

Let's Not Make a Deal: An Empirical Study of Decision Making in Unsuccessful Settlement Negotiations

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This study quantitatively evaluates the incidence and magnitude of errors made by attorneys and their clients in unsuccessful settlement negotiations. The primary study analyzes 2,054 contested litigation cases in which the plaintiffs and defendants conducted settlement negotiations, decided to reject the adverse party's settlement proposal, and proceeded to arbitration or trial. The parties' settlement positions are compared with the ultimate award or verdict, revealing a high incidence of decision-making error by both plaintiffs and defendants. This study updates and enhances three prior studies of attorney/litigant decision making, increasing the number of cases in the primary data sets more than threefold, adding 72 explanatory variables from 19 classes, applying a multivariate analysis, presenting an historical review of error rates during the 1964–2004 period, and comparing the primary study error rates with error rates in cases where the parties are represented by attorney-mediators. Notwithstanding these enhancements, the incidence and relative cost of the decision-making errors in this study are generally consistent with the three prior empirical studies, demonstrating the robustness of the earlier works by Samuel Gross and Kent Syverud, and Jeffrey Rachlinski. The multivariate analysis, moreover, shows that the incidence of decision-making error is more significantly affected by "context" variables (e.g., case type and forum) than by "actor" variables (e.g., attorney gender and experience level).

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I. INTRODUCTION

The decision to settle or litigate necessarily requires an assessment of the likely trial outcome.¹ Absent extrinsic motivations, a rational litigant roughly weighs an adversary's settlement proposal against the likely trial outcome, makes some adjustments for attorney fees, court costs, and the possibility of delays and appeals, and either accepts or rejects the adversary's settlement proposal. For litigants unwilling to accept an adversary's settlement offer and intent on obtaining a judgment on the merits, trials are their best alternative to a negotiated agreement (BATNA). As Roger Fisher and William Ury assert in *Getting to Yes*, a party's BATNA "is the standard against which any proposed agreement should be measured. That is the only standard which can protect you both from accepting terms that are too unfavorable and from rejecting terms it would be in your interest to accept."²

To test whether attorneys and litigants accurately measure trial outcomes against settlement alternatives in adjudicated cases, this study examines 2,054 California civil cases ultimately resolved through trial or arbitration, following unsuccessful settlement negotiations.³ The cases were reported in a 38-month period between November 2002 and December 2005; about 20 percent of all California litigation attorneys represented the parties in these cases. The parties' settlement positions in those cases are compared with the ultimate award or verdict to determine whether the parties' probability judgments about trial outcomes were economically

¹Samuel Gross & Kent Syverud, *Don't Try: Civil Jury Verdicts in a System Geared To Settlement*, 44 *UCLA L. Rev.* 51 (1996): "Every theory of pretrial bargaining assumes that a negotiated settlement is determined, at least in part, by the parties' predictions of the outcome of the case if it did go to trial."

²Rober Fisher & William Ury, *Getting to Yes: Negotiating Agreement Without Giving In* (Penguin Books 1991).

³The vast majority of civil cases, of course, are resolved by voluntary settlements or pretrial proceedings. It is impossible to objectively measure the economic utility of decision making in the settled cases, as the settlement consideration cannot be compared with an actual trial outcome. The results of this study are limited to decision making in adjudicated cases with confirmed settlement positions and, due to this selection bias, may not have any explanatory value in settled cases. As Ward Farnsworth explained in his study of injunctions: "I am not purporting to ask or answer any questions about what happens in cases that settle, so excluding them is just a limitation on what the study means." Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, in *Behavioral Law & Economics* (Cass Sunstein, ed., Cambridge University Press 2000).

efficacious, that is, did the parties commit a decision error by rejecting a settlement alternative that would have been the same as or better than the ultimate award? Employing a multivariate analysis, the study presents a quantitative evaluation of those attorney/client probability judgments regarding liability and damages, the costs of inaccurate probability assessments, and the effect of explanatory variables such as offers of compromise, case type, nature of alleged damages, and forum.

The results of this 38-month study are complemented by a 40-year survey of settlement decisions in adjudicated cases from 1964 to 2004. The 40-year survey indicates whether attorney/litigant decision error rates are constant and whether the incidence of adverse outcomes in the 38-month study is atypical. Lastly, to tentatively assess whether the decision-making errors shown in this study may be attributable to the study attorneys' possible risk-taking propensities and bias against negotiated resolutions, the study results are compared with error rates in cases where the parties are represented by attorney-mediators who meet state-mandated mediator training requirements and have been selected to serve on their local court's panel of mediators. This group of attorney-mediators, skilled in case evaluation and conflict resolution, presumably would exhibit lower decision-making error rates if the study attorneys' error rates resulted from singular risk-taking propensities or anti-settlement biases. Alternatively, similar error rates for the study attorneys and the attorney-mediators could demonstrate that the study attorneys are not uniquely risk seeking or that clients, not their attorneys, assume the dominant role in making settlement decisions.⁴

The study serves two principal purposes. First, it is a large-scale empirical study of settlement decision error in adjudicated cases, demonstrating the extent, costs, and persistence of attorney/litigant judgment error. Second, it updates and evaluates the continued validity of three pioneering empirical studies of attorney/litigant settlement decision making: Samuel Gross and Kent Syverud's 1991 article, "Getting to No: A Study of Settlement Negotiations and the Selection of Cases for Trial," their 1996 study, "Don't

⁴Attorneys, of course, are required to abide by "a client's decision whether to accept an offer of settlement of a matter." American Bar Association Model Rules of Professional Conduct, Rule 1.2. In referring to "attorney/litigant" decision making, we intend to convey the collaborative nature of the attorney/client relationship while acknowledging that the client is the ultimate decisionmaker.

Try: Civil Jury Verdicts in a System Geared to Settlement,” and Jeffrey Rachlinski’s 1996 study, “Gains, Losses and the Psychology of Litigation.”⁵

II. A BRIEF REVIEW OF PRIOR STUDIES

In the three prior studies by Samuel Gross and Kent Syverud and Jeffrey Rachlinski, the authors analyzed settlement behavior in actual civil cases and concluded that the conventional economics model of rational choice leading to optimal economic outcomes is inapplicable, misleading, or inaccurate. Noting that “the absence of data on pretrial negotiations has handicapped development of this topic,” law professors Gross and Syverud first studied a nonrandom sample of 529 cases between June 1985 and June 1986. Their data showed that “the main systemic determinants of success at trial and in pretrial bargaining are contextual and relational [e.g., litigants’ resources, reputations, insurance, fee arrangements, repeat litigants]” and that prior theoretical models of attorney/litigant settlement behavior were “quite alien to actual litigation.”⁶ Specifically, their study challenged a prior theoretical model of litigation posited by George Priest and Benjamin Klein: “the fifty percent implication.”⁷ According to Priest and Klein’s theory, trials occur primarily in “close cases,” plaintiffs and defendants are equally adept in predicting trial outcomes, plaintiffs will win about 50 percent of the cases that proceed to trial, and “mistakes” about outcomes will be evenly distributed between plaintiffs and defendants. Priest and Klein’s hypotheses, however, are discrepant with the data compiled by Gross and Syverud:

Economic theories of trial and pretrial bargaining call to mind the standard image of a competitive market: numerous individuals intelligently pursuing independent self-interests. Social reality, as usual, is inconsiderate of global theories. In this case it provides a competing image that is less susceptible to

⁵Samuel Gross & Kent Syverud, *Getting to No: A Study of Settlement Negotiations and the Selection of Cases for Trial*, 90 *Michigan L. Rev.* 319 (1991); Gross & Syverud (1996), *supra*; Jeffrey Rachlinski, *Gains, Losses and the Psychology of Litigation* 70 *S. Cal. L. Rev.* 113 (1996).

⁶Gross & Syverud (1991), *supra*, at 319, 330, 379.

⁷George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 *J. of Legal Studies* 1 (1984); George L. Priest, *Reexamining the Selection Hypothesis*, 14 *J. of Legal Studies* 215 (1985).

statistical prediction: stragglers picking their way in the dark, trying to avoid an occasional land mine.⁸

Presaging a broader application of behavioral economics' framing concepts to attorney/litigant settlement behavior, Gross and Syverud observed that plaintiffs usually are more risk averse than defendants; plaintiffs and defendants attach "separate values to each possible outcome"; and "their stakes may be unequal (or equal) with respect to victories, or defeats or both."⁹

In their second study, Gross and Syverud added a sample of 359 cases reported between 1990 and 1991. Their results again conflicted with the Priest-Klein litigation model. Instead of a 50/50 distribution of "mistakes," Gross and Syverud found that plaintiffs were more likely than defendants to make a mistake, that is, to reject a settlement proposal that turned out to be the same as or more favorable than the actual trial award. Plaintiffs were "clear losers" in 61 percent of the cases in their first sample (1985–1986) and in 65 percent of the cases in their second sample (1990–1991). The defendants, in contrast, made mistakes in only 25 percent and 26 percent, respectively, of the cases in the two samples.

In the third major empirical study of attorney/litigant decision making in adjudicated cases, Rachlinski compared final settlement offers with jury awards in 656 cases. His data showed decision error by plaintiffs in 56.1 percent of the cases, contrasted with a defendant decision error rate of 23 percent. Although plaintiffs' decision error rate was markedly higher than defendants' decision error rate, the average cost of plaintiffs' decision error was dramatically smaller (\$27,687) than defendants' mean cost of error (\$354,900). Observing that litigants' decisions are "suboptimal" and "may not comport with rational theories of behavior," Rachlinski found that the "consistently divergent risk preferences between plaintiff and defendant" could be explained by behavioral economics' framing theories.¹⁰ Litigants' "risk preferences depend upon characterizing a decision as a gain or loss" and "vary systematically depending upon whether they are in the role of plaintiff or defendant."¹¹ Plaintiffs are consistently risk averse, while defen-

⁸Gross & Syverud (1991), *supra*, at 385.

⁹Gross & Syverud (1991), *supra*, at 319, 381.

¹⁰Rachlinski, *supra*, at 114, 118, 120, 142.

¹¹Rachlinski, *supra*, at 119.

dants are risk seeking. Consequently, plaintiffs generally benefited from litigation and “defendants as a class paid heavily for their decision” to litigate: “When settlement negotiations failed, the plaintiffs were unwittingly forced to undertake a risk that, on average, benefited them and cost the defendants dearly.”¹²

III. DATA AND METHODS

A. Data Source

The study database consists of 2,054 contested civil litigation cases reported in *Verdict Search California* during the 38-month period between November 2002 and December 2005. *Verdict Search California*, previously titled *California Jury Verdicts Weekly*, is the primary reporting source for judgments and settlements in California, and the reliability of its reports has been confirmed in law review articles and by research studies.¹³ Gross and Syverud, for instance, “concluded that the information contained in the journal is reliable and found no systematic bias among the errors by either plaintiff or defendant to misreport the winning party, the size of the award, or the settlement offers.”¹⁴ The Rand Corporation also utilized the data reported in *Verdict Search California* to prepare its periodic reports on jury trials and verdicts in major metropolitan areas, including “Trends in Civil Jury Verdicts Since 1985.”¹⁵

Verdict Search California does not report every verdict rendered in California but relies on voluntary submissions from attorneys and solicitors reports based on court dockets and trade publications. The information *Verdict Search California* obtains from attorneys, including the parties, attorneys, factual contentions, damages, results, and settlement offers, is compiled in a draft case report. To confirm the contents of the draft case report,

¹²Rachlinski, *supra*, at 160.

¹³Gross & Syverud (1991), *supra*; Rachlinski, *supra*; M.A. Peterson & G.L. Priest, *The Civil Jury: Trends in Trial and Verdicts, Cook County, Illinois, 1960–1979* (Rand Institute for Civil Justice 1982); M.G. Shanley & M.A. Peterson, *Comparative Justice: Civil Jury Verdicts in San Francisco and Cook Counties, 1959–1980* (Rand Institute for Civil Justice 1983).

¹⁴Rachlinski, *supra*, at 149 n.133.

¹⁵Erik Moller, *Trends in Civil Jury Verdicts Since 1985* (Institute for Civil Justice, RAND 1996).

Verdict Search California then attempts to contact counsel for all parties by facsimile and telephone. All information received from the parties' attorneys, *Verdict Search California* affirms, is incorporated in the case report. Verdict Search publishes similar weekly verdict reports for the courts of New York and Texas and monthly reports for four other state courts.

Cases reported in *Verdict Search California* during the 38-month study period were included in the study database if they met five basic requirements: (1) a jury verdict, judge's decision, or arbitrator's award was entered in a specific monetary amount; (2) the plaintiff submitted a settlement demand in a specific monetary amount; (3) the defendant made a settlement offer in a specific monetary amount or its settlement offer was described as "none"; (4) there was no reported disagreement among the parties regarding the amount of the ultimate result and the parties' prior settlement positions; and (5) the parties were represented by counsel. The study database thus is limited to documented cases in which the parties conducted unsuccessful settlement negotiations and the parties' liability, if any, was ultimately decided by a judge, jury, or arbitrator.

The database excludes a few cases that otherwise might satisfy the five requirements above. Any trials concluded on technical or procedural grounds prior to an adjudication on the merits (for example, mistrials, directed verdicts, and defense verdicts based on motions for nonsuit, summary judgment, and judgment notwithstanding the verdict) were excluded. The outcome in those cases is a matter of law and frequently represents the losing attorney's error of law, as opposed to an attorney/client decision about mixed and disputed issues of both fact and law. Class actions also are excluded from the database since the relationship between attorneys and clients in those cases is too attenuated to assess attorney/client decision making. Cases in which typographical or reporting mistakes appeared on the face of the report or the parties' settlement positions were not adequately allocated among multiple parties were eliminated.

B. Variables Identified and Classified in Database

The variables in this study consist of three variables (AWARD, OFFER, and DEMAND) used to construct the dependent variable (DECISION ERROR) and 19 classes of independent variables (case types, two sets of party variables, 10 sets of attorney variables, damage claim, 998 offers of compromise, forum, alleged wrong, insurance coverage, and pretrial ADR procedures). Variable definitions and coding methods are described below.

1. Awards

The award in each case is the net financial award made by the judge, jury, or arbitrator. If an award to the plaintiff includes court costs and attorney fees in addition to the base award, the additional amounts were included. Gross awards were recalculated as necessary to adjust for comparative negligence allocations, “high-low” agreements, workers’ compensation intervenor claims, and similar legally mandated adjustments. In cases where the defendant prevails (defense verdict), the award is classified as \$0 unless fees or costs are awarded to the defendant. In those fee or cost award cases, the net result is recorded; for example, an award of \$10,000 in attorney fees to a prevailing defendant is recorded as a –\$10,000 result.

In this article, the term “net award” refers to any net award in favor of the plaintiff; the term “win rate” refers to the incidence of plaintiff net awards. The term “defense verdict” includes any award in favor of the defendant and against the plaintiff; a defense verdict does not imply or necessitate an ancillary award of costs, fees, or monetary sanctions to the defendant.

2. Settlement Demands and Offers

The study records the last settlement offer made before the jury renders a verdict, the judge issues a decision, or the arbitrator serves an award. Defendant offers are recorded as \$0 when the *Verdict Search California* report states “none reported,” “none,” or “waiver of costs.”

Cases in which a precise monetary amount could not be ascertained (e.g., “\$100,000 offer with an indication of \$125,000,” “mid \$800,000,” or “\$50,000 plus reasonable attorneys fees”) were excluded from the study. If equitable relief was a component of the settlement negotiations (“\$10,000 plus return of the car”) or part of the award (“\$15,000 to plaintiff and defendant to forthwith return the car”), the case also was excluded.¹⁶

¹⁶About 4,600 cases were reported in *Verdict Search California* during the 38-month study period. Twenty-nine percent of those cases were excluded because they reported pretrial settlements and thus did not proceed to an adjudicated outcome (coded as “mediated settlement” or “settlement” in the case data questionnaire), and 26 percent were excluded because the amount of settlement demands or offers was omitted or disputed, nonmonetary relief was sought, the parties were not represented by counsel, the trial was bifurcated and only the liability outcome was reported, or the case did not otherwise meet the selection criteria described in Section III.A and Section III.B.

Although the term “settlement offer” is used interchangeably to describe settlement proposals by both plaintiffs and defendants, this article usually employs the term “demand” to readily distinguish the plaintiff’s offer (“demand”) from the defendant’s offer (“offer”).

3. Case Type

Cases are classified by the type or nature of the legal claim asserted: contract, employment, fraud, intentional tort (nonfraud), medical malpractice, personal injury, premises liability, eminent domain,¹⁷ product liability, negligence (nonpersonal injury), and other. These claims are tort, contract, and real property disputes; *Verdict Search California* does not report trials in other types of state court civil cases, for example, family law and probate matters.

Cross-complaints are treated as separate cases where the parties’ settlement positions can be distinguished between the complaint and the cross-complaint. Where multiple plaintiffs or defendants have severable settlement positions or case outcomes, those cases also are coded as separate cases or excluded due to insufficient allocation information.

4. Parties

Both plaintiff and defendant parties are classified into nine categories: corporation, business (unincorporated business or possibly incorporated entity not specifically identified in the case facts as a corporation), insurer, male individual, female individual, female/male individuals, public entity, trust, or “other” party type.

5. Attorneys

Plaintiff and defendant attorneys are identified and coded by gender; firm size (whether among the 50 largest law firms in California as ranked by *The Daily Journal* in 2003 or 2004 or *California Lawyer* in 2005); years of experience after admission to the State Bar of California; academic rank of law school from which he or she graduated (whether a graduate of the nation’s 20 best law schools as ranked by *U.S. News and World Report* in 2003, 2004, and

¹⁷The nominal positions of the parties in an eminent domain action (public entity as plaintiff and owner as defendant) are reversed in the data sets for consistency with their functional roles (owner seeks compensation from public entity) and eminent domain trial procedure (defendant owner assumes role of plaintiff in presenting its evidence first and commencing and concluding the argument). California Code of Civil Procedure § 1260.210(a).

2005); and diversity ranking of the law school from which he or she graduated (whether a graduate of the 20 law schools with the highest diversity index, as ranked by *U.S. News and World Report* in 2003, 2004, and 2005).¹⁸

The total number of attorneys included in the study database is 5,116, an estimated 17–21 percent of all California civil litigation attorneys.¹⁹

¹⁸California Top 50 Law Firms, Daily J. Extra, July 28, 2003, at 1–2; California Top 50 Law Firms, Daily J. Extra, July 26, 2004, at 14; Eric Cummins, *The California 50*, Cal. Law. (December 2005); Top 100 Law Schools, U.S. News & World Rep., retrieved Aug. 2, 2004, from (http://www.usnews.com/usnews/edu/grad/rankings/law/brief/lawrank_brief.php); Law School Diversity Index, U.S. News & World Rep., retrieved Aug. 2, 2004, from (http://www.usnews.com/usnews/edu/grad/rankings/law/brief/lawdiv_brief.php); Schools of Law, *The Top 100 Schools and Law School Diversity*, U.S. News and World Rep. 60–64 (2005). *Verdict Search California* reports only the name, firm, and location of the attorneys in each case. Data regarding other attorney characteristics, e.g., years of experience, law school, and law firm size, were obtained from membership records on the State Bar of California’s public website, Martindale.com, the *Martindale-Hubbell Law Directory*, *The Daily Journal’s California Directory of Attorneys*, and the websites of the subject law firms. In cases where more than two attorneys represent one party, only the first two listed attorneys are coded, except where multiple law firms represent a single party. In those multiple law firm conditions, the first attorney listed in the first two law firms is coded, to incorporate data from at least two different law firms representing that party. In public entity cases, however, the perfunctory listing of the county counsel in the first position is ignored and the next two listed attorneys from the county counsel’s office are coded.

¹⁹Some attorneys appear in more than one case in the database, although this is an infrequent occurrence. Thus, the total number of individual attorneys is slightly less than 5,116. Although the State Bar of California does not maintain records regarding the precise number of civil litigation attorneys in California, 16 percent of the attorneys responding to its February 2006 survey identified civil litigation as their primary area or field of practice. Forty-five percent of the surveyed attorneys indicated a “secondary area of legal practice,” and among that group 14 percent designated “civil litigation” as the secondary area. When asked what state bar section the members belonged to, only 7 percent of all surveyed members designated “litigation.” Hertz Research, *Final Report of Results, Member Services Survey, The State Bar of California—February 2006* 17 (2006). Another source, Martindale-Hubbell, indicates that litigation attorneys comprise about 20 percent of all California attorneys, based on the total number of attorneys and litigation attorneys obtained from Martindale.com in June 2006 for the 20 largest cities in California. Attorneys in the Martindale-Hubbell directory can list more than one practice area. Hence, the Martindale-Hubbell data include attorneys who practice litigation exclusively and attorneys for whom litigation may be a secondary practice area. For the purposes of this study, acknowledging the limited data available and the possibility that attorneys for whom litigation is a peripheral practice area do not often try cases to verdict, the estimated percentage of California litigation attorneys is 16–20 percent of the total 154,073 active members as of June 15, 2006. Thus, the total estimated number of California litigation attorneys is 24,652–30,814. Since the total number of attorneys included in the study database is 5,116, the study attorneys represent an estimated 17–21 percent of California civil litigation attorneys.

6. Nature of Damages

In classifying damages, the study applies the nomenclature of cognitive psychology and behavioral economics theories, attempting to test the applicability of those theories to litigants' behavior. Damages, accordingly, are classified as either "current" damages (injuries, damages, and pain and suffering already incurred or sustained, variously described in other studies as out-of-pocket damages, expenditures, positive outlays, actual losses or expenses, and reimbursements) or "future" damages (comparatively remote claims for prospective loss not yet paid or incurred, such as projected medical expenses, future lost earnings, profits, anticipated pain and suffering, and royalties, variously referred to as "forgone gains," "failure to make gains," "negative losses," "expected economic gains," and "expectation interests").²⁰ In addition, punitive damages are classified separately where specifically sought.

7. Nature of Alleged Wrong

The study further classifies the underlying factual basis for the damage claim as an omission, commission, or both, again employing cognitive psychology and behavioral economics nomenclature to test "omission/commission bias," that is, the tendency to judge acts of commission as more blameworthy than acts of omission even when they cause identical economic harm. A collapsed lung allegedly caused by an assault, for instance, is coded as an act of commission, while the same injury, allegedly caused by an inattentive driver overlooking a stop sign, is classified as an act of omission. The classification is based on the plaintiff's allegations; an allegation of negligence alone is coded as an omission, while allegations of reckless, intentional, and malicious conduct, for example, are coded as commissions.

8. Forum

The type of adjudicator is coded as judge, arbitrator, or jury.²¹

²⁰David Cohen & Jack L. Knetsch, *Judicial Choice and Disparities Between Measures of Economic Value*, in *Choices, Values, and Frames*, at 436–39 (Daniel Kahneman & Amos Tversky, eds., Press Syndicate of the University of Cambridge 2000).

²¹Gross and Syverud and Rachlinski limited their Verdict Search California data to jury verdicts. During the 10-year period after publication of their articles, the number of arbitration cases reported in Verdict Search California, as a percentage of all reported cases, has steadily

9. Section 998 Offers of Compromise

The study database records whether a party submitted a settlement demand or offer under California Code of Civil Procedure Section 998 (a “998 offer”). This statutory “offer of compromise” procedure, similar to Rule 68 of the Federal Rules of Civil Procedure, is intended to promote settlement by shifting certain costs onto a party who declines a 998 offer and fails to obtain a more favorable judgment at trial. The inclusion of this factor tests whether this cost-shifting sanction, as applied to these non-settling parties, promotes rational settlement positions or incites risk-taking negotiating behavior, as shown in Rachlinski’s study of a “loser pays” litigation system and some behavioral economics studies of incentives and penalties.

10. Insurance

The existence of a reported insurer is coded in the database.²²

11. Pretrial Dispute Resolution Procedures

The study database records whether a party reported participation in a pretrial alternative dispute resolution procedure, either nonbinding arbitration or mediation.²³

increased, doubling between 1997 and 2006. Conversely, the percentage of reported jury verdicts decreased from 82 percent to 51 percent during that period, reflecting an increased reporting of arbitrations and settlements. In an email to a co-author dated May 31, 2007, the editor of Verdict Search California confirmed that the reporting and verification procedures for jury verdicts, bench decisions, and arbitration awards are identical.

²²Attorneys may underreport insurance, as many Verdict Search California case reports omit the “Insurer(s)” section but indicate elsewhere that insurance existed. In the settlement demand part of the report, for instance, an attorney may report a “policy limits” demand but fail to report a carrier in the insurer section of the report. In cases where insurance is indicated but not explicitly reported in the insurer section, the existence of insurer was coded.

²³Parties’ participation in alternative dispute resolution procedures probably is underreported. Many case reports omit the “Arbitrator/Mediator” or “Neutral” section but indicate elsewhere that the parties participated in some form of ADR. The settlement demand part of the report, for instance, may state “\$26,000 (Arbitration Award)” but omit the “Neutral” section. In cases where ADR participation is indicated but not expressly reported in the “Arbitrator/Mediator” or “Neutral” section, the case is coded for ADR participation.

C. Definition—Decision Error

Both Rachlinski and Gross and Syverud regard as error a party's failure to achieve a more favorable result at trial than could have been achieved by accepting the adverse party's demand or offer. Under this definition, a party errs when the award is the *same as or worse than* the demand or offer it declined. As Gross and Syverud state: "Any plaintiff who was offered as much as the verdict or more, and any defendant who could have settled for as much as the verdict or less, has lost."²⁴

A "decision error," for purposes of this study, thus occurs when either a plaintiff or a defendant decides to reject an adversary's settlement offer, proceeds to trial, and finds that the result at trial is financially the same as or worse than the rejected settlement offer—the "oops" phenomenon. In absolute terms, the attorney and/or client made a decision error and the client sustained an unequivocal, quantifiable financial loss.²⁵ Decision error is strictly a mathematical calculation and does not signify or connote attorney negligence.

D. Methods

Having enumerated the variables that could affect decision making in settlement negotiations, we now identify the methodological approaches for understanding the most salient relationships in the *Verdict Search California* data. Decision error, our dependent variable, consists of three categories: plaintiff error, defendant error, and no error. Similarly, all our dependent variables are categorical; from the 19 classes of explanatory variables identified in the previous section (e.g., party or case type), we constructed 72 0/1 indicator variables (e.g., whether the plaintiff was a corporation or individual and whether the case type was a contract or medical malpractice dispute). We modeled the effect of these variables on decision error via multinomial logistic regression.

²⁴Gross & Syverud (1996), *supra*, at 41–42.

²⁵Parties, of course, may be motivated to litigate for reasons other than obtaining an optimal economic outcome. Gross and Syverud (1996), however, interviewed 735 attorneys in their data set and reported that "only three attorneys mentioned a desire for vindication as an explanation for why their case went to trial," and a "noneconomic motive" was highly infrequent." *Supra*, at 57.

As the number of explanatory variables is exceedingly large, we used a variety of techniques to determine which of the covariates were most pertinent for predicting decision error. For example, when we fit the model to the full set of covariates, a large number of the 146 coefficients²⁶ were not significant at any standard level. Deciding which of these variables to include in our model presented a challenge because, when conducting a large number of statistical tests, any standard level of statistical significance risks incorrectly rejecting several true null hypotheses of zero effect (i.e., the multiple comparisons problem). We attempted to obviate this problem in several separate (though related) ways. In general, our methods were both conservative and consistent in their results; thus, our goal—allowing the data to determine which covariates had the strongest statistical effect²⁷—was well-served by them.

The first method we used to reduce our predictor set was to simply use the individual coefficient *p* values, with a Bonferroni adjustment for multiple comparisons. The Bonferroni threshold is quite high, requiring a variable in our data set to have a *p* value of 0.00034 to remain in the model. Not surprisingly, very few variables achieved this level of statistical significance (the indicator for medical malpractice cases, forum, and the two 998 offer of compromise variables).

Second, rather than looking at *p* values for individual coefficients, we looked at the *p* values generated by log-likelihood tests on our 19 variable classes (see Appendix), again taking multiple comparisons into account. When we did this, five variable groups remained: plaintiff attorney gender, case type, nature of damages, forum, and the two 998 offer of compromise variables.²⁸ Thus, this second method identified variables that were very similar to those identified by our first method.

Finally, we looked at the model chosen by the well-known Bayesian information criterion (BIC). This criterion is noted for finding parsimonious models that are consistent and practically efficient. Essentially, the BIC

²⁶(3 decision error types – 1 base type) * (72 variables + 1 intercept) = 146 coefficients.

²⁷Had our goal been, for example, either prediction of decision error probability vector or the identification of all factors that influence decision error, we may have included more covariates. We commend these as fruitful areas for further research.

²⁸We do not consider plaintiff attorney gender in the remainder of the article because in both the full model and the reduced model containing only these five variable groups, none of the individual plaintiff attorney gender coefficients was statistically significant.

assigns a score to a model based on the quality of the fit along with a penalty for the number of variables used. Due to this penalty factor, the BIC can be robust to overfitting and avoid selection of spurious variables (as would be done if one ran the full model and took all variables with p values less than 0.05). Because there were 2^{73} (approximately 10^{22}) different possible models, we could not evaluate them all and choose the one with the best BIC. Instead, we used a procedure that evaluated models one by one until the BIC stopped improving; since roughly the same variables were selected when we provided the procedure with different starting points, we were satisfied that the key predictor variables were identified. We present one such model in Table 4 and note that it largely agrees with the results of the two other models mentioned above.

Because multinomial logistic regression coefficients can be difficult to interpret,²⁹ we use univariate and bivariate tables (in addition to the regression output table) to summarize the effects of indicator variables identified by the multivariate analysis as most significant. The advantage of this approach, beyond simplifying the explanation of the relationships, is that it also permits a presentation of the *cost* of error, not just the *kind* of error, precisely as described by Rachlinski in his work on this subject.

IV. STUDY RESULTS

The study results are summarized in this order: Section IV.A presents the aggregate study results, compares those results with prior studies, and

²⁹The multinomial logit model assumes that the conditional probability of a given class is of the form:

$$P(Y = j|X) = \frac{\exp(X\beta_j)}{\sum_{i=1}^J \exp(X\beta_i)}$$

where $j = 1, \dots, J$ where the vector b_1 is assumed to be zero without loss of generality in order to identify the model. The numbering of the categories is arbitrary and in our case we take “no error” to be Category 1, “plaintiff error” to be Category 2, and “defendant error” to be Category 3. This model specification implies that the log odds of plaintiff error (or defendant error) relative to the base category (no error) follows a linear function. That is, the regression coefficients can be interpreted in the ordinary way when applied to the log odds. Since all our covariates are categorical variables, the estimated coefficients show the change in the log odds on a case for which this variable is true compared to one for which it is false.

provides a historical context for those results; Section IV.B explains the multivariate analysis and discusses the effects of four key variables (offers to compromise, case type, forum, and nature of damages); and Section IV.C summarizes and compares the results from the attorney/mediator sample.

A. Decision Error and its Costs—General Overview

To facilitate comparisons with earlier works and to highlight the robustness of results across alternative formulations and samples, we have chosen to summarize our findings using the tabular framework adopted by Rachlinski (1996). It succinctly captures both the prevalence of decision error by plaintiffs and defendants and the magnitude of those errors. Multiplying those two aggregate measures—decision error (in percent) and mean cost of error—yields an estimate of the expected cost of each party's error.

1. Aggregate Results

As indicated in Table 1, the incidence of decision error for plaintiffs is higher than for defendants, but the cost of decision error is higher for defendants than for plaintiffs. In this sample of adjudicated cases, plaintiffs committed decision error, receiving an award less than or equal to the last offer made by the defendant, in 61.2 percent of the cases. By contrast, defendants committed decision error in 24.3 percent of the cases.³⁰ Nonetheless, there is a substantial difference in mean cost of error between plaintiffs and defendants (\$43,100 and \$1,140,000, respectively³¹). Given the relatively large discrepancy between the parties' mean cost of error, it is not surprising that the expected cost of error is greater for defendants by a factor of 10.

The findings from our sample are qualitatively similar to those of Rachlinski (1996). Some quantitative differences, however, are noteworthy. Though defendants' decision error did not change substantially (24.3 percent in our sample compared with 23.0 percent in Rachlinski's sample), plaintiffs' decision error rose from 56.1 percent to 61.2 percent, with a

³⁰Decision error rates are significantly different at the 0.01 level.

³¹Significantly different at the 0.01 level.

Table 1: Decision Error and Cost of Error—All Cases

<i>Error Type</i>	<i>Decision Error</i>			<i>Cost of Error</i>			
	<i># of Cases</i>	<i>% of Cases</i>	<i>Mean Award (\$1,000s)</i>	<i>Mean Demand (\$1,000s)</i>	<i>Mean Offer (\$1,000s)</i>	<i>Mean Cost of Error (\$1,000s)</i>	<i>Expected Cost of Error (\$1,000s)</i>
No error	296	14.5%	467.8	918.6	191.3	NA	NA
Plaintiff error	1250	61.2%	5.7	565.8	48.7	43.1	26.4
Defendant error	497	24.3%	1,910.9	770.9	222.4	1,140.0	277.3

corresponding decline in “no error” cases from 20.9 percent to 14.5 percent. The largest change was in defendants’ mean cost of error, with mean cost of error rising from \$354,900 to \$1,140,000 and expected cost of error rising from \$81,600 to \$277,300. Even after adjusting for inflation, there was a 78 percent rise in defendants’ mean cost of error and an 89 percent increase in defendants’ expected cost of error. Notwithstanding the increase in plaintiffs’ decision error, their mean cost of error after adjusting for inflation was lower in the 2003–2005 period relative to Rachlinski’s results in the 1981–1988 period. The declines in plaintiffs’ real mean cost of error and real expected cost of error were 14 percent and 5 percent, respectively.

Our sample findings also parallel the decision error rates compiled by Gross and Syverud (1996). The plaintiffs’ decision error rate of 61.2 percent in our study nearly replicates Gross and Syverud’s conclusion that “plaintiffs were clear losers in most of these trials, at least in economic terms—61% overall in 1985–86, 65% in 1990–91.”³² The defendants’ decision error rate of 24.3 percent in our study closely reflects the 25 percent and 26 percent defense error rates in Gross and Syverud’s 1985–1986 and 1990–1991 samples, respectively.

Defendants’ relatively high mean cost of error in our study (\$1,140,000 for defendants vs. \$43,100 for plaintiffs) is consistent with the “framing” effects discerned by both Gross and Syverud and Rachlinski. Gross and Syverud found that plaintiffs usually are more risk averse than defendants, and Rachlinski concluded that “plaintiffs behavior was, on balance, risk-averse,” while defendants’ behavior “can only be described as risk-seeking.”³³

³²Gross and Syverud (1996), *supra*, at 42.

³³Gross and Syverud (1991), *supra*, at 381; Rachlinski (1996), *supra*, at 159.

2. Historical Context

To provide a historical context for the overall findings, we abstracted from *Jury Verdicts Weekly* plaintiff demands, defendant offers, and awards for a 40-year period, at five-year intervals, from 1964 through 2004. All cases reported in the first quarter of each pertinent year were included if they met the selection criteria employed for cases in the primary study group. Though the samples are smaller—ranging from 159 cases to 366 cases per quarter—they provide insight into some trends over that 40-year period. The results are displayed in Table 2.

Despite some volatility over time, the incidence of decision error is greater at the end of the period than at the beginning. That is, the amount of “no error” drops from 27.2 percent and 25.2 percent in 1964 and 1969, respectively, to 17.5 percent and 14.0 percent for the years 1999 and 2004, respectively.

The cost of decision error is substantially greater at the end of the period.³⁴ Converting the nominal values in Table 2 to real values (in 1964 dollars) demonstrates the dramatic rise in the magnitude of the parties’ errors over time.

Table 3 provides a summary in which the values are clustered into groups of three years, reflecting the subperiods 1964–1974, 1979–1989, and 1994–2004. From the earliest period to the latest period, plaintiffs experienced nearly a three-fold real (i.e., inflation-adjusted) increase in cost of error (both mean cost and expected cost of error), whereas defendants experienced in excess of a 14-fold real increase in mean cost of error.³⁵

³⁴Civil discovery in California changed significantly during this period due to liberal interpretations of the Civil Discovery Act of 1957 and the enactment of the Civil Discovery Act of 1986. These changes were intended to encourage settlements, reveal the strengths and weaknesses of an adversary’s case, eliminate surprise, and generally end the “trial by ambush” era. See *Fairmont Ins. Co. v. Superior Court*, 22 Cal. 4th 253 n.2 (2000); *Greyhound Corp. v. Superior Court*, 56 Cal. 2d 355 (1961). Although those objectives may well have been achieved in the California cases that settle, the historical sample and the primary data set indicate that for nonsettling parties, the surprises are neither less frequent nor less costly.

³⁵From the earliest period, 1964–1974, to the latest period, 1994–2004, the real cost of error and real expected cost of error for both plaintiffs and defendants are significantly different at the 0.01 level. The *p* values for these tests and all others involving covariates were calculated using permutation tests. We preferred permutation tests due to the paucity of assumptions required to use them (e.g., no normality assumptions are required). Since many of our variables are highly skewed, such assumptions would likely be inappropriate.

Table 2: Decision Error and Cost of Error—Historical Samples

Year	Error Type	Decision Error			Cost of Error			
		# of Cases	% of Cases	Mean Award (\$1,000's)	Mean Demand (\$1,000's)	Mean Offer (\$1,000's)	Mean Cost of Error (\$1,000's)	Expected Cost of Error (\$1,000's)
1964	No error	50	27.2%	11.5	22.1	4.0	NA	NA
1964	Plaintiff error	99	53.8%	2.0	11.5	3.1	1.2	0.6
1964	Defendant error	35	19.0%	19.4	13.5	5.7	5.9	1.1
1969	No error	40	25.2%	26.2	35.4	15.6	NA	NA
1969	Plaintiff error	79	49.7%	3.0	21.6	4.8	1.8	0.9
1969	Defendant error	40	25.2%	62.2	34.9	9.9	27.3	6.9
1974	No error	48	14.7%	32.4	52.1	12.9	NA	NA
1974	Plaintiff error	214	65.4%	1.7	27.8	7.4	5.7	3.7
1974	Defendant error	65	19.9%	132.4	89.8	16.3	42.6	8.5
1979	No error	39	19.3%	20.5	51.8	9.8	NA	NA
1979	Plaintiff error	117	57.9%	1.8	79.2	8.4	6.6	3.8
1979	Defendant error	46	22.8%	132.7	65.0	23.0	67.7	15.4
1984	No error	25	11.3%	75.1	142.6	18.4	NA	NA
1984	Plaintiff error	138	62.4%	2.7	199.5	21.0	18.4	11.5
1984	Defendant error	58	26.2%	851.2	222.7	30.8	628.4	164.9
1989	No error	26	15.0%	878.7	1,552.8	165.8	NA	NA
1989	Plaintiff error	109	63.0%	4.6	296.0	43.0	38.4	24.2
1989	Defendant error	38	22.0%	1,006.7	460.2	79.3	546.5	120.0
1994	No error	20	10.2%	314.4	493.8	123.9	NA	NA
1994	Plaintiff error	133	67.9%	4.0	366.2	26.4	22.4	15.2
1994	Defendant error	43	21.9%	1,550.6	430.0	95.3	1,120.6	245.8
1999	No error	64	17.5%	219.0	454.6	43.1	NA	NA
1999	Plaintiff error	220	60.1%	34.2	668.3	79.9	45.7	27.4
1999	Defendant error	82	22.4%	2,798.7	539.0	146.6	2,259.8	506.3
2004	No error	25	14.0%	221.1	502.3	79.5	NA	NA
2004	Plaintiff error	117	65.7%	12.9	601.1	53.7	40.8	26.8
2004	Defendant error	36	20.2%	1,519.4	870.3	651.0	649.1	131.3

Table 3: Cost of Error in Constant 1964 Dollars

<i>Period Type of Error</i>	<i>Mean Cost of Error (\$1,000s)</i>	<i>Expected Cost of Error (\$1,000s)</i>
1964, 1969, 1974		
Plaintiff error	2.6	1.5
Defendant error	20.5	4.3
1979, 1984, 1989		
Plaintiff error	5.9	3.6
Defendant error	122.5	29.2
1994, 1999, 2004		
Plaintiff error	7.0	4.4
Defendant error	300.6	65.4

B. Decision Error and its Costs—Results from the Multivariate Analysis

Table 4³⁶ gives the estimated effect of a given variable on the log odds of plaintiff decision error (defendant decision error) relative to no decision error. Though we will not focus on it at length, there are a few points worth noting. Examination of individual *p* values is not appropriate since the model presented here was selected by searching over the model space; that said, the coefficients appear to be statistically significant. In addition, we note that the coefficients imply changes in the predicted probability of an outcome (i.e., plaintiff decision error, defendant decision error, or no error) that comport well with legal intuition. This can be seen by completing some simple numerical calculations to back out the implied probabilities from the log odds.

Before proceeding with the more illuminating univariate and bivariate tables, it is worthwhile to discuss the variables briefly. The predictor variables tend to fall into two types of categories that can be thought of as “actor” and “context” related. Actor variables describe the type of plaintiff or defendant (e.g., corporation, individual, unincorporated business entity) and the attorneys (e.g., gender, law firm size, law school ranking, experience). Context variables, on the other hand, are the conditions under which the actors—attorneys and parties—make settlement decisions, for example, whether 998 offers were served, the forum in which a case is being tried, the type of case,

³⁶This table is for the model selected by BIC. As mentioned in the text, the models selected by significance tests were largely similar so it would be redundant to present them all.

Table 4: Decision Error Multinomial Logistic Regression Results

<i>Variable: Effect on Party's DE</i>	<i>Value</i>	<i>s.e.</i>	<i>t Value</i>
Intercept: P	-0.538	0.341	-1.578
Intercept: D	-0.067	0.310	-0.215
P 998 offer: P	-0.503	0.175	-2.870
P 998 offer: D	1.091	0.183	5.956
D 998 offer: P	0.930	0.175	5.303
D 998 offer: D	-0.374	0.201	-1.856
Forum—bench: P	1.528	0.445	3.436
Forum—bench: D	0.574	0.417	1.376
Forum—jury: P	2.123	0.328	6.474
Forum—jury: D	0.276	0.292	0.945
Case type—med mal: P	1.932	0.323	5.974
Case type—med mal: D	0.733	0.351	2.088
Case Type—contract: P	-0.030	0.286	-0.105
Case Type—contract: D	0.922	0.293	3.151
Case type—personal injury: P	-0.752	0.157	-4.794
Case type—personal injury: D	-0.272	0.179	-1.522
Damages—punitive: P	-0.437	0.293	-1.494
Damages—punitive: D	0.458	0.304	1.503
Residual deviance: 3319.733 on 4,016 degrees of freedom			
Log-likelihood: -1659.867 on 4,016 degrees of freedom			

or the nature of alleged damages. Our final models selected only context variables, no actor variables having been selected by the statistical procedures previously described.

By far the most important variables were those indicating whether the plaintiff or the defendant had served 998 offers. All the variable selection methodologies identified these variables as very strong predictors. In addition, some of the case type variables were identified as being important. Particularly, medical malpractice cases, contract cases, and personal injury cases were important factors for predicting whether one of the parties made a decision error. Other variables that were useful for predicting the incidence of decision error were the types of damages alleged as well as the forum in which the case was resolved.

The results shown below in the tabular format are qualitatively quite similar to the regression results. We will focus on 998 offers and case type since they are the most interesting and dramatic, though we will also discuss the forum and nature of damages variables. In particular, the results on 998 offers will be compared to Rachlinski's results for "loser pays" legislation. Though loser pay schemes and 998 offers differ in structure, they are conceptually similar in imposing financial penalties dependent on the case

outcome. In addition, the results on type of case will be compared to the case type analysis performed by Gross and Syverud. However, as we will indicate, one must be careful comparing the results by case type because case coding methods are not identical and this study includes bench trials and arbitration awards, while prior studies were limited to jury trials.

1. Effects of 998 Offers

California Code of Civil Procedure Section 998 is a statutory cost-shifting mechanism designed to encourage settlement and penalize unreasonable settlement positions. Any party can serve a written “998 offer” on the other party while a case is pending, up to 10 days before trial commences.³⁷ A party who does not accept an adverse party’s 998 offer and obtains a worse result at trial may be liable for the adverse party’s court costs, expert witness fees, and, in personal injury cases, interest from the date of the offer. “The purpose of section 998,” the court held in *Taing v. Johnson Scaffolding Co.*,³⁸ “is to encourage the settlement of lawsuits before trial by penalizing a party who fails to accept a reasonable offer from the other party.”³⁹

The multivariate analysis indicated the importance of 998 offers in explaining decision error for both parties. The results of the four possible 998 conditions (no 998 offer, plaintiff only 998 offer, defendant only 998 offer, and dual plaintiff/defendant 998 offers) are shown in the following four related tables. Table 5, Panel 5a summarizes the results for those cases in which no 998 offers were served. Representing 1,196 cases, or 59 percent of the entire sample, this panel indicates that the incidence of decision error by both plaintiffs and defendants in the “no 998 offer” condition is not substantially different from the overall study results presented in Table 1.

We compare the results for those cases in which one or both parties submitted a 998 offer with the “no 998 offers” in Table 5, Panel 5a. There were 847 cases (41 percent of the sample) in which one or both parties

³⁷The “offer of compromise” under Section 998 must expressly refer to the statute or otherwise notify the offeree that costs otherwise allowed to a prevailing party may be reduced or augmented if the offer is not accepted. See *Stell v. Jay Hales Dev. Co.*, 11 Cal. App. 4th 1214, 1231, 1232 (1992). An oral offer purportedly made under Section 998, even if placed on the record during a deposition, does not satisfy the statutory requirements. *Saba v. Crater*, 62 Cal. App. 4th 150, 153 (1998).

³⁸9 Cal. App. 4th 579, 583 (1992).

³⁹*Taing* was distinguished in *Bihun v. AT&T Info. Sys.*, 13 Cal. App. 4th 976 (1993).

Table 5: Decision Error and Cost of Error—The Effects of 998 Offers

<i>Error Type</i>	<i>Decision Error</i>		<i>Cost of Error</i>				
	<i># of Cases</i>	<i>% of Cases</i>	<i>Mean Award (\$1,000s)</i>	<i>Mean Demand (\$1,000s)</i>	<i>Mean Offer (\$1,000s)</i>	<i>Mean Cost of Error (\$1,000s)</i>	<i>Expected Cost of Error (\$1,000s)</i>
Panel 5a: No 998 Offers							
No error	195	16.3%	573.8	1,173.8	249.4	NA	NA
Plaintiff error	733	61.3%	8.6	647.2	53.3	44.7	27.4
Defendant error	268	22.4%	2,115.1	815.7	174.5	1,299.4	291.2
Panel 5b: 998 Offers by Plaintiffs Only							
No error	34	12.5%	246.2	457.5	67.7	NA	NA
Plaintiff error	112	41.2%	15.9	450.7	35.1	19.2	7.9
Defendant error	126	46.3%	2,358.1	988.0	400.3	1,370.1	634.7
Panel 5c: 998 Offers by Defendants Only							
No error	29	10.2%	265.5	407.4	108.6	NA	NA
Plaintiff error	236	83.1%	(0.3)	562.2	39.2	39.5	32.8
Defendant error	19	6.7%	2,192.5	1,088.7	437.3	1,103.9	73.9
Panel 5d: 998 Offers by Both Plaintiffs and Defendants							
No error	38	13.1%	276.2	411.5	66.8	NA	NA
Plaintiff error	169	58.1%	(5.5)	294.4	51.4	57.0	33.1
Defendant error	84	28.9%	525.1	230.6	59.5	294.5	85.0

served 998 offers: 272 by plaintiffs only, 284 by defendants only, and 291 by both parties. The results for those subsamples are contained in Panels 5b, 5c, and 5d, respectively. Jointly, the table supports the notion that, other things being equal (or at the margin), serving a 998 offer reduces both decision error and mean cost of error for the serving party, though it increases decision errors and expected cost of error for the recipient party. Interestingly, total decision error always increases in the presence of a 998 offer (i.e., “no error” is always a lower percent when 998 offers are served). This is due to the fact that the reduction in the serving party’s decision error is more than offset by the rise in the recipient party’s decision error. The effect on overall cost of error depends on who is serving and receiving the 998 offer—this owing to the fact that the magnitudes of change in cost of error for defendants are substantial both when making and receiving 998 offers, and relatively more so when receiving a 998 offer.

As is evident from Table 5, Panel 5b, a plaintiff 998 offer reduces both decision error and cost of error for plaintiffs, but raises both types of errors for defendants (i.e., more risk-taking behavior by defendants).⁴⁰ Similarly, Panel 5c demonstrates that a defendant 998 offer reduces both decision error and cost of error for the defendant. The presence of a defendant 998 offer, however, sharply increases plaintiffs’ decision error rates. Although there is a slight reduction in plaintiffs’ mean cost of error when defendants serve a 998 offer, the expected cost of error rises because of the much higher degree of plaintiff decision error (i.e., a somewhat lower mean multiplied by a much higher decision error percentage).⁴¹

When both parties serve 998 offers, theory cannot predict the final result; the result is an empirical issue. Table 5, Panel 5d provides the results for the dual 998 offer condition. For plaintiffs in the dual 998 offer condi-

⁴⁰Except for defendant mean cost of error (\$1,299,400 vs. \$1,370,100), all differences are statistically significant. That is, the reduction in decision error in cases where the plaintiffs made 998 offers relative to those cases in which no 998 offers were made (41.2 percent vs. 61.3 percent), and the rise in decision error among defendants in those same cases (46.3 percent vs. 22.4 percent) are both significant at the 0.01 level. The reductions in plaintiffs’ mean cost of error and expected mean cost of error (\$44,700 vs. \$19,200 and \$27,400 v. \$7,900) as well as the rise in defendants’ expected cost of error (\$291,200 vs. \$634,700) are all significant at the 0.02 level or lower.

⁴¹The reduction in defendants’ decision error (6.7 percent vs. 22.4 percent) as well as the rise in plaintiffs’ decision error (83.1 percent vs. 61.3 percent) are significant at the 0.01 level. However, other than the value of defendants’ expected cost of error, the differences in other values of mean cost and expected mean cost are not significant at the 0.05 level.

tion, there is a slight reduction in decision error compared with the “no 998 offer” condition (58.1 percent vs. 61.3 percent) and a slight increase in the mean cost of error (\$57,000 vs. \$44,700) and expected cost of error (\$33,100 vs. \$27,400). For defendants in the dual 998 offer condition, there is an increase in the defendants’ decision error compared with the “no 998 offer” condition (28.9 percent vs. 22.4 percent) and a more substantial decrease in the mean cost of error (\$294,500 vs. \$1,299,400) and expected cost of error (\$85,000 vs. \$291,200).⁴²

The purpose of 998 offers is to encourage settlements by imposing financial penalties on parties who take unreasonable settlement positions. Cost-shifting statutory schemes like the 998 offer to compromise and its federal counterpart, Rule 68, however, may actually induce risk taking by the parties and may provoke the gambling mentality they are intended to curb. Rachlinski’s study of “loser pays” systems, enacted to deter meritless lawsuits and increase settlements, found that “by raising the stakes at trial, the loser-pays system makes litigation itself more valuable and can discourage settlement.”⁴³ In this study, the 998 offer procedure may produce that unintended consequence as well. (This observation, of course, is limited to this study of adjudicated cases; 998 offers may be effective in inducing reasonable conduct in settled cases.) Higher decision error rates in this study were correlated with the receipt of a 998 offer; this raises the question of whether the 998 statutory scheme actually heightens risk-seeking behavior by the recipient party, contrary to the legislative intent.⁴⁴

⁴²None of the differences for plaintiffs (decision error, mean cost of error, or expected mean cost of error) is significant at the 0.05 level, though all the differences for defendants are significant at the 0.05 level.

⁴³Rachlinski, *supra*, at 161.

⁴⁴The reduction in the “no decision error” rate (i.e., the increase in overall decision error) in the presence of defendant offers relative to no 998 offers (10.2 percent vs. 16.3 percent) is significant at the 0.01 level. Though the changes in “no decision error” rates under plaintiff 998 offers (12.5 percent vs. 16.3 percent) and joint 998 offers (13.1 percent vs. 16.3 percent) are not statistically significant at the 0.05 level (with a two-sided test), they are lower rather than higher, meaning that the point estimates indicate greater decision error rather than reduced decision error as intended by the legislature (a one-sided test would imply a *p* value of zero for all three comparisons).

One may argue that a 998 offer does not cause the risk-taking behavior but, rather, is propounded to curb or penalize extreme settlement positions after an adverse party has manifested unreasonable settlement behavior. Under this argument, a 998 offer may be a reaction to, not a cause of, an adverse party's risk-taking behavior. The weakness in this argument is that it overlooks the underlying intent of the 998 statutory procedure: to promote reasonable settlement behavior by imposing a financial penalty on unreasonable settlement positions, whether the recipient party is a reckless or a rational decision maker. Although 998 offers may have a salutary effect on those cases that settle, in this sample of adjudicated cases the service of a 998 offer was correlated with significantly higher decision error by the recipient party.

2. Effects of Case Type

Under the Priest and Klein "fifty percent implication," one expects win rates and decision error rates to be balanced between the parties and unaffected by the case type. Plaintiffs would win 50 percent of their cases, regardless of case types and, with respect to decision error, plaintiffs and defendants would be "equally successful at predicting the outcomes of the cases."⁴⁵ Priest and Klein note that "the most important assumption of the model is that potential litigants form rational estimates of the likely decision, whether it is based on applicable legal precedent or judicial or jury bias."⁴⁶ Their 50 percent implication further assumes that litigation costs are relatively high compared to settlement costs, the application of legal standards is predictable, both parties can predict outcomes with "equal precision," and the stakes are "symmetrical" to the parties, that is, gains and losses from litigation "are equal to both parties."⁴⁷ The assumptions and predictive capacity of the Priest and Klein model, however, are challenged by the study data showing that both win rates and error rates vary widely with different types of cases, as shown in Tables 6 and 7.

⁴⁵Gross and Syverud, *supra*, at 325.

⁴⁶Priest & Klein (1984), *supra*, at 4.

⁴⁷Priest & Klein (1984), *supra*, at 5, 12, 14, 19, 20, 24.

Table 6: Win Rates, Mean Awards, and Mean Offers by Type of Case

<i>Case Type</i>	<i>Win Rate</i>	<i># of Cases</i>	<i>Mean Award (\$1,000s)</i>	<i>Mean Demand (\$1,000s)</i>	<i>Mean Offer (\$1,000s)</i>
Eminent domain	100.0%	12	5,231.35	5,249.75	3,588.78
Contract	62.6%	174	1,356.15	1,323.05	98.41
Fraud	61.4%	57	2,731.81	1,473.90	132.04
Personal injury	60.9%	834	345.60	368.45	101.64
Employment	51.1%	139	703.74	900.48	86.88
Other	42.9%	28	275.86	807.57	65.64
Negligence (non-PI)	42.6%	94	823.84	1,072.11	93.23
Premises liability	36.9%	268	627.77	742.83	134.06
Intentional tort	35.2%	179	315.35	737.16	50.65
Products liability	30.2%	53	494.69	1,174.06	131.90
Medical malpractice	19.5%	364	234.80	505.68	31.28

In general, high plaintiff error rates are associated with cases in which contingency fee arrangements are common, for example, personal injury (53 percent error rate) and medical malpractice (81 percent error rate), while low error rates are associated with cases in which contingency fee arrangements are uncommon, for example, contracts (44 percent error rate) and eminent domain (42 percent error rate).⁴⁸ On the defense side, high error rates are noted in cases where insurance coverage is generally unavailable, for example, contracts (44 percent) and fraud (40 percent), while low error rates are associated with cases in which insurers are more likely to represent defendants, for example, premises liability (17.5 percent error rate) and personal injury (26.3 percent error rate).

⁴⁸The higher error rates attendant to plaintiff contingency fee cases may reflect optimistic overconfidence. In one study, lawyers retained on a contingency basis showed the same level of confidence about case outcomes as other lawyers, although the contingency basis attorneys won only 42 percent of their cases compared with an overall 56 percent win rate. In general, that study found that lawyers' predictions regarding whether they would win their case "showed no predictive validity" and were "hardly above chance." They exhibited a marked "overextremity bias (underprediction of success for low probabilities and overprediction of success for high probabilities)." J. Goodman-Delahunty, P.A. Granhag & E.F. Loftus, *How Well Can Lawyers Predict Their Chances of Success?* Unpublished manuscript (University of Washington 1998), cited in Derek J. Koehler, Lyle Brenner & Dale Griffin, *The Calibration of Expert Judgment: Heuristics and Biases Beyond the Laboratory*, in *Heuristics and Biases: The Psychology of Intuitive Judgment* 705, 706 (Thomas Gilovich, Dale Griffin & Daniel Kahneman, eds., Press Syndicate of the University of Cambridge 2002). For other results regarding attorneys' predictive capabilities, see Elizabeth F. Loftus & Willem A. Wagenaar, *Lawyers' Predictions of Success*, 28 *Jurimetrics* 437 (1988).

Table 7: Decision Error and Cost of Error—By Case Type

Case Type	Error Type	Decision Error		Cost of Error				
		# of Cases	% of Cases	Mean Award (\$1,000s)	Mean Demand (\$1,000s)	Mean Offer (\$1,000s)	Mean Cost of Error (\$1,000s)	Expected Cost of Error (\$1,000s)
Eminent domain	No error	3	25.0%	14,946.7	15,087.3	9,806.0	NA	NA
	Plaintiff error	5	41.7%	1,138.4	1,517.0	1,210.5	72.1	30.0
	Defendant error	4	33.3%	3,061.1	2,537.5	1,898.8	523.6	174.5
Contract	No error	20	11.5%	1,022.1	2,138.9	60.1	NA	NA
	Plaintiff error	77	44.3%	(58.3)	1,105.5	86.6	144.9	64.1
	Defendant error	77	44.3%	2,857.3	1,328.6	120.1	1,528.7	676.5
Fraud	No error	7	12.3%	329.9	501.4	68.1	NA	NA
	Plaintiff error	27	47.4%	(14.5)	766.3	119.9	134.4	63.7
	Defendant error	23	40.4%	6,686.8	2,600.6	165.8	4,086.2	1,648.8
Personal injury	No error	171	20.5%	167.6	326.3	67.7	NA	NA
	Plaintiff error	444	53.2%	13.8	302.3	46.0	32.2	17.2
	Defendant error	219	26.3%	1,157.4	535.4	240.9	622.0	163.3
Employment	No error	23	16.5%	499.3	1,744.9	207.0	NA	NA
	Plaintiff error	71	51.1%	(1.3)	878.9	63.4	64.8	33.1
	Defendant error	45	32.4%	1,920.7	503.0	62.5	1,417.7	459.0
Other	No error	2	7.1%	91.0	137.5	17.4	NA	NA
	Plaintiff error	18	64.3%	1.9	978.4	31.6	29.6	19.0
	Defendant error	8	28.6%	938.4	590.7	154.4	347.7	99.3
Negligence (non-PI)	No error	14	14.9%	1,537.8	2,184.6	114.2	NA	NA
	Plaintiff error	62	66.0%	(7.2)	686.8	74.9	82.1	54.2
	Defendant error	18	19.1%	3,131.1	1,534.1	140.1	1,597.0	305.8
Premises liability	No error	37	13.8%	333.9	1,202.1	175.3	NA	NA
	Plaintiff error	184	68.7%	3.0	603.4	49.1	46.1	31.7
	Defendant error	47	17.5%	3,305.0	927.0	434.0	2,378.0	417.0
Intentional tort	No error	17	9.5%	274.7	1,375.9	28.6	NA	NA
	Plaintiff error	124	69.3%	(6.1)	715.2	37.4	43.4	30.1
	Defendant error	38	21.2%	1,382.4	522.9	103.9	859.4	182.4
Products liability	No error	6	11.3%	959.8	1,158.3	51.0	NA	NA
	Plaintiff error	38	71.7%	(8.1)	1,222.4	64.5	72.6	52.0
	Defendant error	9	17.0%	2,307.7	980.3	470.6	1,327.3	225.4
Medical malpractice	No error	15	4.1%	329.5	448.9	88.0	NA	NA
	Plaintiff error	294	80.8%	(0.6)	513.1	14.6	15.2	12.3
	Defendant error	55	15.1%	1,467.6	481.4	105.2	986.2	149.0

In general, an inverse relationship exists between plaintiff decision error rates and win rates. Plaintiff decision error is lowest in cases with high win rates and highest in cases with low win rates. Contract cases, for instance, have a 44.3 percent decision error rate and a 62.6 percent win rate, while medical malpractice cases have an 80.8 percent plaintiff decision error rate and a 19.5 percent win rate. For defendants, the pattern generally is reversed; high decision error rates are evident in high win rate cases.

The decision error rates, when classified by identical case types, appear to be roughly consistent with Gross and Syverud's data for 1985–1986 and 1990–1991 cases. In Gross and Syverud's study, for instance, plaintiffs in medical malpractice cases were "clear losers" in 71 percent and 78 percent, respectively, of the cases, compared with a 80.8 percent decision error rate in our study. Defendants' decision error rate in Gross and Syverud's study was 17 percent and 16 percent, respectively, compared with 15.1 percent in our study. The results in products liability cases are more disparate, but reflect similar qualitative differences between plaintiff and defendant decision error. Gross and Syverud's data show plaintiffs in products liability cases either recovered nothing or less than the defendants' offer in 64 percent and 61 percent of the cases, compared to plaintiffs' decision error rate of 68.7 percent in our study. Defendants, on the other hand, committed decision error in 25 percent and 32 percent of the Gross and Syverud cases, contrasted with 17 percent in our study.

3. Effects of Forum

The forum variables are jury trials, bench trials, and arbitration. Under the Priest and Klein model, one would expect decision error rates to be balanced between the parties regardless of the forum; the forum itself would not appear to affect the hypothesis or its premises. The multivariate analysis, however, indicates that forum affects decision error rates. The effect of forum on decision error rates and cost of error is presented in Table 8.

Most cases (90 percent) were tried to juries, while the remaining cases were divided about evenly between bench trials and arbitrations. Due to the prevalence of jury trials, the outcomes for jury trials are similar to the overall results presented in Table 1.

Both plaintiffs and defendants displayed remarkably different decision error rates in different forums. Defendants committed substantially less decision error in jury trials relative to bench trials (22.1 percent vs. 42.6

Table 8: Decision Error and Cost of Error—By Forum

Error Type	Decision Error		Mean Award (\$1,000s)	Mean Demand (\$1,000s)	Mean Offer (\$1,000s)	Cost of Error	
	# of Cases	% of Cases				Mean Cost of Error (\$1,000s)	Expected Cost of Error (\$1,000s)
Panel 8a: Arbitration							
No error	25	25.8%	249.4	424.0	66.3	NA	NA
Plaintiff error	28	28.9%	(1.1)	1,099.5	5.6	6.7	1.9
Defendant error	44	45.4%	748.8	359.8	71.1	389.0	176.4
Panel 8b: Bench Trials							
No error	16	14.8%	199.2	513.4	30.3	NA	NA
Plaintiff error	46	42.6%	(7.4)	287.8	16.2	23.6	10.1
Defendant error	46	42.6%	2,427.9	1,302.5	519.0	1,125.3	479.3
Panel 8c: Jury Trials							
No error	255	13.9%	506.0	992.5	213.7	NA	NA
Plaintiff error	1176	64.0%	6.3	564.0	51.0	44.7	28.6
Defendant error	407	22.1%	1,978.1	755.3	205.2	1,222.8	270.8

percent). By contrast, plaintiff decision error was considerably higher in jury trials relative to bench trials (64.0 percent vs. 42.6 percent).⁴⁹

In arbitration cases, decision error rates for both plaintiffs and defendants differed substantially from their rates in jury cases. Defendants' decision error rate (45.4 percent) was similar to their error rate in bench trials (42.6 percent) but considerably more than in jury trials (22.1 percent).⁵⁰ Plaintiffs' decision error in arbitration cases (28.9 percent) was notably lower than in either bench trials (42.6 percent) or jury trials (64.0 percent).⁵¹ The total amount of decision error, moreover, is much lower in arbitration than in either bench or jury trials, with "no error" being 25.8 percent in arbitration relative to 14.8 percent in bench trials and 13.9 percent in jury trials.⁵²

4. Effects of Damages Claim

Damages are characterized in the database as (1) "current" damages, representing injuries and damages already sustained, (2) "future" damages, representing prospective losses not yet paid or sustained, and (3) punitive or exemplary damages. A plaintiff in a personal injury suit against an intoxi-

⁴⁹Both differences in decision error rates are significant at the 0.01 level. Defendants' mean cost of error was roughly the same in jury and bench trials, and while the expected cost of error was estimated to be much lower in jury trials than bench trials (due to the drop in decision error for jury trials), the difference is not significant at the 0.05 level. Though the difference in plaintiffs' mean cost of error between jury and bench trials (\$44,700 vs. \$23,600) is not significant at the 0.05 level, the difference in the expected cost of error between them is significant at the 0.01 level (\$28,600 in jury trials vs. \$10,100 in bench trials).

⁵⁰Defendants' decision error rate of 45.4 percent in arbitration cases was significantly different from their 22.1 percent decision error rate in jury trials (at the 0.01 level), while not being significantly different from the decision error rate of 42.6 percent in bench trials (even at the 0.05 level). Though defendants' estimated mean cost of error (\$389,000) in arbitration cases was substantially less than in either bench trials (\$1,125,300) or jury trials (\$1,222,800), neither difference is significant at the 0.05 level. Defendants' expected cost of error was also smallest in cases decided by arbitrators.

⁵¹Plaintiffs' decision error rate of 28.9 percent in arbitration cases was significantly different from their 42.6 percent decision error rate in jury trials (at the 0.05 level) and from their decision error rate of 64.0 percent in bench trials (at the 0.01 level). Though neither the difference between plaintiffs' mean cost of error in arbitration versus bench trials (\$6,700 vs. \$23,600) nor their expected cost of error in those forums (\$1,900 vs. \$10,100) was significant at the 0.05 level, the differences between arbitration and jury trials were significant at the 0.01 level (\$6,700 vs. \$44,700 for mean cost of error and \$1,900 vs. \$28,600 for expected cost).

⁵²"No decision error" of 25.8 percent in arbitration cases is significantly different at the 0.01 level from "no decision error" in both bench trials (14.8 percent) and jury trials (13.9 percent).

cated driver, for example, may seek compensation for medical expenses already incurred and pain and suffering previously suffered (current damages); the cost of future surgery anticipated by her physician and prospective pain and suffering (future damages); and punitive damages based on the defendant's reckless behavior while driving intoxicated. The damages code is based on plaintiffs' damages *allegations*, not the type of damages ultimately recovered by plaintiffs. Awards generally are not sufficiently allocated by *Verdict Search California* and the adjudicator to consistently determine the type of damages ultimately awarded.

Behavioral economics theory posits that a party is more likely to recover actual losses already sustained ("current" damages) than lost future profits or other relatively remote damages ("future" damages), even when a party is entitled to recover both types of damages.⁵³ In a breach of contract action against a contractor who abandoned a house construction project, for example, the plaintiff is more likely to recover its advance payment to the contractor than the rental income lost between the original contract completion date and the actual completion date.⁵⁴ Although a nonbreaching party is entitled to "the amount which will compensate the party aggrieved for all the detriment proximately caused thereby," that is, the equivalent of the benefits of contract performance,⁵⁵ studies show that jurors and judges are reluctant to award both damages actually incurred and damages yet to be sustained.⁵⁶

The study does not appear to substantiate the existence of a cognitive distinction between "current" damages awards and "future" damages awards. As indicated in Table 9, plaintiffs seeking only future damages fared poorly, recovering a net award in only 32.4 percent of the cases. Plaintiffs alleging only current damages prevailed in 45.2 percent of their cases. Plaintiffs seeking both current and future damages recovered a net reward in 47.9 percent of the cases. Although cases alleging current damages claims are associated with higher win rates, the differences between those win rates and

⁵³See Jonathan Baron, *Thinking and Deciding* 409–31 (Cambridge University Press 2000).

⁵⁴Facts based on *Henderson v. Oakes-Waterman Builders*, 44 Cal. App. 2d 615 (1941), reversing trial court's determination of damages and holding owner was entitled to recover advance payment, cost of demolition and reconstruction, and loss of rental value.

⁵⁵California Civil Code § 3300.

⁵⁶David Cohen & Jack L. Knetsch, *Judicial Choice and Disparities Between Measures of Economic Value*, in *Choices, Values and Frames*, supra, 436–39.

Table 9: Win Rates by Nature of Damages

<i>Damages Claim</i>	<i>Win Rate</i>	<i># of Cases</i>
Current only	45.2%	936
Current and punitive damages	56.3%	71
Future only	32.4%	34
Current and future	47.9%	838
Current, future, and punitive damages	71.2%	52

NOTE: Not shown are cases for which it was not possible to identify the nature of the claim (108 cases), and for which a claim for punitive damages was combined with a future damages claim (only four cases).

the win rate for cases alleging only future damages are not statistically significant at the 0.05 level.

Table 10 demonstrates the effects of the damages claim on the parties’ decision errors. Compared to cases with only current damages claims (Panel 10a), those with only future damages claims (Panel 10c) exhibited greater decision error and cost of error by both parties. However, the number of cases with only future damages claims was small (34 cases, with defendant decision error in only eight cases). Another way to identify differences is to compare cases with both current and future claims (Panel 10d) with cases having only current claims. The extent of defendant decision error in cases alleging both current and future claims is somewhat greater than in cases with only current claims (26.4 percent vs. 20.4 percent).⁵⁷ Plaintiffs’ decision error was somewhat lower in cases with both current and future damage claims relative to current claims alone (59.4 percent vs. 64.0 percent), but plaintiffs showed higher mean cost of error and expected cost of error in cases alleging both current and future damages.⁵⁸

Decision error rates were significantly affected by the presence of a punitive damages claim. Defendant decision error in cases with punitive damages claims rose from 20.4 percent in current damages only claims to 36.6 percent in current and punitive damages cases, and from 26.4 percent

⁵⁷The difference was significant at the 0.01 level. Defendants’ mean cost of error was substantially greater in those cases that also had future claims (\$1,641,500 vs. \$336,000), as was their expected cost of error (\$432,900 vs. \$68,600), with both differences being significant at the 0.01 level.

⁵⁸Though relatively modest in degree, the difference in decision error rates is significant at the 0.01 level. Plaintiffs’ mean cost of error was substantially greater in those cases that also had future claims (\$66,000 vs. \$23,900), as was their expected cost of error (\$39,200 vs. \$15,300), with both differences being significant at the 0.01 level.

Table 10: Decision Error and Cost of Error—By Nature of Damages

Error Type	Decision Error		Cost of Error				
	# of Cases	% of Cases	Mean Award (\$1,000s)	Mean Demand (\$1,000s)	Mean Offer (\$1,000s)	Mean Cost of Error (\$1,000s)	Expected Cost of Error (\$1,000s)
Panel 10a: Current Claim Only							
No error	146	15.6%	542.9	734.5	252.4	NA	NA
Plaintiff error	599	64.0%	10.8	370.8	34.8	23.9	15.3
Defendant error	191	20.4%	727.5	391.5	109.4	336.0	68.6
Panel 10b: Current and Punitive Damages Claim							
No error	9	12.7%	336.9	637.8	111.1	NA	NA
Plaintiff error	36	50.7%	0.3	610.3	38.1	37.8	19.2
Defendant error	26	36.6%	1,373.0	454.1	76.8	918.9	336.5
Panel 10c: Future Claim Only							
No error	3	8.8%	1,468.7	5,293.3	333.3	NA	NA
Plaintiff error	23	67.6%	(18.2)	1,999.2	38.6	56.9	38.5
Defendant error	8	23.5%	7,788.1	4,870.0	879.4	2,918.1	686.6
Panel 10d: Current and Future Claim							
No error	119	14.2%	381.9	1,005.1	139.4	NA	NA
Plaintiff error	498	59.4%	2.2	741.1	68.2	66.0	39.2
Defendant error	221	26.4%	2,626.1	984.6	344.2	1,641.5	432.9
Panel 10e: Current, Future, and Punitive Damages Claim							
No error	9	17.3%	279.1	580.0	87.8	NA	NA
Plaintiff error	19	36.5%	3.3	643.8	91.6	88.3	32.3
Defendant error	24	46.2%	4,761.3	1,268.2	115.4	3,493.1	1,612.2

NOTE: Not shown are cases for which it was not possible to identify the nature of the claim (108 cases), and for which a claim for punitive damages was combined with a future damages claim (only four cases).

in current and future damages claims to 46.2 percent in current, future, and punitive damages claims.⁵⁹ By contrast, plaintiffs' decision error was lower in cases alleging punitive damages. When a punitive damages claim was joined with a current damages claim, plaintiffs' decision error decreased from 64 percent (current damages only) to 50.7 percent (current and punitive damages). In cases where a punitive damages claim was joined with a current and future damages claim, decision error decreased from 59.4 percent (current and future damages only) to 36.5 percent (current, future, and punitive damages).⁶⁰

The substantially higher defendant error rates in punitive damage claims may be attributable to the difficulty of predicting the amount of punitive damage awards and the defendants' inadequate evaluative adjustments for non-paradigmatic claims. Experimental studies show that individual differences in punitive damage awards "produce severe unpredictability and highly erratic outcomes"; study participants show strong agreement in finding punitive intent, but "there is no consensus about how much in the way of dollars is necessary to produce appropriate suffering in a defendant."⁶¹ (That punitive damages awards are unpredictable is challenged by Theodore Eisenberg's recent empirical study, finding, *inter alia*, "minimal, though observable, variation in the dispersion of the punitive and compensatory damage ratio over the years [1992–2001] and between trial modes."⁶²)

⁵⁹Both defendant decision error rate differences are significant at the 0.01 level. Though defendants' cost of error also substantially increased in cases with punitive damages claims—with mean cost of error rising from \$336,000 (current damages only) to \$918,900 (current and punitive damages) and from \$1,641,500 (current and future damages only) to \$3,493,100 (current, future, and punitive damages claims)—these differences are not significant at the 0.05 level. There were similar dramatic differences in defendants' expected cost of error: \$68,600 vs. \$336,500 (current vs. current and punitive damages) and \$432,900 vs. \$1,612,200 (current and future vs. current, future, and punitive damages), with the first not being significant at the 0.05 level but the second being significant at the 0.01 level.

⁶⁰Both plaintiff decision error rate differences are significant (at the 0.05 and 0.01 levels, respectively). None of the differences in mean cost or expected cost of error values in cases with punitive damages cases were significantly different at the 0.05 level from their counterpart cases lacking punitive damages claims.

⁶¹Cass Sunstein et al., *Assessing Punitive Damages (With Notes on Cognition and Valuation in Law)*, in Sunstein, *supra*, at 232, 240.

⁶²Theodore Eisenberg et al., *Juries, Judges, and Punitive Damages: Empirical Analysis Using the Civil Justice Survey of State Courts 1992, 1996, and 2001*, 3 *J. Empirical Legal Studies* 276 (2006).

Whether the amount of punitive damages is predictable or unpredictable, the defendants in our study displayed seriously diminished predictive capacity in punitive damage claims. The defendants' relatively poor outcomes suggest that they either ignore the non-paradigmatic variable (punitive damage claim) or erroneously draw problem-solving analogies between the unexceptional cases (no punitive damage claim) and the exceptional case (punitive damage claims). The risk of this type of decision-making error ("negative problem solving transfer") is high when cases appear superficially similar: surface similarity in story line, causes, context, and phrasing frequently leads decision makers to "retrieve and apply a solution to a nonanalogous problem (negative transfer) and thereby waste their cognitive resources or arrive at an erroneous solution."⁶³

C. Decision Error and its Costs—Analysis of Attorney-Mediator Sample

Although the primary data set includes 5,116 attorneys—about 20 percent of all California litigation attorneys—and the decision error rates are remarkably consistent with other study results, one may question whether the attorneys in the data set have singular risk-taking propensities that impeded a negotiated settlement and ultimately resulted in significant decision errors. This question cannot be resolved empirically because we will never be able to compare the study decision error rates with decision error rates for cases that were settled; the settled cases do not yield a benchmark trial or arbitration award against which we could compare the negotiated settlement amount. However, we can very roughly probe for selection bias, that is, whether our arguably overconfident study attorneys exhibit higher decision error rates than attorneys with substantial, publicly recognized skills and experience in settling cases.

To identify attorneys with substantial settlement experience and dispute resolution skills, we reviewed lists of 939 California mediators either serving on Superior Court mediator panels, affiliated with private dispute resolution companies, or currently a member of the Southern California Mediation Association. We then searched each mediator's name in Verdict Search, limiting the search to California cases reported between 1985 and 2006, to determine whether the mediator had represented a plaintiff or defendant in a case tried through verdict or arbitration award. (Not all the

⁶³M. Bassok, Analogical Transfer in Problem Solving, in *The Psychology of Problem Solving* 343 (J.E. Davidson & R.J. Sternberg, eds., Cambridge University Press 2003).

939 mediators were necessarily litigation attorneys at any time during that period, since the courts' lists include some non-attorneys, former judges, and non-litigation attorneys.) The search yielded 672 cases reported during the 1985–2006 period, of which 369 met the case-selection criteria used for the primary study data set; of the remaining 303 cases, 150 were settled and 153 did not meet the selection criteria for other reasons.⁶⁴

The presence of an attorney-mediator generally was associated with a reduced decision error rate.⁶⁵ Table 11, Panel 11a summarizes the experience for 369 cases in which one of the parties was represented by an attorney-mediator. Total decision error in this sample is less relative to the primary sample presented in Table 1; “no error” in attorney-mediator cases is 21.1 percent relative to 14.5 percent in the primary sample.⁶⁶

In cases where plaintiffs were represented by an attorney-mediator, summarized in Table 11, Panel 11b, plaintiffs' decision error is lower than the primary sample (48.5 percent relative to 61.2 percent), although defendants' decision error is higher (32.0 percent relative to 24.3 percent).⁶⁷ Nonetheless, the total amount of decision error is lower for the plaintiff attorney/mediator sample than the primary sample; “no error” is 19.5 percent relative to 14.5 percent.⁶⁸

Similarly, in cases where defendants were represented by an attorney-mediator, summarized in Table 11, Panel 11c, defendants' decision error is lower than the primary sample (21.5 percent relative to 24.3 percent).

⁶⁴The attorney-mediator data set spans a 21-year period (1985–2006), whereas the primary study data set covers a 38-month period (November 2002–December 2005). Whether a party is represented by an attorney who also serves as a mediator is not a fact separately reported in VerdictSearch and hence was not a variable coded in the primary study data set.

⁶⁵Rachlinski suggested that framing effects might be mitigated by the intervention of attorneys who were more understanding of framing biases: “The framing theory suggests another positive influence attorneys may have in reducing the costs of litigation. An attorney may have some power to reframe a settlement offer, sparing the client the most costly aspects of framing . . . Thus, the framing model of litigation poses a powerful role for the attorney. The attorney can control the client's frame, thereby influencing settlement decisions in either direction.” Rachlinski (1996), *supra*, at 171–72. See Russell Korobkin & Chris Guthrie, *Psychology, Economics and Settlement: A New Look at the Role of the Lawyer*, 76 *Tex. L. Rev.* 77 (1997).

⁶⁶The difference is significant at the 0.01 level.

⁶⁷The two differences are significant at the 0.01 level and 0.05 level, respectively.

⁶⁸This difference is not significant at the 0.05 level, having a *p* value of 0.11.

Table 11: Decision Error and Cost of Error—Attorney-Mediator Sample

Error Type	Decision Error		Cost of Error				
	# of Cases	% of Cases	Mean Award (\$1,000s)	Mean Demand (\$1,000s)	Mean Offer (\$1,000s)	Mean Cost of Error (\$1,000s)	Expected Cost of Error (\$1,000s)
Panel 11a: All Cases							
No error	78	21.1%	348.7	567.9	90.4	NA	NA
Plaintiff error	194	52.6%	12.8	558.8	61.2	48.4	25.5
Defendant error	97	26.3%	1,570.8	670.8	217.4	900.0	236.6
Panel 11b: Attorney-Mediator Represents Plaintiff							
No error	33	19.5%	512.4	702.4	143.0	NA	NA
Plaintiff error	82	48.5%	18.4	820.6	86.7	68.4	33.2
Defendant error	54	32.0%	1,615.2	706.6	218.3	908.6	290.3
Panel 11c: Attorney-Mediator Represents Defendant							
No error	45	22.5%	228.7	469.2	51.9	NA	NA
Plaintiff error	112	56.0%	8.7	367.1	42.5	33.8	18.9
Defendant error	43	21.5%	1,515.0	625.8	216.2	889.2	191.2

Interestingly, in these attorney-mediator cases, plaintiffs' decision error is also lower (56.0 percent relative to 61.2 percent). Thus for both conditions of reduced error, total decision error is lower in these cases; "no error" is 22.5 percent relative to 14.5 percent in the primary sample.⁶⁹

Regardless of which party is represented by an attorney-mediator, the total amount of error is modestly lower. Much less can be concluded from an examination of the mean cost of error due to the construction of the attorney-mediator sample. That sample covers a much longer time period than the primary data set (21 years vs. 38 months), rendering many of the values non-comparable with the primary sample used in Table 1. This is an area worthy of continued research.

We also examined specific case types to assess the incidence of decision error in the attorney-mediator cases. Because the sample of attorney-mediator cases, when classified by case type and whether the mediator represented a plaintiff or a defendant, was small compared to the primary data set, we focused on personal injury cases, the most common type of cases in the primary sample. Consistent with the overall findings of reduced decision error in attorney-mediator cases, we found that personal injury cases in which the parties were represented by attorney-mediators showed a lower decision error rate than those in the primary sample. Plaintiffs' decision error rate in personal injury cases was 45.2 percent in the attorney-mediator sample and 53.2 percent in the primary sample. Defendants' decision error rate in personal injury cases showed a similar pattern—16.8 percent in the attorney-mediator sample and 26.3 percent in the primary sample.

V. CONCLUSION

Because each case in the study requires a settlement decision by both a plaintiff and a defendant, this study tests 9,064 decisions—2,054 cases and 4,108 decisions in the 2002–2005 primary set, 1,806 cases and 3,612 decisions in the 1964–2004 historical set, and 672 cases and 1,344 decisions in the 1985–2006 attorney/mediator set. Plaintiffs erroneously concluded that trial was a superior option in 61.2 percent of the primary set cases, while defen-

⁶⁹Though the changes in defendants' and plaintiffs' decision error are not significant at the 0.05 level, the difference in "no decision error" (22.5 percent vs. 14.5 percent) is significant at the 0.01 level.

dants made an erroneous assessment in 24.3 percent of those cases. The magnitude of defendants' errors, however, vastly exceeded that of plaintiffs' errors. The historical review of attorney/litigant decision making indicates that the incidence of decision error increased moderately, while the magnitude of decision error increased dramatically. The attorney/mediator cases show comparatively low decision error rates that nevertheless would be unacceptable in other high-skill domains like medicine, aeronautics, or structural engineering. If Gross and Syverud are correct in asserting the "real question for any party is whether it would have been better off if it had not gone to trial," the answer for a clear majority of plaintiffs and one-quarter of defendants is "Yes."⁷⁰

From the remarkably consistent decision error rates shown in this study and three prior studies, a renewed emphasis on reducing attorney/litigant decision-making error could emerge. Further research can identify and perhaps eliminate conditions and framing biases associated with high decision error rates while identifying and replicating the conditions and decision-making practices associated with low decision error rates. The lower decision error rates correlated with a party's service of a 998 offer, for instance, may indicate that a party serving a 998 offer undergoes a beneficial evaluative process that results in improved decision making. The attorney-mediator data, moreover, suggest that attorneys trained and experienced in dispute resolution, and perhaps more cognizant of framing biases, may have a salutary effect on attorney/litigant decision making. An attorney-mediator's representation of a plaintiff is associated with a 21 percent reduction in plaintiff decision error, and the presence of an attorney-mediator representing any party is correlated with a dramatic reduction in the overall incidence of decision error, the percentage of "no error" cases rising from 14.5 percent in the primary sample to 21.1 percent in the attorney-mediator sample.

In his recent book, *Expert Political Judgment*, Philip Tetlock tests political predictions by 284 experts, finding that their probability assessments frequently are inaccurate. Explaining the motivation for the study, he states: "We can draw cumulative lessons from experience only if we are aware of gaps between what we expected and what happened, acknowledge the possibility that those gaps signal shortcomings in our understanding, and test alternative interpretations of those gaps in an evenhanded fashion." This

⁷⁰Gross & Syverud (1996), *supra*, at 41.

study hopefully fulfills similar objectives, illuminating gaps between expectations and results, promoting a candid and objective assessment of predictive shortcomings, and presenting data and interpretations to improve attorney/litigant decision making and, eventually, “close the gap between what they said would happen and what subsequently did happen.”⁷¹

APPENDIX: LIKELIHOOD RATIO TESTS

<i>Variable Class</i>	<i># of Parameters</i>	<i>Degrees of Freedom</i>	<i>L-R Chi Square</i>	<i>p Value</i>
Plaintiff	6	12	14.6427	0.2616
Defendant	8	16	24.4649	0.0798
Plaintiff attorney gender	4	8	25.7011	0.0012
Plaintiff attorney firm size	1	2	1.9513	0.3769
Plaintiff attorney experience	10	20	38.1059	0.0086
Plaintiff attorney school academic rank	1	2	7.0855	0.0289
Plaintiff attorney school diversity rank	1	2	0.2760	0.8711
Defendant attorney gender	4	8	12.4398	0.1326
Defendant attorney firm size	1	2	0.2693	0.8740
Defendant attorney experience	9	18	31.5934	0.0246
Defendant attorney school academic rank	1	2	0.0953	0.9535
Defendant attorney school diversity rank	1	2	5.8111	0.0547
Case type	12	24	204.3922	0.0000
Nature of damages	3	6	29.7042	0.0000
Nature of alleged wrong	2	4	6.0450	0.1958
Forum	3	6	75.0184	0.0000
Insurance	1	2	1.6174	0.4454
998 offer	2	4	163.6942	0.0000
Alternative dispute resolution	2	4	5.6822	0.2242

⁷¹Philip Tetlock, *Expert Political Judgment* 235, 238, n.22 (Princeton University Press 2005).