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Final Offer Arbitration: Time for Serious Consideration by the Courts

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Final Offer Arbitration: Time for Serious Consideration by the Courts

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I. INTRODUCTION

In the past few decades increased attention has been directed toward facilitating the settlement of civil cases. The advantages of settlement are straightforward. Settlement is economical; it is generally less expensive than trial and saves the time of attorneys, witnesses, and courts. Settlement relieves court congestion, and hence it allows cases that need to be tried to be handled more fairly and faster. Unlike trial, settlement remains in the control of the parties, who can avoid the uncertainty of trial and put together a compromise that furthers their mutual interests. Finally, settlement avoids the strain that protracted litigation can place on relationships between parties and the possible embarrassment connected with the publicity of a trial.¹

The means proposed to facilitate settlement of civil actions have focused on concepts that have been labelled as the "Quick Lock" and the "Doomsday Machine."² Quick Lock devices use simplified and expedited procedures to aid the evaluation of cases by litigants.³ They include such procedures as the summary jury trial,⁴ the mini-trial or

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1. See G. WILLIAMS, *LEGAL NEGOTIATION AND SETTLEMENT* 10-11 (1983); Bedlin & Nejelski, *Unsettling Issues About Settling Civil Litigation*, 68 *JUDICATURE* 8, 11 (1984).

2. See Bedlin & Nejelski, *supra* note 1, at 9.

3. *Id.* at 23.

4. See M. JACOUBOVITCH & C. MOORE, *SUMMARY JURY TRIALS IN THE NORTHERN DISTRICT OF OHIO* (1982); Lambros & Shunk, *The Summary Jury Trial*, 29 *CLEV.*

Information Exchange,⁵ the settlement conference,⁶ and court-annexed arbitration.⁷ A Domsday Machine imposes upon the litigants a disincentive to go to trial, thus encouraging settlement.⁸ Setting a firm trial date with the attendant expense of litigation and uncertainty of trial is one type of Domsday Machine. Another is the shifting of attorneys' fees or other expenses to a party who insists on a trial after refusing a settlement offer⁹ or an arbitration award,¹⁰ when the party does not improve his position after the trial.

Final offer arbitration may be an additional means to promote settlement. Like conventional arbitration, final offer arbitration is an adjudicatory procedure in which an arbitrator determines an award after a hearing. Final offer arbitration differs from conventional arbitration, though, in limiting the discretion of the arbitrator to a choice between the final offers presented by the opposing parties. It is premised on the belief that removing the arbitrator's option to split the difference will encourage opposing parties to exchange reasonable offers and perhaps even settle their dispute before the arbitration hearing.

Final offer arbitration arose as a reaction to the perception that

ST. L. REV. 43 (1980); Note, *Procedure: Summary Jury Trials in United States District Court, Western District of Oklahoma*, 37 OKLA. L. REV. 214 (1984).

5. See Green, Marks & Olson, *Settling Large Case Litigation: An Alternative Approach*, 11 LOY. L.A.L. REV. 493 (1978).
6. See F. LACEY, *THE JUDGE'S ROLE IN THE SETTLEMENT OF CIVIL SUITS* (1977); H. WILL, R. MERHIG & A. RUBIN, *THE ROLE OF THE JUDGE IN THE SETTLEMENT PROCESS* (1977).
7. See, e.g., E. LIND & J. SHAPARD, *EVALUATION OF COURT ANNEXED ARBITRATION IN THREE FEDERAL DISTRICT COURTS* (rev. ed. 1983); Levin, *Court-Annexed Arbitration*, 16 U. MICH. J.L. REF. 537 (1983); Miller, *Mediation in Michigan*, 56 JUDICATURE 290 (1973); Nejelski & Zeldin, *Court-Annexed Arbitration in the Federal Courts: The Philadelphia Story*, 42 MD. L. REV. 787 (1983); Rosenberg, Rient & Rowe, *Expenses: The Roadblock to Justice*, JUDGES J., Summer 1981, at 16; Note, *On Behalf of Mandatory Arbitration*, 57 S. CAL. L. REV. 1039 (1984).
8. Bedlin & Nejelski, *supra* note 1, at 27.
9. See Committee on Rules of Prac. & Proc. of the Judicial Conference of the United States, Proposed Court Rules, 102 F.R.D. 407 (1984); Rosenberg, Rient & Rowe, *supra* note 7, at 46; Note, *The Impact of Proposed Rule 68 on Civil Rights Litigation*, 84 COLUM. L. REV. 719 (1984); Note, *The Proposed Amendment to Federal Rule of Civil Procedure 68: Toughening the Sanctions*, 70 IOWA L. REV. 237 (1984).
10. See, e.g., ARIZ. REV. STAT. ANN. § 12-133(I) (Supp. 1984) (payment of compensation of arbitrators); CAL. CIV. PRO. CODE § 1141.21(a) (West Supp. 1985) (payment of costs and compensation of arbitrators); N.D. CAL. R. 500-7(c) (assessment of costs); M.D. FLA. R. 8.06(d) (assessment of arbitration fees); M.D.N.C. R. 610(e) (taxation of fees and expenses of arbitrator as costs); W.D. OKLA. R. 43(P)(5) (shifting of attorneys' fees); E.D. PA. R. 8(7)(d) (payment of arbitration fees); N.Y. CIV. R. CT. § 28.12(e) (McKinney 1984) (payment of costs and interest).

conventional arbitration has a chilling effect¹¹ on the negotiation process. The chilling effect of conventional arbitration is based on the likelihood that the arbitration award will be a compromise of the demands of the opposing parties. If this is so, the opposing parties will have every incentive to take extreme positions and avoid concessions during the negotiation process.

It is reported that the concept of final offer arbitration had been discussed informally since the 1950s,¹² and Lon Fuller made a passing reference to it in 1963.¹³ Credit for originating the concept, though, is generally given to Carl M. Stevens, who published an article advocating its use in 1966.¹⁴ Final offer arbitration began to receive greater attention in 1970 after the Nixon administration proposed amending the federal labor laws to permit final offer arbitration as one of three options available to the President to aid in the resolution of emergency disputes in the transportation industry.¹⁵ While the proposed amendments were not adopted by Congress, their consideration set the stage for the implementation of final offer arbitration as an alternative means of labor arbitration during the 1970s.

The greatest application of final offer arbitration has been in the area of collective bargaining involving public employees. Final offer arbitration has been adopted by six states for the resolution of disputes with public employees.¹⁶ In addition, it has been used in negoti-

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11. Feuille, *Final Offer Arbitration and the Chilling Effect*, 14 INDUS. REL. 302 (1975).
 12. J. STERN, C. REHMUS, J. LOEWENBERG, H. KASPER & B. DENNIS, FINAL OFFER ARBITRATION 113 n.7 (1975) [hereinafter FINAL OFFER ARBITRATION]; Seitz, *Footnotes to Baseball Salary Arbitration*, 29 ARB. J. 98, 99 (1974).
 13. Fuller, *Collective Bargaining and the Arbitrator*, 1963 WIS. L. REV. 1, 25 n.20. Professor Fuller used final offer arbitration as an illustration of how labor arbitrators may become too clever for their own good. He recounted how the impartial chairman of a three-member panel in a wage case asked the partisan members to write down a figure for a fair award and told them that the figure closest to his own would be the award. Unfortunately, the partisan members resigned instead of participating in this novel approach to arbitration.
 14. Stevens, *Is Compulsory Arbitration Compatible with Bargaining?*, 5 INDUS. REL. 38 (Feb. 1966). See FINAL OFFER ARBITRATION, *supra* note 12, at 113 n.7; Feuille, *Final Offer Arbitration and Negotiating Incentives*, 32 ARB. J. 203, 203 (1977); Garber, *Compulsory Arbitration in the Public Sector: A Proposed Alternative*, 26 ARB. J. 226, 231 & n.9 (1971); Silberman, *National Emergency Disputes—The Considerations Behind a Legislative Proposal*, 4 GA. L. REV. 673, 689 & n.58 (1970); Zack, *Final Offer Selection—Panacea or Pandora's Box*, 19 N.Y.L.F. 567, 572 & n.16 (1974); Note, *Final Offer Arbitration: A Pre-Trial Settlement Device*, 16 HARV. J. LEGIS. 513, 515 n.11 (1979).
 15. See FINAL OFFER ARBITRATION, *supra* note 12, at 113 n.7; Foster, *Final Offer Selection in National Emergency Disputes*, 27 ARB. J. 85 (1972); Silberman, *supra* note 14, at 688-90; Note, *supra* note 14, at 516-17.
 16. Gallagher, *Interest Arbitration Under the Iowa Public Employment Relations Act*, 33 ARB. J., Sept. 1978, at 30, lists the following states as having adopted final

ations with municipal employees in several cities¹⁷ and has been regularly used since 1974 for resolving disputes over the salaries of major league baseball players.¹⁸

Final offer arbitration has also been proposed as a means to relieve court congestion. In 1972 Maurice Rosenberg proposed a procedure with the essential features of final offer arbitration to reform the handling of tort lawsuits. He hoped that this procedure would change the bargaining dynamics in personal injury cases, which he called "truly absurd."¹⁹ Rosenberg's proposal entailed requiring the plaintiff to submit his lowest demand and the defendant to submit his highest of-

offer arbitration: Connecticut, Iowa, Massachusetts, Michigan, New Jersey and Wisconsin.

17. See Feuille & Long, *The Public Administrator and Final Offer Arbitration*, 34 PUB. ADMIN. REV. 575, 575 (1974) (describing final offer arbitration in Eugene, Oregon); Long & Feuille, *Final Offer Arbitration: "Sudden Death" in Eugene*, 27 INDUS. & LAB. REL. REV. 186, 187 (1974) (same); Witney, *Final Offer Arbitration: The Indianapolis Experience*, 96 MONTHLY LAB. REV., May 1972, at 20; Bellan, *Final Offer Selection: Two Canadian Case Studies and an American Digression*, 13 OSGOODE HALL L.J. 851, 852-63 (1975) (final offer selection procedure involving high school teachers in Wentworth County and Sault Ste. Marie, Canada). See also Anderson, *The Impact of Arbitration: A Methodological Assessment*, 20 INDUS. REL. 129, 135-37 (1981) (listing studies of conventional and final offer arbitration in a number of jurisdictions); Feuille & Long, *supra*, at 582 n.4 (referring to the use of final offer arbitration in several other jurisdictions).
18. See Chelius & Dworkin, *An Economic Analysis of Final-Offer Arbitration as a Conflict Resolution Device*, 24 J. CONFLICT RESOLUTION 293, 295-99 (1980). See also Feuille, *supra* note 14, at 209-10; Seitz, *supra* note 12.
19. Rosenberg, *Observation: Let's Everybody Litigate?*, 50 TEX. L. REV. 1349, 1356-59 (1972). Rosenberg formulated the following operating rules to describe the bargaining process:

Rule 1. If you are the plaintiff, make an extremely high and unrealistic demand to convince the insurance company either that you are morally certain you have suffered a catastrophic injury or else that you are out of your mind—in either event, signaling trouble ahead for the insurance company. If you are defendant, make an offer that is equally wild on the low side.

Rule 2. Make concessions that move your position toward your adversary's with the same generous alacrity you would show if asked to cut off your right hand.

Rule 3. Recognize that you can never retract a less extreme demand or offer, and furiously resist any impulse to be the first to be reasonable. Make the other side do all the reasonable yielding. Give a grudging inch only after you get a yard.

Rule 4. A good time to start trying to dispose of the case for what you believe it is actually worth is on the eve of trial, or just before or just after the jury is chosen. A particular reason for keeping a safe distance between what you say and what you believe is your awareness that when the case goes to court, the judge may try to get you to split the difference. Therefore, keep a comfortable distance to split.

Rule 5. Pay no attention to what all this may do to the court's functioning or its capacity to deal with its caseload. Your job is to do the best you can by your client. If this ritual fire dance method is the way, do it!

Id. at 1356-57.

fer in sealed envelopes to an impartial adjudicator after they had concluded their bargaining. The adjudicator would then write down his evaluation of the claim, open the envelopes submitted by the opposing parties, and award the amount that was closest to his own figure. According to Rosenberg, with this procedure, the parties would have an incentive to make fair demands and offers, because it would be self-defeating for the parties to take extreme positions. He suggested that in many cases the gap between the offer and demand would be narrow enough to make it uneconomical to continue with the litigation. He also observed that this procedure had the advantage that it operated by offering rewards to bargainers who made reasonable offers instead of penalizing litigants for not resolving their disputes through settlement. Rosenberg expressed concern, though, that this procedure might not be effective if it were voluntary, and that it would have to be squared with the right to jury trial if it were made compulsory.²⁰

Paul Perlman made a more detailed proposal for a final offer arbitration procedure in connection with court-annexed arbitration in 1979.²¹ Like Rosenberg, Perlman theorized that a final offer arbitration system would facilitate settlement by encouraging opposing parties to exchange reasonable offers. In addition, Perlman offered an empirical study of arbitration in Michigan,²² as well as the experience with final offer arbitration in major league baseball,²³ as support for his conclusions about its desirability. Perlman believed that final offer arbitration was not appropriate for cases having only two possible outcomes (such as breach of contract cases where damages are liquidated and only liability is in issue).²⁴ He, therefore, limited his proposal to cases where a number of outcomes along a continuum were possible and to cases involving many interrelated issues.²⁵ The proposal involved assigning such cases to an arbitrator unless both parties opted not to arbitrate. The arbitrator would first hold a hearing on the issue of liability. If he determined that the plaintiff had no right to recover, the proceeding would be concluded and the plaintiff would have the right to a trial *de novo*. Otherwise, the parties would exchange final offers prior to a hearing on damages. The arbitrator's decision would be limited to a choice between the final offers. Either party would

20. *Id.* at 1358.

21. Note, *supra* note 14.

22. FINAL OFFER ARBITRATION, *supra* note 12, at 54, table 3-3. However, the authors of this study did not believe that the observed increase in the number of settlements under the final offer procedure was attributable to the use of final offer arbitration. *Id.* at 71.

23. Note, *supra* note 14, at 523-24.

24. Perlman's reasoning was that "[w]hen there are only two possible positions . . . the parties have nothing to negotiate." *Id.* at 525. Nevertheless, such cases are often settled through negotiation of a compromise between the two positions.

25. *Id.* at 525-29.

have the right to reject the arbitrator's decision and proceed to a trial *de novo*. However, the arbitrator's decision would be admissible as evidence at the trial and also the party rejecting the decision would be responsible for payment of the costs of the arbitration hearing.²⁶

This Article examines final offer arbitration and recommends its use in court-annexed arbitration programs, which are now operating or being considered in a growing number of federal and state courts. The first portion of the Article analyzes the process of the settlement of lawsuits and gives some reasons why settlements are not always reached expeditiously. Next, the Article analyzes the final offer arbitration process and shows how it may promote settlement. The last portion of the Article examines empirical data on the efficacy of final offer arbitration in promoting settlement. The empirical data comes from two sources: laboratory experiments and field studies. While the laboratory experiments provide strong support for the conclusion that final offer arbitration encourages settlement, the field studies are inconclusive.

II. ANALYSIS OF THE SETTLEMENT PROCESS

Although litigation expenses may be the "roadblock to justice,"²⁷ they are also the highway to settlement. Statistics vary among courts and over time, but it is generally accepted that around 90-95% of the cases that are filed are settled before the completion of trial.²⁸ What produces a lawsuit is a disagreement over liability and damages. The plaintiff believes his damages are D_p , and the defendant believes there is either no liability or that damages are D_d where $D_d < D_p$. If the parties (or their lawyers) are more sophisticated they may recognize a range of possible outcomes at trial and they may each assign a separate probability distribution ($P_p(x)$ and $P_d(x)$) to the range of possible trial outcomes (x). See Figure 1. The expected value of the trial outcome from the plaintiff's perspective is $EV_p = \sum_{all\ x} P_p(x) x$, and the

expected (negative) value of the trial outcome from the defendant's perspective is $EV_d = \sum_{all\ x} P_d(x) x$. See Figure 2.

Under the American rule, each party bears his own attorneys' fees.²⁹ Costs go to the prevailing party. Since costs are generally

26. *Id.* at 529-36.

27. Rosenberg, Rient & Rowe, *supra* note 7.

28. *E.g.*, S. GOLDBERG, E. GREEN & F. SANDER, DISPUTE RESOLUTION 5 (1985); H. RAIFFA, THE ART AND SCIENCE OF NEGOTIATION 66 (1982); H. ROSS, SETTLED OUT OF COURT: THE SOCIAL PROCESS OF INSURANCE CLAIMS ADJUSTMENTS 4 (1970).

29. For an economic analysis of settlement under the American rule, see R. POSNER,

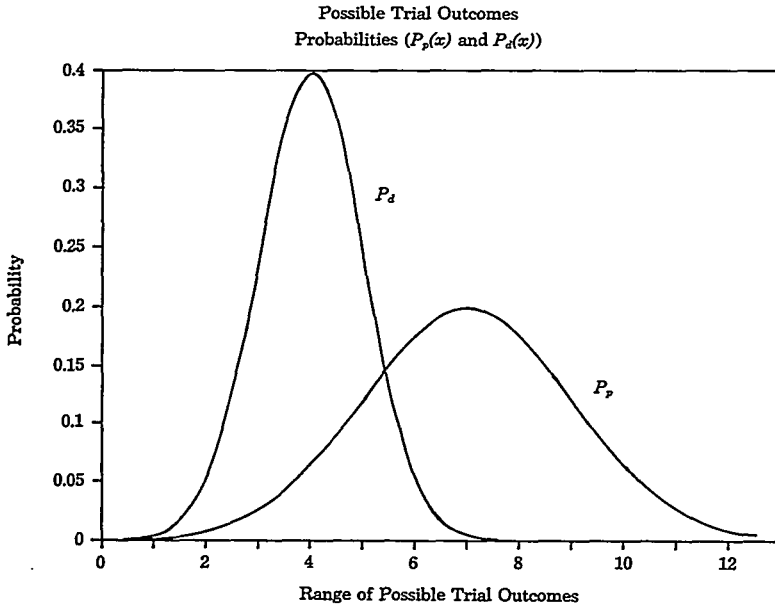


FIGURE 1

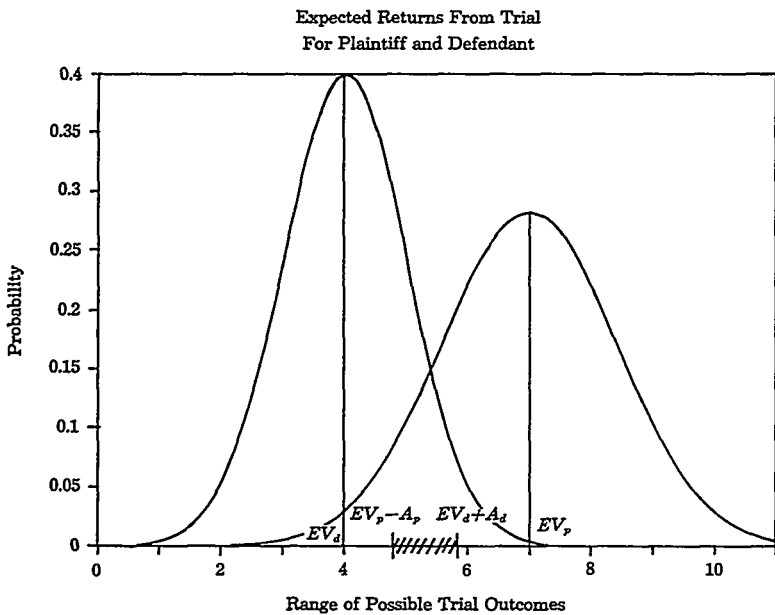


FIGURE 2

much smaller than attorneys' fees, they will not be considered in the discussion, and it will be assumed that attorneys' fees are the only expenses of litigation. If the plaintiff's expenses of going to trial are A_p , then his expected result (ER) from going to trial under the American rule will be $ER_p = EV_p - A_p$. And if the defendant's expenses of going to trial are A_d , then the defendant's expected (negative) result is $ER_d = EV_d + A_d$. The presence of the expenses of litigation may produce a settlement zone in which the parties would have an incentive to settle their lawsuit. If $EV_p - EV_d \leq A_p + A_d$ then the parties can maximize their expected returns by settling at any point in the range from $EV_p - A_p$ to $EV_d + A_d$.³⁰ See Figure 2.

Another factor that promotes settlement is the presence of risk aversion. Most people favor certainty to uncertainty and would be willing to discount the expected value of an uncertain return in order to receive a certain return. Going to trial is risky for both parties, while settlement produces a certain return. If the discount for the plaintiff's risk aversion is RA_p and the discount for the defendant's risk aversion is RA_d , then the settlement zone is widened even further and settlement becomes possible anywhere in the range from $EV_p - A_p - RA_p$ to $EV_d + A_d + RA_d$.³¹

On the other hand, a settlement will not be reached if the expectations of the parties are widely separated. If the case is difficult to evaluate or one or both parties lack skill in making accurate valuations of a case, then the values for EV_p and EV_d may not be close enough to produce a settlement zone even if the values of A_p , A_d , RA_p , and RA_d are quite substantial. The inability of the parties to evaluate their case may therefore result in a great expenditure of attorneys' fees during the litigation process.

Even though the expenses of litigation and the risk aversion of the parties may produce a settlement zone, this does not necessarily mean that the settlement will be reached early in the litigation process or even that it will be reached at all. Part of the reason is that the parties may not be able to find their settlement zone. While the plaintiff may be able to decide on a probability distribution ($P_p(x)$) to use and esti-

ECONOMIC ANALYSIS OF LAW 434-41 (2d ed. 1977); J. SHAPARD, THE INFLUENCE OF RULES RESPECTING RECOVERY OF ATTORNEYS' FEES ON SETTLEMENT OF CIVIL CASES (1984); Braeutigam, Owen & Panzar, *An Economic Analysis of Alternative Fee Shifting Systems*, LAW & CONTEMP. PROBS., Winter 1984, at 173; Phillips & Hawkins, *Some Economic Aspects of the Settlement Process: A Study of Personal Injury Claims*, 39 MOD. L. REV. 497 (1976); Shavell, *Suit, Settlement, and Trial: A Theoretical Analysis Under Alternative Methods for the Allocation of Legal Costs*, 11 J. LEGAL STUD. 55 (1982); Note, *An Analysis of Settlement*, 22 STAN. L. REV. 67 (1969).

30. See J. SHAPARD, *supra* note 29, at 11-12, 63; Braeutigam, Owen & Panzar, *supra* note 29, at 177; Shavell, *supra* note 29, at 63, 77-79; Note, *supra* note 29, at 89-90.

31. See Phillips & Hawkins, *supra* note 29, at 515; Shavell, *supra* note 29, at 68, 78-81.

mate his trial expenses (A_p) and discount for risk aversion (RA_p), the plaintiff will not be able to get an accurate reading on the defendant's probability distribution, anticipated expenses of trial, or discount for risk aversion. The defendant is unlikely to reveal this information to the plaintiff because to do so would weaken his own bargaining position. Instead, the defendant is likely to exaggerate his position and claim that EV_d , A_d , and RA_d are much less than they really are. The plaintiff will exaggerate, too, and claim that EV_p is much larger and A_p and RA_p are much smaller than they really are. The exaggeration of the claims and demands of the parties may cause an otherwise existing settlement zone to vanish—at least during the early stages of the negotiation process.³²

Also, the negotiators may exploit delay to achieve a tactical advantage. By withholding concessions that are needed to reach a settlement, a negotiator may be able to obtain more and larger concessions from his opponent. Patience is often a desirable quality for a negotiator who may be able to reach a better result simply by waiting for his opponent to come to him. But if both sides wait for the other to move, then a mutually beneficial settlement in their settlement zone may be delayed. As the trial approaches the opposing parties will feel increasing pressure to reach a settlement, and in many cases this time pressure will produce a settlement. In the meantime, though, the parties may have run up substantial expenses during the negotiation and litigation process.³³

In addition, during the negotiation process the opposing parties are apt to attempt to strengthen their bargaining positions by appearing obstinate and committing themselves to particular positions that are respectively favorable to each side. To get an opponent to concede, a negotiator may need to convince the opponent that he will not make any concessions. If both parties attempt to gain tactical advantages by making firm commitments to their respective bargaining positions, it may be difficult for them to come off their positions to reach a mutually beneficial settlement without losing face. Accordingly, the concern with loss of face and the inability to move from a solidly entrenched bargaining position may prevent opposing parties from finding their settlement zone.³⁴

32. For discussions of the ways in which parties may disguise their positions during the negotiation process, see H. RAIFFA, *supra* note 28, at 44-65 and R. WALTON & R. MCKERSIE, *A BEHAVIORAL THEORY OF LABOR NEGOTIATIONS* 58-72 (1965). For a theoretical analysis of a negotiator's conflict between disclosing information in order to promote a settlement and resisting disclosure in order to maintain the negotiator's bargaining position, see Chatterjee & Ulvila, *Bargaining with Shared Information*, 13 *DECISION SCI.* 380 (1982).

33. See D. PRUITT, *NEGOTIATION BEHAVIOR* 20-23, 30-33 (1981); H. RAIFFA, *supra* note 28, at 78-85; G. WILLIAMS, *supra* note 1, at 79-82.

34. See D. PRUITT, *supra* note 33, at 23-25, 71-80; Schelling, *An Essay on Bargaining*,

Another factor that may interfere with settlement is the relationship between the attorney and the client. Settlement requires compromise, but a client may view compromise as a sign of weakness in an attorney. In order to appear strong and fully committed to his client's cause, an attorney may refuse to make concessions when to do so would be in the best interests of his client. Even though the terms of a settlement may be preferable to the expected result from a trial, the client may be disappointed with a settlement that is less favorable than the best possible outcome at trial. If a client is disappointed with the actual result at trial he may blame the judge, jury, or opposing counsel instead of his own attorney. But if a client is disappointed with a settlement, then he has only his attorney to blame. Thus, an attorney may feel pressure to resist a settlement that would be beneficial to his client in order to remain in his client's favor.³⁵

Furthermore, settlement may be impeded by the bargaining styles and personalities of negotiators. A study conducted by the Brigham Young University Legal Negotiation Project revealed two distinct bargaining styles among attorneys. About two-thirds of the attorneys surveyed had a cooperative bargaining style that is characterized by emphasis on the following motivational objectives: ethical conduct, maximizing the settlement for the client, obtaining a fair settlement, meeting the client's needs, and maintaining a good personal relationship with the opponent. About one-fourth of the attorneys surveyed had a competitive bargaining style that is characterized by emphasis on these motivational objectives: maximizing settlement for the client, obtaining a profitable fee, and out-maneuvering the opponent. Among attorneys of both bargaining styles were those who were effective, average, or ineffective as negotiators. A higher percentage of co-

46 AM. ECON. REV. 281 (1956), reprinted in T. SCHELLING, THE STRATEGY OF CONFLICT 21-52 (1960) and T. SCHELLING, BARGAINING: FORMAL THEORIES OF NEGOTIATION 319-42 (O. Young ed. 1975). Thomas Schelling makes the following point: "[I]n bargaining, weakness is often strength, freedom may be freedom to capitulate, and to burn bridges behind one may suffice to undo an opponent." *Id.* at 282; THE STRATEGY OF CONFLICT, *supra*, at 22; BARGAINING: FORMAL THEORIES OF NEGOTIATION, *supra*, at 319-20. For a general discussion of commitment tactics, see R. WALTON & R. MCKERSIE, *supra* note 32, at 82-125. For a laboratory study of the effect of face-saving on bargaining behavior, see Johnson & Tullar, *Style of Third Party Intervention, Face-Saving and Bargaining Behavior*, 8 J. EXPERIMENTAL SOC. PSYCHOLOGY 319 (1972).

35. See D. PRUITT, *supra* note 33, at 41-45; Neale & Bazerman, *Perspectives for Understanding Negotiation — Viewing Negotiation as a Judgmental Process*, 29 J. CONFLICT RESOLUTION 33, 37-38 (1985). For laboratory studies of the effect of a constituency on negotiator behavior, see Frey & Adams, *The Negotiator's Dilemma: Simultaneous In-Group and Out-Group Conflict*, 8 J. EXPERIMENTAL SOC. PSYCHOLOGY 331 (1972); Neale, *The Effects of Negotiation and Arbitration Cost Salience on Bargainer Behavior: The Role of the Arbitrator and Constituency on Negotiator Judgment*, 34 ORGANIZATIONAL BEHAVIOR & HUM. PERFORMANCE 97 (1984).

operative attorneys were effective negotiators when compared with the competitive attorneys, and, similarly, a higher percentage of competitive attorneys were ineffective negotiators when compared with the cooperative attorneys. Yet a significant percentage, six percent, of the attorneys had a competitive bargaining style and were effective negotiators, while a smaller percentage, two percent, of the attorneys had a cooperative style and were ineffective negotiators. Traits shared by effective negotiators, whether cooperative or competitive, were: experience, honesty, analytical ability, perceptiveness, self-control, and adaptability. Ineffective negotiators tended to lack these traits. The bargaining styles and effectiveness of the negotiators are apt to affect both the likelihood and speed of settlement.³⁶

In sum, while the expenses of litigation and risk aversion produce a settlement zone, a number of forces operate to impede settlement. As noted earlier, many more cases settle than go to trial. But a significant number of cases are not resolved through settlement, and many of the other cases settle only after long delays and large expenses have been incurred.

III. ANALYSIS OF THE FINAL OFFER ARBITRATION PROCESS

Analysis of the settlement process³⁷ supports the conclusions of Rosenberg and Perlman:³⁸ final offer arbitration procedures would facilitate settlement in many cases. In a final offer procedure, the arbitrator is required to choose between the final offers of the parties, and the parties can be expected to formulate their offers in order to optimize their respective positions. If both parties knew what the arbitrator's decision would be, then settlement would be assured since they would both have an incentive to exchange the same offer—the predicted value of the arbitrator's decision.³⁹ Conversely, if the parties were completely uncertain about what the arbitrator's decision would be, they would have a tendency to make widely divergent offers.⁴⁰ Generally, the parties will not know precisely what the arbitrator's decision will be, but they each will have expectations for the arbitrator's future decision, and their respective expectations can be represented by probability distributions ($P_p(x)$ for the plaintiff and $P_d(x)$ for the defendant).

If the defendant believes that the arbitrator's probability distribu-

36. See G. WILLIAMS, *supra* note 1, at 15-46, 51, 137-47.

37. See *supra* text accompanying notes 29-32.

38. See *supra* text accompanying notes 19-26.

39. Farber, *An Analysis of Final-Offer Arbitration*, 24 J. CONFLICT RESOLUTION 683, 688-94 (1980); Nash, *On Compulsory-Arbitration Schemes*, 87 J. POL. ECON. 131, 139, 152-53 (Feb. 1979).

40. Farber, *supra* note 39, at 694, 699.

tion is represented by $P_d(x)$ as shown in Figure 3, and the plaintiff has submitted a final demand of D , then what should the defendant's final offer be? Clearly the defendant would not want to make too low of an offer, since this would make it likely that the arbitrator would select the plaintiff's final demand (D) instead of the defendant's final offer (O). On the other hand, the defendant should not offer more than he expects the arbitrator to award. The defendant's optimal demand should, therefore, be somewhat lower than the mean of the arbitrator's probability distribution and yet high enough that there is a reasonably good chance that the arbitrator would select the defendant's final offer over the plaintiff's final demand. Exactly where the defendant's final offer should lie will depend on the shape of the probability distribution that the defendant has assigned to the arbitrator and on the amount of the plaintiff's final demand. If the plaintiff's final demand is very high, then the defendant can expect that the arbitrator would be unlikely to select the plaintiff's final demand and the defendant might safely make a lower final offer than he would if the plaintiff's final demand were more reasonable. On the other hand, if the plaintiff's demand is close to the mean of the probability distribution that the defendant has assigned to the arbitrator, then the defendant should probably make a more moderate offer in order to be able to compete effectively with the plaintiff for the arbitrator's award. The following analysis will attempt to quantify these notions and show how a defendant could calculate the optimal final offer for various probability distributions that could be assigned to the arbitrator and for different final demands submitted by a plaintiff.

To find the optimal final offer a defendant needs to determine the expected value for the arbitration process and then ascertain the final offer that minimizes this expected value. If the arbitrator's evaluation of the case is x , then under the rules of the final offer arbitration procedure the amount of the award will be the offer or demand that is closest to x . Accordingly, where the defendant makes an offer, O , and the plaintiff makes a demand, D , the award will be O if $x < (O+D)/2$, and the award will be D if $x > (O+D)/2$. Ignoring the costs of arbitration and the effects of risk aversion for the moment,⁴¹ the defendant's expected value for the final offer arbitration procedure will be:

$$EV_d = O \sum_{X < M} P_d(x) + D \sum_{X > M} P_d(x)$$

where $M = (O+D)/2$. If the defendant's expectation for the arbitrator's decision is represented by a continuous probability density distribution, then the defendant's expected value is:

41. See *supra* text accompanying note 31.

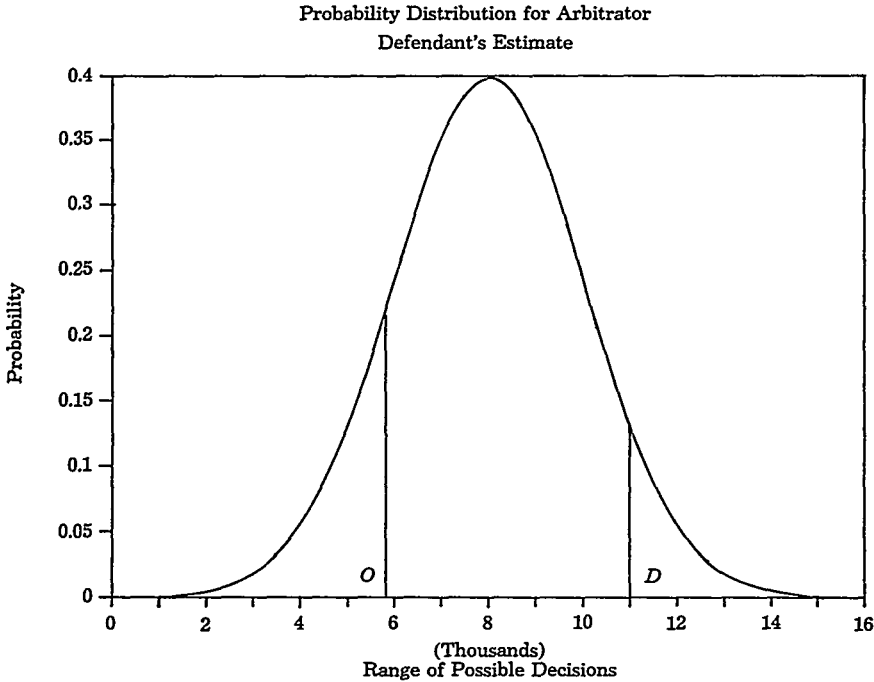


FIGURE 3

$$EV_a = O \int_{-\infty}^M P_a(x) dx + D \int_M^{\infty} P_a(x) dx$$

For a given D and $P_a(x)$, the defendant can attempt to minimize the expected value by varying his offer, O . The offer that minimizes the expected value can be found by comparing expected values for different offers or by taking the derivative of the expected value with respect to an offer and setting it equal to zero.

Kalyan Chatterjee⁴² has studied these expected values for a uniform probability distribution (see Figure 4) and for a linearly decreasing probability distribution (see Figure 5). A uniform distribution corresponds to an almost completely arbitrary arbitrator who has an equal probability for making any decision over a specified range and

42. Chatterjee, *Comparison of Arbitration Procedures: Models with Complete and Incomplete Information*, 11 IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS 101, 104-05 (1981). Chatterjee's investigation is discussed in H. RAIFFA, *supra* note 28, at 111-18.

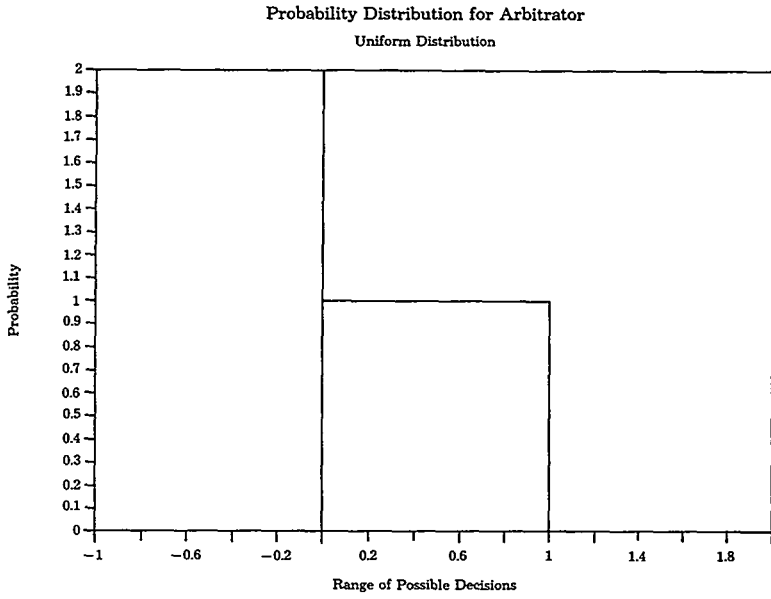


FIGURE 4

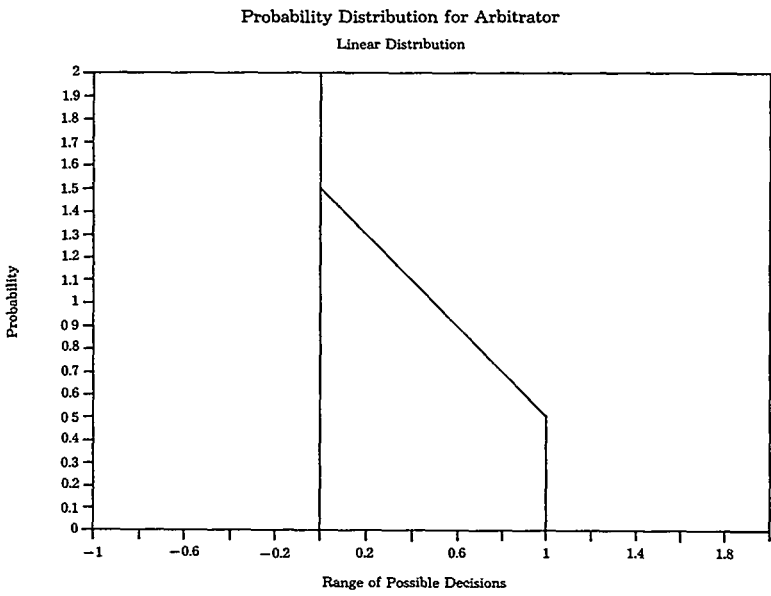


FIGURE 5

no probability outside the range. For simplicity assume the uniform probability distribution to be described as follows: $P_d(x) = 1$ for $O < x < 1$. Other uniform distributions can be transformed into this uniform distribution by redefining the origin and the units used to measure x . Then the defendant's expected value for the final offer arbitration process is:

$$\begin{aligned}
 EV_d &= O \int_0^M P_d(x) dx + D \int_M^1 P_d(x) dx \\
 &= O(M) + D(1-M) \\
 &= O\left(\frac{O+D}{2}\right) + D\left(1 - \left(\frac{O+D}{2}\right)\right) \\
 &= O^2/2 + D - D^2/2 \\
 &= D + 1/2(O^2 - D^2)
 \end{aligned}$$

This expected value is minimized if $O = 0$ (zero), regardless of what value is chosen for D . Similarly, if the plaintiff uses the same uniform probability distribution for the arbitrator, the expected value for the plaintiff will be maximized if the plaintiff chooses his demand so that $D = 1$, regardless of the defendant's offer. This yields the result that for uniform probability distributions for both plaintiffs and defendants, the optimal offers and demands are at the opposite ends of the distributions and are, therefore, widely separated. This result seems inconsistent with the intuitions of Rosenberg and Perlman, who believed that final offer arbitration would lead to settlement-seeking behavior on the part of litigants.⁴³ On the other hand, the result may not be too startling given the assumed probability distribution for the arbitrator. If the parties believe that the arbitrator is equally likely to make any decision over a specified range, they may as well take extreme positions at opposite ends of the range of possible decisions by the arbitrator.⁴⁴

Chatterjee found a different result for a linearly decreasing probability distribution.⁴⁵ This type of distribution is shown in Figure 5, and corresponds to an arbitrator whose decision must lie in a specified range; within this range the likelihood of the arbitrator making a particular award decreases as the size of the award increases. For this distribution, the optimal final demand from a plaintiff depended on

43. See *supra* text accompanying notes 19-26.

44. I am indebted to Professor Robert Denicola at the University of Nebraska College of Law for this observation.

45. Chatterjee, *supra* note 42, at 105.

the defendant's final offer. However, Chatterjee found that final offer arbitration did not seem to encourage settlement with this distribution very much either. Instead the offers and demands moved in the same direction; as the defendant became more reasonable and increased his final offer, the plaintiff's optimal demand increased so that the plaintiff's demand became even more extreme. Chatterjee observed that "the procedure appears to contain incentives for doing exactly the thing its proponents wish to avoid."⁴⁶

Because of the complexity of the expressions for the expected values, it is difficult to use analytical methods to decide how to optimize them for probability distributions other than the uniform and linear distributions. Using numerical methods and the aid of a computer, though, the expected values can be studied for a wide range of probability distributions, including the normal distribution.

To simplify the analysis, it is helpful to assume that the defendant's probability distribution for the arbitrator is a standard normal probability distribution with a mean of zero and a standard deviation of one, as is shown in Figure 6. Normal distributions with other means and standard deviations can be transformed to the standard normal distribution by redefining the origin and the units used to measure the standard deviation. Also since the total area under any probability distribution is equal to one (by definition a probability distribution must be unitary), the expression for the expected value may be simplified as follows:

$$\begin{aligned}
 EV_d &= O \int_{-\infty}^M P_d(x) dx + D \int_M^{\infty} P_d(x) dx \\
 &= (O-D) \int_{-\infty}^M P_d(x) dx + D; \text{ since } \int_{-\infty}^{\infty} P_d(x) dx = 1 \\
 &= (O-D) F(M) + D; \text{ where } F(M) = \int_{-\infty}^M P_d(x) dx \\
 &= D + 2(M-D) F(M); \text{ since } M = \frac{O+D}{2}
 \end{aligned}$$

$F(M)$ is known as the cumulative probability distribution for the standard normal distribution, and tables for it can be found in reference books on statistics.⁴⁷ Reading a range of values for $F(M)$ into a com-

46. *Id.* See also H. RAIFFA, *supra* note 28, at 115-17.

47. *E.g.*, 2 BIOMETRIKA TABLES FOR STATISTICIANS 153-59 (E. Pearson & H. Hartley eds. 1972); RESEARCH & EDUCATION ASSOCIATION, HANDBOOK OF MATHEMATICAL,

Probability Distribution for Arbitrator
Standard Normal Distribution

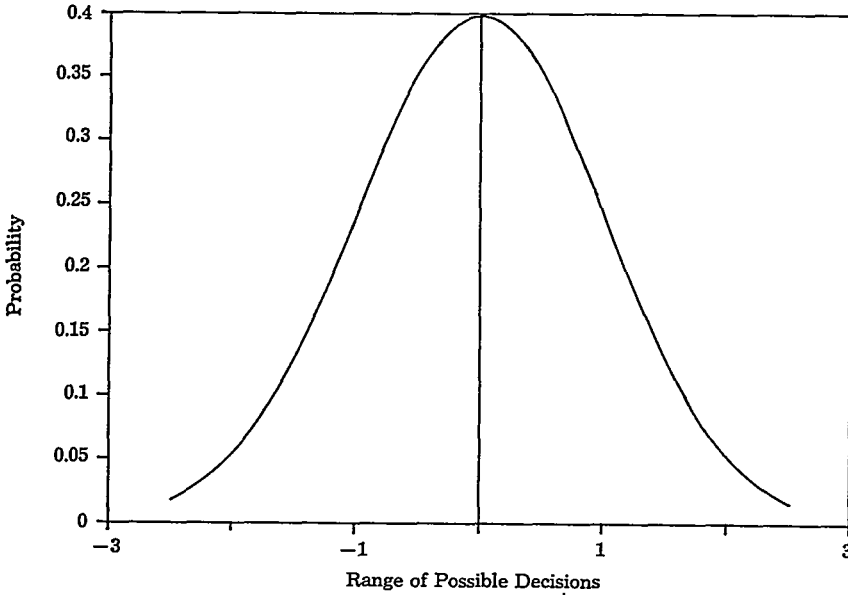


FIGURE 6

puter and calculating the defendant's expected value for a plaintiff's demand of 1 and a range of defendant's offers yields Chart 1.

SCIENTIFIC, AND ENGINEERING FORMULAS, TABLES, FUNCTIONS, GRAPHS, TRANSFORMS 562-69 (rev. 1984).

CHART 1
CHART OF EXPECTED VALUES FOR ARBITRATOR'S
DECISION

AMOUNT OF PLAINTIFF'S DEMAND = 1

<u>M</u>	<u>OFFER</u>	<u>F</u>	<u>EXPECTED VALUE</u>
-4.00	-9.00	0.00003	0.99970
-3.00	-7.00	0.00135	0.98920
-2.00	-5.00	0.02275	0.86350
-1.00	-3.00	0.15866	0.36536
-0.90	-2.80	0.18406	0.30057
-0.80	-2.60	0.21186	0.23730
-0.70	-2.40	0.24196	0.17734
-0.60	-2.20	0.27425	0.12240
-0.50	-2.00	0.30854	0.07438
-0.40	-1.80	0.34458	0.03518
-0.35	-1.70	0.36317	0.01944
-0.30	-1.60	0.38209	0.00657
-0.25	-1.50	0.40129	-.00322
-0.20	-1.40	0.42074	-.00978
-0.19	-1.38	0.42465	-.01067
-0.18	-1.36	0.42858	-.01145
-0.17	-1.34	0.43251	-.01207
-0.16	-1.32	0.43664	-.01300
-0.15	-1.30	0.44038	-.01287
-0.14	-1.28	0.44433	-.01307
-0.13	-1.26	0.44828	-.01311
-0.12	-1.24	0.45224	-.01302
-0.11	-1.22	0.45620	-.01276
-0.10	-1.20	0.46017	-.01237
-0.09	-1.18	0.46414	-.01183
-0.08	-1.16	0.46812	-.01114
-0.07	-1.14	0.47210	-.01029
-0.06	-1.12	0.47608	-.00929
-0.05	-1.10	0.48006	-.00813
-0.04	-1.08	0.48405	-.00682
-0.03	-1.06	0.48803	-.00534
-0.02	-1.04	0.49202	-.00372
-0.01	-1.02	0.49601	-.00194
0.00	-1.00	0.50000	0.00000
0.05	-0.90	0.51994	0.01211
0.10	-0.80	0.53983	0.02831
0.20	-0.60	0.57926	0.07318
0.30	-0.40	0.61791	0.13493
0.40	-0.20	0.65542	0.21350
0.60	0.20	0.72575	0.41940
0.80	0.60	0.78814	0.68474
1.00	1.00	0.84134	1.00000
2.00	3.00	0.97725	2.95450
3.00	5.00	0.99865	4.99460
4.00	7.00	0.99997	6.99982

THE MINIMAL EXPECTED VALUE IS -.01311 WITH THE OFFER OF -1.26
 WHEN THE PLAINTIFF'S DEMAND IS 1

CHART 2
CHART OF EXPECTED VALUES FOR ARBITRATOR'S
DECISION

AMOUNT OF PLAINTIFF'S DEMAND = 2

<u>M</u>	<u>OFFER</u>	<u>F</u>	<u>EXPECTED VALUE</u>
-4.00	-10.00	0.00003	1.99964
-3.00	-8.00	0.00135	1.98650
-2.00	-6.00	0.02275	1.81800
-1.00	-4.00	0.15866	1.04804
-0.90	-3.80	0.18406	0.93245
-0.80	-3.60	0.21186	0.81358
-0.60	-3.20	0.27425	0.57390
-0.40	-2.80	0.34458	0.34602
-0.20	-2.40	0.42074	0.14874
0.00	-2.00	0.50000	0.00000
0.05	-1.90	0.51994	-.02777
0.10	-1.80	0.53983	-.05135
0.12	-1.76	0.54776	-.05958
0.14	-1.72	0.55567	-.06709
0.16	-1.68	0.56356	-.07390
0.18	-1.64	0.57142	-.07997
0.20	-1.60	0.57926	-.08534
0.22	-1.56	0.58706	-.08993
0.24	-1.52	0.59483	-.09380
0.26	-1.48	0.60257	-.09694
0.28	-1.44	0.61026	-.09929
0.30	-1.40	0.61791	-.10089
0.32	-1.36	0.62552	-.10173
0.34	-1.32	0.63307	-.10179
0.35	-1.30	0.63683	-.10154
0.36	-1.28	0.64058	-.10110
0.38	-1.24	0.64083	-.07629
0.40	-1.20	0.65542	-.09734
0.42	-1.16	0.66276	-.09432
0.44	-1.12	0.67003	-.09049
0.46	-1.08	0.67724	-.08590
0.48	-1.04	0.68439	-.08055
0.50	-1.00	0.69146	-.07438
0.60	-0.80	0.72575	-.03210
0.70	-0.60	0.75804	0.02910
0.80	-0.40	0.78814	0.10846
0.90	-0.20	0.81594	0.20493
1.00	0.00	0.84134	0.31732
2.00	2.00	0.97725	2.00000
3.00	4.00	0.99865	3.99730
4.00	6.00	0.99997	5.99988

THE MINIMAL EXPECTED VALUE IS -0.10179 WITH THE OFFER OF -1.32
WHEN THE PLAINTIFF'S DEMAND IS 2

It should be observed that for a plaintiff's demand equal to one, the expected value is positive except for offers between -1.50 and -1 . The lowest expected value is obtained with an offer of -1.26 . Thus, if the plaintiff submits a final demand that is one standard deviation above the mean of the defendant's probability distribution for the arbitrator, the defendant can expect to fare better in final offer arbitration than in conventional arbitration as long as he submits an offer in the range between 1.50 and 1 standard deviations below the mean; the defendant's optimal offer will be 1.26 standard deviations below the mean.

If the plaintiff's demand is two ($D=2$), then calculating the expected values for different offers yields Chart 2. This chart shows that for a plaintiff's demand that is two standard deviations above the mean of the defendant's probability distribution for the arbitrator, the defendant's optimal offer is 1.32 standard deviations below the mean. Thus, while the plaintiff's demand has increased by a significant amount, the defendant's optimal offer has stayed about the same. The expected values can also be calculated for a plaintiff's demand of three, and these are shown in Figure 7 along with the expected values for plaintiff's demands of one and two. Figure 7 shows that when the plaintiff's demand is three standard deviations above the mean of the arbitrator's probability distribution, the defendant's optimal offer is still less than two standard deviations below the mean. Figure 7 also shows that the expected values decrease as the plaintiff's demands get higher. Thus, it benefits the defendant if the plaintiff submits an extreme demand during the final offer arbitration process. The defendant can respond with a more reasonable final offer, and then it will be likely that the arbitrator will favor the defendant's offer to the plaintiff's extreme demand.

Optimal offers can also be determined for a range of plaintiff's demands. See Charts 3 and 4. In Chart 3, the plaintiff's demand varies from $.5$ to 10 in steps of $.5$. As the plaintiff's demand becomes very extreme, so does the optimal defendant's offer. Note, though, that the optimal defendant's offer is always less extreme than the plaintiff's demand, and that the expected values from the arbitration process remain negative and increase in magnitude as the plaintiff's demand becomes larger. Extreme demands from the plaintiff, therefore, are clearly to the defendant's advantage. In Chart 4 the plaintiff's demand varies from $.5$ to 1.45 in steps of $.05$. Over this range the optimal defendant's offer is remarkably stable, varying only from -1.34 to -1.25 . Note also that the defendant's expected value is slightly negative over this range, except that it goes to zero when the plaintiff's demand is 1.25 standard deviations above the mean. Thus, if both the plaintiff and the defendant have the same normal probability distribution for the arbitrator's decision, their optimal strategy will be to ex-

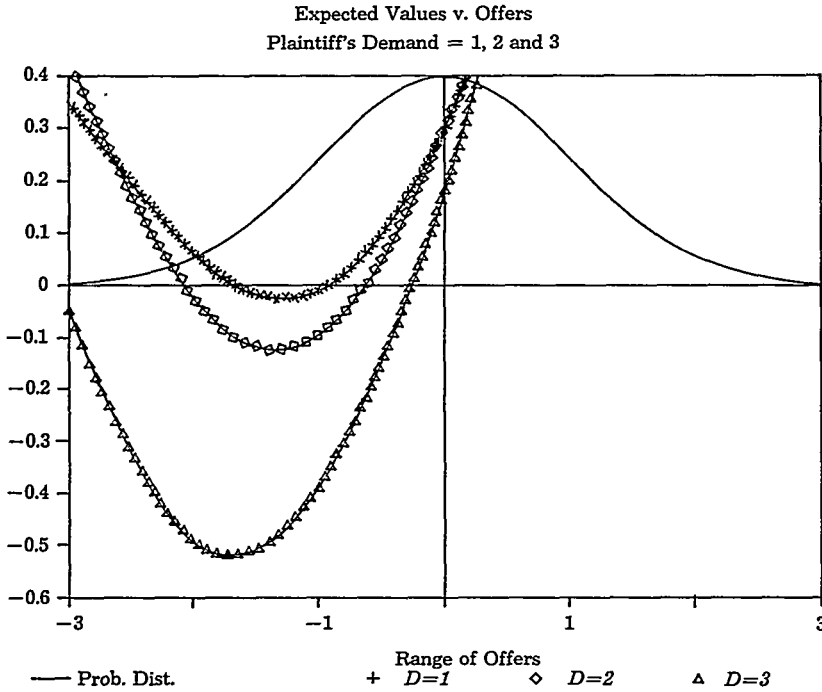


FIGURE 7

change final offers and demands that are 1.25 standard deviations on either side of the mean of the distribution. If they both make these optimal offers and demands, then the expected value of the arbitrator's decision will be zero—the same as it would be for conventional arbitration. But if either party strays from this optimal strategy, then the other party can gain an advantage by making an optimal offer or demand, and the optimal offer or demand will be approximately 1.25 to 1.4 standard deviations away from the mean of the standard deviation.

A numerical example may clarify this discussion. Assume that both the plaintiff and the defendant agree on a normal probability distribution for the arbitrator that has a mean of \$8,000 and a standard deviation of \$2,000, as is shown in Figure 8. Approximately two-thirds of the arbitrator's decisions in conventional arbitration would then be in the range between \$6,000 and \$10,000. From the previous discussion, the optimal offers and demands would be approximately \$5,500 and \$10,500—about 1.25 standard deviations on either side of the mean. The top curve in Figure 8 shows the defendant's expected value if the plaintiff submits an optimal final demand of \$10,500; the defend-

CHART 3
CHART OF OPTIMAL OFFERS

<u>PLAINTIFF'S DEMAND</u>	<u>OPTIMAL OFFER</u>	<u>EXPECTED VALUE</u>
0.50	-1.34	-0.12052
1.00	-1.26	-0.01311
1.50	-1.26	-0.01182
2.00	-1.32	-0.10179
2.50	-1.46	-0.26594
3.00	-1.68	-0.48833
3.50	-1.90	-0.75596
4.00	-2.20	-1.05883
4.50	-2.50	-1.38938
5.00	-2.84	-1.74185
5.50	-3.18	-2.11219
6.00	-3.52	-2.49670
6.50	-3.90	-2.89328
7.00	-4.32	-3.29984
7.50	-4.70	-3.71473
8.00	-5.12	-4.13692
8.50	-5.54	-4.56506
9.00	-5.96	-4.99867
9.50	-6.38	-5.43705
10.00	-6.80	-5.87936

CHART 4
CHART OF OPTIMAL OFFERS

<u>PLAINTIFF'S DEMAND</u>	<u>OPTIMAL OFFER</u>	<u>EXPECTED VALUE</u>
0.50	-1.34	-0.12052
0.55	-1.33	-0.10475
0.60	-1.32	-0.09009
0.65	-1.31	-0.07657
0.70	-1.30	-0.06418
0.75	-1.29	-0.05290
0.80	-1.28	-0.04275
0.85	-1.29	-0.03369
0.90	-1.28	-0.02574
0.95	-1.27	-0.01934
1.00	-1.26	-0.01311
1.05	-1.25	-0.00839
1.10	-1.26	-0.00476
1.15	-1.25	-0.00214
1.20	-1.26	-0.00055
1.25	-1.25	0.00000
1.30	-1.26	-0.00043
1.35	-1.25	-0.00184
1.40	-1.26	-0.00421
1.45	-1.25	-0.00754

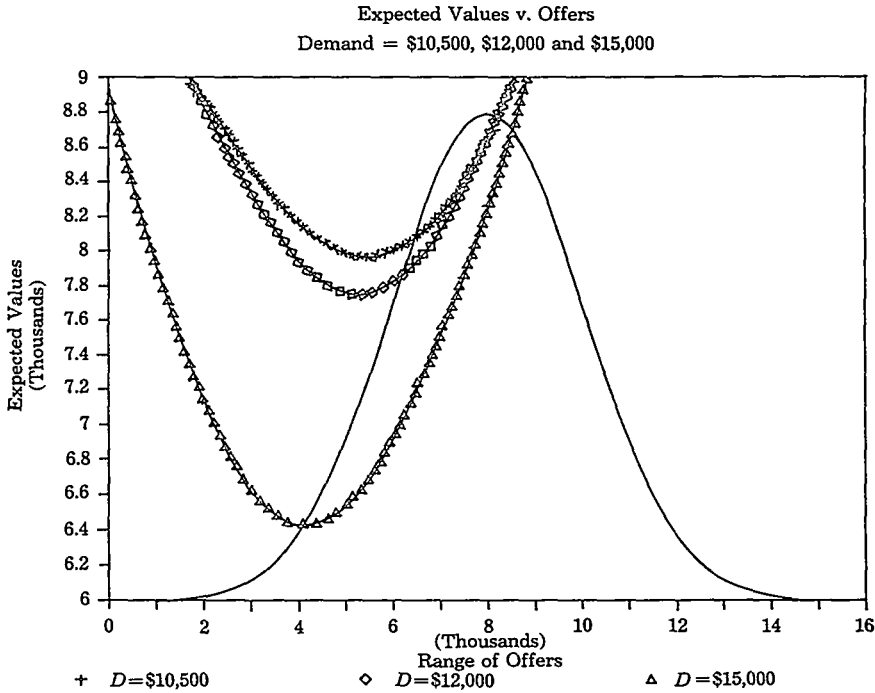
ant's expected value if the defendant responds with an optimal final offer of \$5,500 is \$8,000—which is equal to the mean of the arbitrator's probability distribution. The middle curve in Figure 8 shows that if instead the plaintiff submitted a demand of \$12,000, the defendant should still offer about \$5,000. Since the \$5,000 offer is closer to the mean of \$8,000 than it is to the \$12,000 demand, the arbitrator would probably choose the defendant's offer, and it would not be in the defendant's interest to raise his offer any higher. The defendant might be tempted to take a more extreme position by reducing his offer to counter the increase in the plaintiff's demand. But if the defendant did so, this would decrease the chances that the arbitrator would select the defendant's offer instead of the plaintiff's demand. Thus it would be in the defendant's interest to keep his offer at about \$5,000 as long as the plaintiff's demand was not too extreme. If, however, the plaintiff submitted a \$15,000 demand (3.5 standard deviations above the mean), then the lowest curve in Figure 8 shows that the defendant's optimal final offer is approximately \$4,000. The defendant could safely offer \$4,000 and still be fairly well assured that the arbitrator would choose his offer over the plaintiff's \$15,000 demand.

In general, of course, the parties will have different expectations for the arbitrator's decision, and they will assign different probability distributions to it. The plaintiff is likely to have higher expectations than the defendant,⁴⁸ and, therefore, the plaintiff's probability distribution will be to the right of the defendant's distribution. See Figure 9. The opposing parties could still attempt to make optimal offers and demands using their respective probability distributions. The party with the probability distribution that more accurately reflects the arbitrator's decision-making behavior will be expected to get better results from the final offer procedure than his opponent.

The optimal bidding strategy of the parties in final offer arbitration depends critically on their expectations of the arbitrator's evaluation of the case. Chatterjee showed that if their expectations are represented by a uniform distribution, the optimal offers and demands will be at the extreme edges of the distribution.⁴⁹ If their expectations are represented by normal distributions, though, the optimal offers and demands will be approximately 1.25 standard deviations on either side of their respective probability distributions. Optimal bidding strategy for other types of probability distributions can be found using a computer in the same way that the strategy was found for the normal distribution. Even given a uniform probability distribution for the arbitrator, final offer arbitration is more likely to produce settlement

48. If the plaintiff had lower expectations than the defendant, then the dispute would be resolved swiftly and easily by the defendant's offering to pay the amount of the plaintiff's expectations.

49. Chatterjee, *supra* note 42, at 104-05.



than conventional arbitration. Although the optimal offers and demands for final offer arbitration are at the extreme edges of the distribution, conventional arbitration would probably encourage the parties to take even more extreme positions.⁵⁰ Similar results should be anticipated if other probability distributions are used to describe the arbitrator's expected decision-making behavior.

The preceding discussion has not considered the effects of the expense of the arbitration process and risk aversion, which also encourage settlement. These effects may be taken into account by reducing the expressions for the expected values by the amount of the expense and a discount for risk aversion. The expected returns of the parties from the final offer arbitration process would then be:

50. See Rosenberg, *supra* note 19; Stevens, *supra* note 14, at 44-45; Note, *supra*, note 14, at 515.

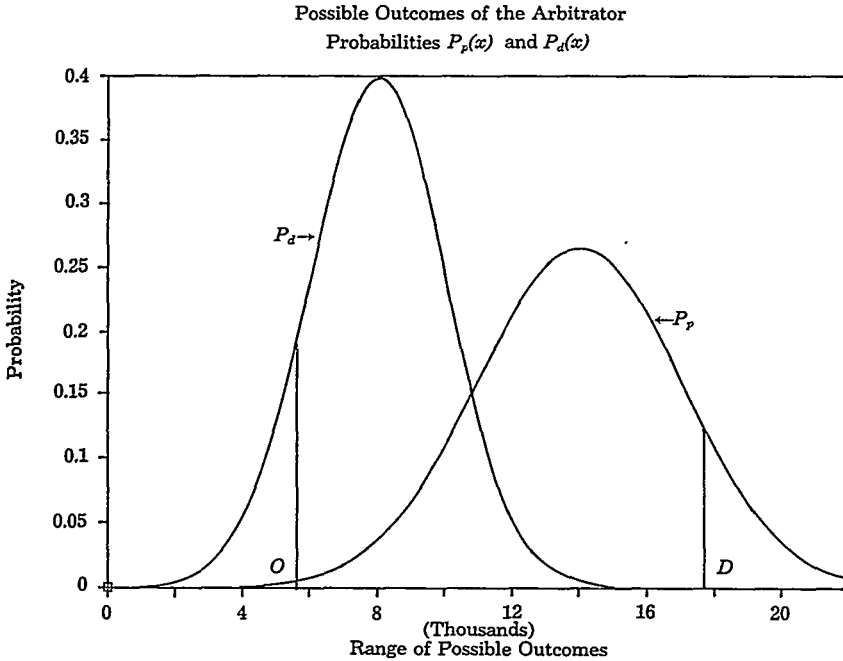


FIGURE 9

$$\begin{aligned}
 ER_d &= EV_d + A_d + RA_d \\
 &= D + 2(M-D)F(M) + A_d + RA_d; \text{ where } M = \frac{O+D}{2} \\
 ER_p &= EV_p - A_p - RA_p \\
 &= 2(O-M)F(M) + 2M - O - A_p - RA_p
 \end{aligned}$$

As discussed earlier, the expected values for the parties would be based on their probability distributions for the arbitrator as well as on the offers and demands that they submit.

As with the settlement of litigation, the presence of risk aversion and expenses of arbitration may produce a settlement zone⁵¹ for the parties. See Figure 2. If the final offer arbitration procedure were an abbreviated one, then the expense of arbitration for each of the parties ought to be relatively small. Hence the expense of arbitration would not result in a substantial widening of the settlement zone. However, if the defendant's offer, and the plaintiff's demand, were widely sepa-

51. See *supra* text accompanying notes 30-31.

rated, then the parties' discounts for risk aversion could be large and could produce a substantial settlement zone.⁵²

Thus, the final offer arbitration process promotes settlement in two separate ways. First, it encourages negotiating parties to submit final offers within approximately 1.5 standard deviations of the means of the probability distributions that they assign to the arbitrator. This may assist the parties in locating an area in the settlement zone that they might not otherwise be able to find during the bargaining process. And second, the expenses of arbitration and the risk aversion of the parties can enlarge an existing settlement zone or create a new settlement zone for the parties.

Differences between the parties in their degree of risk aversion can be expected to affect the final offer arbitration process. The party who is the more risk averse would have an incentive to make offers that are closer to the mean of the probability distribution for the arbitrator than the other party. Since the risk averse party's offers are apt to be more moderate, they will have a greater chance of being selected by the arbitrator. Thus, the risk averse party not only ought to make more reasonable offers than the other party but also ought to win more often in final offer arbitration.⁵³ If, however, a settlement is reached before the arbitration hearing, it is likely to be least favorable to the more risk averse party, who can be expected to make the greatest concessions in order to avoid the risk of the hearing.⁵⁴

The arbitration hearing will not necessarily end the dispute if final offer arbitration is used with court-annexed arbitration. The right to a jury trial requires that the losing party at the arbitration hearing be given a trial *de novo*.⁵⁵ The trial *de novo* provides the major protection against erroneous decisions by the arbitrator, and it is, therefore, an important safeguard of the final offer arbitration process. Even after a trial *de novo* has been requested, though, the parties might still

52. In first proposing final offer arbitration, Carl Stevens observed: "Generally speaking, [the final offer arbitration process] generates just the kind of uncertainty about the location of the arbitration award that is well calculated to recommend maximin notions of prudence to the parties and, hence, compel them to seek security in agreement." Stevens, *supra* note 14, at 46.

53. These results are derived using utility functions to describe risk aversion in Farber, *supra* note 39, at 688-94, 699.

54. *Id.* at 697-704. This effect also occurs in conventional arbitration. See Farber & Katz, *Interest Arbitration, Outcomes, and the Incentive to Bargain*, 33 INDUS. & LAB. REL. REV. 55, 62-63 (1979).

55. *New England Merchants Nat'l Bank v. Hughes*, 556 F. Supp. 712, 714 (E.D. Pa. 1983); *Kimbrough v. Holiday Inn*, 478 F. Supp. 566, 567-71 (E.D. Pa. 1979); *Christie-Lambert Van & Storage Co. v. McLeod*, 39 Wash. App. 298, 305, 693 P.2d 161, 166-67 (Ct. App. 1984); *In re Smith*, 381 Pa. 223, 230-31, 112 A.2d 625, 629, *appeal dismissed sub. nom. Smith v. Wissler*, 350 U.S. 858 (1955). The need for a trial *de novo* in connection with a court-annexed final offer arbitration procedure is discussed in Note, *supra* note 14, at 537-42.

be able to negotiate a settlement. The arbitration hearing followed by the award could operate as a Quick Look device⁵⁶ that would influence the expectations of the parties as to the outcome of the trial and aid them in evaluating the case for settlement. Also, the expense and uncertainty of the trial *de novo* would produce a settlement zone just as they would if there had been no arbitration hearing. In addition, a Doomsday Machine could be designed to impose a disincentive on proceeding to trial. It might be an appropriate disincentive to require a party to pay the opposing party's costs or attorneys' fees if he seeks a trial *de novo* and does not do as well or somewhat better at the trial than at the arbitration hearing.⁵⁷ Such a disincentive would widen the settlement zone even more and hence would seem to encourage settlement.⁵⁸ Accordingly, a final offer procedure ought to facilitate settlement both before the arbitration hearing and also between the hearing and a trial *de novo*, if one is requested.

This section of the Article has provided theoretical support for the proposition that final offer arbitration can help to produce settlements. The next section of the Article examines empirical data on final offer arbitration.

IV. EMPIRICAL DATA ON FINAL OFFER ARBITRATION

The effects of final offer arbitration on bargaining behavior have been studied by social scientists since the early 1970s. Empirical research has been done both in the laboratory using college students as negotiators and in the field through the study of public employee labor disputes and baseball negotiations. The laboratory experiments support the notion that final offer arbitration may promote settlement in connection with court-annexed arbitration. The field studies, however, are inconclusive.

A. Laboratory Studies

Eight experiments involving final offer arbitration have been re-

56. See Bedlin & Nejelski, *supra* note 1, at 9.

57. Although most observers agree that enlarging the settlement zone by increasing the cost of disagreement increases the rate of settlement, the opposite conclusion is reached in Crawford, *A Theory of Disagreement in Bargaining*, 50 *ECONOMETRICA* 607, 608, 630, 635 (1982). Crawford's analysis is based on the premise that it is rational for opposing parties to attempt to gain bargaining advantages by committing themselves to positions that pose a risk of impasse. *Id.* at 608-11, 626-27. See also *supra* text accompanying notes 32-36.

58. See, e.g., W.D. OKLA. R. 43 (party who requested trial *de novo* may be required to pay attorneys' fees to the opposing party, if the requesting party does not improve his position as a result of the trial by at least 10% over the arbitration award), and the other rules and statutes cited *supra* note 10.

ported in the industrial relations and applied psychology literature.⁵⁹ In these experiments, the final offer arbitration procedure was compared to other forms of third-party intervention in negotiations, such as conventional arbitration and mediation. Typically a large number of students have been assigned to conduct a settlement negotiation; usually the negotiation was of a fictitious collective bargaining agreement, but in one experiment⁶⁰ the underlying hypothetical dispute was a products liability claim for personal injuries against an automobile manufacturer. The experimental subjects were divided into a number of experimental groups in which different forms of third-party intervention were used if the subjects were not able to reach agreement on their own; other variables besides method of third-party intervention have also been studied by dividing the subjects into additional groups.⁶¹ In order to obtain statistically significant experimental results, a large number of students must conduct essentially the same negotiation under controlled conditions. As a practical matter this has necessitated somewhat artificial conditions—that the subjects be given only a limited amount of time (ranging from only ten minutes⁶² to forty-five minutes⁶³) to conduct the negotiations and that the subjects have little information about the subject of their negotiations. The experimenters were able to evaluate the various methods of third-party intervention by measuring the percentage of negotiating pairs in the different experimental groups that reach agreement, and for those pairs that did not reach agreement, the separations between the offers and demands at the end of the negotiating sessions. In addition to measuring the separations between the offers and demands at the end of the negotiating sessions, experimenters have also measured

59. DeNisi & Dworkin, *Final Offer Arbitration and the Naive Negotiator*, 35 INDUS. & LAB. REL. REV. 78 (1981); Grigsby & Bigoness, *Effects of Mediation and Alternative Forms of Arbitration on Bargaining Behavior: A Laboratory Study*, 67 J. APPLIED PSYCHOLOGY 549 (1982); Johnson & Tullar, *Style of Third Party Intervention, Face-Saving and Bargaining Behavior*, 8 J. EXPERIMENTAL SOC. PSYCHOLOGY 319 (1972); Magenau, *The Impact of Alternative Impasse Procedures on Bargaining: A Laboratory Experiment*, 36 INDUS. & LAB. REL. REV. 361 (1983); Neale & Bazerman, *The Role of Perspective-Taking Ability in Negotiating Under Different Forms of Arbitration*, 36 INDUS. & LAB. REL. REV. 378 (1983); Notz & Starke, *Final-Offer Versus Conventional Arbitration as Means of Conflict Management*, 23 ADMIN. SCI. Q. 189 (1978); Starke & Notz, *Pre- and Post-Intervention Effects of Conventional Versus Final Offer Arbitration*, 24 ACAD. MGMT. J. 832 (1981); Subbarao, *The Impact of Binding Interest Arbitration on Negotiation and Process Outcome: An Experimental Study*, 22 J. CONFLICT RESOLUTION 79 (1978).

60. Starke & Notz, *supra* note 59, at 838-39.

61. For example, the experimenters varied the negotiators' need to save face along with the method of third-party intervention in Johnson & Tullar, *supra* note 59, and the level of conflict between the negotiators was varied along with the method of third-party intervention in Notz & Starke, *supra* note 59, at 192.

62. Magenau, *supra* note 59, at 367.

63. DeNisi & Dworkin, *supra* note 59, at 80.

the separations at other times (such as the beginning of the sessions) in order to learn when concession-making occurred in the negotiating process. To see the effect that gaining more experience with the negotiation process may have had, some experimenters have run the subjects through more than one round of negotiations.⁶⁴ Finally, experimenters have studied the reactions and attitudes of the subjects to the various methods of third-party intervention by tabulating the responses of the subjects to questionnaires.

The results of the experiments involving final offer arbitration have been striking, especially for social science research. With near unanimity⁶⁵ they have shown final offer arbitration to be superior to conventional arbitration in bringing negotiators to agreement before the arbitration hearing. The experiments have shown that negotiating pairs were able to resolve more issues through negotiation if they anticipated final offer arbitration rather than conventional arbitration.⁶⁶ Where agreement was not reached by the close of negotiations, the separation between offers and demands was less for final offer arbitration than conventional arbitration.⁶⁷ Not only were the final offers and demands closer together for final offer arbitration than for con-

64. See Magenau, *supra* note 59, at 368; Starke & Notz, *supra* note 59, at 841.

65. In the earliest experiment (which is reported in Johnson & Tullar, *supra* note 59) negotiators who anticipated final offer arbitration in one of the experimental groups appeared to be less likely to reach agreement and were further apart at the end of the negotiations than other negotiators, including negotiators who anticipated conventional arbitration if they did not reach agreement. At the time, Johnson and Tullar speculated that this observed failure of final offer arbitration to facilitate settlement may have been due to the lack of familiarity of the experimental subjects with this novel form of third-party intervention. Johnson & Tullar, *supra* note 59, at 329. A later experiment (which is reported in DeNisi & Dworkin, *supra* note 59) provided evidence that, when it was fully understood by the experimental subjects, final offer arbitration did indeed promote settlement; if it was not thoroughly explained to the subjects, though, the final offer arbitration procedure was much less effective. DeNisi & Dworkin, *supra* note 59, at 86-87. Also, another experiment (which is reported in Magenau, *supra* note 59) suggests that Johnson and Tullar's anomalous results may have been due to uncertainty by the experimental subjects about the anticipated effects of conventional arbitration. Magenau demonstrated that if the negotiators anticipate that the arbitrator in conventional arbitration will use a split-the-difference rule to decide the dispute, this will impede the making of concessions. If, however, the negotiators are uncertain about how the arbitrator will reach a decision, they will have an incentive to make concessions in order to avoid turning the case over to the arbitrator. Thus, Johnson and Tullar's results may have been caused not only by the unfamiliarity of the subjects with final offer arbitration, but also by the uncertainty of the negotiators in the conventional arbitration groups as to the arbitrator's decision-making rule. Magenau, *supra* note 59, at 363-64, 369-71.

66. Grigsby & Bigoness, *supra* note 59, at 552-54; Neale & Bazerman, *supra* note 59, at 386.

67. Magenau, *supra* note 59, at 371; Notz & Starke, *supra* note 59, at 196-200; Starke & Notz, *supra* note 59, at 842.

ventional arbitration, but also the initial offers and demands were closer together as well. Moreover, final offer arbitration generated greater concessions from both sides during the negotiations.⁶⁸

Finally, the responses to questionnaires in some of the experiments yielded a particularly interesting result. Negotiators in the final offer arbitration groups felt more personally responsible for the outcome of the combined negotiation-arbitration process⁶⁹ and more committed to it⁷⁰ than negotiators in the conventional arbitration groups. One experiment even suggested that negotiators tended to have more favorable attitudes toward their opponents at the end of the negotiation-arbitration process if final offer arbitration was used rather than conventional arbitration.⁷¹ Thus, if widely adopted, final offer arbitration might promote not only settlement but also amicable relations among negotiators as well.

Final offer arbitration, however, will not always induce greater concessions from the negotiating parties than conventional arbitration. In order to work properly the final offer arbitration process must be understood by the negotiators; and for best results, the negotiators should have had some experience negotiating under final offer arbitration conditions.⁷² In addition, conventional arbitration may produce the same rate of settlement as final offer arbitration if the negotiators do not expect the arbitrator to reach a decision by splitting the difference between their final positions.⁷³ Also, the concession-making in final offer arbitration tends to occur only at the end of negotiations—when the threat of arbitration becomes imminent.⁷⁴ This observation has led one experimenter to recommend that negotiators be given an opportunity to submit final offers to the arbitrator that are different than the last offers exchanged at the negotiating table; it is believed that greater concessions are apt to be made once the negotiators have had a chance to focus their attention on the prospect of sub-

68. Magenau, *supra* note 59, at 369-72; Neale & Bazerman, *supra* note 59, at 386; Notz & Starke, *supra* note 59, at 196-200; Starke & Notz, *supra* note 59, at 842.

69. Notz & Starke, *supra* note 59, at 198-99.

70. Starke & Notz, *supra* note 59, at 843-48. Unlike conventional arbitration, where a compromise may make it difficult to ascertain a winner and a loser, final offer arbitration produces clear winners and losers. As would be expected, Starke and Notz observed that the losers in final offer arbitration were significantly less committed to the outcome than were the winners. *Id.* at 844, 848. Under some circumstances the losers in final offer arbitration demonstrated less commitment to the outcome than conventional arbitration negotiators; however, they did not do so consistently. Since negotiators using final offer arbitration would be expected to win some and lose others over time, Starke and Notz concluded that the win-lose effect on commitment to outcome should diminish eventually. *Id.* at 848.

71. DiNisi & Dworkin, *supra* note 59, at 86-87.

72. *Id.*

73. Magenau, *supra* note 59, at 364, 371, 374.

74. *Id.* at 364-65, 371, 374-75.

mitting offers to the arbitrator.⁷⁵

Margaret Neale and Max Bazerman have proposed a decision-making theory to explain the success of final offer arbitration.⁷⁶ With final offer arbitration the negotiators are forced to consider not only their own perspectives on the dispute, but also the perspectives of their opponents and of the neutral arbitrator.⁷⁷ Because they must pay attention to the objectives and points of view of the other participants in the negotiation-arbitration process, the negotiators are more open to the making of concessions. In addition, they are apt to be more effective as negotiators. Neale and Bazerman's experiment showed that experimental subjects with high scores on a psychological test designed to measure their perspective-taking ability were able to obtain greater concessions from their opponents and achieve more favorable outcomes during the negotiation process than subjects with low test scores.⁷⁸ By making negotiators look beyond their own perspectives to the perspectives of their opponents, final offer arbitration appears to encourage negotiators to make a more realistic appraisal of their situation. This realistic appraisal may then lead to settlement.

The work of John Thibaut and Laurens Walker⁷⁹ suggests another explanation for results of the final offer arbitration experiments. Using their own laboratory experiments Thibaut and Walker compared the effectiveness of the following dispute resolution procedures: autocratic, arbitration, moot, mediation, and bargaining.⁸⁰ They found that for disputes involving high levels of conflict between the parties, arbitration (or the adversary system) was the procedure best able to produce distributive justice.⁸¹ According to Thibaut and Walker, arbitration is well adapted to the resolution of disputes involving high levels of conflict because it assigns the maximum level of control over the process to the disputing parties while leaving decision control to a third party.⁸² It is necessary to assign decision control to a third party in disputes involving high levels of conflict because of the difficulty of resolving the dispute otherwise. At the same time it is desirable to permit the disputing parties to control the statement of their claims as well as the gathering and presentation of the information on which the resolution of their dispute will depend. The disputing parties have

75. *Id.* at 374-75.

76. Neale & Bazerman, *supra* note 59.

77. *Id.* at 380.

78. *Id.* at 380-81, 386.

79. J. THIBAUT & L. WALKER, PROCEDURAL JUSTICE (1975); Thibaut & Walker, *A Theory of Procedure*, 66 CALIF. L. REV. 541 (1978).

80. J. THIBAUT & L. WALKER, *supra* note 79, at 11-15.

81. *Id.* at 14-15, 117-19; Thibaut & Walker, *supra* note 79, at 551, 566.

82. "[A] system that assigns maximum process control to the disputants, but assigns decision control to a third party, is most likely to result in distributive justice." Thibaut & Walker, *supra* note 79, at 566.

better access to pertinent information and greater incentives to seek it out than the third party and they are most likely to be satisfied with the dispute resolution process if they can exercise the maximum amount of process control.⁸³ Thibaut and Walker's theories can also be applied to the final offer arbitration process. The final offer arbitration procedure reduces the discretion of the arbitrator by limiting the arbitrator's decision to a choice between the final offers of the parties. To this extent it shifts procedural control from the arbitrator to the disputing parties, who are responsible for the size of their final offers and thus the choice with which the arbitrator is faced. By giving more control to the disputing parties while at the same time assigning the ultimate decision to the arbitrator, the final offer arbitration procedure enhances disputant satisfaction and promotes distributive justice.

An important limitation on the significance of the laboratory experiments with final offer arbitration is whether they may be generalized to the world outside the laboratory.⁸⁴ The advantage of laboratory studies is that they allow statistically significant results to be obtained under controlled conditions. Their disadvantage is that they may lack external validity. The negotiations that occur in the laboratory are staged. They are conducted by college students with limited time, little or no personal stake in the outcome, little knowledge of the subject matter of the dispute, and little negotiation experience. Some of the experimenters emphasize that their laboratory studies do not duplicate real world conditions and, therefore, their results may not be accurate outside the laboratory.⁸⁵ Nevertheless, the fact that the results obtained from a variety of laboratory experiments are consistent with the theoretical explanation presented earlier in this Article enhances their credibility.

B. Field Studies

During the past decade final offer arbitration has been used in public employee bargaining and also to resolve disputes over the salaries of major league baseball players. Over this period, a sizable number of researchers have attempted to study its operation in the field and eval-

83. J. THIBAUT & L. WALKER, *supra* note 79, at 94, 118; Thibaut & Walker, *supra* note 79, at 549-52.

84. See Anderson, *supra* note 17, at 144; Konecni & Ebbesen, *A Critique of Theory and Method in Social-Psychological Approaches to Legal Issues in The Trial Process*, in 2 PERSPECTIVES IN LAW AND PSYCHOLOGY: THE TRIAL PROCESS 481 (Sales ed. 1981).

85. DeNisi & Dworkin, *supra* note 59, at 87; Magenau, *supra* note 59, at 377; Starke & Notz, *supra* note 59, at 849.

uate its effectiveness as a means for dispute resolution.⁸⁶ Unfortunately, the results of these field studies are inconclusive.⁸⁷ A major reason for this appears to be that conditions in the field are not readily susceptible to control by the researcher.

A number of the reported studies have been single case studies in which an observer has studied the operation of final offer arbitration in a specific setting.⁸⁸ The failing of single case studies is that the researcher cannot tell whether a particular observation, such as a rate of settlement, was due to the presence of final offer arbitration or to the presence of other factors in the environment.⁸⁹ In an effort to remove other factors from their observations some researchers have used either pretest-posttest observations or static group comparisons. A pretest-posttest observation compares the rate of settlement before and after a change is made in the arbitration process,⁹⁰ while a static group comparison examines differences in settlement rates between states having different arbitration processes.⁹¹ Unfortunately, these methods do not necessarily remove all the contaminating factors from the researchers' observations. Pretest-posttest observations do not account for changes occurring simultaneously with the change in the arbitration process being studied, and static group comparisons may have difficulty in taking into account other differences between the states that are being compared.⁹² Unlike an experimenter in the laboratory, a researcher in the field cannot easily divide the subjects he is

86. Field studies of final offer arbitration are surveyed in Anderson, *supra* note 17, and Feuille, *supra* note 14.

87. See Anderson, *supra* note 17, at 144-45.

88. *Id.* at 134-37. Examples of single case studies of final offer arbitration include Feuille & Long, *supra* note 17; Gallagher, *supra* note 16; Grodin, *Arbitration of Public Sector Labor Disputes: The Nevada Experiment*, 28 INDUS. & LAB. REL. REV. 89 (1974); Long & Feuille, *supra* note 17; Witney, *supra* note 17.

89. See Anderson, *supra* note 17, at 138; Long & Feuille, *supra* note 17, at 203; Witney, *supra* note 17, at 25.

90. Examples of pretest-posttest observations of final offer arbitration in Massachusetts are Lipsky & Barocci, *Final-Offer Arbitration and Public-Safety Employees: The Massachusetts Experience*, PROC. OF THIRTIETH ANN. WINTER MEETING INDUS. REL. RES. A. 65 (1978); Somers, *An Evaluation of Final-Offer Arbitration in Massachusetts*, 6 J. COLLECTIVE NEGOTIATIONS PUB. SECTOR 193 (1977). Examples of pretest-posttest observation of final offer arbitration in Wisconsin are found in Feuille, *supra* note 14, at 210-11; Olson, *Final-Offer Arbitration in Wisconsin After Five Years*, PROC. THIRTY-FIRST ANN. MEETING INDUS. REL. RES. A. 111 (1979); Stern, *Final Offer Arbitration—Initial Experience in Wisconsin*, MONTHLY LAB. REV., Sept. 1974, at 39, 41.

91. Examples of static group comparisons are found in H. RAIFFA, *supra* note 28, at 110-12; Chelius & Dworkin, *supra* note 18, at 297-98; Gallagher & Pegnetter, *Impasse Resolution Under the Iowa Multistep Procedure*, 32 INDUS. & LAB. REL. REV. 327, 330-31, 332-33 & nn.25-26 (1979).

92. Anderson, *supra* note 17, at 138-39.

studying into experimental and control groups in order to study the impact of final offer arbitration on the negotiation process.

Analysis of field studies is also complicated by the many variations of the final offer arbitration procedure that are in use.⁹³ Because of differences between final offer arbitration procedures, observations of one type of final offer arbitration procedure may not necessarily be applicable to others.

Thus, while there have been a number of field studies of final offer arbitration and a large amount of data collected, investigators have not been able to reach reliable conclusions as to its actual effectiveness. In order to obtain more reliable conclusions it would be helpful to conduct a field study using a randomized experimental design.⁹⁴ In a ran-

93. Some procedures use only a single arbitrator, while others use a tripartite arbitration panel with an impartial chairman and two partisan representatives of the parties. The presence of partisan representatives on a panel may have an important effect on the final offer arbitration process, since the impartial chairman is able to communicate which way he is leaning to the bargaining parties through the partisan panel members and thus encourage one or the other of the parties to change his position. This may lead to the transformation of the final offer arbitration process into a form of mediation-arbitration in which the impartial chairman attempts to bring the parties together through mediation at the hearing. As a result of mediating, the chairman may lose his impartiality, and in addition the parties may lose their incentives to exchange reasonable offers before the hearing. See Long & Feuille, *supra* note 17, at 198-99; Rehmus, *Is a "Final Offer" Ever Final?*, MONTHLY LAB. REV., Sept. 1974, at 43, 44; Zack, *supra* note 14, at 581-82; Note, *Final Offer Arbitration: The Last Word in Public Sector Labor Disputes*, 10 COLUM. J.L. & SOC. PROB. 525, 548-50 (1974). Final offer arbitration procedures also may differ according to whether the arbitrator may decide some issues in favor of one party and some in favor of the other (issue by issue final offer arbitration) or must decide all issues presented to him in one party's favor or the other's (entire package final offer arbitration). Compare CONN. GEN. STAT. ANN. §§ 7-473(c)(1), 7-474(j)(1), 10-153f(c)(4) (West Supp. 1985) (issue by issue final offer arbitration) with WISC. STAT. ANN. § 110.74(4)(cm)(6)(d) (Supp. 1984-85) (entire package final offer arbitration). For discussions of these two variations of the final offer arbitration process, see FINAL OFFER ARBITRATION, *supra* note 12, at 145-47; Subbarao, *supra* note 59, at 81, 84-85, 98-99; Zack, *supra* note 14, at 578-79. Iowa's Public Employment Relations Act has another variation of the final offer arbitration process. Under the Iowa procedure the arbitration panel has three choices: the final offers of the parties and the recommendation by a fact-finder appointed by the Public Employment Relations Board. IOWA CODE ANN. § 20.22(3),(11) (West 1978). Yet another variation of the final offer arbitration process is used by the City of Eugene, Oregon. Under the Eugene procedure, the parties are each allowed to submit dual offers, and the arbitration panel has a total of four offers to choose from—two from each side. See Feuille & Long, *supra* note 17, at 576-78; Long & Feuille, *supra* note 17, at 198.

94. The randomized experimental design is described in D. CAMPBELL & J. STANLEY, EXPERIMENTAL AND QUASI-EXPERIMENTAL DESIGNS FOR RESEARCH 13-24 (1963); FEDERAL JUDICIAL CENTER, EXPERIMENTATION IN THE LAW 17-19 (1981). A noteworthy example of a randomized experimental design is Maurice Rosenberg's study of pretrial conferences in personal injury litigation in New Jersey. See M. ROSENBERG, THE PRETRIAL CONFERENCE AND EFFECTIVE JUSTICE (1964). A re-

domized experimental design the subjects being studied are randomly divided into an experimental group and a control group. The experimental program is applied to the experimental group, but not to the control group, and the two groups are compared. Since the process of selecting the experimental and control groups is random, any differences between the two groups can be validly attributed to the experimental program as long as the two groups are large enough so that any statistical differences between the two groups are negligible.⁹⁵

The court-annexed arbitration programs that are operating in many regions of the country offer an opportunity to test the operation of final offer arbitration outside the laboratory using a randomized experimental design. Cases assigned to court-annexed arbitration under one of these programs could be randomly divided between an experimental group in which a final offer arbitration procedure would be used and a control group in which conventional arbitration would be used. The effects of final offer arbitration could then be determined by comparing the two groups.

V. CONCLUSION

This Article has provided a theoretical framework to explain how final offer arbitration can be used to improve the negotiation process. If the expectations of the negotiators for the arbitrator's decision are represented by normal probability distributions, the negotiators' optimal offers and demands will be approximately 1.25 standard deviations on either side of the means of their respective probability distributions. With final offer arbitration, the negotiators would have a strong incentive to make realistic appraisals of the probable decision of the arbitrator and to submit offers and demands that are fairly close to what they really expect the arbitrator to award. Instead of encouraging negotiators to improve their bargaining positions by taking extreme positions, a final offer arbitration procedure would create an environment in which negotiators would find it in their respective self-interests to exchange reasonable offers and demands. In addition, the costs of the arbitration process and a trial *de novo* and the effects of risk aversion could operate in conjunction with the final offer arbitration process to bring about settlement.

Moreover, the laboratory experiments with final offer arbitration provide strong empirical support for its use in connection with court-annexed arbitration. The lack of conclusiveness of the field studies appears to have more to do with the difficulty of making accurate measurements of the effects of final offer arbitration in the field than

cent example is the Federal Judicial Center's study of court-annexed arbitration. See E. LIND & J. SHAPARD, *supra* note 7.

95. FEDERAL JUDICIAL CENTER, *supra* note 94, at 18.

with any serious deficiencies in the procedure. The new court-annexed arbitration programs appear to be an excellent place for further study of this innovative procedure.

On the whole, final offer arbitration shows much promise for use in connection with court-annexed arbitration, and it is now time for the courts to give it serious consideration.