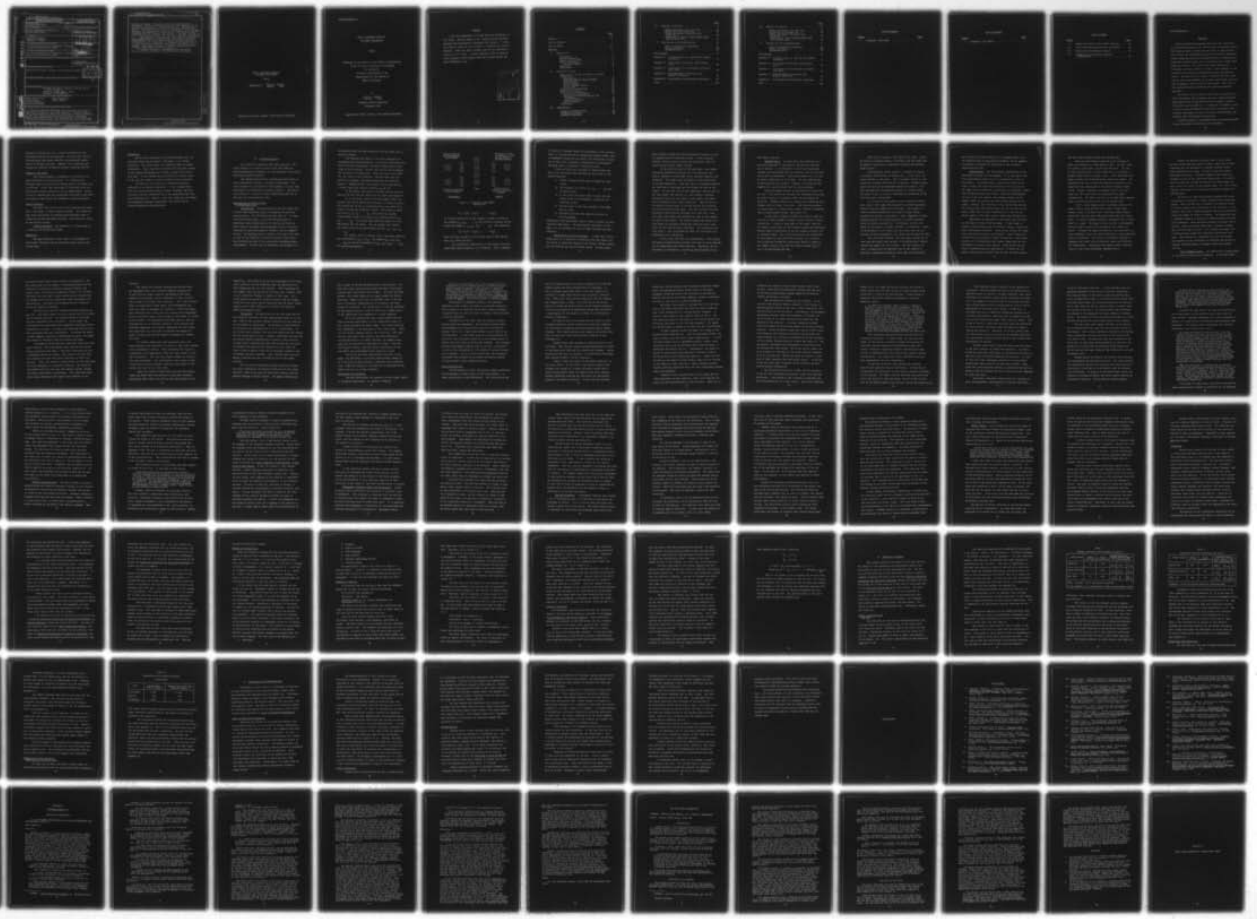
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Decision modeling techniques have been very successful in capturing the policies of a wide variety of decision makers. This study attempts to model the decisions of labor arbitrators so that the arbitration process can be better understood. Policy capturing provides a systematized way of examining the trade-offs between issues that an arbitrator has to make when

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The results of this analysis show that the decisions of labor arbitratios can be modeled and their awards predicted. Approximately 75% of the awards made by randomly selected arbitrators can be predicted. As expected, the model of only a single arbitrator predicted awards more accurately since internal consistency is easier to achieve than external consistency (over 90% predicted accurately).

Further research is recommended that may better describe as well as predict the policies of arbitrators.

POLICY CAPTURING EXERCISE ON LABOR ARBITRATORS

Thesis

GSM/SM/79S-8

David W. Lambert
Captain USAF

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POLICY CAPTURING EXERCISE ON LABOR ARBITRATORS

THESIS

Presented to the Faculty of the School of Engineering
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science

by

David W. Lambert
Captain USAF

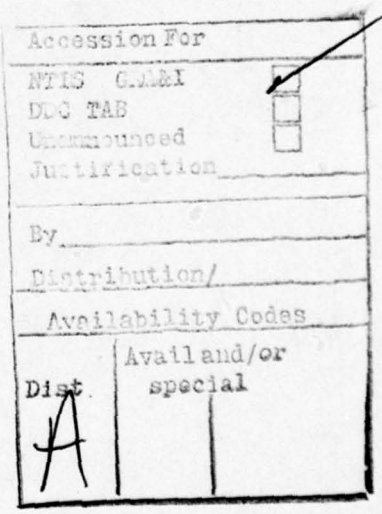
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Preface

I take this opportunity to thank those who helped me in this study. Special thanks to Dr. Joseph Cain who provided guidance and encouraged me throughout this project. I would also like to thank Lt. Col. Charles W. McNichols and Captain Michael J. Stahl for their valuable help on the statistical portion of this study. I would especially like to thank my wife, Kathleen, whose support made this project better and more worthwhile to me.



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Abstract

Decision modeling techniques have been very successful in capturing the policies of a wide variety of decision makers. This study attempts to model the decisions of labor arbitrators so that the arbitration process can be better understood. Policy capturing provides a systematized way of examining the trade-offs between issues that an arbitrator has to make when granting an award. The issues this study examines are efficiency, fairness, effect on worker, clear language of the contract, past practice, negotiating history, and previous awards. The data for this study is collected by first reading the facts and arguments of an actual arbitration case and then assigning a score to each of the issues. This data is then analyzed using discriminant and regression analysis techniques.

The results of this analysis show that the decisions of labor arbitrators can be modeled and their awards predicted. Approximately 75% of the awards made by randomly selected arbitrators can be predicted. As expected, the model of only a single arbitrator predicted awards more accurately since internal consistency is easier to achieve than external consistency (over 90% predicted accurately).

Further research is recommended that may better describe as well as predict the policies of arbitrators.

POLICY CAPTURING EXERCISE
ON LABOR ARBITRATORS

I. Introduction

Background

Executive Order 14911, effective January 1, 1970, authorized the inclusion of arbitration clauses to all federal labor contracts. By 1976, 95% of all federal government labor contracts contained a provision for arbitration as the final step in solving contract grievances. This means that Air Force managers will have to become more familiar with the grievance arbitration process. Federal law limits, to a great extent, what unions can negotiate into a contract. There are, however, a number of areas in contracts over which disputes of interpretation can occur. Usually, the two parties (labor and management) can arrive at a mutually satisfactory solution to those grievances. When an impasse does occur, an arbitrator is called in to make the final judgment concerning the grievance.

An arbitrator is much like a judge who hears both sides of an argument concerning the grievance and then passes judgment. His decision is then binding on both sides. While grievance arbitration is essentially a judicial process, it is less formal and can be more flexible than a judicial court. That flexibility provides arbitrators with more options in

the way that they can decide cases. This also means that there might be differences in the policies between arbitrators.

There are many widely accepted standards and principles of arbitration. These tools can be used to judge a wide range of cases. However, there are a significant number of cases which cannot be decided by simply applying these rules. In those cases, personal interpretations and value judgments will be the determining factors. In order for managers to better avoid arbitration, or to better argue their cases during arbitration, they have to understand the principles, standards and values that arbitrators apply when deciding cases.

Previous Research

Although there has been a great deal written about arbitration, little has been written about the policies of arbitrators. Two authors have published studies that have focused on the policies that arbitrators seem to follow. The first is Brook Landis, who did a case study of a well-known arbitrator. In this study, the researcher develops several hypotheses concerning the policies of particular arbitrators. The other author, James Gross, hypothesizes a particular policy that all arbitrators seem to follow. Neither of these authors have any substantial empirical evidence to prove their claims. The empirical studies that have been done on arbitration say little about the actual policies of arbitrators. Before an empirical study can be done to determine what the

policies of arbitrators are, it must be established that arbitration awards can be predicted. One such study done by Petersen shows that union officials can accurately predict awards by reading the cases. However, this study does not capture the elements of decision process (Petersen:789-791).

Purpose of the Study

This study attempts to determine if the policies of labor arbitrators can be predicted. If a model can be developed that can predict arbitration awards, two things can be inferred. First, the consistency of arbitrators and the consistency between arbitrators can be demonstrated. Second, it can be inferred that the significant cues used in the model are useful in describing the arbitrator's decision process.

Policy Capturing

The model that will be used is the Brunswik lens model. This is basically a linear regression model. This model has been used successfully in modeling many different types of judges and in many different settings. This study will focus on the natural setting.

Problem Statement. How powerful is a linear model as a predictor of arbitration awards?

Objectives

The main objective of this study is to determine if arbitrators' decisions can be predicted using a policy capturing model.

Limitations

Due to time constraints for collecting data, only two different models are developed. One model is of a single arbitrator. The second model is a composite model of random arbitrators. Also, since data on cases involving labor unions in the federal government are limited, private sector cases were used. It was assumed that an arbitrator's policy would be the same for either a private or public sector grievance.

The data for this study were collected from cases published by arbitrators themselves. It was assumed these cases are accurate descriptions of their thinking, and that the cases used are representative of the population that they were extracted from. However, since this study does not employ an orthogonally designed experiment, very little can be inferred concerning cue importance.

II. Literature Review

This review is separated into three sections. The first section is a survey of uses of the lens model in decision modeling to determine its applicability to the labor arbitration decision process.

The second section gives a definition and history of labor arbitration in order to provide a background. The third section is a discussion of the elements, or cues, that contribute to an arbitrator's decision process. Included in this section is a review of other studies done that try to describe the arbitration policies.

Applications of the Lens Model in Policy Capturing

Introduction. The application of the lens model has produced some promising results in modeling the decision-making process. The lens model has been used to: 1) represent the decision-maker; 2) aid the decision-maker by producing a more optimal policy; 3) replace the decision-maker with his own model (bootstrapping); and 4) aid policy formation by providing cognitive feedback (social judgment theory). By examining various studies, this paper will look at some of the conditions in which favorable results have been achieved and some of the controversy concerning those achievements. In this way, an evaluation can be made as to

how generalizable the applications of the lens model are in natural settings.

The Brunswik lens model is the basic framework for conceptualizing decision-making. In the real world decisions have to be made concerning a criterion without direct knowledge of the criterion. Factors that can be used to measure the criterion are called cues. These cues give clues about the true state of the criterion. The way these cues are perceived, weighted, and combined describe the decision process. Mathematically, this process can be described by a linear regression equation (Slovik, et al.:12).

In this model, the world is divided into the environment on the left and the subject on the right (see Figure 1).

Y_e is the actual state of the environment which the subject (the person making the decision) is trying to predict. The subject has no way of ascertaining the true state of Y_e except by using the predictors (cues). The values of these cues are X_1, X_2, X_3, . . . X_n. The actual cue weights (coefficients) used by the subject are represented by r_{S1}, r_{S2}, . . . r_{Sn}. The greater the predictive power of a cue, the greater the cue weight. The cue weights that predict the actual state of the environment (Y_e) are r_{e1}, r_{e2}, r_{e3}, . . . r_{en}.

Cue weights that are derived from a regression analysis are represented by b_{ei} or b_{si}. The symbols b_{S1}, b_{S2}, b_{S3}, . . . b_{Sn} are the best estimates of r_{S1}, r_{S2}, r_{S3}, . . . r_{Sn}. The regression equation:

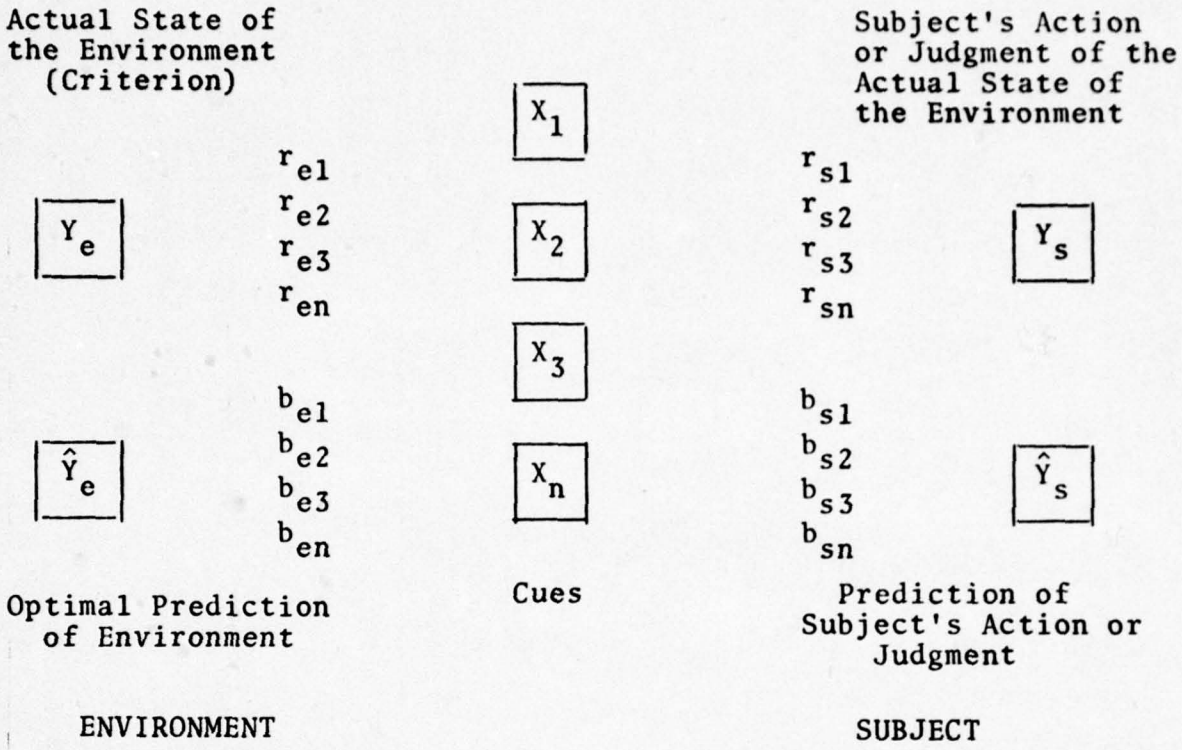


Figure 1. Brunswik's Lens Model
[Brown:287]

$$\hat{Y}_s = b_{s1}X_1 + b_{s2}X_2 + \ldots + b_{sn}X_n$$

is the best prediction of the subject's action or decision. The symbols b_{e1}, b_{e2}, . . . b_{e3} are the best estimates of the actual cue weights, r_{e1} r_{e2}, r_{e3}, . . . r_{en}. The regression

$$\hat{Y}_e = b_{e1}X_1 + b_{e2}X_2 + \ldots + b_{en}X_n$$

gives the best estimate of the actual state of the environment (Y_e) (Beach:278-287).

For a particular application of arbitration, only the right hand side of Figure 1 is of interest. This is because

an objective statement about the environment is not possible. There is no objective way of determining whether either labor or management should get the award. The comparison of interest in this case is between $\hat{Y}_s$ (prediction of arbitrator's decision) and Y_s (arbitrator's actual decision).

There are five basic problems in generalizing that have to be considered when applying the lens model to real world situations:

1) Actual criterion values must be known for some sample.
2) The predictor cue values (X_1, X_2, . . . X_n) must be quantifiable.
3) If the linear predictor model is used, the cue values should be monitonically related to the criterion values.
4) At least some of the cues included in the model must be valid.
5) The model describes the cognitive process in decision-making.

Depending on the application, some of these problems are more important than others. The applications presented in this paper will be discussed in terms of these problems and their relevance.

Representing the Decision-Maker. A study that clearly showed that it is possible to generalize the lens model from the clinic or contrived setting to the natural setting without loss of validity was done by Timothy Brown. In this study,

Brown sought to model the decision process of workers in the Los Angeles Suicide Prevention Center. In this decision process, workers tried to assess the probability that the caller would actually commit suicide.

In the contrived part of the experiment, four judges were given different cue values for five different cues: stress, symptoms, suicide plan, prior suicidal behavior, and resources. The judges were then asked to make predictions of suicide probability. From this data, a regression analysis was performed to determine the cue weights for each of the judges. For the next part of the experiment, the policies of the four judges were derived in a more natural situation. Instead of giving the cue values to the judges, the judges had to determine those values themselves. They did this by listening to actual tapes of suicide callers and reviewing the files associated with them. This was basically the same information that would be available in a real case. From this data, cue weights were derived for each of the symptoms for each of the judges. The results showed that there was a high degree of agreement between the contrived policy equations and the natural policy equations. The conclusion from this study is that the methods by which the cue values were obtained was not significant.

In this case, the cues were quantifiable. Even persons untrained in quantification methods were able to do an adequate job of quantifying them (Brown:205-229). Therefore, the requirements of problem two, concerning generalization of the

lens model, were met.

Optimal Policy. In cases where the prediction of a criterion (outcome) is the purpose, problems one and four are of concern. If a prediction is to be made accurately, relevant cue information must be available, and the criterion values must be measurable. Application number two is a case in which a prediction is to be made. For this application, a model based on the subjects' judgment is derived and then compared to a model derived from the actual outcome.

Nancy Hirschberg reviews an application in which this was done. The studies she reviewed are concerned with trying to predict success in graduate school for the purpose of admission. Graduate schools are interested in admitting only students who are likely to do well. This admission process is usually done by a board which reviews relevant information such as undergraduate grades, GRE scores, etc.

In one study, graduate students are asked to make predictions of other graduate students' success based on normal information. A model is then made of the judges' policies. The judges in this case are the students making the prediction. Another model is made based on how the students actually did in graduate school. The correlation between the predictions by this model ($\hat{Y}_e$) and the actual outcomes (Y_e) are 0.69. The correlation between the predictions made by a model of the judges' policies ($\hat{Y}_s$) and the actual outcomes (Y_e) is only 0.49 (Hirschberg:103-104).

There are two things to note about this study: grades are used as surrogate measures of success, and the judges had no degree of expertise or experience in predicting graduate school success.

Using graduate school grades as a measure of success in graduate school refers to problem one. In this case, the actual outcome is not known. This is because success is very difficult to define and difficult to measure. Graduate school grades can only be an approximate measure of success. This does not mean that the modeling exercise is without value. The value is that it forces a conscientious evaluation of the decision process (Beach:286).

As is noted in the graduate school prediction experiment, none of the judges had experience in predicting grades. Studies involving experts have been done. One example is a study in which psychologists are asked to judge whether patients are neurotic or psychotic. These judgments are then compared against the predictions made by a model developed using the actual outcomes (Y_e) The outcomes in this case being if the patient is normal, neurotic, or psychotic. Again, the predictions of this model ($\hat{Y}_e$) are better than the predictions of the psychologists (Y_s) (Dawes and Corrigan:101-102).

Does this mean, however, that the judges should all be sent home and models used instead? Hirschberg offers several reasons why humans are still needed. The main reasons are that: 1) humans play an important role in the context of discovery, generating hypotheses about what will constitute

good criteria and good predictors; 2) judgment enters into the quantification of qualitative variables; and 3) judgment is involved in forming the definition of the criterion (Hirschberg:107-108).

Bootstrapping. The third general application of the lens model is known as bootstrapping. It is the same as the first application except that it is predictive as well as descriptive. In bootstrapping, a descriptive model of the judge is made, and then the prediction of the criterion by the judge and the prediction by the model are compared. Dawes and Corrigan reviewed five studies involving bootstrapping. For all of the five studies, the average validity of the judges' model was greater than the average validity of the judges. However, the difference in the correlation between the average judge and average model was not as great for the expert judge (the clinical psychologists) as for the non-expert judges in the other studies (Dawes and Corrigan:102).

Consistency of the model is the reason that the model of the judge is better than the judge. A human judge is subject to distractions such as boredom, fatigue, illness and other situational prejudices. These things prevent the judge from applying his policies consistently. Expert judges are probably less susceptible to these distractions. This would account for the observation that expert judges were not out-performed by as much as non-experts. Dawes points out one limit to generalizing this application. In order for the model of the man to be better than the man, the man's policy

must have some validity (Dawes and Corrigan:102).

There was one notable exception to the findings of Dawes and Corrigan in a study done by Libby. In this study, the subjects were highly trained bank employees. The job of these employees was to make predictions as to whether a company would be able to repay a loan. Libby found that the judges in this case performed better than their models. His explanation for this is that the cognitive processes of the judges were too complicated to be modeled linearly (Libby: 23-26). However, Goldberg re-evaluated Libby's data and found that the linear model did outperform the judges (Goldberg:13). But there still has to be doubt about generalizing the bootstrapping results to all applications.

Libby's study suggests that a nonlinear model of the judges' policy would perform better than a linear model. However, there is evidence that a nonlinear model produces predictions that are only marginally better than the linear model. A study by Hoffman compared a nonlinear with a linear model of a judge. The judge in this case was a psychologist who was asked to predict the sociability of a number of people. Although the judge described his decision process as being nonlinear, there was little difference in the predictive power of the models. The portion of predicted variance of judgments was 82.81% for the nonlinear model and 77.44% for the linear model. Considering the chance factors involved, there is very little difference (Hoffman:30-31).

Besides the general conclusion that a linear model performs better than the judge it models, Dawes and Corrigan concluded that an unweighted or randomly weighted linear model outperforms the judge. In each of the five studies mentioned previously, a randomly weighted linear model was produced as well as the regression linear model. In each of the five cases the average validity of the random model was more valid or as valid as the average judge. In each of these studies, the measure of validity was correlation (Dawes and Corrigan:102).

An article by Remus and Jenicke disagreed with using correlation to determine if models perform better than human judges. They conclude that a relevant cost function should be used to evaluate the predictions of the criterion. As an example, they used a common management decision of production volume and number of workers to employ. The experiment used 17 graduate students as subjects to make production and work force decisions. These decisions yielded an average cost of $36,709. Remus and Jenicke then used a randomly weighted model for the same decisions. This yielded an average cost of $233,730 even though the correlation coefficients were high. Their conclusion, therefore, was that correlation coefficients are not sufficient to establish the utility of randomly weighted models of judgment (Remus and Jenicke: 219-221).

Social Judgment Theory. The fourth area of application is the area of aiding policy formation. It has been shown

that by providing cognitive feedback to policy makers concerning their cue weights, they can better understand their own decision process. This has been shown to be of great value in reducing conflict in group policy making. It also brings up the fifth problem of generalization. If you are using a linear model to describe a human's policy, you are implying that his thought processes are linear (Hammond, et al:4). If the human judgment processes are more complex than a linear model but the model can predict the judgment of the human, the linear model is called paramorphic. An isomorphic model would describe the judgment process as well as the outcome. The literature is inconclusive as to whether a linear model is paramorphic or isomorphic (Hoffman:24-25).

Shanteau and Phelps said that the prediction process is not equal to the cognitive human process. Application of a linear model tells us more about the robustness of the linear model than about the judgment process (Shanteau and Phelps:266). Hirschberg stated that it is not a good idea to imply anything about the cognitive process of the judge from the regression equation and input cues (Hirschberg:110). The implication is that man's cognitive judgment system is more complex than a simple linear model. But Hoffman suggested that man likes to think of himself as being more complex than he actually is. Humans have trouble processing large amounts of information. Therefore, predictions are usually based on a few valid selectors. The question is, does the linear model describe enough of the cognitive system so that useful

information can be given to the judge concerning his policy? The evidence shows that it can indeed be useful in many cases.

Assuming that a math model can describe the cognitive process as well as the outcomes, it can be useful in group policy formation. Outcome feedback alone is noncognitive and does not provide the judge with useful learning information. The feedback that is useful is the cue weight. People have a very hard time perceiving their own cue weights. They tend to overestimate the weight they give to minor cues and underestimate the weight they give to major cues (Zedech and Katry: 289).

A person's misrepresentation of his own policies in a group policy making setting can be the cause of unnecessary conflict. This is because it is necessary to communicate social value judgments one at a time. In the process of negotiation of a policy, competing social values are usually discussed one at a time. If the negotiators have inaccurate perceptions of their own weights on certain issues (cues), they will misrepresent their own policies. This can cause unnecessary disagreement on issues. Cognitive feedback can more accurately identify areas in which there is agreement or disagreement (Hammond, et al:4-5).

Another advantage is that the linear regression model represents a more systematic view of the relative cue weights. This is because social values, when considered separately, may be perceived differently than when trade-offs are considered between more than one social value. For example, a person might

say that he very highly values helping the unemployed. But when this value (or cue weight) is considered along with the trade-offs on taxation, inflation, national defense, and medical care, it may not be weighted as highly as he thought. Therefore, not only does a linear model correct misperceived cue weights, but it also systematizes those cue weights more realistically. Two cases are presented here to illustrate the use of cognitive feedback.

The first case involves regional planning (Hammond, et al:9-11). The policy makers for this exercise were 90 citizens and 10 elected officials. The general makeup of the group could be considered to be non-expert. In the study, the individuals were questioned about judgments concerning various combinations of goals. A normal poll would only ask for feedback concerning the goals individually. By asking the judges to make judgments concerning combinations of goals, the judges were forced to evaluate trade-offs between the goals.

The analysis of the policies found that there were four major factions. But even between these factions the differences in policies were small. From these different policies a compromise policy was formed. The value to citizens from this exercise was that they gained knowledge of their own policies. Also, they gained an appreciation for the complexity of social judgments in a planning situation. The value for the elected officials was that they gained a better insight into their constituents' preferences. This could help them avoid policy decisions which would cause conflict in the

community.

The second case involves negotiations between labor and management over a new contract (Hammond, et al:14-15). In this case the judges could be considered to have more expertise and possibly a better knowledge of their own policies as well as the other side's policies. This study started after six negotiators (three union, three management) had failed to reach an agreement on a contract. Union and management identified four issues that were causing the disagreement: contract duration, wages, special workers, and number of strikes to be recalled. The negotiators were then asked to rate the acceptability of 25 different contracts. Each contract had different magnitudes (cue values) concerning the four issues. Each negotiator was also asked to indicate the weights he placed on each issue and the weights he thought his counterpart used.

The results showed that each negotiator had a poor understanding of his own policy as well as a poor understanding of his counterpart's policy. After providing this cognitive information to the negotiators, they were again asked to rate the 25 contracts. This time they found a number of contracts that were acceptable. The implication of this study is that a great deal of time and money could have been saved if this process was used in the first place.

Again this process showed value even with more expert judges who might have been expected to have more accurate perceptions about their own policies and the policies of the

opposition. One reason given for the misjudgment of the other side's policies was the assumption that the opposition was only looking out for its self-interest. After examining the cue weights, this was not found to be the case. However, this is not a universal finding in studies of this type. In a study done on the nuclear safeguard problem, the cue weights showed that the Atomic Energy Commission and the atomic energy industry were indeed looking out for their own interests (Brady and Rappoport:266).

Discussion. The application of the lens model may not be universal, but there are many applications where it is useful. Some of the possible problems mentioned did not turn out to be problems in application. The problem of quantification of cue values was determined not to be of significance. In all of the cases surveyed, the cues were quantified well enough for the linear model to work. Another requirement was that the cue values should be monotonically related to the criterion. In other words, following the rule "the greater the cue value, the greater the value of the criterion (or the lesser the value of the criterion if the cue is inversely related to the criterion)" was not a problem. Also, finding value cues for making a decision was not a problem in any of the studies reviewed.

One of the main differences noted between the studies that were reviewed was the degree of expertise of the judges involved. Only in one case did this factor detract from the general findings of these studies. The general finding was

that a model of the man performed better than the man. The model was better than the man because the model could apply a policy more consistently than a human. This does not mean, however, that human judges are no longer needed for making decisions. Humans still play an important role in the context of discovery, quantification of variables, and determining the criterion. The reason given for the one exception to this generalization is that in some cases a human policy is too complicated to be modeled by a linear equation.

It is also generalized that a linear model with randomly selected coefficients or with coefficients equal to one, could outperform the human judge. The reason cited for this phenomenon is the robustness of the linear model. There was one serious argument against this assertion. That argument was that when a cost analysis was done instead of a correlation analysis to define validity, the random linear model did not necessarily outperform the judge. This does not detract, however, from the overall application of the lens model since unweighted models need not be used.

For all of the other applications discussed in this paper, the lens model is certainly generalizable enough for it to be tried in many different situations such as arbitration. Empirical testing is the best way to determine if the model will work in a given situation.

Definition of Arbitration

The word arbitration, for purposes of this study, refers to grievance arbitration. As defined by Webster:

> The act of arbitrating; esp., the hearing and determination of a cause between parties in controversy by a person or persons chosen by the parties or appointed under statutory authority, instead of by a judicial tribunal provided by law; the hearing and determination of a matter of dispute by an arbitrator or arbiter. The matter may be an agreement, usually called a submission, to one arbitrator, or to two, who are to choose a third called an umpire. The decision given is called an award.

Arbitration is frequently confused with mediation. Mediation is the process of coming to a concensus agreement with the help of an impartial third party called a mediator. A mediator does not have the power to render a final decision as does an arbitrator.

Arbitration is the final step in solving a dispute between labor and management. Most disputes between labor and management are settled before they go to arbitration. However, there are a significant number of cases that do go to arbitration. If this final means of solving disputes did not exist, the alternative would be to use economic power to decide the issue, such as strikes and lockouts. This economic warfare would benefit neither side in the end. Arbitration is seen as the alternative to this method of solving disputes over a contract. It is in this context that the procedures, principles and standards of grievance arbitration evolved. A brief account of this evolution follows.

Arbitration History

The development of labor arbitration roughly paralleled the development of labor unions in the United States. As labor unions grew, so did arbitration. The first case of the

use of an outside umpire to decide a dispute was in the coal industry where the labor movement had its beginning. In 1871, a dispute concerning wages in the coal industry was settled by a judge whose decision was accepted by both parties. Three years later another dispute in the coal industry was brought before a judge. This time one of the parties failed to accept the decision and a strike ensued (Fleming:2). This was the problem with arbitration during the late 1800's --unwillingness of the workers to submit to a third party's decision voluntarily.

In order to end a five-month-old coal strike in 1902, President Roosevelt forced arbitration on the coal industry. He even formed a permanent board which would resolve future disputes. This board continues even today in an altered form. This was the first time arbitration was enforced by law (Fleming:3-4).

Another major labor movement of that period was in the railroads. They too had trouble getting both parties to abide by decisions until 1906 when the unions grew stronger. During the period 1906-1913, 61 disputes, 6 of which were arbitrated, were settled without a strike (Fleming:4).

Similar trends were found in the needle industries in the early 1900's. By the 1930's, the hosiery industry had accepted the concept of a single arbitrator rather than a board of arbitrators which was common in the coal industry. Another difference involved the role which the arbitrators played in the needle industries. In the coal and railroad

industries, the arbitrators were considered impersonal adjudicators who decided grievances based solely on the labor agreement, while the role of the arbitrator in the hosiery industry was one of an informal mediator, friend, a counselor, and only as last resort, a judge (Fleming:10).

One factor that served to increase the use of arbitration in the 1920's and 1930's was that the court system was such a poor alternative for solving contract disputes. It could be years before a case could be heard in court. The main limiting factor to the growth of arbitration during this period was the small size of the labor movement. The Wagner Act and World War II helped to increase the use of arbitration.

In 1935, Congress passed the Wagner Act, known as the National Labor Relations Act. This act guaranteed workers the right to form, join, and assist labor organizations. It specified that certain acts of management would be "unfair labor practices" and set up the National Labor Relations Board to administer and enforce the act. Consequently, the number of people in labor unions increased from 3 million in 1933 to 8-1/2 million in 1941 (Prasow and Peters:6). Along with this increase in the number of labor unions, there was an increase in the number of labor contracts. These sometimes hastily written contracts formed the basis for the relationship between labor and management.

Because of the increased power of the unions and the vague and poorly written contracts, there arose numerous disputes over the interpretation of the contracts. Some sort of

mechanism was needed to settle these disputes other than strikes. Both labor and management realized that the work of an entire manufacturing company should not be held up because of one man's grievance.

WWII provided the impetus for the solution. It was realized that American industry would be a vital factor in determining the outcome of the war; strikes would have a disastrous effect on the war effort. Consequently, the Roosevelt government convinced labor and management to include a no-strike clause in the labor contract which would last the duration of the contract. In return, mandatory binding arbitration would be used as the method for settling contract disputes. Prasow and Peters argue that "the no strike clause with mandatory arbitration of grievances and disputes over interpretation was a necessary precondition for the supremacy of the written, binding contract" (Prasow and Peters:7). The government's mechanism for encouragement of arbitration was the National War Labor Board. One of the board's powers was to give orders to arbitrate if the parties did not volunteer to do so on their own. Before the board was formed, 10 percent of labor contracts had arbitration clauses. By the end of the war, more than 70 percent of the contracts had arbitration clauses (Fleming:18).

The arbitrators just prior to WWII and the beginning of the war were "consensus arbitrators" rather than judicial arbitrators. They tended to use a mixture of mediation and then arbitration only as a last resort. Since early contracts

tended to be very vague and hastily written, the impartial umpire could rule on a wide variety of issues without being restricted too much by the written word. A description of consensus arbitration (impartial chairman) is given by George W. Taylor:

> An impartial chairman, then, is first a mediator. But he is a very special kind of mediator. He has a reserved power to decide the case either by effecting his own judgment or by joining with one of the partisan board members to make a majority decision, depending on the procedure designated by the agreement. A new reason for labor and management to agree is introduced to avoid a decision. By bringing in a fresh viewpoint, moreover, the impartial chairman may be able to assist the parties in working out their problem in a mutually satisfactory manner. To me, such a result has always seemed to be highly preferable to a decision that is unacceptable to either of the parties. What's wrong, per se, about an agreement when agreement is the essence of collective bargaining [Prasow and Peters:10].

This technique combined grievance arbitration with collective bargaining. In other words, not only were the rights of the parties in question (rights derived from the contract), but the interests of the parties as well were served--"interests" being the disputes concerned with negotiation or modification of the terms of the contract (Prasow and Peters:9). In a legal sense these arbitrators were not only adjudicators, but also legislators.

By the end of the war, this process was evolving toward a more judicial form of arbitration. In this form of arbitration, the arbitrator can only rule on alleged violations of the contract. No longer could he hand down decisions based on his own notion of right and wrong. He was forced to rule only on the mutual intent of the parties (Prasow and Peters:11-12).

This evolution toward a rule of law or contract was inevitable. The main reason for this is the nature of the American system of justice. In other countries, many social conflicts are solved by custom without reference to written law. For example, in Britain there is no written law that says a Prime Minister has to resign when he loses a vote of confidence, he just does so by custom. In the U.S., a President can only be removed by mechanisms provided for in a written constitution. Americans have an affinity for the rule of the written word rather than of men (or women). That is why in the U.S., which has only four times the population of Great Britain, has twelve times the number of lawyers (Prasow and Peters:7). Therefore, it is only natural that the arbitration process move from one of informal mediation to a more formal judicial process based on the written labor constitution or contract.

Another factor which aided the process was the growth of the labor contract in length and complexity. As unions became more powerful, they began to encroach more and more on what were once considered management prerogatives. In order to stop this trend, management spelled out in more detail exactly what labor could do and what they couldn't. When there was a more detailed contract, an arbitrator had more on which to base his decision and less room for his own judgments of right and wrong.

After WWII, President Truman called for a meeting of labor and management representatives to discuss the future

course of industrial relations. At this meeting, there was unanimous agreement on the issue of judicial arbitration. They resolved that: 1) arbitrators could only decide those issues brought before them; 2) arbitrators should render their decisions based solely on evidence presented at the hearing; and 3) they could not add to, subtract from, or modify existing contract provisions. To a great extent this philosophy was adopted by the management and labor community (Fleming: 18-19). The extent to which arbitration has taken on a strict judicial structure will be discussed later in this chapter.

The only other major change from WWII to the present was the resolving of the legal and constitutional status of arbitration. Much of this problem was decided in the Supreme Court "Steelworkers Trilogy Decisions" of the Warren Court from 1960 to 1964. The questions that were answered by the court were: 1) what cases were arbitrable; 2) what were the boundaries of action that an arbitrator could operate in; and 3) what was the legal status of the arbitrator's decision (Fleming:23-25)?

Without going into detail, the Trilogy cases affirmed and strengthened the arbitration process. The courts decided that arbitration clauses were broad and only cases that were specifically stated not to be arbitrable would be excluded from arbitration. As long as an arbitrator keeps within the contract in reaching an award, the courts cannot overrule an arbitrator's decision. In the words of Justice Douglas:

> An arbitrator is confined to interpretation and application of the collective bargaining agreement; he does not sit to dispense his own brand of industrial justice. He may, of course, look for guidance from many sources, yet his award is legitimate only so long as it draws its essence from the collective bargaining agreement. When the arbitrator's words manifest an infidelity to this obligation, courts have no choice but to refuse enforcement of the award [Prasow and Peters:12].

From what has been said it may seem that arbitration has evolved into a strict judicial process much like our court system. Although arbitration is a judicial process in nature, it is less strict in following legal principles and precedents. The Supreme Court rationalizes this need for informality also in the Trilogy cases.

> The labor arbitrator's source of law is not confined to express provisions of the contract, as the industrial common law--the practices of the industry and the shop is equally a part of the collective bargaining agreement although not expressed in it. The labor arbitrator is usually chosen because of the parties' confidence in his knowledge of the common law of the shop and their trust in his personal judgment to bring to bear considerations which are not expressed in the contract as criteria for judgment. The parties expect that his judgment of a particular grievance will reflect not only what the contract says but, insofar as the collective bargaining agreement permits, such factors as the effect upon productivity of a particular result, its consequence to the morale of the shop, his judgment whether tensions will be heightened or diminished.
>
> When the arbitrator is commissioned to interpret and apply the collective bargaining agreement, he is to bring his informed judgment to bear in order to reach a fair solution of a problem. This is especially true when it comes to formulating remedies. There the need is for flexibility in meeting a wide variety of situations. The draftsmen may never have thought of what specific remedy should be awarded to meet a particular contingency [Landis:10].

This quote, to some extent, contradicts the previous quote concerning the freedom an arbitrator has in rendering

judgments. This illustrates the fine line that an arbitrator walks when trying to pass judgments and give appropriate awards.

There remain differences of opinion on the proper role of an arbitrator. Lon Fuller divided the two schools of thought into the "arbitral judge whose object is not to do justice but to apply the agreement" and the "labor relations physician whose task is not to bend the dispute to the agreement but to bend the agreement to the unfolding needs of industrial life" (Landis:10). The opinions on the proper role of an arbitrator are divided, although most people who write about arbitration are of the judicial school. Their main argument against the "labor relations physician" is that there is no definite likelihood that an arbitrator's value judgments are the right ones. Therefore, this constitutes an abuse of arbitral power.

There are, however, compelling arguments for the necessity of a less strictly judicial type of arbitrator. First is the nature of the contract agreement. No contract can contain language to cover every possible contingency that may come up during the course of the contract. This may make it necessary for an arbitrator to use an alternate criteria on which to base his agreement, such as inferred intent of the parties or the arbitrator's own sense of justice. Secondly, it is in the nature of collective bargaining process that in many cases labor and management will "agree to disagree." In other words, during the bargaining process, the

parties cannot come to an agreement on an issue in the contract. In order to get a contract signed, they intentionally leave the issue vague and undecided with the unwritten intent of having the issue decided later. Therefore, in some cases the parties intend for the arbitrator to use his own value system. Thirdly, labor and management have to go on living together after a decision. In a court case involving a contract dispute, a judge's decision does not have the long-term effect that an arbitrator's decision does. This is because the two parties in a court case don't necessarily have to see each other again after the trial. An arbitrator may have to consider the effect of his decision on the relations between labor and management on a long-term basis.

Because of different philosophies, it could follow that it would be possible for two arbitrators to decide the same case differently. The basis for differences or similarities among arbitrators can be divided into questions of the issue to be arbitrated, contract interpretation, intent of the parties, reserved rights of management, procedure, and value judgments.

Criteria of Arbitration

Arbitration is the final step in solving a dispute between labor and management. If this final means of solving disputes did not exist, the alternative would be to use economic power, such as strikes, to decide the issue. This economic warfare in the end would benefit neither side.

Arbitration is seen as the alternative to this method of solving disputes over a contract. It is in this context that the procedures and principles of grievance arbitration were developed. These principles and procedures can be divided into problems on contract interpretation, management's reserved rights and obligations, and hearing procedures.

Before an arbitrator can make a judgment on an issue, he has to know what the issue is. The means by which an issue is brought before an arbitrator is through a submission agreement. The submission agreement is the issue that two parties (labor and management) have agreed to have the arbitrator decide. The arbitrator is bound to answer only questions concerned with the submission agreement. The formulation of the issue can, of course, be crucial in determining which side the arbitrator will rule in favor of. This procedure is by no means a hard and fast rule. Frequently the two parties are not able to agree on an issue or just never get around to it. In those cases, the arbitrator may be asked to help the two parties agree on the issue to be arbitrated or to decide the issue himself.

Contract Interpretation. The main problems in contract administration are caused by ambiguous language in the contract concerning the issue being arbitrated or because the contract is silent on the issue being arbitrated. Ambiguous language is language which can give more than one meaning. When a contract is silent on an issue, it means that a certain action is neither included nor excluded by the contract language. When

a contract has either of these two problems, then the arbitrator must rely on other criteria to clarify the intent of the parties. Three criteria frequently used for this purpose are past practices, history of contract negotiations, and the assumption that the intent of the parties was equitable, logical and reasonable.

The concept of past practice is very useful in determining the intent of the parties. Past practices are procedures or customs which have been going on long enough that they can be assumed to be accepted by both parties. When the language of the contract is susceptible to more than one interpretation, there may be an accepted practice which supports one of the interpretations. That interpretation can then be assumed to be the mutual intent of the parties.

Past practice can also be controlling when the contract is silent on the issue. In the words of Saul Wallen:

> Established practices not sanctioned by specific contract language but not barred by it and arising out of the logic of the work relationship are invoked frequently by unions as working conditions intended to be preserved, not supplanted by, the agreement (contract). This is as it should be. The customary ways of doing things not negated by an agreement's specific terms are subsumed. But management, as well as unions, have a right to rely on this principle [Landis:64-65].

However, there are problems in using past practice. The first problem is determining what constitutes a past practice. According to Wallen, a past practice had to come from a mutual acceptance or tacit agreement by the parties. If something has been determined to be a past practice, circumstances may necessitate a change in that practice. Whether

circumstances warrant a change in practice depends on the value judgments of the arbitrator.

Although specific language is usually considered controlling over past practice, there are some arbitrators who would rule the other way. Morris Stone said:

> There are times when past practice is so purposeful that arbitrators are compelled to conclude it was the practice, not the language of the contract, which expressed the agreement of the parties [Landis:74].

Some arbitrators, such as Saul Wallen, choose to use the language of the agreement whenever possible. Wallen wants to encourage union and management to use the negotiating process and to put the rules of their relationship into the contract. In this way, a more stable relationship is formed. Although the concept of stability for the purposes of this study is derived from Value Judgments in Arbitration: A Case Study of Saul Wallen, it does not conform to that concept entirely. Landis considers questions of stability to be totally outside of the labor contract (Landis:166). However, for this study, clear language of the contract is considered to be an aspect of stability even though it is not extracontractual. The goal of stability, according to Wallen, is achieved through the encouragement of reasoned bilateral rule-making. Forcing management and labor to abide by the clear language of the contract agreement promotes the goal of reasoned bilateral rule-making. If labor and management are not forced to abide by the clear language of the contract in one case, it could lead to doubt about the enforceability of

the rest of the contract and, therefore, promote instability. For this reason, clear language is considered in the category of stability.

The history of contract negotiations can also provide valuable clues for determining the intent of the parties. For example, if during the contract negotiations, one of the parties failed to get certain language accepted into the contract, then the meaning of that language can be rejected as the intent of the parties.

Another criteria for determining the intent of the parties is reasonableness, equity and fairness. For example, Wallen only assumes a particular version of the intent of the parties if it is reasonable and equitable. In other words, Wallen reads into the agreement only what he thinks should be there.

If the arbitrator cannot find any of these criteria with which to determine the intent of the parties, he can examine the ambiguity in the context of the whole agreement. If one interpretation is more logically supported by other provisions in the contract, then that interpretation is assumed.

Management's Reserved Rights and Obligations. Another principle that an arbitrator must consider is reserved rights of management. This principle is concerned with the question of what decisions are totally the right of management to make and which decisions must be shared with labor. It is generally accepted that management is responsible for the profitable and efficient operation of the enterprise. Management should,

therefore, have the right to choose the product, the machine to be used, the organization, the assignment of work, and other determinants that will effect the well-being of the company. Some feel that these decisions are solely those of management and cannot be shared by labor. However, there are few decisions made by management that do not, in some way, effect the working conditions and employee benefits of the union members. Improvements and maintenance of working conditions and employee benefits are primarily what the union exists for. Therefore, they should have some input into those decisions (Prasow and Peters:80).

Neil Chamberline states that there is only one function unique to management. In order for an organization to function, there must be a central point which coordinates and bargains for those resources necessary to do business: labor, suppliers of materials, equipment and facilities, stockholders, and line and staff employees. This function only management should do. All other rights must be bargained for (Prasow and Peters:80).

Frequently the contract will spell out what decisions are shared by labor. But when the contract is silent or ambiguous, other criteria must be relied on. One criterion used by some arbitrators is the major-minor test. When the harm to an employee is minor, and the contract is silent or ambiguous on the matter, the practice in question is considered to be a legitimate function of management. When the harm to an employee caused by a management decision is major, then the union should have some input to that decision.

Some arbitrators feel that this test is too vague and inexact since there is no logical basis for distinguishing between major and minor. This gives the arbitrator the ability to decide the case any way he wants and to justify the decision by calling the practice major or minor, whichever supports his decision. However, Prasow and Peters feel that the major-minor distinction is an inescapable element of any judicial process (Prasow and Peters:81).

Wallen chooses to decide management rights cases by balancing any rights lost or harm done to employees against any gains in efficiency brought about by a management action. Wallen tends to rule in favor of management when some sort of efficiency can be shown. If only economies are gained by a management action, then Wallen is likely to rule against management. This will prevent management from making decisions only for the purpose of undermining or eliminating union jobs or benefits. For example, Wallen will rule against management if they decide to contract out work that can be done by their own employees only because the contracted labor is cheaper. He will rule in favor of management if work is contracted out because their own employees lack the necessary skills or machinery to do the job efficiently.

Hearing Procedures. A management function that creates a lot of arbitration cases is in the area of discipline and discharge of workers. This is also an area that gives arbitrators a great deal of discretion. The clause usually found in contracts is--discipline and discharge shall only be for

"just cause." "Just cause" can be defined in many different ways depending on the values of the arbitrator. Also, in many contracts certain procedures are outlined which are supposed to be followed by management when disciplining an employee. When making rulings on just cause and procedure, an abitrator must make judgments concerning efficiency, fairness, and stability.

Any time an employee is disciplined, it must be for some reason of efficiency. Unruly employees will hamper the efficient running of an organization. Retribution is not a sufficient cause for disciplinary action because it involves no corrective action.

Certain procedures, even if not specifically in the contract, are usually required in order to insure fairness to the employee. These procedures, for example, typically include the concept of progressive discipline. This means that the employee should not usually be given the maximum penalty (discharge) for his first offense. Each successive time an employee commits an offense, he should be given sterner discipline. Only after everything else has been tried should he be discharged. This gives an employee a chance for self-correction.

If procedures such as the one mentioned above are not followed, the arbitrator will not necessarily find the case in favor of the employee. The arbitrator must weigh the issue of fairness against efficiency. In some cases the offense of an employee may be so extreme, such as a gross safety

violation, that it warrants immediate discharge. In this case, the issue of efficiency and safety outweighs the requirement of progressive punishment.

Another thing an arbitrator may consider when he is evaluating procedural requirements is the issue of industrial stability. A situation may occur where an employee has been justifiably disciplined, but management has violated a procedural requirement of the contract. In a strict judicial system the employee would be let off on a "technicality." However, the arbitration process is not as formal and strict as the judicial system. An arbitrator may rule that the considerations of efficiency outweigh the procedural considerations of fairness and rule against the employee. However, consistently ignoring procedural requirements that are spelled out in the agreement may threaten the legitimacy of the contract. In the long run, if the parties feel they need not abide by the contract, it will effect the stability of their relationship.

Besides the procedural problems mentioned, there are also procedural questions to be considered in the general conduct of the arbitration hearing. Our judicial heritage has developed many standards such as rules of evidence, due process, judicial precedent, and quantum of proof. These procedures and concepts were created primarily to insure fairness during a hearing. The arbitration process, while recognizing these standards as important, is not bound by them. This gives arbitrators the freedom to consider other factors which might

outweigh these considerations of fairness.

The distinction between a strict judicial hearing and a more informal hearing is illustrated in the difference between the adversary theory and truth theory. The adversary or fight theory, which is accepted in the judiciary system, draws a sharp distinction between the function of the judge and the function of the advocates. The advocates (in the arbitration hearing: union vs. management) have the responsibility for presenting evidence and arguments. The judge then makes a decision based only on those arguments and evidence.

Arbitrators who subscribe to the "truth theory" believe that the arbitrator or judge should have the power to investigate the case himself. This power may be used to better get at the truth which may lie somewhere between the two versions presented by the union and management. This gives the arbitrator more opportunity to find out information that he thinks is important, and it gives him the opportunity to act as a mediator. This introduction of a third point of view may bias the hearing to one side, distracting from the fairness of the hearing (Prasow and Peters:166-167).

A great amount of procedural flexibility is derived from the relatively small role of precedent in arbitration decisions. In the judiciary, a great amount of weight is given to previous decisions on similar issues. This rule tends to make the interpretation of the laws more consistent and, consequently, more stable. Although stability is desirable in arbitration, the arbitrator may choose to ignore arbitral precedent when

the arbitrator feels previous decisions are unjust or unworkable (Jennings and Martin:96).

Policy Studies. The literature on arbitration tends to emphasize the different schools of arbitration thought, such as the controversy between mediation and adjudication. However, these differences in arbitrators may be overstated. Charles Killingsworth, in a speech to the American Arbitration Association in 1973, said:

> Twenty five years ago it was not unreasonable for many parties to believe that the outcome of their cases depended on the luck of the draw in picking an arbitrator; today there is considerable evidence that many, perhaps most, parties believe that most experienced arbitrators would reach the same conclusion in most cases [Killingsworth:45].

A study that tends to support the notion that arbitrators have similar policies was done by Donald J. Petersen. Mr. Petersen asked seven attorneys, specializing in labor matters, and five representatives of various unions to make predictions of 400 arbitration awards. Unions predicted correctly 76% of the cases (146 out of 192) they expected to win and 85% (111 out of 130) of the cases they expected to lose. Of the cases which were predicted to have a 50-50 chance of winning, 40% were wins for the union, 51% were losses and the rest were split decisions. Predictions could not have been this accurate if arbitrators were not consistent between cases and between arbitrators (Petersen:788).

His analysis of factors which led to the various predictions are not as illuminating. For cases which were not predicted to be either wins or losses for the union, the

reasons given for the particular forecasts are: 1) obvious merit (or lack of merit) and the strength of the union's case; 2) knowledge of the arbitrators prior decisions in similar issues; and 3) strength of established precedent in similar cases (Petersen:789). None of these factors gives any insight into the actual policies of an arbitrator.

A study by James Gross is an attempt to determine what the policies of arbitrators are in general (Gross:55-72). His method of study is to analyze randomly selected cases that dealt with the issue of work transfer. He also confines his work only to ad joc arbitrators and not permanent umpires because Gross feels that permanent umpires become more of a mediator than an arbitrator.

From his study of these arbitration reports, Gross found that efficiency was the most important value in those particular cases. However, the only other factor that he compares efficiency to is the rights of the individual (Gross:70). This value of individual rights falls into the category of equity. The value of stability (need to follow the contract and other rules in order to keep the management and labor relationship stable) receives little attention in this study because there is rarely a contract which expresses the exact rules under which management can transfer work out of the union's bargaining unit. Therefore, in cases that do involve issues of stability, efficiency would not necessarily have the greatest weight.

Another study by Philip Harris on work transfer cases came to a similar conclusion as that of Gross: efficiency is the most important factor (Harris:669). His conclusion was based partly on the fact that a majority of the cases were decided in favor of management. Management's usual argument was in terms of efficiency; therefore, efficiency is the most important factor.

Conclusion

Based on past success with the use of linear models to decide decision-making policies over a wide range of decision-making areas, it is possible that the judgments of arbitrators could be modeled also. The cues that could be used to describe arbitrators' policies are: efficiency, management rights, specific language, general language, past practice, negotiating history, fairness, justice, major-minor, and job stability. All of the factors can be placed into one of three categories: 1) efficiency which includes management rights; 2) stability which includes specific language, general language, past practice, and negotiating history; and 3) equity which includes justice, fairness, procedure, major-minor, and job stability. Questions of efficiency will always be weighted toward management and equity will always be weighted toward labor. Questions of stability could be weighted either way depending on the rules that have been established.

The question of how standardized arbitrators are in considering the issues mentioned above is still unresolved.

However, some observers feel that arbitration has achieved a degree of standardization and that differences between judgments by the same arbitrator and differences between arbitrators is exaggerated. Studies such as the union prediction study by Harris tend to support the idea that there is standardization in arbitration, otherwise the predictions made would not have been so good.

The case study on arbitrator Saul Wallen also supports the idea that arbitrators follow a consistent policy when deciding cases. This study investigates the factors which are considered and show some of the trade-offs that have to be made when deciding cases. The study by James Gross goes one step further by hypothesizing that trade-offs are indeed made by arbitrators and that efficiency is the most important factor considered when these trade-offs are made.

III. Methodology

The purpose of the data analysis is to determine if arbitration decisions can be predicted from the facts of the case, to determine which factors are useful in predicting the outcomes, and to determine if there is any degree of consistency between arbitrators. The general method is to analyze the facts and arguments of the case, score the cues that are present in the case, and perform discriminant and regression analysis with approximately 50 cases.

There are several limitations to the data collected and the method by which it was collected. For purposes of data analysis, this is not a full factorial design. The number of cases scored is also a limiting factor due to time constraints and data availability. Therefore, nothing definite can be said about the results other than that it predicts outcomes or doesn't predict outcomes. However, some generalizations about relative cue weights can be made. Since, to the knowledge of this author, this is the first empirical policy study done in the field of arbitration, it represents a first step.

Several assumptions are made concerning the data. An assumption of accuracy in the reporting of the facts and arguments of the case has to be made. The arbitration reports from which the data are extracted are summaries of cases written by

the arbitrator who decided the case. It has been suggested in the literature that arbitrators tend to give only the facts and arguments which support their awards. However, for the purposes of this study, it will be assumed that arbitrators are objective in their reporting of the facts.

It is assumed that the cases chosen for this study are representative of all labor arbitration cases. An assumption of randomness also has to be made. Only four percent of all cases tried by arbitrators are ever published (Gross:58). It is up to the individual arbitrator to decide if he wants a case to be published. The criteria used for selecting which cases are to be published is unknown. Therefore, it is assumed that the cases that are published are representative of all labor arbitration cases.

Three criteria are used to select published arbitration cases for this study. The first criterion is cases tried by Saul Wallen. The last twenty-four cases published by Wallen involving disputes between labor and management are used. These cases were tried in the time period of 1957 to 1969. These cases comprise the first set of data.

The second set of data is derived from cases published in Cases in Collective Bargaining and Industrial Relations: A Decision Approach (Schoen and Hilgert:200-360). The cases in this book are taken from the Labor Arbitration Reports, the same source from which the first data set is extracted. The cases in Collective Bargaining and Industrial Relations, however, do not include the award given by the arbitrator or the

reasoning that the arbitrator used. They only contain the facts and arguments presented from 31 arbitration cases, all by different arbitrators and all within the period from 1957 to 1970. This data set has the same problems of randomness as the first data set. In addition, the criteria used by the authors of Collective Bargaining and Industrial Relations to select the cases is unknown.

The advantage of using these cases is that they eliminate the possibility that an award may be revealed to the scorer before the scoring is finished. Occasionally, in scoring the first set of data, the decision made by the arbitrator is revealed to the scorer before all of the facts and arguments have been read. This may cause some of the scoring to be prejudiced. This problem is not present in the second set of data since only facts and arguments are presented to the scorer and not the thinking process of the arbitrator.

Both sets have a limitation because of the time span between cases. Arbitration policies may change over a long period of time. This may make it difficult to make predictions. Another large variable in this exercise is the data collector. Since the data collector is relatively untrained in arbitration, the scoring of the cases may not be as good as if an "expert" had done the scoring.

For both sets of data, cases that concern questions of law, to include questions of arbitrability, are not used in either set of data. This is because the arbitrator's decision may be influenced by an applicable law. This may

distort an arbitrator's policy.

Method of Scoring Cases

Cases are scored by reading the case and then assigning a rating to each cue that is present in the case. The rating is done on a -2 to +2 scale. If a cue was not present in the case, then it is given a rating of zero. If the cue is strongly in favor of management, it is given a score of +2. A cue that is strongly in favor of labor is given a score of -2. Scores of -1 and +1 are given when factors are not as strongly in favor of either labor or management. The assumption made for statistical purposes is that the scale is interval.

Of the eleven cues mentioned earlier, several are combined into one cue. Management rights is included in the cue of efficiency. The justification for this is that the reason for having management rights is so that the business can be run efficiently. Justice and procedure are combined into one cue labeled fairness. Questions of procedure, as discussed in Chapter II, are always questions of fairness. Justice can also be included under fairness since justice and fairness are synonymous. Job stability and major-minor are combined under the cue of effect on worker. The issue of losing a job or job stability because of a management action is, of course, an adverse effect on the worker. The concept of a major-minor is also directly concerned with the effect on the worker. Specific language and general language are grouped under the cue of clear language. The cues used in the analysis are:

1. Efficiency

2. Fairness

3. Effect on worker

4. Clear language

5. Past practice

6. Contract negotiating history

7. Previous awards

The award given in each of the cases are rated in a similar manner. A score of -1 indicates a decision in favor of labor and a score of +1 indicates a decision in favor of management. A score of zero indicates the award was split.

Examples of Scoring

To illustrate how the scoring is done and the reasoning behind the scoring, two actual cases are presented.

Case 47LA349 (see Appendix A)

Arbitrator: Saul Wallen

Fitchburg Paper Co. vs. United Papermakers and Paperworkers Local 12

The issue to be decided is whether the company has the right to require certain first-shift crews to report early on the first day of the work week to "start-up."

There are four factors brought up in this case: efficiency, past practice, clear language, and effect on worker. The other factors are not present and are, therefore, given a score of zero. The argument for efficiency is a very strong one. If there is not a start-up before the rest of the factory is supposed to begin work, then those workers not involved in the start-up procedure would have to waste an hour.

This means many workers will have to wait while only a few work. Therefore, it is scored "+2."

The issue of past practice has to be resolved in favor of management. Although, as the union claimed, management in the past had always asked for volunteers, that does not mean that if a volunteer cannot be found, someone will not have to be ordered to work. Also, management has the past practice of the whole of industry in its favor. Start-up practices are common throughout industry. Therefore, past practice is scored "+2."

The best case for the union is in the contract itself. According to the contract, the start-up work is considered Sunday work, which according to the contract is totally voluntary. Therefore, specific language is given a score of "-2."

The effect on the worker as a result of this practice is relatively minor. There is not a loss of a job or of any pay. It only means that some workers will have to come in one hour earlier on Monday. Effect of worker was scored as "-1."

Case 56LA946 (see Appendix A)

Arbitrator: Paul L. Kleinsorge

Bartell Drug Company vs. Retail Clerks Union

The issue in this case is whether a pharmacist, Howard Eaton, was discharged for just cause.

The three issues involved in this case are efficiency, effect on worker, and fairness. The issue of efficiency is very strong because of the effect that this pharmacist's

temper has on the operation of the business. The reputation of the store can be seriously harmed. Not getting along with fellow workers is also a source of inefficiency. Therefore, efficiency is scored "+2." The effect on the worker is clearly very great since he will probably have a hard time finding another job. It is scored "-2."

The issue of procedure is the most difficult to score in this case. The company did follow the procedure of giving him adequate time to correct himself. However, none of the customers' complaints were documented and none of the customers' names were supplied as evidence. Also, the company has presented the new argument of poor relations with fellow employees which was not presented to the union before the arbitration hearing. Even though there were some irregularities in procedure, the preponderance of evidence was against Mr. Eaton; therefore, the cue of fairness was given a score of only "-1."

Analysis Techniques

The techniques used to analyze the data are regression analysis and discriminant analysis, available in the Statistical Package for the Social Sciences. These statistical methods are presented in the SPSS manual and are, therefore, not discussed in this paper (Nye, et al:320-367, 434-467).

Because of the small data sample, there is a limitation on the use of discriminant analysis. It has been shown that an upward bias in the percent correctly classified can occur when the data used to build the classification function

are also used to test the classification function. To avoid this problem, the data can be divided in half, one half used to form the classification functions and the other half used to build the classification table. Because of the small sample of data in this analysis ($n \simeq 30$), this is not practical.

The case study done by Saul Wallen suggests that all cases are trade-offs between the issues of stability, efficiency, and equity (Landis:22). In order to test this assertion, several cues are additively combined. The cues of fairness and effect on worker are combined to form the cue of equity. The four cues under the heading of stability (clear language, past practice, negotiating history, and previous awards) are also additively combined (McNichols:Chap. 4, 54-55).

This method of combining cues assumes that the cues that are added have equal coefficients. Dawes and Corrigan go one step further and suggest that accurate prediction can be made even if all cues are given equal coefficients (Dawes and Corrigan:105). However, Dawes and Corrigan only compared their unweighted model against a regression model. This study compares the unweighted discriminant analysis (one variable) against the discriminant analysis using all variables. To make this comparison, the scores from all cases are added together into one variable. This variable is then used in a discriminant analysis.

The change in Sum of Squares Error (SS_E) is used for determining if there are significant differences between beta weights of cues derived from the regression analysis. The

test statistic used is the F statistic.

$$H_o: \beta_1 = \beta_2$$

$$H_a: \beta_1 \neq \beta_2$$

$$F = \Delta SSE \; / \; SS_E \text{ (unrestricted)} \; / \; n - k - 1$$

Reject H_o if $F > F_{\alpha, 1, n-k-1}$ (McNichols: Chap 4, 54)

ΔSSE is the change in sum of squares due to error when two cue scores are added together to form one cue. This forces the two combined cues to essentially have the same beta weights. The difference in the SS_E between the regression equation without the combined cues and the regression equation with the combined cues is the ΔSSE. SS_E (unrestricted) is the sum of squares error without the combined cues.

IV. Analysis of Results

This chapter presents the results of the data analysis. The results of the regression and discriminant analysis are discussed for each set of data and predictor cues. The two sets of data discussed are the data which include 31 cases of randomly selected arbitrators from the book Cases in Collective Bargaining and Industrial Relations (Schoen and Higert:200-360). The second set of data consists of the last 24 cases published in the Labor Arbitration Reports by Saul Wallen. Each data set was analyzed using the two sets of cues mentioned in Chapter III. The first set includes seven predictor cues: efficiency, fairness, effect on the worker, clear language, past practice, negotiating history, and past awards. The second set includes three predictor cues: efficiency, equity, and stability.

Random Arbitrators and Five Cues

For this data set the cues of negotiating history and previous awards are not present in any of the cases scored (all values are zero). Therefore, they do not enter into the analysis. Regression analysis on this data set yields an R^2 of .40. Because the number of cases is small, the adjusted R^2 is smaller, .29. The overall significance of the regression equation is .02.

The regression equation with standardized beta weights is as follows: award = .56 (efficiency) + .43 (clear language) + .09 (effect on worker) + .27 (fairness) + .13 (past practice). However, only the cues of efficiency and clear language are significant at the .05 level. This lack of significance of the other cues could be a result of the lack of a consistent policy among the different arbitrators concerning these cues. This is also evidenced in the lower R^2 than for a single arbitrator (see next section). For the two cues that are significant, clear language and efficiency, there is no significant difference in the beta weights (see Appendix D).

The correlation between the predicted award and the actual award (Multiple R) of .63 indicates that, although there is some inconsistency between arbitrators in this sample, there is enough consistency to make accurate predictions. This is confirmed in the discriminant analysis performed on this data.

Discriminant analysis for the random arbitrator data has a percentage of correct classifications (management wins, union wins, or split decisions) of 74.2% at a significance level of better than .001 (see Table I).

The percent of cases found in favor of labor is 35%. This compares to the 63.6% of cases that are classified correctly. The percent of cases found in favor of management is 55%. This compares to the 88.2% classified correctly. The cues used to make the discriminant classification function are the same as those used in the regression analysis:

TABLE I

Random Arbitrators Discriminant Analysis*

Actual Award	Number of Cases	Prior Probability	Predicted Award		
			Union Win	Split Decision	Mgt. Win
Union Win	11	.355	7 63.6%	1 9.1%	3 27.3%
Split Decision	3	.098	1 33.3%	1 33.3%	1 33.3%
Mgt. Win	17	.548	2 11.8%	0 0%	15 88.2%

NOTE: Overall = 74.2% correctly classified

* See Appendix C for explanation of the classification table.

efficiency, clear language, fairness, effect on worker, and past practice.

The results of this discriminant analysis compare favorably with the previous prediction exercise performed with union officials (Petersen:787-793). In both exercises, cases from a number of different arbitrators are used. The differences are that in the previous exercise, the persons making the predictions had considerably more training and knowledge in the field of arbitration than the scorer in this study. There is some prior knowledge of the particular arbitrators in the previous exercise, and in this study the statistical technique of discriminant analysis is used rather than "gut feel." The results, however, are quite similar (see Table II).

TABLE II

Union Post-Hearing Predictions and Awards

Actual Award	Number of Cases	Prior Probability	Predicted Award		
			Union Win	Split Decision	Mgt. Win
Union Win	186	.470	146 78.5%	30 16.1%	10 5.4%
Split Decision	24	.060	9 37.5%	6 25%	9 37.5%
Mgt. Win	186	.470	37 19.9%	38 20.4%	111 59.7%
Overall = 66.4% classified correctly [Petersen:789].					

Management losses are predicted correctly 78% of the time, compared to a prior probability of .47 in the study by Petersen. The discriminant analysis predicted management losses 64% of the time, compared to a prior probability of .35. Management wins in the Petersen study were predicted correctly 60% of the time, compared to a prior probability of .47. The discriminant analysis of this study predict wins correctly 88% of the time, compared to a prior probability of .55.

The hypothesis of the previous study done by James Gross is not confirmed by the results of this analysis. Although the regression equation for the random arbitrators has a larger beta weight for efficiency, it is not shown to be statistically greater than fairness as he hypothesized (see Appendix B).

Wallen Data With Seven Cues

For this data set, the cues of negotiating history and

past practice were present in some of the cases; they are, therefore, present in the analysis. A stepwise regression found that only the cues of efficiency, fairness, clear language, past practice, and negotiating history are significant at the .1 level. Therefore, only these cues are used in the regression equation. A "forced" regression with those cues yield an R^2 of .76 and an adjusted R^2 of .69 at significance level of better than .001.

The resulting regression equation with standardized beta weights is as follows: award = .83 (clear language) + .51 (efficiency) + .38 (fairness) + .30 (past practice) + .28 (negotiating history). Among the three most significant cues, fairness, clear language, and efficiency, none of the beta weights are significantly greater than the others (see Appendix C).

The discriminant analysis explains more of the awards for this set of data than the random arbitrator data. Ninety-two percent of the 24 cases are classified correctly. One hundred percent of the cases found in favor of management are classified correctly, compared to prior probability of .54. Five out of six cases, or 83%, found in favor of labor are classified correctly, compared to a prior probability of .25. Four out of five split decisions are classified correctly, compared to a prior probability of .21.

The regression model of Saul Wallen explained significantly more of the variance in awards than did the composite model of the randomly selected arbitrators. Also, better

TABLE III

Wallen Data Discriminant Analysis

Actual Award	Number of Cases	Prior Probability	Predicted Award		
			Union Win	Split Decision	Mgt. Win
Union Win	6	.250	5 83.3%	1 16.7%	0 0%
Split Decision	5	.208	1 20.0%	4 80.0%	0 0%
Mtg Win	13	.542	0 0%	0 0%	13 100%
Overall = 92% classified correctly					

predictions are made using the Wallen data. This is probably because a single arbitrator is more likely to follow a consistent policy. Another possible hypothesis concerns a problem in the method of data collection mentioned in Chapter III. The problem is that some of the scores for the Wallen data may have been prejudiced, thereby accounting for some of the improvement in variance explained.

Wallen and Random Arbitrator With Three Cues

The purpose of using only three cues of efficiency, equity and stability is to test if predictions can be made using only these cues (see Chapter III for details). For both the Random Arbitrator data and the Wallen data, the R^2 was only slightly less using these three cues. However, the regressions using only the three cues were more significant for both sets of data (see Appendix D).

The major difference is in the significance tests between cues. For the Wallen data, the cue of stability is greater than equity at the .05 significance level. Although the beta weight for stability is greater than the beta weight for efficiency, it is not significantly different (see Appendix B).

The random arbitrator data also has two cues that are significantly different. The two cues in this case are efficiency and equity, with the beta weight for efficiency greater than the beta weight of equity at the .05 significance level (see Appendix B).

From the results of this analysis, it cannot be concluded that the composite policy of the random arbitrators is different from the policy of Wallen since there is only one significant difference between three pairs of cues. However, the numbers suggest that equity has the least amount of importance in both policy equations. Also, the beta weights suggest that efficiency and stability have roughly equal weights in the composite policy equation.

The beta weights of the Wallen policy equation suggest that stability is the most important cue, with efficiency and equity roughly equal. The standardized coefficients from the discriminant analysis also tend to support this conclusion.

Comparison of Three Variable Model With One Variable Model

For both sets of data, the three variable model was statistically different from the one variable model (Appendix C).

TABLE IV

Standardized Discriminant Function

Coefficients

Cues	Wallen Data Three Variables	Random Arbitrator Data Three Variables
Efficiency	1.138	1.106
Equity	.691	.534
Stability	1.892	.833

This shows that the weights given to cues in the three variable model contribute significantly to the amount of variance explained by the regression.

The differences between the discriminant predictions for three variables and one variable is greatest for the Wallen model (see Appendix C). This is to be expected since the cues for the Wallen data are more significant. The cues for the random arbitrator data are relatively insignificant and, therefore, there was little difference between the discriminant predictions using three cues or one cue. Since the cues, and therefore the relative weights for the cues, are more significant for the Wallen model, the predictions using three cues was much greater than the one cue discriminant model (see Appendix C).

V. Conclusions and Recommendations

The purpose of this study is to determine if decisions of labor arbitrators can be predicted using a linear model. The predictor cues hypothesized to be useful are: efficiency, fairness, effect on worker, clear language, past practice, negotiating history, and previous awards. Data are taken from two groups of cases. One group is from 24 arbitration reports of arbitrator Saul Wallen and the other group is from 31 arbitration cases published in Cases in Collective Bargaining.

Cases in Collective Bargaining

Based on the results of the regression analysis and discriminant analysis, it is possible to predict arbitration results better than 80% of the time. This suggests that there is a degree of consistency between arbitrators. As is expected, the percentage of correct classifications for a single arbitrator is higher since internal consistency is easier to achieve than external consistency. The analysis clearly confirms this notion unless the data gathering problem of prejudice mentioned earlier is not considered overwhelming. These findings confirm the assertions of the authors who believe that arbitrators are consistent in their policies, both internally and externally. Brook Landis, in a case study of Saul Wallen, asserted that Wallen consistently follows a single policy.

The generalizability of this assertion to other arbitrators is not established. However, it is partially confirmed by the results of the analysis of the data from the random arbitrators. It is unlikely that the predictive power of the discriminant analysis would confirm that degree of external consistency if each arbitrator in that group did not have an equally high degree of internal consistency.

Charles Killingsworth makes an assertion that most arbitrators will decide most cases the same way most of the time (Killingsworth:45). If "most" is considered to be about 80%, then the discriminant analysis confirms his statement.

Some writers have suggested that the political nature of the arbitration process would cause the policies of arbitrators to change from case to case (Killingsworth:44). In cases involving a clear decision of either "grievance sustained" or "grievance denied," politics do not seem to play an important role; otherwise, the predictive power of the discriminant analysis would not be as high as it is. However, the model does have some problems correctly predicting split decisions. This can be explained by the political nature of arbitration. In order for arbitrators to maintain their acceptability to both parties, they would prefer to give each side something for their effort. An alternative explanation for this difficulty in predicting split decisions is the problem of defining a split decision (as explained in Chapter III) consistently.

Policy Differences

Because this experiment does not have a formal design,

it is difficult to draw too many conclusions from it concerning cue importance. However, the beta weights and standardized discriminant coefficients suggest certain policies. Wallen's policy tends to give greatest weight to the issue of stability, with fairness and efficiency roughly equal (see Appendix B). This does not support Landis' suggestion that all three values are given equal weight (Landis:166-167).

The beta weights and standardized discriminant coefficients from the random arbitrator data suggest that stability and efficiency have roughly equal weights, with equity given less weight than both. This supports James Gross' hypothesis that questions of efficiency are given more weight than questions of equity.

Recommendations

Although there is much written about arbitration, very little of it treats the subject in a systemized way. Most articles deal with single issues such as the judicial vs. mediation theory, quantum of proof arguments, and effect of past awards to name a few. All of these discussions are necessary for understanding the "parts" of arbitration, but do not provide an overall understanding of the process. Recently, studies such as the Case Study of Saul Wallen and the study done by James Gross attempt to examine the trade-offs, or interactions of these parts, as a system.

Policy capturing provides an excellent framework for studying arbitration as a system. Within the labor-management

relationship, the problems of efficiency, equity, and stability have to be dealt with on a daily basis. How arbitrators combine or systematize these factors is important for labor and management to know.

It is just as important for arbitrators to know their own standards. Other studies done in the policy capturing field have shown that judges frequently do not know exactly what their own policies are. Before changes are proposed to arbitration standards, it is important to know what the present standard is, or even if there is a standard. If standardization of arbitration is the goal, then policy capturing would prove a useful tool. The policy capturing field of social judgment theory provides many examples of how feedback on a judge's own policy weight can influence the judgment process.

This knowledge of the judgment process would be particularly useful for new arbitrators. It has been hard for new arbitrators to become accepted into the "mainstream." This is because unions and management are reluctant to risk getting a new arbitrator who has not yet learned the accepted policy. Knowledge of "working policies" could make it easier for a new arbitrator to be accepted.

Knowledge of arbitration policies would also be useful to both union and management in two ways. First, a policy model could provide information concerning risk of litigation for a particular case. Since arbitration costs money, it may be important to prevent sending a case to arbitration that is sure to be lost. Secondly, a policy model could provide

information useful in selecting an arbitrator. For example, if management's case contained a strong argument for efficiency, then management would prefer an arbitrator who gave the most weight to efficiency.

There are several problems, however, that should be considered before something such as this is done. The first problem involves scoring of the data. As mentioned before, the scorer should not have knowledge of the decision or decision process before the scoring is done. This problem can be solved by having one person extract the facts of the case and then have another person do the scoring based on those facts. There is also a problem with the variability of the scoring done by different persons.

Further study should be done on single arbitrator policies without the scoring bias problem and using different scorers. An experiment such as this would determine if the scoring bias was a significant factor in this study and also determine if scorer is a significant variable.

Another problem is with the amount of data available. Some arbitrators rarely publish cases, therefore, they could not be modeled. Unions and management may get around this problem by exchanging information on unpublished cases they have been involved with.

As mentioned before, there is the problem of intercorrelation of the cues. This problem makes it difficult to make strong statements concerning relative cue importance. The problem can be solved by the use of an orthogonally

designed survey instrument. This method would also avoid the problem of unstandardized scoring methods since arbitrators would be doing the scoring themselves.

The survey method also has problems with collecting data. The first problem is to get arbitrators to participate. They would probably not cooperate if they felt that information would benefit only labor or management. Hopefully, arbitrators can be convinced that the knowledge gained would be useful to themselves in that policy capturing provides insight into their own policies--insight that they may not already have.

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APPENDIX A

FITCHBURG PAPER CO.

AND

THE HOT-HEADED PHARMACIST

APPENDIX A

Fitchburg Paper Co.*

Decision of Arbitrator

In re FITCHBURG PAPER COMPANY and UNITED PAPERMAKERS AND PAPERWORKERS, LOCAL 12. . . .

EARLY START-UP

The Facts

WALLEN, Arbitrator: -- There are three shifts of Beater and Paper Machine Room employees and the crews rotate shifts weekly. On Saturday, October 2, 1965 the Company told part of the first shift in the Paper Machine Room and the Beater Room to report for duty on Monday, October 4, 1965 at 6 a.m. for machine start up. Because Section 6, Paragraph 1 of the Agreement provides that the workweek will start on Monday at 7 a.m. and end on Sunday at 7 a.m. and because Section 6, Paragraph 3 provides that "regular hours for tour workers shall be from 7:00 a.m. to 3:00 p.m. and 11:00 p.m. to 7:00 a.m. and 3:00 p.m. to 11:00 p.m." the Machine Room workers claimed they had an option with respect to reporting at 6 a.m. for start-up. The Beater crews came in and Machine crews #1 and #2 came in but eleven of the fifteen members of Machine crew #4 did not come in. As a result the Company issued a "serious warning" to these employees which read:

> "On Saturday, October 2, 1965, you were told by a member of Supervision, to report on Monday, October 4, 1965 at 6:00 for machine start-up
>
> Your failure to report, as directed resulted in:
>
> 1. Gross insubordination on your part; a violation of Section 22, Paragraph E of the Labor Agreement.
>
> 2. A deliberate slowdown of work; a violation of Section 19 of the Labor Agreement.
>
> This serious warning is being given to you for the above mentioned violations. Any further violations of this nature on your part will result in your immediate discharge from employment with Fitchburg Paper Company."

---

*SOURCE: Labor Arbitration Reports, pp. 47LA349-47LA352.

Section 22 of the Agreement provides as follows with respect to "serious warnings:"

> "All warnings, except of a serious nature will be removed from the employee's record one (1) year from date of issue. Any warning which the Company considers of a serious nature will be so noted on the copy of the warning that is sent to the Union.
>
> The Company will review all serious warnings to employees during January of each year, and will inform the Union of any action taken in this regard as soon as practical after such review."

On October 8, 1965 the Company issued the following notice to all paper mill personnel:

> "SEVERAL OF OUR PEOPLE HAVE TAKEN IT UPON THEMSELVES TO IGNORE OUR EARLY MORNING START UP PROCEDURE. IN SO DOING, THEY HAVE ALSO IGNORED THE GRIEVANCE PROCEDURE WHICH IS SPELLED OUT QUITE CLEARLY IN THE CONTRACT.
>
> THIS IS A VERY SERIOUS MATTER AND THE COMPANY CAN NOT, AND WILL NOT, ALLOW THIS TO HAPPEN AGAIN.
>
> THE EARLY START UP PROCEDURE HAS BEEN IN EFFECT FOR YEARS, AND IT IS NOT GOING TO BE CHANGED JUST BECAUSE A FEW MISGUIDED MEN DECIDE THAT THEY DO NOT LIKE IT.
>
> THE COMPANY CANNOT PUT ITSELF ABOVE THE CONTRACT AND THE PROPER GRIEVANCE PROCEDURE, AND BY THE SAME TOKEN, NEITHER CAN A FEW INDIVIDUALS IN THE BARGAINING UNIT.
>
> ALL MEN WHO FAILED TO REPORT ON OCTOBER 4TH AT 6:00 A.M. WILL BE GIVEN SERIOUS WRITTEN WARNINGS. ANY ONE IN THE STARTUP CREW WHO FAILS TO REPORT AT 6:00 A.M. ON MONDAYS IN THE FUTURE WILL BE DISCHARGED FROM EMPLOYMENT.
>
> IF ANY ONE HAS A PROPER GRIEVANCE BECAUSE OF THE ABOVE POLICY, HE HAS RECOURSE TO THE GRIEVANCE PROCEDURE AND ARBITRATION."

Because of these warnings the employees thereafter came in at 6 a.m. on Monday mornings under protest and filed these grievances.

Grievance Nos. MR 2712 and MR 2713 claim that by issuing the warning letters and notices, and by threatening the mill personnel with dismissal if they do not report at 6 a.m. on Monday mornings, the Company violated Paragraph 1 of Section 6 of the Agreement which provides:

"HOURS OF LABOR
SECTION 6: A. FITCHBURG PAPER DIVISION

1. The standard work day shall consist of eight (8) hours. The standard work week shall consist of forty-eight (48) hours. It is understood that this does not guarantee a forty-eight (48) hour week. The work week shall start on Monday at 7:00 A.M. and end at 7:00 A.M. Sunday. Sunday work is that work done between 7:00 A.M. Sunday and 7:00 A.M. Monday."

Thus, the standard workweek is 48, not 49 hours. Overtime is defined as end of shift work, not work prior to the start of a shift. The work performed on Monday morning between 6 a.m. and 7 a.m. is Sunday work compensable at double time in accordance with Section 7, Paragraph 4. However, such Sunday work is limited by the terms of Paragraph 7 of Section 7 which states:

"7. Sunday operation of the plant will not be resorted to except by mutual agreement and except as outlined under Section 6: Hours of Labor. Usual Sunday work shall be limited to repairs and emergencies."

These provisions, the Union argues, are not modified by Section 4, Functions of Management, which states in pertinent part: "This section shall not in any way modify, change or cancel the other terms of this Agreement."

The Union asserts that there was no mutual agreement for mandatory Sunday work for employees in both the Beater and Paper Machine Rooms. It points out that in 1961 the Beater Room employees notified Management that they would not report at 6 a.m. on Monday mornings, and in fact did not show up for two Monday mornings until the time an agreement was reached by the parties with respect to the matter of crew size then in issue. At that time the Beater Room employees, as part of the settlement of that dispute, agreed they would come in at 6 a.m. on Mondays if requested to do so. Since 1961, because of this agreement, the Beater Room employees have never refused to come in at 6 a.m. on Mondays.

The Union points out, however, that no such agreement was reached with respect to employees in the Paper Machine Room. Therefore, while reporting for early Monday morning start-up is mandatory for Beater Room employees, it is voluntary for Paper Machine Room employees and they may refuse to come in early. The fact that until recently they never refused as a group to come in at 6 a.m. does not demonstrate that they had no right to refuse, but only that they did not wish to do so. The Union asserts that in the past Machine Room employees have individually refused to come in early on Mondays and have not been disciplined. It argues that if one may refuse, a

group may refuse to report early. In fact, as recently as two weeks before the refusal on October 4, the entire Machine #4 refused to report early and the employees were not penalized. The Union charges that the Company unilaterally changed the practice, which was voluntary early report on the part of Machine Room employees, when it disciplined them for refusing to come in early on Monday, October 4.

The Company's rejoinder is twofold. First, it claims it has been the practice for approximately twenty years for certain employees to come in at 6 a.m. on Monday mornings to start up the machines and thus enable the employees to work a full shift the first day of the week, and that this practice is not contrary to the provisions of the Agreement. Second, the Company argues that this being the case, the refusal of a crew on certain machines to report at 6 a.m. constituted a concerted refusal to work in violation of Section 19 of the Agreement which prohibits interruptions of work, and thereby justified the issuance of warnings to the employees who refused to report at 6 a.m.

The Company asserts that the nature of the operation, which is continuous from Monday morning to Friday night, necessitates the early report of certain employees on Monday mornings to start up machines so that production can commence at 7 a.m. A machine tender and his crew are needed to clean wires and steam spots, start all pumps and motors and regulate valves. A back tender is needed to insure that steam for drying is on and that the line shaft is turning. A beater enginer is needed to start all equipment such as pulpers and refiners and to adjust valves. The employees who report act as a team to start up the machines.

The Company contends that it has been the uniform practice for the operators of these machines to be scheduled to report and to report at 6 a.m. on Mondays for start up. They are paid double time for this work because it is Sunday work. The Company admits that in the past one or two employees scheduled for such early report may not have come in at 6 a.m. on particular Mondays and that no issue was made of this failure to report if it did not impede the start-up. When a key man, such as a machine tender, failed to show up at 6 a.m. he would be called at his home and told to come in and he would do so because it was recognized that start-up is a regular part of the Company's operation. The Company notes that one witness testified that when a man failed to report early he gave some excuse to supervision. However, the Company argues that because it took no action in the case of individual absentees who did not impede the start-up procedure, it is not obligated to tolerate a concerted refusal by a whole crew to come in early. Nor does the Beater Room settlement offset the deeply imbedded nature of the startup practice which existed long before that agreement.

Section 14, Paragraph 2 B of the Agreement provides:

> "If a person is notified prior to leaving the plant to start his shift prior to his normal starting time he shall be paid the appropriate overtime for hours worked."

This provision and Section 4, the Management function section, support the Company's position that it may require employees to come in early for Monday start up and it may take disciplinary action if they fail to so report. The Company asks that the grievances be denied.

Discussion

This case represents two questions. First, is an individual employee required to report for early start-up one hour prior to the start of the workweek? Second, may a crew as a group refuse to report for start-up in order to compel concessions on some matter of dispute between the parties?

It is to be noted in the first instance that the one-hour early startup has been a feature of this plant's (and so far as is known, the industry's) operations for many years. And this is entirely natural. The jobs involved run on continuous five or six-day operations. There is a weekend shutdown. Certain essential preliminary tasks must be performed before normal production can be resumed. If not done prior to the beginning of the normal shift, the bulk of the work force will have no work available, hence will work a short day the first day of the week. Hence, in order to permit management a full day's production and to permit the men a full day's work, it has long been the custom to have the Machine Room crews come in one hour early Monday morning to get the equipment ready for production at 7 a.m. This is neither unusual nor surprising; in fact it is a feature of factory life in many industries and occurs as a matter of course, without specific contract sanction any more than punching the clock or reporting to the foreman.

It is true that employees were not always compelled to report for startup work. Where an employee was scheduled for it but has a reason for not doing so or where, if he had no reason, someone else was available, his presence was not insisted upon. But this concession to voluntarism did not relieve employees of all obligations in the matter. For implicit in the voluntary arrangement heretofore observed was the availability of substitute personnel. It was assumed if one man refused, another would volunteer. The nature of the basic practice, however, is that where there are no volunteers, management may require the junior qualified employees to come in for early start-up. This is sanctioned by both the nature of the problem and by long-standing custom. The interests of both management and other employees have over

the years impelled recognition of an implicit obligation on this point.

That the matter became a source of conflict only once before, in 1961, is due to the fact that the need was always recognized and volunteers to replace those unable to report early were always available. The specific arrangement that Beater Room employees would be obligated to report for start-up made in 1961 was not, in realistic terms, a recognition that they had a right not to report. It was an agreement that whereas previously a Beater Room crew member had the right to refuse to report for early start-up if a substitute was available, he now is required to be available for such work.

Established practices not sanctioned by specific contract language but not barred by it and arising out of the logic of the work relationship are invoked frequently by unions as working conditions intended to be preserved, not supplanted by, the Agreement. This is as it should be. The customary ways of doing things not negated by an Agreement's specific terms are subsumed. But Management, as well as unions, have a right to rely on this principle. Management's reliance thereon in this case is well-placed.

Second, in any case even if start-up work were wholly voluntary, a collective refusal to volunteer in order to exact concessions on other problems would be in the nature of an interruption of work banned by Section 19. Such individual right to refuse work as may be inherent in the Agreement was intended to be motivated by purely individual reasons, not by a desire to join with others to compel a solution to a problem by group action--or inaction. The settlement of grievances or other disputes during the life of the Agreement is supposed to be accomplished by means of the grievance procedure and arbitration, not by group refusals to perform work. And if the problem is one not compassable by those procedures, it must remain to be handled in negotiations at expiration time.

AWARD

For the foregoing reasons I hold that the grievances lack merit.

THE HOT-HEADED PHARMACIST*

Company: Bartell Drug Company, Inc., Seattle, Washington

Union: Retail Clerks Union, Local 300

INTRODUCTION

Howard Eaton,[1] chief pharmacist of Store No. 16 located in downtown Seattle, was discharged after two years employment at the Bartell Drug Company. The Company's reason for discharging Eaton was that he could not get along with either customers or his fellow employees.

The Bartell Drug Company operates several retail drug stores in the Seattle area. Howard Eaton had been a licensed pharmacist for 19 years. His duties with Bartell consisted of filling prescriptions and waiting on customers.

On March 4, 1971, eight days after Eaton's discharge, the union sent the company a letter which read in part as follows:

> In accordance with the terms and provisions of the collective bargaining agreement in force and effect between Bartell Drug and Local 330, R.C.I.A., we hereby protest and submit as a grievance, that the discharge of Howard Eaton was not proper, just, or for reasonable cause, and judgment of management in reaching a decision to terminate Eaton was not fairly and reasonably exercised.

The union requested that Eaton be reinstated to his former position with full back pay and with restoration of all rights and benefits.

POSITION OF THE COMPANY

The company pointed out that the retail drug industry was highly competitive. If it was to compete successfully, company employees must not only be highly qualified but also

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*SOURCE: Cases in Collective Bargaining, pp. 263-267.

[1]Names disguised.

possess the ability and desire to get along with both customers and fellow employees.

The company recognized that Eaton was a qualified and able pharmacist, a fact which he demonstrated by his accurate and rapid filling of prescriptions. However, by Eaton's own admission, he possessed a very quick temper and easily became angry. In fact, his quick temper caused him on several previous occasions to lose jobs with other companies.

The company stated that it was aware of Eaton's quick temper and previous discharges at the time it hired him about two years previously. At the time Eaton was hired, both the manager of store number 16 and the operations manager of the parent company spoke with Eaton about his past behavior and pointed out that he would have to change both his attitude and actions toward customers.

The manager of store number 16 testified that he received the first customer complaint about Eaton's behavior about two months after he had been hired. Thereafter, he received a major complaint almost every week, and minor complaints from both customers and other Bartell employees almost every day. The manager stated that the company counseled with Eaton and did not discharge him immediately in the hope that his behavior might change. Eaton possessed excellent technical skills, which enabled him to fill prescriptions both accurately and quickly.

The operations manager stated that the company conscientiously attempted to work with Eaton. He and the store manager attempted to smooth over the difficult situations with customers.

The company stated, in response to inquiries by the union, that it did not record the names and addresses of complaining customers, because it was not good for customer relations to check on the complaints of angry customers or to indicate to them that they might be called upon to testify against an offending employee. Two of Eaton's fellow employees working in the same department with him cited several instances of his rude behavior both toward customers and toward them. They testified that they had heard him make sarcastic remarks to customers, use offensive language toward them and argue with them. One of the employees testified that, in a fit of anger, Eaton has struck her on the head with a writing pad and then grasped and twisted her arm. Both employees were members of Local 330, to which Eaton belonged, and both testified under oath against him.

The company admitted that it decided to discharge Eaton early in February 1971, but delayed action for two or three weeks in order to find another pharmacist to replace him.

All four company witnesses testified that they believed that Eaton disliked older customers and people on welfare. Many of the customers with whom he had difficulties fell into these two categories.

The company held that it possessed the right to discharge Howard Eaton under Section 22.1 of the collective agreement which read as follows:

> The employer shall be the judge as to the competency of his employees and continuity of employment shall be based upon the Employer's judgment of the merit and ability of the individual employee, provided that such judgment shall be fairly and reasonably exercised.

Further, management representatives stated that Eaton violated Section 2b of Company Rules and Policies which read as follows:

> Never argue with a customer even though you may be entirely correct. The customer is our Boss and comes first.

The company stated that this policy statement was well-known to all employees. Eaton was reminded of it on many occasions. It was a reasonable policy, and it reflected the spirit and philosophy of Bartell Drug Company.

The company cited several prior arbitration cases in which arbitrators upheld discharges of employees who were guilty of emotional outbursts and the use of bad language within the hearing of customers. The company also cited a case in which an arbitrator held that an arbitrator should not substitute his personal judgment for that of the company, if the company has acted in good faith after a proper and fair investigation. In view of the precedents cited and the evidence presented, the company asked that Eaton's grievances protesting his discharge should be denied.

POSITION OF THE UNION

The union contended that Eaton's behavior was not as bad as the company had alleged, since the company had retained him in its employ for approximately two years. The union also argued that, during this time, Eaton was promoted to chief pharmacist of store number 16.

Eaton admitted that his temper did have "a short fuse", but he stated that there was usually a just and good reason for his anger. Consequently, under oath, he testified that many of the instances which the company cited did not actually occur. He also admitted that he had occasional arguments with

customers, but he also contended that he cheerfully had helped many customers who needed it. Although some customers complained when the arguments occurred, Eaton believed that no customer had ever asked that the company discharge him. When complaints about his behavior were lodged, he did not know about them immediately nor did he realize that his job with the company was in jeopardy. Eaton emphatically denied the charge that he disliked old people or people who were on welfare. Eaton admitted that he grasped a fellow employee and twisted her arm, but only because she had refused to say "hello" to him. However, he quickly apologized to her, and he also apologized to customers when there was an appropriate reason or an opportunity to do so. Eaton insisted that he got along well with his co-workers, including those who testified against him.

The union pointed out that if this dismissal were upheld, Eaton probably would not be able to find another job in the retail drug industry.

The union further attested that there may have been another reason for Eaton's dismissal. Under Washington state law, certain drugs, called exempt drugs, could be purchased without a prescription depending upon the judgment of the pharmacist. Eaton often had refused to sell exempt drugs to some people, and he felt that the manager of the store wanted him "to look the other way" when such a sale could be made. Three other pharmacists had been dismissed in the past by the company, and the union argued that they had felt at the time that their refusal to sell exempt drug items against their better judgment was the reason for their dismissal.

The union objected strenuously to the testimony of company witnesses that Eaton did not get along well with customers. The union requested that the company provide the names of the alleged complaining customers in order that they might be cross-examined. Since the company claimed that it was unable to furnish such a list, the union claimed that Eaton's alleged poor relations with customers were only rumors and not fact. The union charged that the company's refusal or inability to furnish such a list constituted an unfair labor practice under the Taft-Hartley Act. Further, the union claimed that the company's refusal to supply the names of complaining customers violated Section 17.4 of the collective bargaining agreement which stated:

> The Employer and the Union agree to make available to the other such pertinent data as each may deem necessary for the examination of all circumstances surrounding a grievance. The arbitrator shall be empowered to effect compliance with this provision by requiring the production of documents and other evidence.

The union also contended that, before the hearing, the company did not include poor fellow employee relations as a reason for dismissing Eaton and to do so now was late and unfair. The company should not be allowed to rely on one set of reasons in the first three steps of the grievance procedure and then add another set when arguing its position before the arbitrator. Consequently, only poor customer relations should be considered by the arbitrator, and testimony concerning poor employee relations should be stricken from the record.

In support of its case, the union cited several NLRB cases. One case concerned the Metropolitan Life Insurance Company in which failure on the part of the company to provide the names of complaining policy holders indicated that there was no just cause for discharge of three of the company's agents. Also, the union contended that in cases where names of accusers are withheld, discharge is too severe a penalty for an alleged display of poor attitude on the part of the employee. Therefore, the union argued that much of the Bartell Drug Company's case was based on inadmissable and unsubstantiated evidence. The union claimed that Howard Eaton should be reinstated to his job with full back pay.

QUESTIONS

1. Was employee Howard Eaton's behavior serious enough to justify discharge under provisions of the collective agreement? Why or why not?
2. Evaluate the company's position citing an arbitrator who held that, "an arbitrator should not substitute his personal judgment for that of the company, if the company has acted in good faith after a proper and fair investigation."
3. Evaluate the union's argument that the company should provide the names of alleged complaining customers in order to cross-examine them. Should the arbitrator rule upon this issue in relationship to the company's duty to bargain under the Labor-Management Relations (Taft-Hartley) Act?
4. Is is permissible for the company to include "poor fellow employee relations" as a reason for dismissing Eaton, if as the union alleges, this was not originally a reason for dismissing Eaton during the first three steps of the grievance procedure? Discuss.

APPENDIX B

BETA WEIGHT DIFFERENCES SIGNIFICANCE TESTS

AD-A076 157 AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOO--ETC F/G 5/1
POLICY CAPTURING EXERCISE ON LABOR ARBITRATORS.(U)
SEP 79 D W LAMBERT
UNCLASSIFIED AFIT/GSM/SM/79S-8 NL

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APPENDIX B

Beta Weight Differences Significance Tests

Wallen data with 3 cues:

SS_E with all cues separate = 4.113

SS_E with efficiency and equity having equal weights = 4.743

SS_E with efficiency and stability having equal weights = 4.170

SS_E with equity and stability having equal weights = 5.986

number of cases (n) = 24

number of variables (k) = 3

test statistic: $F_{.05, 1, 20} = 4.35$

Significance test between the beta weights of efficiency and equity

H_o: $\beta_1 = \beta_2$

H_a: $\beta_1 \neq \beta_2$

$$F = \frac{4.743 - 4.113}{4.113/20} = 3.06$$

$F < F_{.05, 1, 20}$ ∴ fail to reject H_o

Significance test between the beta weights of efficiency and stability.

H_o: $\beta_1 = \beta_3$

H_a: $\beta_1 \neq \beta_3$

$$F = \frac{4.170 - 4.113}{4.113/20} = .28$$

$F < F.05, 1, 20 \therefore$ fail to reject H_o

Significance test between beta weights of equity and stability.

H_o: $\beta_2 = \beta_3$

H_a: $\beta_2 \neq \beta_3$

$$F = \frac{5.986 - 4.113}{4.113/20} = 9.11$$

$F > F.05, 1, 20 \therefore$ reject H_o

Random Arbitrator data with 3 cues.

SS_E with all cues separate = 16.364

SS_E with efficiency and equity having equal weights = 19.708

SS_E with efficiency and stability having equal weights = 17. 363

SS_E with equity and stability having equal weights = 17.065

number of cases = 31

number of variables = 3

test statistic : $F.05, 1, 27 = 4.21$

Significance test between the beta weights of efficiency and equity.

H_o: $\beta_1 = \beta_2$

H_a: $\beta_1 \neq \beta_2$

$$F = \frac{19.708 - 16.364}{16.364/27} = 5.52$$

$F > F.05, 1, 27 \therefore$ reject H_o

The weights of efficiency and equity are significantly different.

Significance test between the beta weights of efficiency and stability.

H_o: $\beta_1 = \beta_3$

H_a: $\beta_1 \neq \beta_3$

$$F = \frac{17.363 - 16.364}{16.364/27} = 1.65$$

$F < F.05, 1, 27 \therefore$ fail to reject H_o

Significance between beta weights of equity and stability.

$$F = \frac{17.065 - 16.364}{16.364/27} = 1.15$$

$F < F.05, 1, 27 \therefore$ fail to reject H_o

Significance test of the difference between the beta weights of efficiency and clear language

H_o: $\beta_1 = \beta_3$

H_a: $\beta_1 \neq \beta_3$

$$F = \frac{\Delta SS_E}{SS_E/n-k-1} = \frac{3.837 - 3.727}{3.727/18} = .526$$

$F < F.05, 1, 18 \therefore$ fail to reject H_o

Significance test of difference between the beta weights of efficiency and clear language.

$H_o: \beta_2 = \beta_3$

$H_a: \beta_2 \neq \beta_3$

$$F = \frac{\Delta SS_E}{SS_E/n-k-1} = \frac{4.475 - 3.727}{3.727/18} = 3.612$$

$F < F.05, 1, 18 \therefore$ fail to reject H_o

APPENDIX C

EXPLANATION OF DISCRIMINANT CLASSIFICATION TABLE

APPENDIX C

Explanation of Discriminant Classification Table

			Predicted Award		
Actual Award	Number of Cases	Prior Probability	Union Win	Split Decision	Mgt. Win
Union win	11	.355	7 63.6%	1 9.1%	3 27.3%
Split decision	3	.098	1 33.3%	1 33.3%	1 33.3%
Mgt. win	17	.548	2 11.8%	0 0%	15 88.2%

The percentages found in the matrix are found by dividing the actual number of cases in that group into the number classified. For example, the 63.6% represents the percentage of the cases that are classified correctly out of the cases that are actual union wins. In other words, seven out of the eleven cases found in favor of labor are classified correctly. Three of the cases actually found in favor of labor are predicted to be management wins. Similarly, 15 out of 17 cases found in favor of management were classified correctly (88.2%).

The prior probabilities can be viewed as the percentage of cases that would have been classified correctly if the classification had been done randomly. For example,

if the classification had been done randomly, it could be expected that 35.5% of the union wins would be correctly classified. Since 63.3% of the union wins are classified correctly by the discriminant analysis, this represents a significant improvement over chance.

APPENDIX D

DECISION MODEL COEFFICIENTS AND RELATED STATISTICS

APPENDIX D

Decision Model Coefficients

and Related Statistics

Random Arbitrator Data

Five Most Significant Cues

Cue	F	Significance	Beta
Efficiency	11.328	.002	.556
Clear Language	5.540	.027	.432
Fairness	2.031	.167	.274
Past Practice	.656	.426	.135
Effect on Worker	.276	.604	.089

R^2 = .399

Adjusted R^2 = .279

Multiple R = .631

Overall F = 3.316

Significance = .020

Random Arbitrator Data

Standardized Discriminant Function Coefficients

Cues	Coefficients
Efficiency	1.108
Clear Language	.852
Fairness	.490
Past Practice	.189
Effect on Worker	.179

Random Arbitrator Data - 3 Cues Regression

Cue	F	Significance	Beta
Efficiency	11.971	.002	.554
Stability	6.505	.017	.427
Equity	2.435	.130	.276

R^2 = .390

Adjusted R^2 = .721

Multiple R = 6.25

Overall F = 5.761

Significance = .004

Wallen Data - Five Most Significant Cues

Cue	F	Significance	Beta
Clear Language	36.641	.000	.686
Efficiency	17.166	.001	.495
Fairness	11.653	.003	.386
Negotiating History	6.335	.022	.293
Past Practice	4.575	.046	.246

R^2 = .780

Adjusted R^2 = .719

Multiple R = .833

Overall F = 12.781

Significance = .000

Wallen Data - Standardized Discriminant Function Coefficients

Cues	Coefficients
Clear Language	2.113
Efficiency	1.320
Fairness	1.157
Effect on Worker	.702
Negotiating History	.590
Past Practice	.553
Past Awards	.297

Wallen Data - 3 Cues Regression

Cue	F	Significance	Beta
Efficiency	18.162	.000	.485
Stability	53.157	.000	.845
Equity	10.779	.004	.383

R^2 = .757

Adjusted R^2 = .721

Multiple R = .870

Overall F = 20.823

Significance = .000

Scoring of Case for Random Arbitrator Data

Case No.	Efficiency	Fairness	Effect on Worker	Clear Language	Past Practice	Negotiating History	Previous Awards	Award
26					-2			-1
27		-2	-1	2				-1
28	2	-2						+1
29				2				+1
30	2				-2			0
31	2	-2		2				+1
32		-1		2				+1
33	2	-2	-2					1
34	2	-2	-2					1
35	1	-1	-2					0
36	2							1
37	2		-1	1				1
38	1		-2	-1				-1
39	2		-1					1
40	2	-2	-1					-1
41	2	-1	-2					1
42	2		-1	1				-1
43	2	-2		1				0
44	1			-2				-1
45	2				-1			1
46	1	-2	-1					-1
47	1	-2	-1					-1
48	2			-2				-1
49		-2	-2					-1
50	2	-1	-2	2				+1
51	1	-2					+1	0
53	2	-2	-2	-2				1
54	2	-1		2				1
55	1		-2					-1
56	2	-2						1
57	2		-2					1

Case numbers in this table correspond to the case numbers in Cases in Collective Bargaining and Industrial Relations, A Decisional Approach.

APPENDIX E

DISCRIMINANT CLASSIFICATION FUNCTIONS

APPENDIX E

Discriminant Classification Functions

Random Arbitrator Data - Five Cues

Cue	Group 1 Union Win	Group 2 Split Decision	Group 3 Mgt. Win
Fairness	-.50	-.87	.28
Effect on Worker	-1.03	-.76	-.70
Clear Language	-.16	.58	1.06
Past Practice	-1.64	-3.91	-.97
Efficiency	.67	2.05	2.60
Constant	-1.04	-4.04	-2.96

Random Arbitrator Data - Three Cues

Cue	Group 1 Union Win	Group 2 Split Decision	Group 3 Mgt. Win
Efficiency	.61	1.92	2.50
Equity	-.68	-.52	-.09
Stability	-.52	-.10	.52
Constant	-.83	-2.12	-2.52

Wallen Data - All Cues

Cue	Group 1 Union Win	Group 2 Split Decision	Group 3 Mgt. Win
Fairness	-1.22	-2.65	1.86
Effect on Worker	-1.85	-2.85	.81
Clear Language	-3.03	-1.86	3.39
Past Practice	-3.44	1.56	1.73
Negotiating History	.86	1.21	3.99
Past Awards	1.16	3.04	-2.61
Efficiency	-1.83	1.09	3.32
Constant	-3.17	-5.37	-4.03

Wallen Data - Three Cues

Cue	Group 1 Union Win	Group 2 Split Decision	Group 3 Mgt. Win
Efficiency	-1.43	1.36	2.27
Equity	-1.03	-1.50	.45
Stability	-2.25	.10	1.72
Constant	-2.56	-3.63	-2.20

Vita

David W. Lambert was born on 18 May 1951 at Wright-Patterson Air Force Base, Ohio. He graduated from Crossland High School, Maryland in 1969 and received a Bachelor of Science degree from the United States Military Academy, West Point in 1974. He was commissioned in the United States Air Force on 5 June 1974. He was initially assigned to the Air Force Data Services Center in the Pentagon as a programmer/analyst. During that time he provided software support for the Surgeon General of the Air Force and Office of the Secretary of Defense. From there he was assigned in June 1978 to the Air Force Institute of Technology to study for a Master of Science degree in Systems Management.

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