(K-1)}{2c+K(J-1)} & \text{for } S = K - c. \\ 0 & \text{for } S < K - c \end{cases}$$

(iii) *The plaintiff's belief system is such that if $S > K - c$, she believes the defendant is a weak-type, while if $S \leq K - c$, she believes the defendant is a strong-type, namely,*

$$b^{UL}(S, K) = \begin{cases} \text{strong} & \text{for } S \leq K - c \\ \text{weak} & \text{for } S > K - c \end{cases}$$

Proof. Observe first that K changes the beliefs of the plaintiff about the defendant's type; the plaintiff's beliefs depend on both K and S that he receives. This is so due to the benefits the plaintiff obtains when a case goes to trial if a defendant makes a promise of K . The size of a revealing settlement offer must reflect K ; it must be therefore $K - c$ for the strong-type defendant and $JK - c$ for the weak-type defendant.

In a fully separating equilibrium the weak-type defendant reveals herself. Since making a promise $K > 1$ only hurts her, the weak-type defendant will opt for $k^{wk} = 1$ and will make a settlement offer $s^{wk} = J - c$. The plaintiff's best response to such a pair is to accept it with certainty.

Suppose that a strong-type defendant promises to pay K and makes a settlement offer $K - c$. Given such a pair, a best response for the plaintiff is to accept with probability $y = \frac{2c+J(K-1)}{2c+K(J-1)}$. This is so, because the plaintiff is indifferent between accepting the offer and going to trial; in both cases she obtains a payoff of $K - c$. This acceptance rate also ensures that a weak-type defendant will not be better-off by also making a promise K with a settlement offer $K - c$, because her expected costs will be equal then to $J - c$, the

same as she bears by making a revealing offer.³

It is left to show that the strong-type defendant will choose the pair $(k^{st} - c, k^{st})$. Given the belief system of the plaintiff and the acceptance rate $y(S, K)$, the expected costs for a strong-type defendant are

$$EC(K) = K + c - 2cy(K) \quad (\text{Expected costs UL})$$

These costs obtain a minimum at $k = \frac{\sqrt{2c}\sqrt{2c+J(J-1)}-2c}{J-1} > 1$ if $J > 3$ and $c > \frac{1}{2}(\frac{J-1}{J-2})$. Otherwise, the minimum occurs for $k = 1$.

To see this differentiate $EC(K)$ with respect to K .

$$EC'(K) = 1 - 2cy'(K) = 1 - 2c \left(\frac{2c + J(J-1)}{(2c + (J-1)K)^2} \right)$$

Rearranging, the derivative is negative if and only if:

$$(J-1)K^2 + 4cK - 2cJ < 0 \quad (\text{Condition})$$

This is a polynomial of degree 2 in K , reflecting a parabola, which obtains its minimum for $K = -\frac{2c}{J-1} < 1$. Therefore, if $EC'(K) |_{K=1} > 0$, the derivative will be positive for all $K \geq 1$. Evaluating the derivative at $K = 1$ and recalling that $J > 1$ and $0 < c < 1$, we obtain that $EC'(K) |_{K=1} < 0$ if and only if:

$$J > 3 \text{ and } \frac{1}{2} \left(\frac{J-1}{J-2} \right) < c < 1$$

Otherwise, the derivative is positive or zero in which case the best response for the strong-type defendant is to choose $k^{st} = 1$ and $s^{st} = 1 - c$. If the foregoing condition is satisfied, then the optimal K should satisfy the first order condition $EC'(K) = 0$. Solving for K we obtain:

$$k^{st} = \frac{\sqrt{2c}\sqrt{2c+J(J-1)}-2c}{J-1}$$

³Put differently, $y(S, K)$ is derived as the solution to the equation:

$$\overbrace{J-c}^{\text{High settlement offer}} = \overbrace{(K-c)y + (KJ+c)(1-y)}^{\text{Low settlement offer}}$$

Q.E.D.

As we noted in the Article, the conditions rendering a unilateral signal privately beneficial are restrictive. In addition, the multiplier k^* is very modest, in fact it is less than $\sqrt{2}$. To see this, observe that k^* increases with J and with c^4 and c is bounded by 1. Therefore, the highest possible k^* is

$$\lim_{J \rightarrow \infty} \frac{\sqrt{2}\sqrt{2 + J(J-1)} - 2}{J-1} = \sqrt{2}.$$

Note that, as before, $y'(c) > 0$ and $y'(J) < 0$, meaning that the acceptance rate increases with the litigation costs and decreases with the ratio of the expected judgments. Also, one can verify that $y'(K) > 0$, i.e., the higher the multiplier, the fewer the trials, regardless of the private utility of the signal k .

1.3 Third Party Litigation Signals

Consider next a third party litigation signal. In this variation, the defendant makes a unilateral promise to pay a multiplier $K \geq 1$ on the judgment should a trial take place, but the excess $K - 1$ of the judgment will be paid to a third party, that is to say not to the plaintiff. We assume again that such a promise occurs before (or in concert with) the settlement offer phase, and that it is credible and enforceable. If a promise is made and the case goes to trial, a strong-type defendant expects to incur costs of $K + c$, while a weak-type defendant making the same promise expects to incur costs $KJ + c$. In contrast to a unilateral signal, the plaintiff expected payoffs if the case goes to trial contingent on the defendant's type are $1 - c$ and $J - c$, respectively, as in the benchmark model. With no promise (i.e., $K = 1$), the costs and payoffs of the players are also similar to those in the benchmark model. We assume here that K is constrained, namely, $K \leq \bar{K}$, where \bar{K} reflects judgment proofness.⁵ The following Proposition summarizes the equilibrium when a third party unilateral promise can be utilized.

Proposition 3 *If $c < 1/2$ then the PBNE is characterized as in Proposition 1. Otherwise, if $c > \frac{1}{2}$, it is characterized by the following triple $(o^{TP}, b^{TP}(S, K), y^{TP}(S, K))$:*

⁴That is, for all $\frac{1}{2}(\frac{J-1}{J-2}) < c < 1$ and $J > 3$, $k^{*l}(J) > 0$ and $k^{*l}(c) > 0$.

⁵To be more precise, recall that the model reflects asymmetry regarding the success at trial. Therefore, one can assume that the level of damages, should a defendant be liable, is D . If defendants assets are constrained at W , the multiplier cannot be greater than $K \leq W/D \equiv \bar{K}$.

(i) The weak-type defendant makes no third party promise and offers a settlement $J - c$, and the strong-type defendant makes a promise of \bar{K} and a settlement offer $1 - c$.

(ii) The plaintiff accepts settlement offers $S \geq J - c$, rejects settlement offers $1 - c < S < J - c$, accepts with probability $y = \frac{2c+J(K-1)}{2c+JK-1}$ a settlement offer $S = 1 - c$, and rejects settlement offers $S < 1 - c$.

$$y^{TP}(S, K) = \begin{cases} 1 & \text{for } S \geq J - c \\ 0 & \text{for } S \in (1 - c, J - c) \\ \frac{2c+J(K-1)}{2c+JK-1} & \text{for } S = 1 - c. \\ 0 & \text{for } S < 1 - c \end{cases}$$

(iii) The plaintiff's belief system is such that if $S > 1 - c$, she believes the defendant is a weak-type, while if $S \leq 1 - c$, she believes the defendant is a strong-type, namely,

$$b^{TP}(S) = \begin{cases} \text{strong} & \text{for } S \leq 1 - c \\ \text{weak} & \text{for } S > 1 - c \end{cases}.$$

Proof. Observe first that K does not change directly the beliefs of the plaintiff about the defendant's type; the plaintiff's beliefs depend solely on the settlement size S that she receives. This is due to the fact that the plaintiff does not benefit from the multiplier K if the case goes to trial, because the "excess judgement", namely, $(K - 1) \times (\text{Judgment})$ is paid to a third party.

In a fully separating equilibrium the weak-type defendant reveals herself. Since making a promise $K > 1$ can only hurt her, the weak-type defendant will opt for $k^{wk} = 1$ and will make a settlement offer $s^{wk} = J - c$. The plaintiff's best response to such a pair is again to accept it with certainty.

Suppose that a strong-type defendant offers a multiplier $K \geq 1$ and makes a settlement offer $1 - c$. Given such a pair, a best response for the plaintiff is to accept with probability $y(S, K) = \frac{2c+J(K-1)}{2c+JK-1}$. This is so, because the plaintiff is indifferent between accepting the offer and taking the case to trial; in both cases he obtains a payoff of $1 - c$. This acceptance rate ensures that a weak-type defendant will not be better-off by also making a promise K with settlement offer $1 - c$, because her expected costs will be equal to $J - c$.⁶

⁶Put differently, $y(S, K)$ is derived as the solution to the equation:

$$\underbrace{J - c}_{\text{High settlement offer}} = \underbrace{(1 - c)y + (KJ + c)(1 - y)}_{\text{Low settlement offer}}$$

It is left to prove that the strong-type defendant will choose the pair $(1 - c, \bar{K})$. Given the belief system of the plaintiff and the acceptance rate $y(S, K)$, the expected costs for a strong-type defendant are

$$EC(K) = K + c - 2c y(S, K) - y(S, K)(K - 1) \quad (\text{expected costs TP})$$

Differentiating with respect to K we obtain,

$$EC'(K) = -\frac{(2c - 1)(J - 1)^2}{(2c + JK - 1)^2}$$

This derivative is non-negative for all K if and only if $c \leq 1/2$, implying that the strong-type defendant will choose in that case $k^{st} = 1$ and $s^{st} = 1 - c$. On the other hand, if $c > 1/2$, then the derivative is negative for all K , implying that the strong-type defendant will choose the maximal K , namely, \bar{K} . Q.E.D.

1.4 Cooperative Litigation Signals

The problem with the unilateral litigation signals and the third party litigation signals that renders these signals inapplicable in a wide range of cases is that they harm the strong-type defendant, even though they harm even more the weak-type one. To remedy this problem, and to make litigation signals always a viable tool, a strong-type defendant can make a more sophisticated litigation signal that requires the consent of the other party.

In this variation, the defendant makes a promise to the plaintiff to multiply the judgment by $K \geq 1$ if the case goes to trial and the defendant loses, in exchange for an upfront payment M made by the plaintiff to the defendant should the plaintiff reject the settlement offer S and pursue adjudication with the multiplier. The plaintiff, of course, can reject both the settlement offer S and the contingent judgment clause, and pursue a “naked” trial, that is, a trial with no multiplier and no upfront payment.⁷ We assume that the multiplier K is constrained to be less than or equal to \bar{K} , and that the offer is credible and enforceable for both parties.

⁷As we noted in the Article, notes 90-91 and accompanying text, the payment M need not be an upfront payment. It could also be a payment contingent on the plaintiff losing at trial. However, it is simpler to analyze the case with an upfront payment.

The strategy for the defendant is now a vector function $O : \{1, J\} \longrightarrow \{S, K, M\}$, that specifies a settlement offer of size S , a multiplier K and a demand for an upfront payment M . A strategy for the plaintiff is a vector function $Y : \{S, K, M\} \longrightarrow \{y(S, K, M), q(S, K, M)\}$, that specifies for each offer $\{S, K, M\}$ the probability that it will be accepted, y ; and the conditional probability q that, should he reject the offer S , the plaintiff will pay a non-negative payment M in exchange for the multiplier K (rather than rejecting the offer and going to a “naked” trial). As before, the plaintiff must form beliefs about the defendant’s type according to the triplet $\{S, K, M\}$ he receives. The beliefs assign a unique type of defendant to each triplet. $B : \{S, K, M\} \longrightarrow \{1, J\}$.

The following Proposition summarizes the equilibrium when a cooperative litigation signal can be utilized.

Proposition 4 *The following quadruple $(o^{CO}, y^{CO}(S, K, M), q^{CO}(S, K, M), b^{CO}(S, K, M))$ is the “unique” Perfect Bayesian Nash Equilibrium.*

(i) *The weak-type defendant makes a settlement offer $(J - c, 1, 0)$ and the strong-type defendant makes a settlement offer $(1 - c, \bar{K}, \bar{K} - 1)$.*

(ii) *The plaintiff accepts settlement offers $S \geq J - c$ and rejects settlement offers $S < 1 - c$ and $1 - c < S < J - c$. The plaintiff accepts offers $S = 1 - c$ that are coupled with $M \leq K - 1$ with probability $y = \frac{2c+J(K-1)-M}{2c+JK-1-M}$, and when he rejects such offers he always agrees to pay the upfront payment M . The plaintiff accepts offers $S = 1 - c$ that are coupled with $M > K - 1$ with probability $y = \frac{2c}{2c+J-1}$ (as in the benchmark model), and when he rejects such offers the plaintiff always refuses to pay the exchange payment M :*

$$\{y^*, q^*\} = \begin{cases} \{1, 0\} & \text{for } o(S \geq J - c, K \geq 1, M \geq 0) \\ \{0, 0\} & \text{for } o(S \in (1 - c, J - c), K \geq 1, M \geq 0) \\ \{y = \frac{2c+J(K-1)-M}{2c+JK-1-M}, 1\} & \text{for } o(S = 1 - C, K \geq 1, M \leq K - 1) \\ \{y = \frac{2c}{2c+J-1}, 0\} & \text{for } o(S = 1 - C, K \geq 1, M > K - 1) \\ \{0, 0\} & \text{for } o(S < 1 - c, K \geq 1, M \geq 0) \end{cases}$$

(iii) *The plaintiff’s belief system is such that if $S > 1 - c$, he believes the defendant is a weak type, while if $S \leq 1 - c$, she believes the defendant is a strong type, namely,*

$$b^*(S, K, M) = \begin{cases} \text{strong} & \text{for } S \leq 1 - c \\ \text{weak} & \text{for } S > 1 - c \end{cases}$$

Proof. Observe first that, as in the third-party model, the plaintiff's beliefs about the defendant's type depend solely on the settlement size S , and they do not directly change according to K and M .

Given that this is a fully-separating equilibrium, in which the weak type reveals herself with no multiplier and upfront payment ($s^{wk} = J - c, k^{wk} = 1, m^{wk} = 0$), a plaintiff's best-response (again, not uniquely so) is to accept the weak defendant's offer with certainty. Accepting this offer leaves the plaintiff with the same reward $J - c$ as rejecting and going to trial. Given the plaintiff's strategy, the weak defendant's best response is to offer ($s^{wk} = J - c, k^{wk} = 1, m^{wk} = 0$). Given that the plaintiff accepts $s^{wk} = J - c$ with certainty, a higher s^{wk} would make the weak defendant clearly worse-off. She cannot benefit from offering $S < 1 - c$ or $1 - c < S < J - c$ as the plaintiff rejects such offers with certainty. As the plaintiff accepts $J - c$ offers with certainty, the weak defendant cannot benefit from adding to this offer a multiplier and/or exchange payment. Finally, given y^{CO} , the weak defendant cannot benefit from proposing $(1 - c, K > 1, M \leq K - 1)$;⁸ similarly, given that the plaintiff accepts offers $(1 - c, K \geq 1, M > K - 1)$ with probability $y = \frac{2c}{2c+J-1}$ and never agrees to pay $M > K - 1$ in exchange for a multiplier, the weak defendant cannot benefit from such offers either.⁹

Given the strategy of the strong-type defendant to offer $(1 - c, \bar{K}, \bar{K} - 1)$, a best response for the plaintiff is to accept the offer with probability $y^{CO} = \frac{2c+J(K-1)-M}{2c+JK-1-M} = \frac{2c+(K-1)(J-1)}{2c+K(J-1)}$, and conditional on rejecting the offer to pay M to pursue the augmented adjudication with certainty ($q^{CO} = 1$). Indeed, under all possible actions the expected payoff for the plaintiff is $1 - c$.¹⁰

Given the plaintiff's strategy, the strong defendant's best response is the triplet $(1 - c, \bar{K}, \bar{K} - 1)$. First, note that with $s^{st} = 1 - c$ and $m^{st} = K - 1$ the strong defendant's expected costs are $EC = 1 + c - 2cy^{CO}$, as in the benchmark model (subject to the different

⁸Put differently, $y(S, K, M)$ is derived as the solution to the equation:

$$\overbrace{J - c}^{\text{High settlement offer}} = \overbrace{(1 - c)y + (KJ + c - M)(1 - y)}^{\text{Low settlement offer}}$$

⁹We established a similar result in the benchmark model.

¹⁰If the settlement offer is accepted the payoff is trivially $1 - c$. If the settlement offer is rejected and a naked trial is pursued the expected payoff is again $1 - c$. If, on the other hand, a trial with a multiplier K and an upfront payment $K - 1$ is opted for then the expected payoff is $K - c - (K - 1)$, that is, $1 - c$.

values of y), and that $y'(K) > 0$; hence, $EC'(K) < 0$ and the strong defendant is better off setting K to its maximal level. Second, observe that the strong defendant is better off setting m^{st} , the payment she receives from the plaintiff in exchange for committing to pay a multiplier K upon losing, to the maximal amount the plaintiff is willing to pay without refusing, $m^{st} = K - 1$. A lower m reduces the exchange payment the defendant receives, and a higher m causes the plaintiff to choose a “naked” trial, with a lower acceptance rate (equal to that in the benchmark case). Third, $s^{st} = 1 - c$ is the optimal settlement amount as $S < 1 - c$ and $1 - c < S < J - c$ are rejected. That $y'(K) > 0$ and $EC'(K) < 0$ in equilibrium also implies that the strong defendant is better off setting $s^{st} = 1 - c$ and risking trial in probability y^{CO} , rather than offering $s^{wk} = J - c$ and settling for sure.¹¹ Q.E.D.

Note the powerful and elegant feature of cooperative signals—unlike unilateral and third-party signals, the upfront payment guarantees that *it is costless for the strong defendant to commit to a multiplier K , while such a commitment is still costly for the weak defendant*. Cooperative signals manage to achieve this function through the design of the exchange payment. It fully reimburses the strong defendant for the risk of losing and paying an augmented judgment, i.e., for the additional sum $K - 1$ it pays in that case; but the exchange payment falls short of fully reimbursing the weak defendant, whose excess liability if she committed to a multiplier would be $(K - 1)J$.¹²

References

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¹¹Recall that we showed earlier that for the benchmark, lower acceptance rate, $1 + c - 2cy < J - c$.

¹²In other words, with a multiplier and an exchange payment the strong defendant is left intact if she is taken to trial, but the weak defendant is penalized by $(K - 1)J - (K - 1) = (J - 1)(K - 1)$