THE INFLUENCE OF RULES RESPECTING RECOVERY OF ATTORNEYS' FEES ON SETTLEMENT OF CIVIL CASES

Federal Judicial Center

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By John E. Shapard

Federal Judicial Center
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Introduction

The ability or inability of a party prevailing in a civil suit to recover its full litigation expenses from the losing party is a subject of important and long-standing debate. Although the issue concerns recovery of litigation expenses, the question centers on the recovery of attorneys' fees, which are ordinarily the dominant part of litigation expenses.

The debate about attorney fee rules proceeds largely along two lines. One line centers on how various attorney fee rules will influence the fairness of civil justice: Rules that allow recovery of attorneys' fees by the prevailing party are thought to produce fairer outcomes in civil suits but, at the same time, they may detract from the fairness of the system as a whole by inhibiting recourse to the courts for persons unable to risk liability for their opponents' attorneys' fees. The other line of debate centers on the influence that attorney fee rules may have on what one might call the efficiency of litigation: the speed and economy with which lawsuits are resolved, the frequency with which cases are settled rather than tried, and the consequent burden these cases place on limited court resources.

The task of policymakers who must decide whether to adopt a new rule of attorney fee compensation is made difficult because both lines of the debate have produced numerous arguments for and

against each of a handful of contending rules. One factor contributing to this complexity is that the influence of any attorney fee rule depends greatly on the specific context of the case to which that rule will apply. Debate about the merits of any two rules, therefore, often takes the form of an interminable exchange of hypothetical cases that alternately evidence the superiority of each rule. A second factor contributing to the complexity of the debate is that the two lines of argument--fairness and litigation efficiency--are not independent parameters but opposite sides of a single coin. For instance, if a particular rule will promote efficiency in some class of cases by encouraging settlement, it will do so because it enhances the risks associated with trial and consequently inhibits recourse to the courts.

The purpose of this paper is to help simplify the debate in at least one area where it is possible to compare the influence of attorney fee rules in an objective and comprehensive manner. For litigants who are not averse to taking financial risks and whose decisions to sue or not and to settle or not are based exclusively on the potential financial gains or losses presented by the litigation, it is possible to specify quite clearly how alternative attorney fee rules will influence those decisions.

Scope, Assumptions, and Methodology

A significant portion of the analysis presented in this paper has been performed earlier, and very competently, by several authors who have concentrated on the comparison of three types of

well-recognized attorney fee rules.[1] These are the "American rule," which denies recovery of attorneys' fees by any party; the "English rule," under which the party obtaining judgment (the "prevailing" party) recovers its attorneys' fees from the opponent; and the "prevailing plaintiff rule," which permits a plaintiff who obtains judgment to recover its attorneys' fees from the defendant but does not permit recovery of fees by a prevailing defendant.

The analytical method is a rigorous, but not necessarily complicated, mathematical analysis of the influence of attorney fee rules on the financial incentives of litigants. In the analysis presented here and in earlier articles, a central question is whether the financial expectations of the litigants are such that suit or settlement can possibly make economic sense. If, for example, defendant expects that the net consequence of going to trial will be a loss of $50,000, and plaintiff believes that the net consequence of trial will be a gain of $40,000, then settle-

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1. Shavell, Suit, Settlement and Trial: A Theoretical Analysis Under Alternative Methods for the Allocation of Legal Costs, 11 J. Legal Stud. 55 (1982) presents a rigorous analysis of the American rule, the English rule, and the prevailing plaintiff rule. Phillips & Hawkins, Economic Aspects of the Settlement Process: A Study of Personal Injury Claims, 39 Mod. L. Rev. 497 (1976) presents an analysis devoted primarily to the United Kingdom, where the attorney fee rules are the English rule along with an offer-of-judgment provision available only to defendants (the "payment into court"). The same provisions are analyzed in Bowles, Economic Aspects of Legal Procedure, in The Economic Approach to Law (P. Burrows & C.G. Veljanovski eds. 1981). P.J. Mause, Winner Takes All: A Re-Examination of the Indemnity System, 55 Iowa L. Rev. 27 (1969) compares the American and English rule, as does R. Posner, Economic Analysis of Law §§ 21.4, 21.8 (2d ed. 1977).

ment is possible. Each party should prefer settling the case for some figure between $40,000 and $50,000 over going to trial because each expects that the consequence of trial would be less favorable than settlement. The range within which settlement is possible is called the bargaining span; in the example, the bargaining span is $10,000 wide, ranging from $40,000 to $50,000. By contrast, if defendant's expected net loss were only $40,000 and plaintiff's expected net gain were $50,000, settlement would be impossible, and there would be no bargaining span.

Although this paper employs the same kind of analysis as that of previous articles, it differs in two ways. First, previous analyses have shown how, for a particular class of cases, one attorney fee rule will always produce a larger bargaining span than another attorney fee rule, thus making settlement possible in some cases where the other rule does not. Because one rule thus includes a larger proportion of the specified class of cases in the category where settlement is possible, that rule is alleged to be superior in producing settlements. This paper challenges the assumption that settlement will occur whenever it is possible, or, more generally, that a rule that makes settlement possible in more cases will produce actual settlements in more cases.

Second, this paper includes analysis of two additional types of attorney fee provisions that have been considered only in limited ways, if at all, in previous work. One is the special case in which plaintiff is represented on a contingent fee basis under

the American rule. The other is the offer-of-judgment rule, a kind of attorney fee rule that has recently achieved importance because its adoption as part of the Federal Rules of Civil Procedure has been formally proposed by the Advisory Committee on Civil Rules of the Judicial Conference of the United States, the body charged with initiating amendments to the civil rules.[2] The proposed rule would permit recovery of attorneys' fees by either party, contingent on that party's having made an offer of settlement that was not accepted and that was at least as favorable to the offeree as the final judgment in the case. This offer-of-judgment rule might well be regarded as a variant of the English rule, in which "prevailing" is defined in terms of settlement offers rather than "obtaining judgment".[3]

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2. Committee on Rules of Practice and Procedure of the Judicial Conference of the United States, Preliminary Draft of Proposed Amendments to the Federal Rules of Civil Procedure (August 1983).

3. Both English-rule and American-rule jurisdictions commonly have offer-of-judgment mechanisms that may be invoked by defendants, but not by plaintiffs. The "two-way" offer-of-judgment rule proposed by the Advisory Committee on Civil Rules is unique because its influence on settlement decisions is qualitatively different from that of conventional "one-way" offer-of-judgment provisions. In American-rule jurisdictions, existing offer-of-judgment provisions commonly provide for recovery only of statutory costs, which are rarely significant in comparison to the amounts at stake in the litigation. Hence existing offer-of-judgment provisions have no significant influence on settlement decisions in most American-rule jurisdictions. Because this article is intended primarily for audiences in American-rule jurisdictions, it therefore does not include any further discussion of one-way offer-of-judgment provisions. The few American-rule jurisdictions that have provided for recovery of attorneys' fees or for offers of judgment by plaintiff as well as defendant are: New Jersey (two-way provision allowing recovery of up to $750 in

The offer-of-judgment rule influences the financial incentives of litigants in a dynamic fashion, adding a new dimension to the analysis. In comparing attorney fee rules, we must be concerned not only with how they influence the possibility of settlement, but also with how they motivate the actual making and acceptance of settlement offers.

The analysis set forth below proceeds by first indicating how each of the rules will influence the economic incentives of litigants under a set of rather limiting assumptions. These assumptions are that both litigants are motivated exclusively to maximize financial gains (and minimize losses) arising directly out of the particular lawsuit, and that neither litigant is "risk averse," that is, each litigant is willing to accept any level of risk of loss provided that the prospect for gain or limitation of losses is more favorable than the risk. In addition, we shall initially treat the choices to sue or not and settle or not as though they involve choices about making fixed expenditures of attorneys' fees: a choice whether or not to spend X dollars to bring or defend a suit, or a choice whether or not to spend Y

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attorneys' fees, but no recovery against plaintiff unless plaintiff recovers at least $750. N.J. Civil Prac. Rules Ann. 4:58), Nevada (one-way provision, with defendant-offeror able to collect attorneys' fees in the court's discretion. Nev. R. Civ. P. 68), Connecticut (two-way provision allowing recovery of up to $350 in attorneys' fees. Conn. Gen. Stat. Ann. § 52-192a, 195), California (two-way, costs only. Cal. Civ. Proc. Code § 998), Ohio (two-way, costs only. Ohio R. Civ. P. 68), and Wisconsin (two-way, costs only. Wis. R. Civ. P. 68). Although Alaska allows recovery of attorneys' fees under Alaska R. Civ. P. 68, a one-way rule, Alaska is an English-rule jurisdiction (see Alaska R. Civ. P. 82).

dollars to go to trial rather than settle. In addition, the initial analysis assumes that settlement avoids all expenditures of attorneys' fees and is therefore applicable only to settlements occurring at the outset of litigation.

After determining how the rules compare under these initial assumptions, the next section considers how relaxing certain of these assumptions may alter the conclusions reached in the initial analysis. This section takes account of the facts that: most litigants are risk averse to some degree; attorneys' fees are expended incrementally throughout the life of a case, and their expenditure tends to alter the litigants' expectations about the case; and the direct financial consequences of the individual case are frequently not the only factors that influence decisions to sue or settle. Taking all these more realistic assumptions into account, the analysis remains capable of providing sound guidance for comparing how different attorney fee rules influence the financial incentives bearing on decisions to sue or settle.

One additional assumption needs to be recognized. Throughout the analysis, all attorney fee rules are treated as though they are strictly applied--a party entitled to recover fees always recovers the full amount of those fees. Because of a number of factors, including the fact that attorney fee rules usually provide for recovery of "reasonable" fees and that some provisions are construed so as to take account of the contingent nature of compensation to plaintiff's attorney, the reality is likely to be that

awards of attorneys' fees are sometimes more and sometimes less than what the attorney might actually charge the party. There is no necessary relationship between the rule under which fees are recovered and whether the amount recovered is more or less than actual fees. Hence, to take account of the potential difference between actual and recovered fees would merely complicate the analysis without altering the conclusions it reaches about the comparative influence of different attorney fee rules. It will be apparent that estimated differences between actual and recovered fees can readily be taken into account by those who wish to apply this analysis to decisions about settlement under those circumstances.

Comparison of the Rules

This section illustrates the differences among the five attorney fee rules by examining how each rule would influence settlement possibilities. Although a particular hypothetical case is used to illustrate the application of all rules, the discussion of each rule concludes with a paragraph offering generalizations that may be made about how the rules discussed to that point compare to one another in all possible cases. Each such paragraph makes reference to relevant sections of the appendix, which sets out the mathematics that support the asserted generalizations. (The appendix is provided not for the general reader, but for those inclined to scrutinize the mathematics or carry the analysis further than it has been carried in this paper.)

The American Rule

Because neither party may recover attorneys' fees under the American rule, that rule offers the simplest illustration of the analytic approach. Consider a case in which only liability is in issue, and both parties appreciate that plaintiff will recover damages of $100,000 if he prevails. Suppose that plaintiff believes he has a 60 percent chance of winning but defendant thinks plaintiff has only a 50 percent chance of winning. Assume also that defendant estimates that it will cost him $10,000 in attorneys' fees to go to trial rather than settle, and that plaintiff estimates that his attorneys' fees will be $12,000. Recall that we are assuming that each party could save the expenditure of the stated fee amount by settling rather than going to trial. The fee amounts are therefore estimates of the attorneys' fees that would be expended in the future if the case were not settled; they do not include any expenses already incurred.

Given our assumptions about the rational and financial motivations of the litigants, each party will determine whether or not he is willing to settle for a given amount by comparing the settlement figure to the "expected value" of the outcome of the case. Expected value is not a concept invented for this kind of analysis; it is a basic concept of probability theory. The expected value of the outcome of an uncertain event can be interpreted as the average outcome derived from a very large number of repeated tests of the uncertain event. Suppose that you have the opportunity to flip a coin with the result that if the coin lands

heads up you win two dollars, and if it lands tails up you lose one dollar. If you flipped the coin 1,000 times, you would expect to get about 500 heads and 500 tails, winning a total of $1,000 and losing $500, for a net gain of $500 in 1,000 tries. The average outcome--which is the expected value of any single coin flip--would be a gain of fifty cents.

In the example we have posited, the plaintiff regards the case as offering two possible outcomes: a net loss of $12,000 in attorneys' fees if he loses his case, and a net gain of $88,000 if he wins ($100,000 verdict less $12,000 attorneys' fees). The expected value of the case is computed by summing the product of each possible outcome multiplied by its probability. In this instance, that is 40 percent of -$12,000 plus 60 percent of $88,000, which equals $48,000 (the first outcome is represented as a negative figure because it is a loss rather than a gain). Our assumptions dictate that the plaintiff would be willing to settle his case for any amount in excess of $48,000, but would not settle for any amount less than $48,000. Even though he recognizes that if the case goes to trial he will either lose $12,000 or gain $88,000, he views the case as a financial gamble with an expected return of $48,000.

The expected value of the case from defendant's point of view, which I will henceforth simply call defendant's expected outcome, is computed in analogous fashion. It is simpler to do the computations by separating verdict and attorneys' fees. Because defendant thinks the chances of plaintiff's winning are 50

percent, the expected verdict is simply 50 percent of $100,000 (plus 50 percent of zero to account for the possibility that plaintiff will lose), or $50,000. Because defendant is certain to have to pay his attorneys' fees of $10,000 if the case goes to trial, the expected value of his attorneys' fees is $10,000. The expected net outcome is the sum of expected verdict and expected attorneys' fees, or $60,000. Defendant will therefore prefer to settle for something less than $60,000 rather than go to trial.

Because the expected gain to plaintiff ($48,000) is less than the expected loss to defendant ($60,000), the hypothetical case has a bargaining span of $12,000--settlement is possible at any figure between $48,000 and $60,000. The characteristics of this example are summarized in table 1.

TABLE 1

SUMMARY OF HYPOTHETICAL CASE UNDER THE AMERICAN RULE

	Plaintiff	Defendant
Expected verdict if case is tried	$60,000	$50,000
Probability of paying own fees	100%	100%
Probability of paying opponent's fees	0%	0%
Expected liability for attorneys' fees	$12,000	$10,000
Expected net outcome if case is tried	$48,000	$60,000
Bargaining span	$12,000	

Under the American rule, settlement is possible whenever the difference between the expected verdicts as seen by plaintiff and defendant is less than the sum of their attorneys' fees. The width of the bargaining span is the amount by which the sum of

the fees exceeds the difference in expected verdicts. (See section 1 of the appendix.)

The English Rule

Consider now how the English rule will influence the expected outcomes for the plaintiff and defendant in the hypothetical case just discussed. The expected verdict remains unchanged, at $60,000 in plaintiff's view and $50,000 as defendant sees it. The liability of each party for attorneys' fees, however, is now a product of uncertainty about the plaintiff's winning or losing. As plaintiff sees it, there is a 60 percent chance he will win and avoid liability for any attorneys' fees, and there is a 40 percent chance he will lose and be liable for both his and his opponent's attorneys' fees. In estimating the amount of this loss, we should be mindful that plaintiff will not necessarily reach the same estimate as that reached by defendant. Nonetheless, to avoid influencing the comparison between American and English rules, let us suppose that both parties estimate the sum of their attorneys' fees at $22,000, the sum of the two estimates posited initially. Plaintiff's expected liability for attorneys' fees is thus 40 percent of $22,000, or $8,800. His expected outcome is his expected verdict less expected fees, or $51,200.

The defendant evaluates his expected outcome as the sum of an expected verdict of $50,000 and the expected attorneys' fees (50 percent of $22,000) for a total of $61,000. The hypothetical case is still susceptible to settlement under the English rule,

although the bargaining span is somewhat narrower than it would be under the American rule. The bargaining span is $9,800 wide; it would be $12,000 under the American rule. Also, the span is now slightly higher--from $51,200 to $61,000, rather than from $48,000 to $60,000.

TABLE 2

SUMMARY OF HYPOTHETICAL CASE UNDER THE ENGLISH RULE

	Plaintiff	Defendant
Expected verdict if case is tried	$60,000	$50,000
Probability of paying own fees	40%	50%
Probability of paying opponent's fees	40%	50%
Expected liability for attorneys' fees	$ 8,800	$11,000
Expected net outcome if case is tried	$51,200	$61,000
Bargaining span	$9,800	

Under the English rule, there will exist a bargaining span--and settlement will be possible--whenever the difference between the expected verdicts of plaintiff and defendant is less than the sum of their expected liabilities for attorneys' fees. This is also true of the American rule, the only difference being that under the American rule each party's expected liability for fees is simply its own attorneys' fees, so the sum of the expected fee liabilities is the sum of the parties' fees. The English and American rules will produce the same bargaining span only if the parties have identical estimates of the probability that plaintiff will prevail, so that the sum of their estimates of the probability of paying fees totals 100 percent. If, instead,

plaintiff's estimate of its probability of prevailing is higher than defendant's estimate of plaintiff's chances, then the sum of the parties' expected fee liabilities will be less than the sum of the fees; thus, the bargaining span will be narrower under the English rule than it would be under the American rule. The bargaining span will be wider under the English rule only under the unusual circumstance that defendant's estimate of the chances of plaintiff's winning is higher than plaintiff's estimate. The only type of case in which settlement may be possible under the English rule but not the American rule is that in which defendant evaluates plaintiff's chances of winning at a higher level than plaintiff but estimates damages recoverable in the event plaintiff wins at less than plaintiff. Although these types of cases may not be extremely rare,[4] they are very likely in the minority, suggesting that the American rule generally will make settlement possible in more cases than will the English rule. The probable amount of the settlement will tend to be higher under the English rule than under the American rule whenever both parties give the plaintiff better than a 50 percent chance of winning, and lower

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4. It may not be rare that plaintiff is more pessimistic about his own chances of prevailing than is defendant, at least when plaintiff knows his own case better than defendant does. Plaintiff will appreciate the weaknesses of his case. Defendant, not knowing some of those weaknesses, may evaluate plaintiff's case in an unduly favorable light. Nonetheless, it seems reasonable to suppose that any case in which trial is a serious possibility is one in which plaintiff evaluates both his chances of winning and his compensable damages at higher levels than defendant does.

when they both give plaintiff less than a 50 percent chance of winning. (See section 2 of the appendix.)

The Prevailing Plaintiff Rule

The prevailing plaintiff rule occupies a middle ground between the American rule and the English rule because the uncertainty it introduces pertains only to plaintiff's attorneys' fees. Continuing with the hypothetical case developed above, assume that both parties estimate plaintiff's attorneys' fees at $12,000, and that defendant estimates his own attorneys' fees at $10,000. Under the prevailing plaintiff rule, defendant's expected net outcome is the sum of his expected verdict ($50,000), the certainty of paying his own attorneys' fees ($10,000), and his expected liability for plaintiff's attorneys' fees (50 percent of $12,000). Defendant's expected outcome is $66,000. Plaintiff's expected outcome is his expected verdict of $60,000 less the expected liability for his own attorneys' fees, a liability of $12,000 that he incurs only on what he believes is the 40 percent chance he will lose. The expected liability for attorneys' fees is $4,800, so plaintiff's expected outcome is $55,200.

Notice that the bargaining span under the prevailing plaintiff rule has a width of $10,800, wider than under the English rule but narrower than under the American rule. However, the bargaining span has shifted to a significantly higher level, ranging now from $55,200 to $66,000. This is the intuitively clear consequence of the fact that the prevailing plaintiff rule uniformly

enhances the plaintiff's position and detracts from the defendant's position.

TABLE 3

SUMMARY OF HYPOTHETICAL CASE UNDER THE PREVAILING PLAINTIFF RULE

	Plaintiff	Defendant
Expected verdict if case is tried	$60,000	$50,000
Probability of paying own fees	40%	100%
Probability of paying opponent's fees	0%	50%
Expected liability for attorneys' fees	$ 4,800	$16,000
Expected net outcome if case is tried	$55,200	$66,000
Bargaining span	$10,800	

Under the prevailing plaintiff rule, the size of the bargaining span will be between its size under the American rule and its size under the English rule. Ordinarily, the span will be narrower than under the American rule but it can be wider. The bargaining span will ordinarily include larger settlement amounts than under either the English or American rules, thus tending to produce settlements that are more favorable to the plaintiff. (See section 3 of the appendix.)

The American Rule with Contingent Fee

An important variant of the American rule is the common circumstance in which plaintiff is represented on a contingent fee basis. Consider the hypothetical we have so far employed, assuming that the plaintiff's attorneys' fees will be 30 percent of the amount recovered. This does not change defendant's expected outcome under the American rule; it remains $60,000--the expected

verdict of $50,000 plus $10,000 attorneys' fees. The plaintiff's expected verdict remains $60,000 but his attorneys' fees are subject to uncertainty based on the amount recovered, whether by trial or by settlement. Plaintiff's expected attorneys' fees if the case goes to trial are simply 60 percent of $30,000, or $18,000 ($30,000 is the fee ensuing from plaintiff's recovery of a $100,000 judgment, the amount we have assumed plaintiff would recover if he prevailed). Plaintiff's expected net outcome from trial is therefore $42,000. But plaintiff will not be willing to settle for that amount because his net recovery from a settlement will be only 70 percent of the settlement amount. Plaintiff's minimum settlement figure will be $60,000, of which 30 percent, or $18,000, will be paid to his attorney, leaving him with $42,000.

In this example, the bargaining span has been reduced to a single figure. The only possible settlement figure is $60,000, the minimum plaintiff is willing to accept and the maximum defendant is willing to pay in settlement. Part of the reason that settlement possibilities are narrowed in this example is that, by its very nature, the contingent fee does not permit us to assume that the attorneys' fees associated with taking the case to trial are a definite amount that may be avoided by settlement. In fact, where the contingent fee is a fixed percentage of the recovery whether or not the case goes to trial, the plaintiff's minimum acceptable settlement amount will always be equal to his expected verdict. Only if the contingency arrangement is a

sliding scale, where counsel receives a higher percentage if the case goes to trial than he does if the case is settled, will the plaintiff be willing to settle for less than the expected verdict.

TABLE 4

SUMMARY OF HYPOTHETICAL CASE UNDER THE AMERICAN RULE WITH CONTINGENT FEE

	Plaintiff	Defendant
Expected verdict if case is tried	$60,000	$50,000
Probability of paying own fees	60%	100%
Probability of paying opponent's fees	0%	0%
Expected liability for attorneys' fees	$18,000	$10,000
Expected net outcome if case is tried	$42,000	$60,000
Bargaining span	0*	

*Under this rule, the bargaining span is not simply the range between the parties' expected net outcomes, because plaintiff will net from settlement only 70 percent of the settlement amount. Hence plaintiff's minimum acceptable settlement amount is $42,000/0.70 = $60,000. Thus the bargaining span consists of the single figure $60,000 and consequently has a width of zero.

It is impossible to offer generalizations about the American rule with contingent fee without making specific assumptions about the nature of the contingency arrangement. With a fixed contingency percentage (not a sliding scale), the bargaining span will always be narrower than under the American rule or the prevailing plaintiff rule, and almost always narrower than under the English rule. On the other hand, a sliding scale contingent fee is likely to produce a relatively wide bargaining span, possibly wider than under any of the rules so far discussed. A wide bargaining span produced by a sliding scale contingent fee, however,

will always be widened in the direction of including smaller possible settlement figures, that is, in the direction of smaller recoveries for the plaintiff. This is simply a consequence of the fact that contingent fees often are relatively large (e.g., 30 percent if the case settles early, but 50 percent if it goes to trial). (See section 4 of the appendix.)[5]

The Offer-of-Judgment Rule

The offer-of-judgment rule introduces a new and somewhat complicating factor into the analysis, but this factor has influence only in cases where there is uncertainty about the amount of damages plaintiff will recover if he prevails on the issue of liability. The offer-of-judgment rule provides that a party will recover its fees only if that party makes an offer of settlement that the opponent does not accept, and the final judgment is not more favorable to the offeree than was the offer. The fees that may be recovered are only those incurred after the offer is made. If no such offer is made, then each party must pay its own fees.

Where the amount of damages is not at issue, the offer-of-judgment rule has exactly the same effects as the English rule. To see how this rule influences the hypothetical case developed above, we must recognize first that the offer-of-judgment rule is

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5. Section 5 of the appendix describes another circumstance, not discussed in the text, in which plaintiff is represented on a contingent basis and the suit is covered by the prevailing plaintiff rule (so that plaintiff will incur no out-of-pocket attorney fee expenses, whether or not he prevails).

not called into play until at least one party makes an offer of settlement. Let us suppose that immediately upon initiation of the suit, both parties make offers that are near the extremes of possible outcomes: defendant offers to settle for $1,000, and plaintiff offers to accept $99,000. Neither offer is accepted. Now, given that if the case goes to trial the verdict will be either $100,000 or nothing, the rule will operate to compensate plaintiff for his fees if he wins and to compensate defendant if plaintiff loses. (For example: If plaintiff wins, the verdict of $100,000 will be less favorable to the defendant than was plaintiff's offer to accept $99,000, so defendant must pay plaintiff's attorneys' fees.) Because the amount of damages, if any, is certain in our hypothetical, no added possibility of recovering attorneys' fees would be obtained by virtue of either party's making a more reasonable offer. Thus in this type of case, the offer-of-judgment rule may be regarded as indistinguishable from the English rule. The tabular summary of our hypothetical case would therefore be identical to the summary provided in table 2.

To see the difference between the offer-of-judgment rule and the other rules discussed above, it is necessary to consider a hypothetical case in which damages are uncertain. Suppose that liability is not at issue, and, as in the first hypothetical, that plaintiff and defendant anticipate attorneys' fees incurred by taking the case to trial will be $12,000 and $10,000 respectively. The parties hold differing views about the possible amount of damages that would be awarded should the case go to

trial. Defendant believes the verdict would be between $40,000 and $60,000, while plaintiff believes it would be between $50,000 and $70,000.

To avoid unduly complex mathematics in developing the example, let us assume that each party regards all possible verdicts as being equally likely to occur. Given this assumption, the expected verdict turns out to be the midpoint of the range of possible verdicts: $50,000 as defendant sees the case; $60,000 from plaintiff's point of view.[6]

The four rules discussed above would produce the following results when applied to this new hypothetical case. Under the American rule, each party is certain of paying its own attorneys' fees, so plaintiff's expected outcome is the expected verdict of $60,000 less attorneys' fees of $12,000, or $48,000. Defendant's expected outcome is $60,000. The circumstance so far is identical to that presented for the initial hypothetical under the American rule. The bargaining span is $12,000 wide, ranging from $48,000 to $60,000. Under the English rule, because it is cer-

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6. In order to determine each party's expected verdict, we need to know how each party estimates the probabilities of the various possible outcomes. It might well be that defendant believes the verdict is most likely to fall between $45,000 and $55,000 and is relatively unlikely to fall in the extremes of the range of possibilities (i.e., between $40,000 and $45,000 or between $55,000 and $60,000). Or defendant could regard the low end of the range--close to $40,000--as containing the more likely outcomes, with higher figures comparatively unlikely. Because the possibilities are innumerable, one can consider the most general case only in quite abstract mathematical terms. (See section 6 of the appendix.)

tain in this hypothetical case that plaintiff will obtain judgment in its favor, defendant is certain to pay both parties' fees and plaintiff will pay no attorneys' fees. Hence the expected outcome for defendant is $72,000 ($50,000 expected verdict plus defendant's fees of $10,000 plus plaintiff's fees of $12,000). Plaintiff's expected outcome is simply his expected verdict, namely $60,000. The prevailing plaintiff rule is in this example identical to the English rule (because plaintiff is certain to prevail). Under the American rule with a fixed percentage contingency fee (which we assume, again, is 30 percent), the circumstance is the same as in our first hypothetical case. Defendant's expected outcome is $60,000, and plaintiff's expected outcome is 70 percent of the expected verdict, namely $42,000. But to recover at least $42,000 after the attorneys' fees are deducted, plaintiff must obtain a settlement of at least $60,000. Hence the bargaining span would consist of a single possible settlement figure, namely $60,000.

The offer-of-judgment rule would influence expected outcomes in this case in a manner quite different from the rules just discussed. The unique character of the offer-of-judgment rule is that, once an offer is made, the expected outcomes of both parties may be altered by the mere existence of the offer. Suppose that defendant makes an offer to settle for $50,000. Defendant would now evaluate his expected outcome to take account of the possibility that he may recover his attorneys' fees from plaintiff. Defendant would have to pay his own attorneys' fees

only if the verdict were to exceed $50,000, a possibility that he thinks has a 50 percent chance of occurring. Hence his expected attorneys' fees are $5,000 and his expected outcome is simply that amount plus the expected verdict of $50,000, or $55,000. Merely by making an offer of settlement, defendant has improved his expected outcome, reducing it from $60,000 to $55,000. This confirms the intuitive notion that an offer-of-judgment provision creates an incentive for litigants to make reasonable offers. The incentive is not just limited to intuitive appreciation, however; it is susceptible to precise quantification.

What is unique about the offer-of-judgment rule is not that it creates an incentive for making reasonable settlement offers but that it invites use of an optimizing strategy for making such offers. Notice that defendant's offer of $50,000 reduced his expected outcome from $60,000 to $55,000. Clearly, had the offer been for more than $50,000, his expected outcome would have been reduced to less than $55,000. At the same time, defendant does not want to offer any more in settlement than is necessary to minimize his expected loss from the lawsuit, whether by trial or settlement. The optimum offer is one that results in an expected outcome exactly equal to the offer. The arithmetic computations needed to determine the optimal offer in this case are rather tedious and are consigned to a footnote.[7] The solution turns out to

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7. To compute defendant's optimal offer, we first describe how the defendant's expected outcome is determined by an offer. All numbers are expressed in thousands, so that, for instance, 50

be an offer of $53,333. Assume defendant offers that amount in settlement, thereby reducing his expected outcome to the same amount.

Defendant's offer will influence not only defendant's own expected outcome but also that of plaintiff. Plaintiff's expected outcome will have been reduced to the extent that the offer creates a possibility that plaintiff will have to pay defendant's attorneys' fees. Plaintiff thinks the verdict is equally likely to fall anywhere within the range from $50,000 to $70,000, and therefore that there is a 1/6 chance the verdict will be no greater than defendant's offer.[8] Hence plaintiff's expected outcome is reduced by $1,667 (1/6 of $10,000), to $46,333. Although plaintiff might well decide to accept defendant's offer (because it exceeds plaintiff's expected outcome), he can improve his position by making a counteroffer.

Suppose that plaintiff makes a counteroffer, offering to settle for $55,000; what is his resulting expected outcome? With

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means $50,000. The formula is 50+12(60-d)/20, where 50 is defendant's expected verdict, 12 is defendant's estimated attorneys' fees, d is defendant's offer (between 40 and 60), and the remainder of the expression (the ratio of 60-d to 20) gives the probability--as defendant estimates it--that the verdict will be more than his offer. The optimal offer is found by setting this expression equal to d and solving for d. The solution is d = 53.333 (in thousands).

8. This may be appreciated by supposing that the range from $50,000 to $53,333 contains 3,333 out of the total of 20,000 possible verdicts between $50,000 and $70,000; since each of these verdicts is equally possible, the probability is 3,333/20,000 (= 1/6) that the verdict will be no greater than $53,333.

an offer made by each litigant, the computations now must take account of three possibilities: that plaintiff's attorneys' fees will be paid by defendant, that plaintiff will pay defendant's attorneys' fees, or that each will pay its own attorneys' fees. As plaintiff views the case in the context of defendant's offer of $53,333 and plaintiff's offer of $55,000, the probabilities are: (a) a 1/6 chance that the verdict will be less than defendant's offer, in which case plaintiff pays the attorneys' fees of both parties, which total $22,000, (b) a 1/12 chance the verdict will fall between the two offers, in which case plaintiff pays only his own attorneys' fees of $12,000, and (c) a 3/4 chance that the verdict will exceed plaintiff's offer, in which case plaintiff pays no attorneys' fees. Plaintiff's expected liability for attorneys' fees adds up to $4,667, so that his expected outcome is now $55,333. Notice that plaintiff's offer of $55,000 was slightly too generous, since, as plaintiff sees it, defendant's acceptance of the offer would leave plaintiff with a gain of slightly less that he would expect should defendant reject the offer and the case go to trial. Plaintiff could have computed an optimal offer just as defendant did, which would have been $55,208.[9] Let us therefore assume that plaintiff did offer to settle for $55,208 (rather than $55,000).

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9. Once two offers have been made, the general expressions for each party's expected outcome and optimal offer can be determined as follows. (The terminology conventions are the same as those defined in note 7, supra, with these additions: p is plaintiff's offer, P(p,d) is plaintiff's expected outcome, and

We need not continue much longer with the numerical examples, because the dramatic influence of the offer-of-judgment rule is already apparent. After beginning with a bargaining span ranging from $48,000 to $60,000, first defendant and then plaintiff made settlement offers they considered optimal. The offers were $53,333 and $55,208, respectively. When defendant now figures his options in light of the two offers, he will decide that he cannot refuse plaintiff's offer. Given the two offers, defendant's expected outcome is $56,208, $1,000 more than plaintiff has offered to accept. Moreover, defendant cannot reduce his expected outcome to less than plaintiff's offer by making any counteroffer less than plaintiff's offer.[10] Hence

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D(p,d) is defendant's expected outcome.)
P(p,d) = 60-12(p-50)/20-10(d-50)/20
D(p,d) = 50+12(60-p)/20+10(60-d)/20
These may be simplified to the following:
P(p,d) = (1150-6p-5d)/10
D(p,d) = (1160-6p-5d)/10
The optimal offer for plaintiff, given that defendant has offered d, is that value of p satisfying p = P(p,d), that is, p = (1150-6p-5d)/10. Solving for p, this becomes p = (1150-5d)/16. By analogous means, we find that defendant's optimal offer is d = (1160-6p)/15. Given that defendant has offered d = 55.333, plaintiff's optimal offer is p = (1150-5(55.333))/16 = 55.208. Plaintiff's offer is optimal because there is no amount x greater than p that yields an expected outcome P(x,d) that is greater than p. This can be seen by noticing from the expression for P--(1150-6p-5d)/10--that if x is greater than p, then P(x,d) is less than P(p,d).

10. Referring to note 9, supra, we may compute defendant's optimal offer, given that plaintiff has offered to accept 55.208: d = (1160-6(55.208))/15 = 55.250. If defendant offers anything less than 55.250, his expected outcome will be greater than 55.250. Plaintiff's offer is thus preferable to any expected outcome defendant can obtain by making a counteroffer (defendant

defendant recognizes that accepting plaintiff's offer provides a better net outcome than he can otherwise expect, and defendant therefore accepts plaintiff's offer.

The influence of the offer-of-judgment rule in narrowing the bargaining span between parties is obviously not a weakness in cases such as the one illustrated. The narrowing occurs through communication of settlement offers. It is demonstrated in the appendix that, given the assumptions that have governed our analysis of all five attorney fee rules, the offer-of-judgment rule guarantees that settlement will occur whenever settlement is possible under that rule (see section 7 of the appendix).[11] Offsetting this important virtue of the offer-of-judgment rule, however, is the fact that this rule will in some cases not just narrow the bargaining span, but will promptly eliminate it and make settlement theoretically impossible. Under conditions that do

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obviously will not offer to pay plaintiff more than the amount plaintiff has offered to accept).

11. It is a mathematical truth--and only a mathematical truth--that, under the rigorous assumptions we have so far entertained, the offer-of-judgment rule guarantees that settlement will occur in every one of a specifiable class of cases. This is not meant to suggest that the offer-of-judgment rule will "guarantee" settlement of identifiable cases in the real world of civil litigation. It is nonetheless of practical importance that, for specifiable and completely realistic cases, the offer-of-judgment rule creates financial incentives that entice litigants to make offers that will likely be accepted. This kind of incentive is not created by any other attorney fee rule. Other attorney fee rules merely influence the number of cases in which settlement is possible. It is argued in a subsequent section that the distinction between making settlement possible and leading parties to reach settlement is a distinction of potentially great practical consequence.

not invite a strategy of optimizing offers, the offer-of-judgment rule has essentially the same influence as the English rule.

It is not possible to state in any simple manner the conditions in which cases will or may settle under this rule, but it is possible explain the general nature of those conditions (they are expressed in formal mathematical terms in section 7.7 of the appendix). Settlement theoretically cannot occur under the offer-of-judgment rule unless the case is such that, if it were subject to the American rule, there would be a bargaining span within which settlement is possible. If this condition is satisfied, the offer-of-judgment rule will either ensure settlement, preclude it, or simply make it possible. How these conditions occur may be understood as follows. First, distinguish between cases where the rule invites an optimizing strategy in making offers and those where it does not. Where no optimizing strategy is available, the offer-of-judgment rule will merely make settlement possible or not, in a manner closely analogous to the English rule. Where an optimizing strategy is invited, the rule will lead to a series of offers that culminate in either settlement or stalemate. Second, where an optimizing strategy is invited, the distinction between cases that will settle and those that will not is a distinction having to do with the extent of overlap between the parties' expectations about possible verdicts. With sufficient overlap, settlement is theoretically ensured; but with insufficient overlap, settlement is precluded.

To better understand these distinctions, it is necessary to

understand the circumstances that invite an optimizing strategy in making offers. A defendant will employ an optimizing strategy when, within the range of offers defendant might reasonably make, a higher offer will result in a lower expected outcome. Faced with a choice between offering $50,000 and thus reducing his expected outcome to $55,000, or offering $52,000 and reducing expected outcome to $52,000, a rational defendant will choose to offer the higher amount. If, instead, the two potential offers would result in the same expected outcome, defendant has no special motivation to offer the higher figure, and no optimizing strategy is available. A case in which only liability is at issue is the extreme example of a case where the rule offers no incentive for defendant to offer a higher rather than a lower amount. This is the type of case where the offer-of-judgment rule is identical to the English rule. At the other extreme--the case where a strategy of optimizing offers is almost always invited--is a case in which the only issue is damages and the set of possible verdicts covers a continuum of values. In this kind of case, there is no benefit to defendant in making an offer that is less than the minimum possible verdict; but, between any two offers that are within the range of possible verdicts, the higher offer will result in a lower expected outcome.

In short, an optimizing strategy occurs when the parties' expected outcomes are within the range of their respective estimates of possible verdicts. As a general matter, this is unlikely to be the case when there is significant doubt that plaintiff

will prevail on the issue of liability. When plaintiff's chances of prevailing are 50 percent, for instance, the expected outcomes of plaintiff and defendant will be in the neighborhood of 50 percent of the amount they see as the likely damages plaintiff will recover if he prevails. Since an offer made by defendant will be no more than defendant's expected outcome, it will likely be less than any damage recovery by plaintiff. Hence it would not matter whether defendant offers somewhat more or somewhat less than the actual offer, since his offer will result in recovery of attorneys' fees if and only if plaintiff loses on the issue of liability.

Although the conditions under which the offer-of-judgment rule theoretically ensures settlement may be difficult to grasp, they are not at all difficult to satisfy. The hypothetical case used above to illustrate the exchange of optimal offers is evidence that these conditions can be met without an unusual degree of agreement between parties' estimates of the possible outcomes in a case. Nonetheless, it must be recognized that the offer-of-judgment rule is unlikely to facilitate settlement except in cases where there is relatively little doubt on the issue of liability. The final section of this paper recommends a modification to the offer-of-judgment rule that takes advantage of this observation in order to limit the potential for recovery of attorneys' fees only to those cases where the rule permits an optimizing strategy and is thus likely to lead to settlement.

Because the offer-of-judgment rule can have a dynamic influ-

ence on settlement offers, it is meaningless to offer any generalizations about its influence on bargaining spans. It can be compared to other rules only in respect to the number of cases in which settlement is possible. Generally, we can expect that settlement will be possible under the offer-of-judgment rule less often than under the American and prevailing plaintiff rules, and about equally as often as under the English rule. On the other hand, because the offer-of-judgment rule theoretically guarantees settlement in certain cases, while none of the other rules ensures settlement in any case, the offer-of-judgment rule may produce more settlements that does the English rule or the American rule.

This completes our initial survey of the influence of attorney fee rules on settlement. In order to distill from this analysis some practical guidance in fashioning attorney fee rules, it will be necessary to relax certain of the assumptions we have so far entertained and consider how these rules are likely to operate under more realistic circumstances.

Analysis in Light of More Realistic Assumptions

Taking Account of the Difference between Incurred and Prospective Attorneys' Fees

In the basic analysis presented above, we treated the attorneys' fees of each party as a fixed amount, the expenditure of which could be avoided if the case were settled (cases involving contingent fees are an exception). That analysis is therefore strictly correct only in regard to settlement possibilities occur-

ring at the very outset of litigation, before any attorneys' fees are expended. Under all of the rules we have considered, any attorneys' fees that are incurred will ultimately be paid by one party or another.[12] An important incentive for settlement is that the total funds left in the pockets of the litigants will be greater to the extent that settlement avoids further expenditure of attorneys' fees. As litigation progresses, the amount of fees likely to be incurred in the future decreases, and so the incentive to avoid these expenditures also decreases.

If we alter our assumptions to allow for the fact that prospective attorneys' fees decrease as the litigation progresses, we will see that all the rules we have discussed are influenced in exactly the same manner: Each expenditure of attorneys' fees decreases the bargaining span by the amount of that expenditure.[13] This result is most easily seen in the case of the American rule, since the only way either party can avoid liability for attorneys' fees is to avoid incurring attorneys' fees. At any point in time, plaintiff will be willing to settle the case for not less than his expected verdict minus his estimated prospective attorneys' fees, and defendant will be willing to

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12. The American rule with contingent fee is, of course, a necessary exception. Under this rule, work done by plaintiff's attorney does not directly result in fees incurred by plaintiff.

13. The American rule with contingent fee is again an exception. Under this rule, only defendant's attorney fee expenditures directly decrease the width of the bargaining span; time invested by plaintiff's attorney has no direct influence.

settle for not more than his expected verdict plus prospective attorneys' fees. Provided that neither litigant's expected verdict changes, the bargaining span is therefore at its maximum when the litigation begins, and it progressively decreases in width as the case proceeds (unless the parties' estimates of prospective attorneys' fees increase). If the case is not settled before the time at which the sum of both parties' prospective attorneys' fees becomes smaller than the difference between their expected verdicts, then the bargaining span will cease to exist and settlement will be impossible.

The same is true of the English rule. Suppose, for example, that plaintiff estimates at the beginning of suit that his expected outcome will be $60,000, a figure that takes account of both the expected verdict and plaintiff's possible liability for the total attorneys' fees of both parties. Plaintiff would therefore demand at least $60,000 in settlement. Suppose further that, on the eve of trial, plaintiff has already expended $5,000 in attorneys' fees. Then, provided that plaintiff has not changed his estimate of the expected verdict or of the total amount of his and defendant's attorneys' fees, he still believes that his expected net outcome from the lawsuit will be $60,000. Consequently, he will now refuse to settle for less than $65,000, the amount necessary to recoup attorneys' fees already expended and still yield the expected outcome.

The influence of attorney fee expenditures is the same in the case of the offer-of-judgment rule for nearly the same rea-

sons as in the case of the English rule. Once a party has made an offer of settlement and thereby established an expected outcome that takes account of potential liability for attorneys' fees incurred subsequent to the offer, that party's expected outcome will remain unchanged provided that there is no change in estimated attorneys' fees or expected verdict,[14] and no counteroffer from the opponent that itself influences expected outcome. Hence, if the plaintiff subsequently incurs attorneys' fees of $5,000, he will require $65,000 in settlement in order to obtain a net result equal to expected outcome.

Although this result suggests that settlement becomes invariably less likely as litigation progresses, that tendency is tempered by another element of reality: namely, that expected verdicts are likely to change as a case progresses.

Taking Account of Changes in Expected Verdict

It seems clearly unrealistic to assume, as we have so far, that the parties' views regarding possible verdicts and their probabilities do not change as a case progresses and attorneys' fees are expended. A major component of pretrial litigation (and a major cause of attorney fee expenditures) is discovery, which produces information that may alter the litigants' estimates of

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14. To be precise, we must assume no change in verdict possibilities or their associated probabilities, because it is possible for those factors to change while the expected verdict remains unchanged; expected outcome may nonetheless be influenced by a change in the probability that an offer made pursuant to the offer-of-judgment rule will be vindicated by the verdict.

outcome possibilities. We should expect that the general trend would be one in which the expected verdicts of both parties tend to move closer to one another.[15] As discovery progresses, each party has more information and the two parties increasingly have the same information on which to base estimates of verdict probabilities.

If the expected verdicts of plaintiff and defendant generally tend to move closer to one another as pretrial litigation proceeds, the effect is a widening of the bargaining span and an increase in the possibility for settlement. Because these pretrial proceedings require the expenditure of attorneys' fees, which tends to narrow the bargaining span and decrease settlement possibilities, the net effect is that each influence tends to offset the other, making it somewhat unpredictable whether the bargaining span will generally widen or narrow as litigation progresses. But the net effect is only somewhat unpredictable; it is possible to speculate how the bargaining span ordinarily changes during the course of a lawsuit.

What suggests itself as a reasonable basis for speculation is the supposition that, as litigation progresses, the marginal utility of additional attorney fee expenditures decreases. That

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15. This is not to suppose that the expectations of the parties always change so that plaintiff lowers his expected verdict and defendant increases his. It may be quite common that at the outset of a suit, one party possesses substantial information about the case and thus realistically estimates the expected verdict, while the other possesses little information and estimates the expected verdict incorrectly.

is, initial discovery and other pretrial work tends to produce the most significant information and have the greatest influence on litigants' estimates of verdict possibilities, while later efforts are unlikely to have significant influence on those estimates. Attorney fee expenditures decrease the bargaining span by the amount of the expenditures, and this decrease will be offset only if the "utility" of each dollar of attorneys' fees is a reduction in the difference between the parties' expected verdicts of at least a dollar. The assumption of decreasing marginal utility of attorney fee expenditures means that we can expect to find a time in every case when the bargaining span is at a maximum width and can only narrow thereafter.[16] What this speculation suggests is that, although the early stages of litigation will generally offer the best promise for settlement under all the attorney fee rules we have considered, the time when settlement possibilities are at their maximum will not necessarily occur at the outset of a case. In some cases settlement may be impossible at the outset but become possible after discovery or other pretrial procedures have narrowed the gap between the litigants' views of the case.

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16. It should be mentioned that the utility of attorney fee expenditures in moving the parties toward settlement may well be different from the utility of those expenditures as viewed by an individual litigant. The individual litigant will be concerned with whether additional attorney fee expenditures will likely purchase additional financial gains for the litigant; that is, whether they will enhance expected outcome by at least as much as the expected cost of the fees expended.

The Influence of Risk Aversion

A central premise of the analysis to this point has been that litigants are "risk neutral;" that is, that a plaintiff will always prefer to take a 60 percent chance of winning $100,000 (a gamble with an expected value of $60,000) rather than accept less than $60,000 in settlement. Although this may be true of some litigants, it is probably not true of a majority, or even a significant minority. Most litigants are "risk averse" to some degree.

The kind of risk aversion we shall be concerned with is that where a litigant prefers (but does not absolutely require) certainty over risk and will therefore exchange the uncertain outcome of a trial for something less than the expected value of that outcome. Moreover, we will assume that the influence of risk aversion increases as the degree of uncertainty increases. The risk-averse plaintiff, in other words, is willing to accept in settlement a discount below expected outcome, and a risk-averse defendant is willing to pay a premium over expected outcome. Moreover, as the degree of uncertainty increases, the risk-averse litigant is willing to accept a greater discount or pay a greater premium.

It is clear that risk aversion on the part of either party will widen the bargaining span and therefore facilitate settlement because it reduces the minimum settlement demand of a risk-averse plaintiff and increases the maximum acceptable settlement payment of a risk-averse defendant. How does the strength of this influence differ among the attorney fee rules we have discussed?

As a general matter, if one attorney fee rule produces a greater discrepancy between possible outcomes (without changing the probabilities of those outcomes) than does a second rule, then risk aversion will exert greater influence under the first rule than under the second. Comparing the American and English rules, for example, the range of possible outcomes for the plaintiff under the American rule varies from a net loss of his attorneys' fees to a net gain of the maximum possible verdict less his attorneys' fees. Under the English rule, the range is wider, varying from a net loss of the attorneys' fees of both parties to a net gain of the full amount of the maximum verdict. The probabilities associated with possible outcomes do not differ as a consequence of the difference between attorney fee rules. Thus we may assume that risk aversion will have greater influence under the English rule, leading the risk-averse plaintiff to accept a greater discount (and a risk-averse defendant to pay a higher premium) in settlement than under the American rule.

Consequently, the effect of risk aversion in widening the bargaining span will be greater under the English rule than under the American rule. The effect of widening the bargaining span will be least in the case of a risk-averse plaintiff under the American rule with contingent fee (because the range of plaintiff's possible outcomes is narrowest, varying from no gain or loss to a gain of the maximum verdict less contingent fee). For a risk-averse defendant under the American rule with contingent fee, the effect is the same as under the American rule. For the

prevailing plaintiff rule, the strength of the effect will be greater than for the American rule and less than for the English rule.

Using the same type of analysis, one would conclude that the offer-of-judgment rule will exert somewhat greater influence on the risk-averse litigant than the English rule. The reason is that, under the offer-of-judgment rule, the probability of various possible outcomes can be altered by the making of a settlement offer, even though the range of possible outcomes will be the same as in the case of the English rule. The consequence of altering the probabilities of outcomes is such as to increase the probability of least desired outcomes and thus to enhance the influence of risk aversion.

Nonetheless, risk aversion may well play a more modest role in settlement under the offer-of-judgment rule than under the other rules we have discussed. The difference lies in the incentive for making reasonable settlement offers that is created by the offer-of-judgment rule. Under rules other than the offer-of-judgment rule, settlement involves negotiation in which each party initially seeks to obtain a result superior to its expected outcome. The single motivation in making offers is that of obtaining a settlement favorable to the offeror (i.e., superior to the offeror's expected outcome). In this process, the risk-averse litigant is likely to settle for an amount less favorable than would a risk-neutral litigant in the same case (and a risk-neutral litigant is likely to make less generous offers to an op-

ponent perceived as risk averse than he would to a risk-neutral opponent).[17] Under the offer-of-judgment rule, although the litigants have the same goal of seeking the best possible result, the making of settlement offers influences not just settlement negotiations but also the expected outcome should the case go to trial. Countering the motivation to make ungenerous settlement offers is the fact that making a relatively generous offer produces an immediate and calculable improvement in the offeror's expected outcome. The incentive created for making what we have called an optimal offer will at least temper the contrasting incentive to try to take advantage of an opponent's presumed risk aversion.

The Assumption of Rational Litigants, Motivated to Maximize Financial Gain

Two assumptions that have pervaded the analysis are that litigants are motivated exclusively to maximize financial gain arising directly from the litigation, and that they take a purely rational approach to settlement decisions. Neither assumption is strictly necessary to the analysis. As long as financial motivations and rational decisions play some part in settlement decisions, the analysis will still be valid. Nonetheless, we do need to examine these assumptions more closely before we can

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17. See Phillips & Hawkins, Some Economic Aspects of the Settlement Process: A Study of Personal Injury Claims, 39 Mod. L. Rev. 497, 505-6 (1976) for a discussion of the awareness among lawyers and insurance adjusters of how risk aversion affects settlement negotiations.

judge whether the analysis is or is not of significant relevance to the real world of civil litigation.

The assumption that litigants are motivated exclusively to maximize financial gain from the litigation is obviously not true, for there clearly are litigants who are motivated by principle, and moreover are quite unable to measure their commitment to principle in monetary terms. These litigants include, for example, public interest litigants, governments, and other interest groups seeking to establish legal precedent. Because these litigants are inclined to demand trial or at least to decline any compromise settlement, different attorney fee rules will not ordinarily create different influences on settlement prospects. But differences among attorney fee rules will surely influence these litigants' ability to afford to litigate. Because the English rule and the offer-of-judgment rule present a risk that plaintiff will have to pay defendant's attorneys' fees, these rules will often inhibit plaintiffs of this kind more than the American rule. Where the plaintiff is confident of prevailing, however, the prospect of recovering attorneys' fees under either of these rules would make litigation more feasible than the American rule. Where there is a significant risk of liability for defendant's fees, it will either preclude suit or force greater caution in selecting the suits to be brought. Conversely, the prevailing plaintiff rule will clearly encourage plaintiffs more than the American rule. We should not forget that defendants also may be motivated by principle, and that the English rule and the offer-

of-judgment rule would be most favorable to these litigants because they are the only rules that allow defendant to recover its attorneys' fees.

Another important type of case in which our assumption about financial motivations may be weak is the case where, although both litigants are motivated by financial considerations, the perceived significance of the litigation is very different for the two parties. One example is the "mass tort" case where the plaintiff is interested simply in recovering damages, but the defendant tort-feasor is concerned less about its liability to the plaintiff than about the possible consequences of any adverse judgment, which may include encouraging suit by other victims of the same tortious conduct or adverse publicity that may harm defendant's business. Cases of this type are not immune from the kind of influence revealed by our analysis, but it is likely that attorneys' fees will be of relatively minor significance to one or both parties and thus that fee-shifting rules are unlikely to have much influence on settlement decisions.

Although it is important to recognize that not all litigants are motivated by objectives that can be valued monetarily or measured by the same monetary "yardstick," the fact remains that more cases are resolved by settlement than by trial, and it seems entirely reasonable to assume that most litigants settle because they decide that the settlement terms are at least as favorable as the set of expectations and risks confronting them should the case go to trial. But it is one thing to agree that most liti-

gants make settlement decisions based on a set of expectations about the outcome of trial, and quite another thing to agree that litigants base those decisions on computed expected values of trial outcome. Yes, it will be argued, litigants and lawyers make decisions about outcome expectations, but no, they do not often employ a calculator and probability textbook in doing so.

But it is not necessary to assume that the world of litigants and lawyers is populated by mathematicians in order to have confidence that the analytic method employed in this paper is an appropriate means for evaluating the influence of financial considerations on settlement behavior. Just as scientists can develop reliable mathematical models of planetary orbits or of human population trends without imputing a mathematical consciousness to planets or humans, we can reliably model the influence of financial considerations on litigant behavior without supposing that litigants employ our model in their own thinking. Our model--involving computation of expected outcomes--is merely a method of describing financially rational decisions on the part of litigants. The decision of a litigant to accept a particular offer of settlement does not have to be arrived at by use of our model for it to be a "rational" decision; we are only assuming that if such a decision is a financially rational decision, then it is correct for us to treat it as conforming to our theoretical construct of outcome possibilities and associated probabilities. Decisions that are financially rational will conform to the decisions predicted by our model.

Challenges to the utility of the analysis employed here therefore narrow to the question: Why should we assume that settlement decisions are rational? The answer is that we need not assume that settlement decisions are perfectly rational, we need only assume that they are other than perfectly irrational. Provided that we may assume any tendency toward financially rational settlement decisions, our conclusions about the relative influence of attorney fee rules will be valid. The only distinction is that, where we conclude that one rule is more effective than another in facilitating settlement, we must answer the question "how much more?" by reference to the extent that the decisions of actual litigants are rational. The less rational those decisions are, the less difference we can expect will be made by adopting one attorney fee rule rather than another. The analysis presented here can be dismissed as without merit only if one accepts that settlement decisions are utterly irrational, which is to say either that trial outcomes are completely unpredictable or that litigants and lawyers are completely incompetent to predict them. If one accepts that most litigants have some ability to make rational settlement decisions, it is worth noticing than the offer-of-judgment rule may arguably make litigants more willing to exercise that ability. Because making an offer under the rule will be understood to influence expected outcomes and sometimes to invite estimation of an optimal offer, it may well lead litigants to focus more on what a case is really worth and less on fishing for the outer limits of what one's opponent may be willing to pay or accept.

Conclusions and Recommendations

The analysis presented in this paper has revealed a number of factors influencing settlement possibilities that differ in predictable ways among the five attorney fee rules we have examined. It remains difficult to distill from this any simple conclusions about which attorney fee rule is likely to best facilitate settlement, for two prominent reasons. First, the factors influencing settlement possibilities tend to have contrasting influences. The English rule, for example, tends to produce the narrowest bargaining span in most cases where litigants are risk neutral, but if we assume that litigants are likely to be risk averse, we see that risk aversion widens bargaining spans and does so to the greatest extent in the case of the English rule. Because we cannot assume that risk aversion would be described correctly by any particular mathematical formula, we cannot compare quantitatively the strength of these competing influences, and so cannot determine in a rigorous way whether the English rule will in fact permit more or fewer settlements than the American rule. Second, we have discovered that the manner in which the offer-of-judgment rule influences settlements is qualitatively different from the manner of influence in the other rules we have considered. All the rules make settlement possible in certain cases and not in others, but the offer-of-judgment rule makes settlement theoretically certain in some cases, while the other rules never ensure that a possible settlement will become an actual settlement.

In order to suggest where these results may lead, we need to examine briefly the nature of the settlement process as it is likely to manifest itself under these rules. We have measured the influence of each rule on settlement possibilities by noting that settlement is theoretically possible whenever there is a bargaining span, that is, when the defendant's expected loss should the case go to trial equals or exceeds plaintiff's expected gain. Settlement is possible simply because there exists at least one settlement figure that each party would consider at least as favorable as the expected outcome of trial. In addition, we have observed that some attorney fee rules tend to produce bargaining spans in a wider range of cases than other rules, and thus make settlement possible in a higher proportion of cases.

Although it would be convenient to assume that settlement will occur in at least most of the cases where settlement is possible, or alternatively, to assume that more settlements will be produced by an attorney fee rule that makes more settlements possible, neither assumption is easily defended, particularly when we consider the special case of the offer-of-judgment rule.

First, it is clearly wrong to assume that a settlement will occur if settlement is possible. One reason is that, in order to know that a settlement is possible, one must have the omniscience to know how each party evaluates its expected outcome. Although plaintiff knows that he is willing to settle for as little as $48,000 and defendant knows that he is willing to settle for as much as $60,000, neither knows the position of the other. More-

over, each litigant has an obvious interest in knowing the bargaining limits of the other, and each, consequently, has an interest in keeping his settlement limit secret from the other. The litigants cannot know whether a settlement is possible until one of them makes an offer that is within the other's acceptable range. Given that each litigant has good reason to await an offer from the opponent before making an offer of its own, settlement under these circumstances is a process in which delay is encouraged. And delay, as we have also seen, may result eventually in a narrowing and possible vanishing of the bargaining span as attorneys' fees are expended and prospective attorneys' fees diminish. It therefore seems quite likely that, under any of the rules other than the offer-of-judgment rule, some number of cases that might at some point have settled are denied that opportunity for the ironic reason that a compelling strategy for settlement is a strategy of delay.

If we consider the possibility that litigants may know or at least reasonably estimate the bargaining limits of their opponents, it is not at all clear that a wide bargaining span is more conducive to settlement than a narrow bargaining span. If, for example, plaintiff will not settle for less than $40,000, and plaintiff knows or believes that defendant will settle for as much as $60,000, it is not a trivial matter to arrive at an actual settlement figure--there remains a lot of room for negotiation and ample opportunity for stubbornness or further expenditure of attorneys' fees to preclude settlement. In contrast, if

plaintiff's lower limit is $40,000 and plaintiff knows or believes that defendant's upper limit is $41,000, then, if defendant is in fact willing to settle for that amount, the room for negotiation is trivial and settlement may be more likely. Hence it is not at all clear that settlements will be more frequent under the American rule than the English rule. Settlements might often not occur in cases governed by the American rule because the bargaining span is too wide, whereas the same cases would more likely settle under the English rule because that rule produces a narrower bargaining span.

The unique character of the offer-of-judgment rule is suggestive of the argument just made, because that rule tends to produce settlements by narrowing the bargaining span through the exchange of settlement offers. Moreover, it invites a settlement strategy that emphasizes making early and reasonable offers, which counteracts the incentive each litigant has to avoid making the first offer (the first reasonable offer, to be precise). Under the offer-of-judgment rule, an offer that is reasonable will benefit the offeror even if it is not accepted because it will generate a possibility that the offeree will have to pay the offeror's attorneys' fees. An offer made early rather than late in the litigation is more attractive because the only attorneys' fees that may be recovered by virtue of the offer are those incurred after the offer is made. This seems to be a very significant virtue of the offer-of-judgment rule, in contrast to the other rules discussed. It may very well result in the offer-of-

judgment provision generating a higher incidence of settlements than the American rule, despite the fact that the American rule makes settlement possible in a higher proportion of cases.

In light of the importance of the proposal to amend Federal Rule of Civil Procedure 68, and in keeping with the spirit of that proposal as a basis for discussion, I should like to offer some recommendations that take account of the results of the analysis presented in this article. To do so, I must offer a brief and admittedly limited account of factors other than encouraging settlement that bear on policy decisions about attorney fee rules. Even if the offer-of-judgment rule promises to be the superior method for producing settlements, that conclusion is not a sufficient basis for recommending its adoption. Although settlement is a desirable and necessary method of case disposition, other concerns demand that we avoid methods that encourage settlement in an unduly coercive manner or that have unduly harsh consequences.

Consider two types of cases--those where liability is certain and damages are at issue, and those where damages are certain but liability is at issue. Of course, most cases do not fall into either of these extremes; ordinarily there is at least some uncertainty whether defendant will be judged liable, and some additional uncertainty about the damages plaintiff will recover in the event of liability. But if we can fashion an attorney fee provision that we expect would function well in both extreme cases, we very likely can be confident that it will serve

well for the range of cases between these extremes.

In the case where liability is uncertain, the American rule with contingent fee has the special virtue that it permits access to the courts by even the most impecunious and risk-averse plaintiffs (provided, of course, that counsel is willing to accept the risk of representing plaintiff on a contingent basis). And it is also in respect to this type of case that the offer-of-judgment rule (as well as the English rule) will place impecunious or risk-averse plaintiffs at a potentially severe disadvantage as compared with the American rule.[18]

It matters comparatively little that the offer-of-judgment rule will permit access to justice on the part of certain litigants who are under the American rule denied effective recourse, including plaintiffs with sound claims where litigation expenses are likely to exceed the recovery, and defendants faced with the practical reality that it may be cheaper to pay an unjust claim than to pursue a sound defense. Accordingly, I will assume that, at least in cases where liability is uncertain, there is a strong preference for the American rule and an aversion to the offer-of-judgment rule.

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18. The force of these observations is not to be found in convincing arguments that the American rule is more fair than the offer-of-judgment rule. Evaluations of the fairness of the American rule as compared to the offer-of-judgment rule will be determined not by rational argument, but by the subjective and cultural standards of those who do the evaluating. In making observations about how the offer-of-judgment rule compares to the American rule, I am trying merely to reflect the perspective of a legal culture in which the American rule is the long-standing incumbent and thus the standard of comparison.

A second consideration influenced by these rules is the fairness of the outcome of litigation. In this regard, those rules that permit the winner to recover attorneys' fees from the loser are clearly preferred. Once the case reaches verdict, identifying a winner and a loser, we ordinarily prefer that the winner be made whole. On this ground, we would clearly favor the offer-of-judgment rule over the American rule. But because the status quo of American civil litigation is that the winner not be made whole, that is not perceived to be unfair (or at least not intolerably unfair). The benefit afforded by the offer-of-judgment rule--that the party making a reasonable settlement offer may "win" and be made whole--will therefore be seen as a mere benefit, not as a correction of injustice.

Weighing these two consequences of the offer-of-judgment rule evaluated against the American rule norm, it is concluded that, in cases where liability is uncertain, the offer-of-judgment rule will afford benefit to some litigants and injustice to others. The American rule, having the advantage of a long incumbency, will be preferred.

Turning to cases at the other extreme--those where liability is not at issue but damages are uncertain--a rather different picture emerges. These cases present a much reduced problem of access to the courts, since the only practical requirement is that the plaintiff's prospective recovery exceed the likely expenses of litigation. The American rule precludes access only in those cases where the expected recovery is less than the plaintiff's

attorneys' fees. The offer-of-judgment rule presents greater potential risk to the plaintiff--the risk of liability for the attorneys' fees of both parties--but less real impediment to suit. The plaintiff confident of obtaining some judgment in its favor has control over the risk of having to pay any attorneys' fees, a risk he can obviate if he is willing to accept a settlement at the lower end of possible outcomes. Moreover, the offer-of-judgment rule permits suit for amounts less than the expected attorneys' fees associated with trial and thus removes an absolute impediment imposed by the American rule.

For purposes of making the winning party whole, the offer-of-judgment rule is clearly superior in this type of case, and the American rule is clearly inferior. The superiority of the offer-of-judgment rule derives from its discriminating method of defining "winner" and "loser" by reference to settlement offers. When the only matter at issue is that of damages, the fact that plaintiff is certain to recover some damages does not cast plaintiff in the right and defendant in the wrong. The disagreement is about how much plaintiff is due, and plaintiff is no more likely to be right in demanding at least X dollars than defendant is in offering not more than Y dollars.

On the grounds of access to the courts and fairness of outcome, and despite fundamental acceptance of the American rule, the American lawyer and judge will likely accept and perhaps even favor the offer-of-judgment rule in cases where only damages are at issue. It is superior to all other rules in ensuring fairness

of outcomes and arguably superior to the American rule in ensuring access to the courts.

If we return now to the matter of promoting settlements, the choices coincide well with those just suggested. If we want to promote settlements, the American rule and the offer-of-judgment rule are among the leading candidates. The American rule has been shown likely to make settlement possible in the most cases, while the offer-of-judgment rule is quite possibly superior in actually producing settlements because it creates a motivation for litigants to make settlement offers relatively early in the litigation, when settlement possibilities are likely to be at their maximum. The special power of the offer-of-judgment rule in producing settlements, however, occurs only in cases where the principal matter of uncertainty is damages; it affects settlements in the same way as the English rule in cases where liability is the principal issue. Consequently, it seems that we should be well satisfied to have the American rule applicable in cases where only liability is at issue and to have the offer-of-judgment rule applicable in cases where only damages are at issue.

It is fairly easy to establish this combination of the American and offer-of-judgment rules, by imposing a limitation on the recovery of attorneys' fees under the offer-of-judgment rule. The idea is to permit the offeror whose offer is rejected but not bettered after trial to recover attorneys' fees only insofar as they exceed the difference between the verdict and the amount

offered. This ensures that the offeror gets the benefit of the bargain offered, but not more. Suppose, for example, that defendant offered to settle for $50,000, plaintiff declined that offer, defendant subsequently incurred $10,000 in attorneys' fees, and the damages awarded plaintiff were $45,000. Under the limitation just suggested, defendant would recover only $5,000 of his attorneys' fees (the other $5,000 being recovered, in a sense, by virtue of the difference between the amount of the offer and the verdict). This leaves defendant in the position he would have been in had plaintiff accepted his offer, that is, with a net loss of $50,000 ($10,000 fees incurred, less $5,000 fees compensated, plus $45,000 verdict). Under the conventional offer-of-judgment provision, the defendant would recover its full attorneys' fees and thus incur a net loss of only $45,000, a result that arguably penalizes plaintiff and rewards defendant because plaintiff refused the offer--an act that in retrospect turned out to be of benefit to the defendant.

This modification to the offer-of-judgment rule would prevent recovery of attorneys' fees in cases where liability is the principal issue. Suppose that a $50,000 offer of settlement is made by defendant, based on the view that plaintiff has a 50 percent chance of recovering $100,000. If plaintiff loses, recovering no damages, defendant offeror can recover no attorneys' fees (provided, that is, that defendant's reasonable attorneys' fees do not exceed $50,000). If plaintiff had made the $50,000 offer and plaintiff later obtains judgment for $100,000, defen-

dant similarly will not have to pay plaintiff's attorneys' fees. This suggestion would create an offer-of-judgment rule that operates only on that class of cases--where the principal issue is damages--in which that rule is especially productive of settlements. It leaves the American rule operative in that class of cases where the matter at issue covers a more extreme range of likely outcomes, where the only feasible settlements are in the nature of Solomonic compromises, and where we must be most concerned to avoid impediment of access to the courts.

The suggested limitation on recovery of attorneys' fees does not absolutely ensure plaintiff against liability for defendant's attorneys' fees when plaintiff fails to obtain judgment. For instance, if plaintiff loses when defendant had offered to settle for $10,000 and incurred $15,000 in subsequent attorneys' fees, plaintiff would remain liable for $5,000 of those fees. This limitation therefore will not completely satisfy the concern to prevent impeding plaintiffs who are unable to accept a risk of net liability as the cost of pursuing legal redress.

There are other ways in which plaintiffs could be absolutely protected from liability for attorneys' fees in excess of the amount of damages, if any, recovered by plaintiff. One alternative, of course, is simply to preclude any award to a defendant in excess of the verdict obtained by plaintiff (which of course precludes any award whatsoever when plaintiff loses). But because there are good reasons to inhibit genuinely irresponsible litigation, a better solution may be to vest the courts with dis-

cretion to deny recovery in excess of the verdict obtained by plaintiff upon finding that plaintiff's rejection of the offer was reasonable at the time.

Another alternative is what might be called a "protective counteroffer" that affords plaintiff protection against liability for fees in excess of the verdict, but only in exchange for some concession on the part of the plaintiff. The protective counteroffer would operate as follows. First, by making a protective counteroffer, plaintiff voids defendant's offer and thereby ensures that plaintiff's maximum liability as a consequence of the litigation will be the cost of plaintiff's own attorneys' fees (which might be nothing if plaintiff is represented on a contingent basis). Second, if defendant refuses plaintiff's protective counteroffer, and plaintiff recovers less than the amount of the counteroffer, then plaintiff would pay defendant's attorneys' fees up to the full amount of plaintiff's recovery (if plaintiff recovered nothing, defendant could not recover any attorneys' fees). Third, if defendant refuses the counteroffer but plaintiff obtains judgment for at least as much as the counteroffer, neither party would recover fees from the other. This mechanism affords substantial protection to plaintiff, while at the same time balancing the scales somewhat by affording a quid pro quo to the defendant whose refusal of plaintiff's protective counteroffer proves--in light of the final result--to have been reasonable.[19]

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19. Any modification of the offer-of-judgment rule (including the protective counteroffer device, the suggested limitation

The range of factors considered in this paper does not, of course, include all the interests that will confront decisions to modify attorney fee rules. The paper has attempted, however, to take account of the range of factors influencing the vast majority of cases, which we have supposed involve litigants whose main concern about the case is money or its equivalent, who are likely to be risk averse to some extent, and who are capable of making somewhat rational estimates of their prospects should the case go to trial. The offer-of-judgment rule appears likely to be a superior means of increasing the incidence of settlements--and thus decreasing the expense of litigation--particularly in cases where the principal issue is the amount of damages. Although there are grounds for serious concern about the offer-of-judgment rule embodied in the proposed amendment to Federal Rule of Civil Procedure 68, there are options for modifying that proposal that would preserve its virtues without significantly compromising prevailing American concepts of fairness in civil litigation.

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on recovery of attorneys' fees, and a simple prohibition against defendants recovering attorneys' fees in excess of damages recovered by plaintiff) will change the economic incentives afforded by the rule and thus alter the conditions under which settlement is theoretically possible or guaranteed under the rule. Because abstract mathematical analysis of these changes can become very complex, the suggestions offered here are not accompanied by rigorous analysis in the appendix. It is apparent, however, that the suggested modifications all tend to limit the potential for recovery of attorneys' fees ensuing from a reasonable settlement offer, and therefore will tend to decrease the effectiveness of the offer-of-judgment mechanism in ensuring settlements. There is no reason to suppose that modifications like those suggested would severely weaken the power of the offer-of-judgment device in producing settlements. It will remain an empirical question--one that cannot be resolved completely by abstract analysis--whether the offer-of-judgment device, with or without modifications, will lead to more settlements than occur under alternative attorney fee rules.

Appendix

This appendix describes in abstract mathematical terms the influence of attorney fee rules on the expected outcomes of a lawsuit as seen by plaintiff and by defendant. It also demonstrates the truth of various propositions asserted in the body of the paper. Other than a single, rather technical, mathematical assumption about the nature of the mathematical functions representing plaintiff's and defendant's expectations of possible outcomes and their probabilities, the appendix employs the same assumptions as the body of the paper. These assumptions are stated in mathematical terms after the following set of definitions.

The variables employed in this appendix are defined as follows:

$F(v)$ is the probability, in plaintiff's view, that the trial verdict in the case will be less than or equal to v.

$G(v)$ is the probability, in defendant's view, that the verdict will be greater than v. $(1-G(v)$ is comparable to $F(v).)$

V_p is the plaintiff's expected verdict, that is, the expected value of the random variable V with probability distribution $F(v)$.

V_d is the defendant's expected verdict, that is, the expected value of the random variable V with probability distribution $G'(v) = 1-G(v)$.

x is plaintiff's attorneys' fees, as estimated by both plaintiff and defendant.

y is defendant's attorneys' fees, as estimated by both plaintiff and defendant.

p is plaintiff's offer of settlement (an offer to accept p dollars in settlement).

d is defendant's offer of settlement (an offer to pay d dollars in settlement).

c is the fixed contingency percentage charged by plaintiff's attorney under the American rule with contingent fee.

E_p, $E_p(p,d)$ represent plaintiff's expected outcome from trial, expressed as E_p in general, and as $E_p(p,d)$ when it is a function of p and d.

E_d, $E_d(p,d)$ represent defendant's expected outcome from trial.

Certain forms of mathematical notation employed in the appendix that are unconventional or potentially unfamiliar are as follows:

$INT_{a,b}[Q]$ is used in lieu of conventional notation for the integral, representing the integral from a to b of the expression Q; a is omitted from the notation when the integral is taken from minus infinity, and b is omitted when the integral is from a to infinity.

[a,b] represents the range of values between a and b, inclusive.

0 Assumptions and Basic Propositions

The assumptions employed in the body of the paper as well as this appendix are as follows:

0.1 Settlement is possible in a given case if and only if there exists at least one value S such that $E_d \geq S \geq E_p$. (By definition, a bargaining span exists only if $E_d \geq E_p$, and in that event the bargaining span is $[E_p, E_d]$, and its width is $E_d - E_p$.)

0.2 Under the offer-of-judgment rule, both plaintiff and defendant will make settlement offers that satisfy these conditions:

0.2.1 $p \geq E_p(p,d) \geq E_p(x,d)$ for all x satisfying $p \geq x \geq E_p(x,d)$.

0.2.2 $d \leq E_d(p,d) \leq E_d(p,x)$ for all x satisfying $d \leq x \leq E_d(p,x)$.

0.3 The technical mathematical assumption referred to earlier is that F(v) and G(v) are both continuously differentiable for all $v \geq 0$, the expected value of v exists for both F(v) and G(v), and that: F(v) is continuously increasing for all v such that $0 < F(v) < 1$, and G(v) is continuously decreasing for all v such that $0 < G(v) < 1$. What this means is that both functions are smooth, without jump points (except possibly at 0) and, within their respective ranges of possible verdicts, every verdict is possible. This assumption does not comply strictly with the reality of litigation,

since there are cases in which it is possible that plaintiff will lose (so that $F(0) > 0$) and possible that he will win and recover damages in excess of some minimum amount L, but there is no possibility that the verdict will be for an amount v such that $0 < v < L$. In that case, F(v) would not be increasing between 0 and L, violating our assumption that F(v) is continuously increasing. Nonetheless, the realities of litigation can be approximated as closely as we wish without violating the mathematical assumptions. The reality we have posed would be represented by a cumulative probability function F(v) and an arbitrarily small positive value e such that $F(0) = a$, $F(L) = a+e$, and F(v) is continuously increasing for all v satisfying $0 < F(v) < 1$. The approximation assumes that there is some chance e that the verdict will be between 0 and L, but since e can be arbitrarily small, the approximation is completely satisfactory.

Finally, we should at the outset demonstrate that we may simplify expressions for the expected outcome in a particular manner. Generally, a litigant's expected outcome may be expressed as $E = INT[(v-Q)dF(v)]$, where Q is an expression giving the plaintiff's fee liability, either as a constant or a function of v. But $INT[(v-Q)dF(v)] = INT[vdF(v)]-INT[QdF(v)] = V_p-INT[QdF(v)]$.

0.4 Hence plaintiff's expected outcome may generally be expressed as $E_p = V_p+INT[QdF(v)]$, and as V_p+Q where Q is independent of v. Similarly, defendant's expected outcome may be expressed as $E_d = V_d+INT[QdG'(v)]$.

1 The American Rule

Under the American rule:

1.1 $E_p = V_p-x$, and

1.2 $E_d = V_d+y$, so that

1.3 Settlement is possible if and only if $V_p-V_d \leq x+y$.

1.4 In that event, the bargaining span has width $x+y-(V_p-V_d)$.

2 The English Rule

Under the English rule:

2.1 $E_p = V_p-F(0)(x+y)$, and

2.2 $E_d = V_d+G(0)(x+y)$, so that

2.3 Settlement is possible if and only if $V_p-V_d \leq (F(0)+G(0))(x+y)$.

2.4 In that event, the bargaining span is $(F(0)+G(0))(x+y)-(V_p-V_d)$.

2.5 If $F(0)+G(0) < 1$, then settlement is possible under the American rule but not the English rule whenever $x+y > V_p-V_d > (F(0)+G(0))(x+y)$.

2.6 If $F(0)+G(0) > 1$, settlement is possible under the English rule but not the American rule when $x+y < V_p-V_d < (F(0)+G(0))(x+y)$. These conditions are probably rare because they exist if and only if (1) de-

fendant accords plaintiff a greater chance of winning than does plaintiff (see 2.6.1), and also (2) plaintiff expects a greater verdict in the event he wins than does defendant (2.6.2):

2.6.1 $F(0)+G(0) > 1$ implies that $F(0) > 1-G(0) = G'(0)$.

2.6.2 Since $x+y$ is always nonnegative, $V_p-V_d > x+y > 0$ implies that $V_p > V_d$. From 2.6.1, we have $1/(1-F(0)) > 1/G(0)$. Thus $V_p/(1-F(0)) > V_d/G(0)$. The expected verdicts V'_p and V'_d conditioned upon plaintiff prevailing are simply $V'_p = V_p/(1-F(0))$ and $V'_d = V_d/G(0)$. Hence $V'_p > V'_d$.

3 The Prevailing Plaintiff Rule

Under the prevailing plaintiff rule:

3.1 $E_p = V_p-F(0)x$.

3.2 $E_d = V_d+y+G(0)x$.

3.3 Settlement is possible if and only if $V_p-V_d \leq y+(F(0)+G(0))x$.

3.4 In that event, the bargaining span is $y+(F(0)+G(0))x-(V_p-V_d)$.

3.5 If $F(0)+G(0) < 1$, then the bargaining span under this rule is narrower than under the American rule and wider than under the English rule, since $x+y > (F(0)+G(0))x+y > (F(0)+G(0))(x+y)$. Moreover, proceeding as in 2.5, it is readily shown that, given these conditions, settlement is possible under the prevailing plaintiff rule in fewer cases than

under the American rule but more cases than under the English rule.

3.6 Similarly, if $F(0)+G(0) > 1$, the comparison of bargaining spans and settlement possibilities is reversed. Hence, in all circumstances, both the settlement possibilities and the width of the bargaining span under this rule will lie between those obtaining under the American and English rules.

4 The American Rule with Contingent Fee

This rule is considered only for cases where the contingent fee is a fixed percentage c of plaintiff's recovery, regardless of the method of recovery (e.g., trial or settlement before discovery). Under this rule:

4.1 $E_p = (1-c)V_p$.

4.2 $E_d = V_d+y$.

4.3 To recover E_p in settlement, plaintiff must receive an amount Z such that $(1-c)Z = E_p$, which implies that $Z = V_p$.

Hence settlement is possible if and only if $V_p-V_d \leq y$.

4.4 Comparing 4.3 to 1.3, 2.3, and 3.3, it is apparent that settlement is less likely under the American rule with contingent fee than under any preceding rule, except that quite extreme circumstances may make settlement less likely under the English rule (when $(F(0)+G(0))(x+y) < y$).

5 The Prevailing Plaintiff Rule with Contingent Fee

Under this variation of the prevailing plaintiff rule, plaintiff's counsel agrees to accept as payment only such fees, if any, as are recovered from defendant should plaintiff prevail. The plaintiff will therefore pay no attorneys' fees whether he wins or loses the case. Under this rule:

5.1 $E_p = V_p$.

5.2 $E_d = V_d+y+G(0)x$.

5.3 Settlement is possible if and only if $V_p-V_d \leq y+G(0)x$. It is easily apparent that settlement is possible under this rule in more cases than under the American rule with contingent fee, but in fewer than under the American rule or the prevailing plaintiff rule. The English rule may make settlement possible in more or fewer cases than does this rule; only in cases where both parties think plaintiff's chances of prevailing are relatively slim can we offer a generalization: The English rule will permit settlement in more cases.

6 The Offer-of-Judgment Rule

Under this rule, the general expressions for the parties' expected outcomes are these:

6.1 $E_p(p,d) = V_p-xF(p)-yF(d)$, and

6.2 $E_d(p,d) = V_d+xG(p)+yG(d)$, where $G(p) = 0$ and $F(p) = 1$ before plaintiff makes any offer, $F(d) = 0$ and $G(d) = 1$ before defendant makes any offer.

7 Conditions That Ensure Settlement under the Offer-of-Judgment Rule

Given our assumption that plaintiff and defendant will both seek to make optimal offers, there is no point in discussing bargaining spans for the offer-of-judgment rule. The question of interest is: Under what conditions will the parties' effort to make optimal offers result in settlement and when will that effort fail to result in settlement? Before stating and proving an answer to that question, it will be helpful to develop a few preliminary results.

7.1 An optimal offer p for the plaintiff is one that satisfies $p = E_p(p,d) = V_p - xF(p) - yF(d)$. The optimal offer is found by solving that equation for p.

7.2 For a given value of d, there is is one and only one value of p satisfying equation 7.1; moreover, that value of p satisfies $V_p - yF(d) \geq p \geq V_p - x - y(F(d))$. The proof is in two parts.

7.2.1 Proof that there is at least one solution. Assume that there is no solution. For brevity, let $Q = V_p - yF(d)$. Since $0 \leq F(p) \leq 1$ for all p, $Q \geq E_p(z,d) \geq Q - x$ for all z. Since we have assumed that there is no solution $z = E_p(z,d)$, it must be that $Q > E_p(Q,d)$. Now, since F(v) is continuously increasing, then for any $e > 0$, $-F(Q-e) \geq -F(Q)$, which implies that $E_p(Q-e,d) \geq E_p(Q,d)$. Hence, as z decreases from Q to Q-x, $E_p(z,d)$ must increase. Since

$E_p(z,d) \geq Q-x$ for all z, it follows that at some z satisfying $Q \geq z \geq Q-x$, $z = E_p(z,d)$.

7.2.2 Proof that there is at most one solution.

Suppose there exist p_1 and p_2 such that $p_1 > p_2$, $p_1 = E_p(p_1,d)$, and $p_2 = E_p(p_2,d)$. Since F(v) is continuously increasing for all v satisfying $0 < F(v) < 1$, and $0 \leq F(v) \leq 1$ for all v, it follows from $p_1 > p_2$ that $F(p_1) \geq F(p_2)$, and consequently that $E_p(p_1,d) \leq E_p(p_2,d)$. But this is just $p_1 \leq p_2$, which contradicts the assumption that $p_1 > p_2$. Hence there can be at most one value p satisfying $p = E_p(p,d)$ for a given d.

7.3 Similarly, an optimal offer for d is one satisfying $d = E_d(p,d) = V_d+xG(p)+yG(d)$.

7.4 For a given value of p, there is one and only one value of d such that $d = E_d(p,d)$, and that value d satisfies $V_d+xF(p) \leq d \leq V_d+xF(p)+y$. The proof is analogous to that given in 7.2.

7.5 Optimal offers made by plaintiff and defendant will occur in one of two possible sequences, one where defendant makes the first offer, and another where plaintiff makes the first offer. The former sequence is d_1, p_1, d_2, p_2, . . ., where $d_1 = V_d+yG(d_1)$, $p_1 = E_p(p_1,d_1)$, $d_2 = E_d(p_1,d_2)$, etc. The sequences d_1, d_2, . . . and p_1, p_2, . . . converge, respectively, to limits D and P. The proof will be given only for the sequence of

defendant's offers (those for plaintiff's offers and for both sequences when plaintiff makes the first offer are similar). The convergence of d_1, d_2, . . . follows from the facts that $d_{n+1} \geq d_n$ for all n, and there exists some U such that $d_n \leq U$ for all n. These will be proved separately.

7.5.1 Proof that $d_{n+1} \geq d_n$ for all n. The proof is by induction, proving first (a) that $d_2 \geq d_1$ and then (b) that, if $d_n \geq d_{n-1}$, then $d_{n+1} \geq d_n$.

(a) Assume $d_2 < d_1$. From 7.4, $d_1 = V_d+yG(d_1)$, and $d_2 = V_d+xG(p_1)+yG(d_2)$. Since $G(p_1) \geq 0$, $V_d+yG(d_2) \leq d_2 < d_1 = V_d+yG(d_1)$, which implies that $G(d_2) < G(d_1)$. Since G(v) is uniformly nonincreasing, this implies that $d_2 \geq d_1$, which contradicts the assumption that $d_2 < d_1$, hence it must be that $d_2 \geq d_1$.

(b) Assuming now that $d_n \geq d_{n-1}$, let us assume that $d_{n+1} < d_n$. This implies that $V_d+xG(p_n)+yG(d_{n+1}) < V_d+xG(p_{n-1})+yG(d_n)$, and thus that $x(G(p_n)-G(p_{n-1})) < y(G(d_n)-G(d_{n+1}))$. But since we have assumed that $d_{n+1} < d_n$, $G(d_{n+1}) \geq G(d_n)$. Hence we infer that $G(p_n) < G(p_{n-1})$, which implies that $p_n > p_{n-1}$. This in turn implies that

$p_n = V_p-xF(p_n)-yF(d_n) \geq p_{n-1} = V_p-xF(p_{n-1})-yF(d_{n-1})$. Since we know that $d_n \geq d_{n-1}$, the last result implies that $F(p_n)-F(p_{n-1}) \leq 0$, and thus that $p_n \leq p_{n-1}$. But

this contradicts the earlier result that $p_n > p_{n-1}$, completing the proof that $d_{n+1} \geq d_n$.

7.5.2 Proof that there exists some U such that $U \geq d_n$ for all n. This follows directly from 7.4, since $dn \leq V_d+xF(p_{n-1})+y$. Since $F(p_{n-1}) \leq 1$, $d_n \leq V_d+x+y$.

7.6 Having now established that optimal offers made by plaintiff and defendant will converge to some upper limit D for defendant's offers and some lower limit P for plaintiff's offers, conditions under which settlement necessarily will occur are readily apparent. Settlement will occur if and only if $D > P$.

Proof: Defendant will accept plaintiff's offer p_n if and only if $E_d(p_n,z) \geq p_n$ for all $z < p_n$, and plaintiff will accept defendant's offer d_n if and only if $E_p(z,d_n) \leq d_n$ for all $z > d_n$. If $D < P$, this can never happen, since $d_n \leq D < P \leq p_m$ for all n, m (by the definition of the limit, because the sequences of offers are nonincreasing for p and nondecreasing for d, and because of 7.2 and 7.4). If $D = P$, settlement can occur only after an infinite number of offers. But if $D > P$, then there must exist some finite n such that $D-d_n < (D-P)/2$ (because d_n is nondecreasing with limit D), and $p_n-P < (D-P)/2$ (because p_n is nonincreasing with limit P). These conditions imply that $d_n > p_n$, so settlement must occur.

To demonstrate that the condition $D > P$ does in

fact occur, it is only necessary to point to the example employed in the main text of the paper. There, the parties' exchange of optimal offers does result in settlement, implying, from the proof just given, that $D > P$.

7.7 It may be helpful, both for better understanding the conditions under which settlement must occur and for the aid of readers wishing to pursue the mathematics more fully, to observe that the limits D and P of defendant's and plaintiff's offers must simultaneously satisfy $D = E_d(P,D)$ and $P = E_p(P,D)$. Since limits D and P necessarily exist, one may determine whether $D > P$ by finding all pairs (p,d) satisfying $d = E_d(p,d)$ and $p = E_p(p,d)$. There must be at least one such solution, but there can be more than one, of which one and only one is (P,D). If all solutions (p,d) satisfy $d > p$, then settlement must occur; otherwise, settlement will not occur.

It is also worthy of note that the conditions for settlement under this rule parallel the conditions in which settlement is possible under the English rule. Under the latter, settlement is possible when $V_p - V_d \leq (F(0)+G(0))x+(F(0)+G(0))y$. Under the offer-of-judgment rule, settlement occurs when $V_p - V_d < (F(P)+G(P))x+((F(D)+G(D))y$. The difference between the two expressions conforms to intuition. Under the English rule, the cardinal factors are the parties'

estimates of the likelihood that plaintiff will prevail. Under the offer-of-judgment rule, where the parties will exchange offers in a sequence leading to limits P and D, the key factors are the parties' estimates of the likelihood that plaintiff will recover more than D or P.

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Federal Judicial Center
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