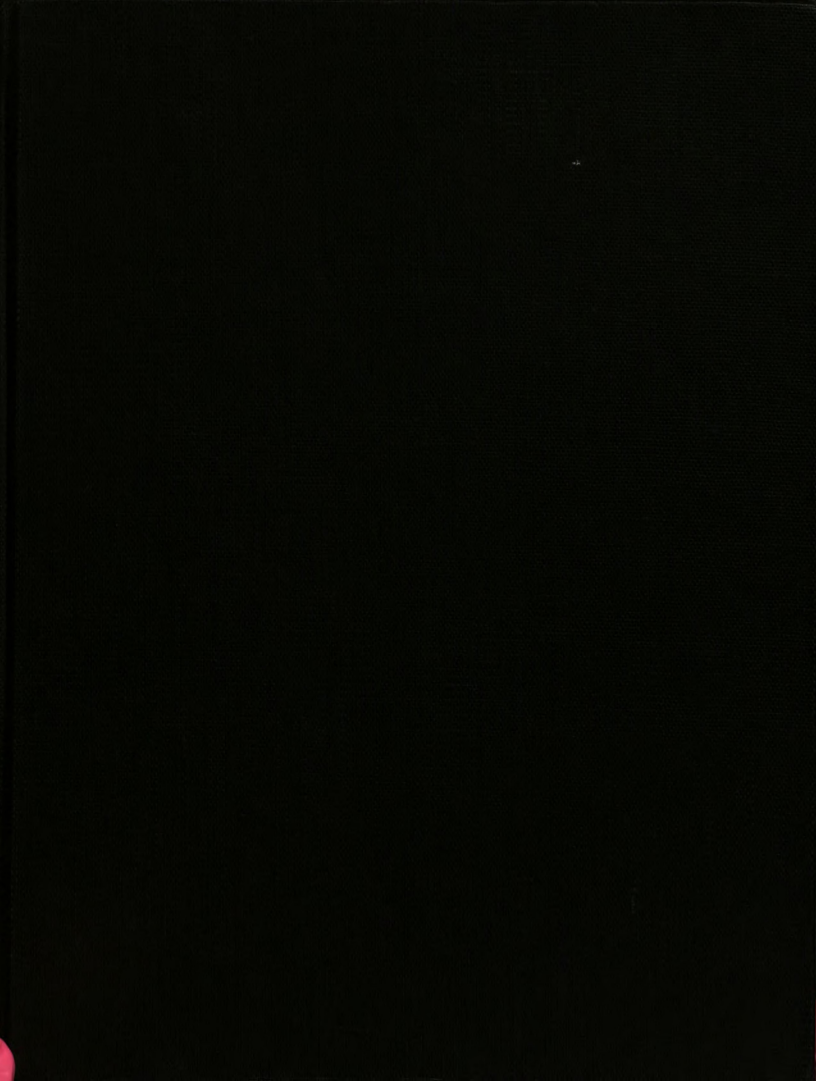


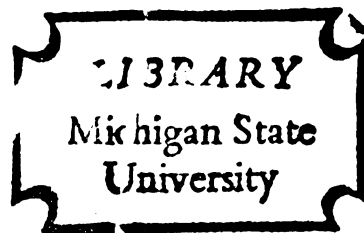
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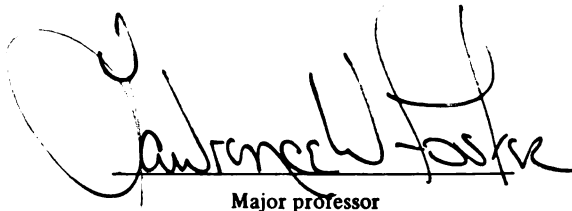




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A COLLECTIVE BARGAINING SIMULATION
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THE EFFECT OF POWER DISTRIBUTION AND MOTIVATION ORIENTATION
ON NEGOTIATED OUTCOMES: A COLLECTIVE BARGAINING SIMULATION

By

Jan Leon Woznick

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ABSTRACT

THE EFFECT OF POWER DISTRIBUTION AND MOTIVATION ORIENTATION ON NEGOTIATED OUTCOMES: A COLLECTIVE BARGAINING SIMULATION

By

Jan Leon Woznick

Bargaining relationships, pervasive in our society, are defined as a process involving two or more parties attempting to attain a mutually acceptable compromise. This study adopted a social psychological rather than game theoretic view using power distribution (PD) and motivation orientation (MO) as independent variables. These written parameters manipulations, equal and unequal PD and cooperative and competitive MO, effect negotiated outcomes.

It was hypothesized that equal power or cooperative motivation orientation bargainers would be the most effective bargainers. The primary dependent measure effective outcomes, was defined to be

1. greater number of dyads reaching agreement
2. fewer rounds to settlement
3. greater amount of settlement
4. greater initial opening offer
5. greater amount of concession during bargaining
6. greater perceived satisfaction with outcomes

The bilateral monopoly paradigm served as an experimental vehicle for the simulated collective bargaining process. N = 172 student subjects bargained under a 2 X 2 factorial design. ANOVA was used to analyze this design plus the 2 X 2 X 2 factorial design taking role

into account. Sex, nationality and three personality measures--interpersonal trust, machiavelianism and tolerance of ambiguity--were used as covariates in some analyses.

For the number of dyads reaching agreement, a PD main effect and PD X MO interaction was significant. PD was the only factor effect for rounds to settlement and the amount of the settlement. The round one initial offer was significant for PD, MO and ROLE although no interaction effects were present. The same findings were true for the concession variable. Payoff was significant for PD and ROLE alone. Lastly, the satisfaction variable had both PD and MO main effects. In general, research hypotheses were confirmed.

The PD parameter was a potent effect while the MO variable was generally marginal. Role was an extremely potent effect and some precaution must be taken so one side does not have an undue bargaining advantage.

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Chapter I. Introduction

Rarely a day passes when an individual does not engage in some type of social relationship. Frequently, these relationships can be characterized as exchange situations having some explicit agreement over division of resources which may be reached between parties after a series of offers and counteroffers. This exchange relationship or interdependence bond (Rubin and Brown - 1975) occurs throughout the world and may involve individuals, groups or entire nations.

Families attempt to equitably divide the income brought home by breadwinners and with these monies may bargain over commodities such as food at a local farmers' market, an automobile on a dealer's lot, or acreage of real estate. Group negotiations may take the form of union against management or two departments trying to reach accord over the allocation of budget. Bargaining on an international scope is regularly reported by the news media. In short, bargaining is a pervasive influence in our lives.

Unless actively involved in an exchange relationship, we rarely take the time to study the outcomes of bargaining, let alone analyze the entire process of negotiations. Perhaps some little consideration may be given to reasons why an individual did not obtain an equitable split of a negotiable resource, but again, the

content factors are usually ignored. It is this question of the conduct of bargaining (impinging variables and process outcomes) that requires study and deeper investigation in order to better understand exchange relationships.

The study of bargaining has taken place at different levels of our society. Schelling (1960) and Ilke (1964) focused on international relations; Walton and McKersie (1965), Chamberlain (1965) and Cullen (1965) used labor-management relations as a framework for analyzing bargaining relationships; and numerous others cite the racial movement, airline hijackings, corporate mergers and acquisitions, and judicial plea bargaining as examples of exchange relationships.

The process of bargaining, as a mechanism for resolving conflict over resources, is an integral part of social exchange theories of behavior. Whether local, national or international in scope, or studied in the laboratory or in field settings, this topic provides fertile area for investigation and research. Rubin and Brown (1975) encourage more systematic knowledge about the processes of conflict (including bargaining and negotiations), and urge immediate interdisciplinary thought and research to develop this body of knowledge. Other social psychologists and game theoreticians (notably, Bartos - 1974, Deutsch - 1973, Swingle - 1970 and Cross - 1969) have echoed similar sentiments during the past decade.

Bargaining and negotiation may be treated synonymously as they are quite frequently used interchangeably. / For the purpose of this

research, bargaining or negotiation will be defined consistent with Bartos (1974) and Cross (1969) as a process involving two or more parties, each attempting to attain a mutually acceptable compromise on what each shall give and take (or perform and receive) by means of communication or exchange of written proposals between them. This conflict, in its broadest social implication, is a state that exists whenever incompatible activities occur and may originate within or between individuals, groups or nations (Deutsch - 1973). It is contended that regardless of origin, the bargaining process between adversaries is a mutually acceptable means of resolving conflict.

Current literature on bargaining is divided between two points of view--the economic or game theoretic aspect and the behavioral or social psychological orientation. Wadlington (1975) urges recognition of the importance of making a distinction between the normative types of models used by game theorists and the descriptive simulations found most useful by behavioralists. Normative economic thought mathematically predicts what a bargainer must do to maximize reward in a particular situation whereas descriptive models infer a behavioral dimension.

Most recently, Bartos (1974), Cross (1969) and Wadlington (1975) focus on game theoretic solutions (see also Richardson - 1960, Cross - 1965, Bush and Mosteller - 1955, Nash - 1950, Shapley - 1953, Zeuthen - 1930, and Raffa - 1953) to prescribe and predict bargaining

outcomes. Several social psychologists (Rubin and Brown - 1975, Deutsch - 1973, and Swingle - 1970) describe the behavioral dimensions of negotiations. This particular study will adopt the latter point of view and largely ignore the game theoretic outlook of the bargaining process.

Despite the differences in orientation, both advocates of bargaining research characterize negotiating relationships (conflict of interest schemes) as having structural and social components such as those stated in Cross (1969)

1. parties involved in a cooperative enterprise
where mutual compromise is possible
2. voluntary proposals passed in sequential fashion
3. distributive process with productive outcomes
4. offers and counteroffers take the form of
written communications between parties
5. intermediate payoffs of far lesser importance
than final outcomes and payoffs

Rubin and Brown (1975) note additionally that two or more parties may be involved and that the relationship is temporary.

A research paradigm frequently employed to study the process of bargaining, Siegel and Fouraker's (1960) Bilateral Monopoly, typically involves a buyer and seller of a hypothetical commodity.

Each party is given information about their payoffs for all possible agreements and the bargaining session is terminated whenever settlement occurs or the negotiations are terminated.

For the purpose of this research, an experimental laboratory variation of the Bilateral Monopoly game is described in a collective bargaining context. The relationship will be dyadic (two individuals only) with either assuming the labor or management role at random. Under the guise of this labor-management relationship, the parties negotiate a single wage issue--an increase in hourly pay in a realistic environment.

The adversary principle of collective bargaining was chosen as a framework for analyzing the process because of its pervasiveness in the contemporary culture and its familiarity to students who will serve as subjects in the simulation. This particular wage issue negotiation embodies the characteristics of true bargaining with the outcome settlement (resolution of conflict) and associated payoff dependent upon manipulation of the experimental situation.

After reviewing much empirical research on social psychological bargaining, Rubin and Brown (1975) present a rather simple conceptual framework for studying interdependence bonds in bargaining. Interdependence implies a mutually dependent relationship, voluntary in nature, where each party seeks to achieve an agreement as personally advantageous as possible. Three parameters are thought to describe the exchange relationship:

1. power distribution (PD) - the relative equality of environmental or personal power in the relationship
2. motivation orientation (MO) - the cognitive disposition of each bargainer in the relationship
3. interpersonal orientation (IO) - the external sensitivity toward our opponent in the relationship.

Therefore, through the manipulation of these three parameters the process of bargaining may be closely scrutinized.

The central tenet of this present study is that interdependence bonds (mutually dependent relationships) affect bargaining outcomes and the effectiveness of bargaining. This author chooses to define bargaining outcome simply as the resolution of conflict (or failure to do so) while bargaining effectiveness is visualized as a gradient measure of success in negotiations.

An outcome is seen as the final settlement amount agreed upon by both parties, or the differential between the last offer and counteroffer when the bargaining was terminated. Effectiveness can be visualized either from the micro view (the success and satisfaction of either adversary) or a macro view (overall cost-benefit allocation to society). For this research it is

perhaps most expedient to describe effectiveness in terms of the reported satisfaction in achieving one's objectives and the actual outcome (micro view). In the latter context, effective outcomes occur where the settlement tends toward maximizing joint payoffs, where payoffs are approximately equal, and where the total amount conceded by each party is approximately equal.

Although intervening and antecedent variables such as physical environment in the conduct of the negotiation process, communications allowed between bargainers, demographics of the subjects, and the individual's psychology and behavior admittedly affect outcome measures, this simulation will initially manipulate only two of the independent parameters in the Rubin and Brown (1975) framework. The third independent parameter, interpersonal orientation, will not be utilized this study due to difficulty in operationalizing this variable.

Each of the two factors, power distribution and motivation orientation, can be experimentally manipulated via written instructions. Power distribution can simplistically be treated as having two levels--equal and unequal perceived power. To keep the design as straightforward as possible, only cooperative and competitive levels of Deutsch's (1960) motivation orientation construct are used. It is anticipated that interaction efforts are also present.

Analysis of previous empirical research also indicates that several personality and attitude measures are related to bargaining outcomes and effectiveness. Administration of the following personality measures will be briefly reviewed in a later section

1. Generalized Interpersonal Trust - Rotter (1967)
2. Tolerance of Ambiguity - Budner (1962)
3. Machiavellianism - Christie and Geis (1970)

Later, in statistical analysis, these three measures will be treated as covariates.

In summary, bargaining between individuals, groups or nations is seen as a pervasive element in our lives. Theoretical development in bargaining literature generally takes either an economic or behavioral point of view. To test the belief that interdependence bonds, such as power distribution and motivation orientation, affect bargaining outcomes and effectiveness, an experimental collective bargaining simulation variation of the Bilateral Monopoly will be employed. Dependent variables include settlement amount, non settlement differentials, payoff earned by each side, and concession magnitudes. Personality measures will be used as covariates.

Chapter II covers the review of literature on bargaining and contains a statement on the relationship between social exchange theories and collective bargaining. In the third chapter

research methodology is described. Report of the findings is the basis of Chapter IV and finally, the last chapter includes a discussion of the findings with implications for future research.

Chapter II. Literature Review

Social psychologists and game theorists acknowledge there is no unified theory of negotiation--no single statement generally applicable to nations, groups or individuals and able to accurately predict outcomes. While this study will not attempt definitive statement of a unified theory of negotiation an attempt will be made to apply social theories variously labeled as justice, exchange, equity or social comparison to the process of collective bargaining. Therefore, this chapter will be devoted to two major aims, (1) citing empirical research related to the process of bargaining (especially the impact of interdependence bonds) and (2) synthesizing social theories of bargaining behavior.

Empirical Research

Behavioral literature, especially in social psychology, abounds with studies of bargaining conducted under controlled conditions. In recent years academic journals in the field of labor relations have included articles evaluating real world outcomes of bargaining. Because of this proliferation, thought and empirical research pertaining to the following topical areas will be cited:

- (1) Historical development of bargaining
- (2) Laboratory research paradigms
- (3) Collective bargaining lab experiments
- (4) Collective bargaining field studies

A section on theory development of collective bargaining will follow review of empirical findings.

Historical Development of Bargaining

Economists, following an economic man rationale, were the first to attempt modeling of collective bargaining behaviors. For example, Edgeworth (1881) and Pigou (1905) treated collective labor negotiations as a form of bilateral monopoly. Later, especially in the 1950's, game theorists sought to apply quantitative logic to the process and outcome of bargaining. Theoretic models were hypothesized by Braithwaite (1955), Bush and Mosteller (1955), Harsanyi (1956), Luce and Raiffa (1958), Nash (1950), Pen (1952), Richardson (1960), Shapley (1953), Siegel and Fouraker (1960), and Zeuthen (1930).

Concurrently, writers in the field of labor relations were attempting to model the bargaining process by studying individual and collective behaviors. Harbison and Coleman (1951), Chamberlain and Kuhn (1965), Peters (1955), Dunlop (1949), and Stevens (1963) represent some who view negotiations as a behavioral process. Undoubtedly the most widely recognized attempt to theorize about noneconomic or psychological factors in collective bargaining was a study and text by Walton and McKersie (1965 and 1966). Drawing together relevant concepts from both game theorists and social psychologists, they formulated bargaining sub-processes by elaborating upon strategies and tactics used in real world collective bargaining situations.

From that period on social researchers who chose to study collective bargaining behavior and outcomes invariably cited Walton and McKersie's findings. Interest in studying bargaining and negotiation and conflict resolution increased as several major research paradigms appeared in social psychological literature. They are briefly covered in the following section.

Laboratory Research Paradigms

Relatively few paradigms account for the vast majority of experimental bargaining and conflict resolution studies with Siegel and Fouraker's (1960) Bilateral Monopoly being the predominant means of studying collective bargaining. Four major paradigms, Luce and Raiffa's (1957) Prisoner's Dilemma, Vinackre and Ackoff's (1957) Parcheesi Coalition, Deutsch and Krauss's (1960) Acme-Bolt Trucking, and Siegel and Fouraker's (1960) Bilateral Monopoly each contain most of the characteristic attributes of the negotiation process. Only the Bilateral Monopoly will be discussed.

The methodological paradigm employed in this study, the Bilateral Monopoly, resembles many typical bargaining situations; a fact which gives it considerable face validity. In the hypothetical buyer-seller situation involving sequential exchange, buyer and seller are free to make written offers and counteroffers for a commodity until the agreement is reached or the session is terminated.

It is through the manipulation of interdependence bonds, power distribution and motivation orientation, that negotiated outcomes will vary.

In the following sections, empirical support will be cited for the contention that interdependence bonds affect negotiated outcomes.

Power Distribution

Relative power distribution can be manipulated by either varying actual or perceived status of the parties or by varying experimental reward structures or payoff matrices. Komorita and Barnes (1969) used the Bilateral Monopoly game to test the effects of relative power. Cost structures to the buyer and seller were varied so that power was equal or unequal. Dyadic pairs with equal power reached agreement more often, required fewer trials to do so, and made larger concessions than those with unequal power.

Hornstein (1965) had pairs participate in a real estate (acres and cost per acre) variant of Bilateral Monopoly. Threat potential, a percentage by which each could reduce the other's profit, was manipulated and considered to be relative power. Although he found no overall significant differences in bargaining effectiveness, pairs with equal power tended to obtain higher profits and reach agreement more often than those with unequal power.

In a study which manipulated perceived status, Borah (1963) employed the Acme-Bolt Trucking game and varied status by informing both members of some dyads that the other was considered to be superior and of higher status. Equal status pairs functioned more effectively, achieving higher median and joint outcomes, and lost less time in deadlock than those in a low relative power condition.

Several more studies were located which supported the general supposition that equal power dyads would bargain more effectively than unequal power pairs. They are not reported here because their design differed substantially from this research. With respect to power distribution it is hypothesized:

H₁: Pairs perceiving equality of power will bargain more effectively than pairs perceiving inequality of status.

Motivation Orientation

Experiments in which motivation orientation has been varied through experimental instructions frequently employ Deutsch's (1960) cooperative, individualistic and competitive descriptions of an individual's internal cognitive disposition toward bargaining. In his initial research using Acme-Bolt, subjects given a cooperative motivation orientation obtained greater cooperation and mutual gain than either of the other two motivation orientations.

The only experiment using Bilateral Monopoly found a partial reversal in the effects of motivation orientation. Schmetizki (1963) used only individualistic and cooperative conditions and found that when no communications were permitted between subjects, cooperators obtained maximum joint profits less often than individual goal subjects. When open communications were allowed the differences disappeared.

Other studies employing Prisoners Dilemma report findings similar to Deutsch. Griesinger and Livingston (1973), Kanouse and West (1967), Radlow et al (1968) and Alexander and Weil (1969) report greater cooperation under conditions of cooperative motivation orientation.

Research evidence supporting the belief that cooperative bargainers will be more effective than competitive bargainers is substantial. Whether the manipulation is varied through instruction, reward structures, or premeasurement of attitudes prior research indicates that:

- H₂: Subjects receiving instructions inducing a cooperative motivation orientation will bargain more effectively than those receiving competitive instructions.

While the research body of evidence weighs heavily in favor of the hypotheses stated above, there is little to substantiate the following interaction hypothesis. Despite the lack of empirical evidence, an attempt will be made at the end of this chapter to articulate this interaction hypothesis based upon a general theory of bargaining. The interaction hypothesis is

- H₃: Bargainers with equal power and a cooperative motivation orientation will tend to function more effectively than those of unequal power and competitive motivation orientation.

Greater elaboration of the Bilateral Monopoly paradigm and relevant outcome variables are included in the next section.

Bilateral Monopoly and Bargaining Outcomes

Siegel and Fouraker's (1960) Bilateral Monopoly resembles many real world bargaining encounters. In fact, it not only possesses the characteristics of a true bargaining relationship but considerable face validity as well. One buyer and one seller of a hypothetical commodity each attempts to maximize personal profit by negotiating price and quantity. Written offers and counter offers (based upon separate and confidential

profit tables for buyer and seller) are exchanged in sequential fashion.

Time, number of trial constraints, or penalties may be imposed, outcomes are negatively correlated and effectiveness is generally measured in terms of

- (a) number of bids or time before agreement
- (b) rate of concession
- (c) magnitude of concession
- (d) joint payoffs (net after penalty)
- (e) satisfaction with negotiated outcomes

Hence, an effective bargaining dyad would reach agreement sooner, have smaller rates and magnitude of concession, higher joint payoffs and should express greater satisfaction with negotiation outcomes. Effectiveness here is construed to mean personal goal achievement within the labor or management role.

It should be reiterated that effectiveness can be measured in terms of social welfare or "winning". While the union may applaud its bargaining team for wrangling an extremely high wage offer from management, society as a whole is the loser if the company goes out of business and the plant closes. A similar argument would mitigate against management winning an extremely small settlement. Labor dissatisfaction and mobility would surely be a social misfortune. Effectiveness from a social consideration, while certainly important, will not be considered in this study.

It is interesting to see the attention that bargaining outcomes is receiving in collective bargaining literature. While not strictly a part of this current research, these studies are of sufficient importance and impact to be included. The following section outlines several field studies.

Collective Bargaining Field Studies

Recently several articles have appeared in Industrial Relations and Industrial Labor Relations Review which explicitly attempt to measure bargaining effectiveness or bargaining outcomes. Despite the fact that no attempts were made to experimentally differentiate between power distribution and motivation orientation (or interaction) it is quite evident that these variables (or at least surrogates) do appear in these field studies.

Kochan and Wheeler (1975) developed a model of bargaining outcomes based upon the attainment of union bargaining goals. Negotiation is viewed as a channel of independent variables (environmental characteristics, union and management characteristics, and bargaining process characteristics) influencing union effectiveness or its ability to obtain desired outcomes. Variables included in the study are similar to power distribution and motivation orientation. Kochan and Wheeler make no attempt to separate the effects of the variables included in their present research.

In a study of public sector bargaining agreements Gerhart (1976) hypothesized that environmental features, relative bargaining power, the interests of the parties, and issues raised in negotiations were determinants of bargaining outcomes. In his model, bargaining outcomes, defined as "union penetration into management prerogatives" and operationally measured as a contract index (where 100 is the union ideal), are directly affected by relative bargaining power of the parties. Note the similarity to Kochan and Wheeler (1975).

Contract Index was found statistically significant for environmental variables such as metropolitan area size, employer size, statutory bargaining obligation and bargaining pattern. While Gerhart's study also made no attempt to differentiate between power distribution and motivation orientation, elements of each are reflected in the variables used and discussion of findings.

In an attempt to analyze noneconomic factors and negotiators' satisfaction, personal inclination, and attitudes, Tracy (1974) nonrandomly sampled union and management bargainers in both private and public sectors. He hypothesized that the dependent variables (1) negotiator's personal inclination to settle, (2) perceived satisfaction with new contract and (3) satisfaction with the parties working relationship were related to twelve factors roughly clustered as (a) Herzberg's (1959) work factors (including achievement and interpersonal relations), (b) pattern of relationships between labor and management (which include motivational orientations, belief about legitimacy of other side, trust and respect for opponents, and degree of friendliness), and (c) just or equitable outcomes (effort, reward and perceived equitability of new contract).

Hamermesh (1973) studies only public sector wage data for forty-three negotiations between September 1968 and December 1970. Variables included previous wage paid, union initial demand, employer initial offer and final wage settlement. He found that the final settlement was closer to the employer initial offer than the union initial demand. One possible explanation offered is that after several rounds of negotiations, the unions relative bargaining power may force them to lower

their demands as their threats become less credible. Hence, public sector unions may be bluffing more than employers.

In a comment to Hamermesh, Boganno and Dworkin (1975) question the bluffing rationale by pointing out that public sector unions cannot legally strike and therefore cannot force the employer to make concessions at the bargaining table. Perhaps taken jointly these statements lend support to the hypothesis that unequal power distribution results in less effective bargaining.

Postulating a path analytic model of city government bargaining, Kochan (1975) included the following concepts in the model:

- a. goal incompatibility
- b. dispersion of power
- c. internal conflict
- d. perceived negotiations pressure tactics
- e. union strike pressure tactics
- f. union political pressure tactics
- g. perceived political pressure
- h. multilateral bargaining

Results from a survey questionnaire mailed to city officials and union representatives (N = 228 cities) indicated internal management conflict, union political and negotiation pressure, goal incompatibility and dispersion of power affected (either directly or indirectly through internal conflict) multilateral bargaining. Again, while no direct test of the power distribution or motivation orientation effects and interaction was attempted, it is evident that they could be operationalized.

Perhaps in the future it will be possible to operationally define bargaining relationships, power distribution, motivation orientation or interpersonal orientation in such a way as to test for main effects and interaction effects in field settings. Confounding would be an obvious problem, yet the reward may far outweigh this cost. Whether studied in

the laboratory or in a field setting collective bargaining outcomes could conceivably be predicted. If that is possible then development of a general theory of bargaining will be enhanced.

Social Exchange Theories and Collective Bargaining

A number of social psychologists and collective bargaining behavioralists share a similar theoretical notion of the theory of negotiations. The theoretic basis -- variously called equity, social comparison or exchange theory -- uses self and other and is contingent upon a ratio of inputs and outputs of self and other. In this section an attempt will be made to relate social exchange theories to collective bargaining and then summarize these concepts into theory upon which this research is based.

In the field of labor relations the earliest proponents of social exchange theories were collective bargaining practitioners such as Chamberlain (1951), Dunlop (1944), and Stevens (1958); individuals who viewed collective behaviors as power relationships. The prevailing view was the side with the power advantage reaped the fruits of their labors. Power was described largely in economic terms.

Practitioners of that time also sought to expand upon the economic discourses of writers such as Pigou (1938) and Commons (1934). Pigou developed a "pure theory" which was applied to the problem of wage determination. When labor and management enter into negotiations each sets an absolute limit and will not settle outside that wage (range) for to do so would lessen either the demand or supply of labor -- depending which side possessed the power advantage. These limits enclose a range of indeterminateness.

But a negotiated settlement probably will not fall near these limits because both sides also construct "sticking points" -- practical limits above or below which each side would endure a strike. A range of practical bargains exists whenever management's upper limit exceeds labor's lower limit. If these practical limits do not overlap, a strike is inevitable.

Even if considerable overlap does exist, Pigou states that the ultimate outcome is unknown. With each side seeking to push the other to some presupposed limit, engaging in bluffing tactics, and attempting to exert power over the other, the negotiated settlement will include a power basis as well as an evaluation of the cost to strike. In short, comparisons underlie the bargaining process.

Other writers expressed a similar pattern of thought. For example, Commons (1934), a collective bargaining advocate as well as an economist, introduced the concept of limits of coercion -- a range of bargaining bounded by alternatives open to buyer and seller. Within these limits, negotiation skills and ability and bargaining power help determine outcomes. One cannot help but see the unmistakable relationship to bilateral monopoly in this early bargaining thought.

In the decades of the forties and fifties, collective bargaining practitioners like Slichter (1940), Shister (1943), Dunlop (1944) and Lindbloom (1948) began to express bargaining power as an ability to exploit and impose costs rather than as a range of possible bargains. Although these later writers appear to be negating the concept of practical limits they were actually changing the foci of their analysis. So began the impetus of exchange theories. With the theoretical base having

been developed by economists it was left to practitioners schooled in social psychology to redefine bargaining in behavioral terms.

Walton and McKersie, in a 1965 text entitled "A Behavioral Theory of Labor Negotiations" describe labor management relations as a social interaction system. Four sets of activities were believed to account for almost all the behavior in real world negotiations. Their first two systems, distributive bargaining and integrative bargaining, taken together comprise a construct most familiar to practitioners in negotiations and perhaps most applicable to this simulation. Distributive bargaining pertains to activities instrumental to the attainment of goals which are in basic conflict (e.g., a wage negotiation issue) and is essentially fixed sum in nature. When both parties view the common attainment of economic objectives in a manner which is fundamentally not in conflict, the parties are engaging in integrative bargaining.

The remaining two systems take advantage of the social interactions prevalent in negotiations. In attitudinal structuring and intraorganizational bargaining the basic economic perspective of distributive and integrative bargaining is supplanted by influencing relationships between parties,

"in particular such attitudes as friendliness, hostility, trust, respect, and the motivational orientation of competitiveness-cooperativeness."

Walton and McKersie make the distinction that whereas the first two are joint decision making processes (economic, power based variables) the latter sub systems are interpersonal processes requiring attitudinal change and consensus.

In reading current collective bargaining literature, the work of

Walton and McKersie is clearly evident. The theoretical basis of this simulation, interdependence bonds or relationships of power distribution, motivation orientation and interpersonal orientation was definitively stated in this early period of the behavioral aspects of collective bargaining. Much current social psychological literature on negotiations and bargaining focuses on the interdependence nature of social relationships. In most cases mixed motive relationships (motivation to both cooperate and compete) contain both convergent and divergent aims for the parties. This is essentially the distributive and integrative subsystems of Walton and McKersie's model.

Social exchange theory meshes quite nicely with the Walton-McKersie model and current social psychological literature on bargaining. Raven and Rubin (1976) define social exchange theory as

"a theory that analyzes interpersonal and group interaction in terms of interdependence. The process of interaction is examined according to the individual's inputs (or costs) and the rewards and/or punishments he anticipates and receives in a social relationship."

If the general process by which an individual evaluates his own opinions, attitudes, beliefs or behaviors is a referent means of viewing others, then the social exchange theory embraces Festinger's (1954) social comparison theory.

Thibaut and Kelley (1959) (as well as other social exchange theorists) view negotiations as an interaction system where people continually go through a mental accounting process. In order to maintain a stable relationship, each party critically evaluates the costs and benefits of interdependence; behaviors expected of us by the other and the rewards and satisfactions that we receive for our participation. We continually

evaluate these costs and benefits against a subjective belief of what constitutes equity. Past history of interactions helps define our knowledge of what this balance should be and continual reinforcement "fine tunes" the process.

Consider that the cost-benefit continuum may really be a ratio of inputs to outputs and as long as the ratio stays fairly close to the historical norm or pattern of interdependence we are "satisfied" and continue to participate in the relationship. Imbalances can occur either in self's cost-benefit ratio or that of other. In an imbalanced case (when perceived outputs exceed inputs) or in the stable balanced condition, the bargaining outcomes are likely to be cooperative in nature and considered equitable and effective from a participant view. The former situation is probably rare, but the balanced scheme certainly fits many relationships.

Also, a quite different condition exists whenever inputs exceed outputs or, most importantly and usually ignored, when substantial shifts in the norm occur. In either case, the individual parties engaging in negotiations are likely to engage in competitive endeavors which result in less effective outcomes.

In terms of this research simulation, unequal power distribution and competitive motivation orientation would have the effect of reducing cooperative or effective outcomes and in concert, would be a most severe threat to existing stability. In fact, it would be hypothesized that more defensive behaviors (failure to move toward compromise or no desire to settle at all) are likely to occur.

Reflect upon the collective bargaining arena again; especially

the Walton and McKersie notion of activities of interactions. If we view labor and management negotiations as a ratio of inputs to outputs (both economic and behavioral) instead of a range of limits with certain points above or below which neither side will budge, then the social exchange theories are seen as compatible with real world bargaining behaviors. An unbalanced ratio (benefits exceed costs) or stable ratio will lead to cooperative or effective outcomes while the excessive costs situation invariably leads to prolonged strikes, impairment of essential goods and services, or maintenance of the conflictive situation.

Summary of Literature Review

As evidenced by the previous literature review, little controversy exists as to the importance of interdependence bonds or mutual relationships in social psychological bargaining or negotiations. There does exist a wide variation in the laboratory methodologies used to operationally define power distribution, motivation orientation and interpersonal orientation. For laboratory experimentation to be as meaningful as possible, the research paradigm should be framed as a realistic situation to which the subject can relate -- hopefully in an experiential manner.

Collective bargaining, a pervasive force in our industrial society, served as a medium for this research. For independent variables two levels each of power distribution and motivation orientation were experimentally manipulated. Dependent variables included number of agreements reached, rounds or offers to settlement, settlement or end differential if parties did not settle, initial opening offer, payoff earned by each

party, concession amount and magnitude and post-experiment questions about bargaining perceptions. In addition to the topics mentioned above, the research methodology chapter following will contain discussion of the experimental design, personality measures, procedural and experimental instructions in the simulation, data coding and statistical analysis.

Chapter III. Research Methodology

Bargaining process, a mode of conflict resolution, can fruitfully be studied using an experimental research simulation to replicate real world collective bargaining behaviors. In the previous chapter empirical evidence was cited to support the contention that interdependence bonds (e.g., power distribution and motivation orientation) directly affect bargaining outcomes and effectiveness. It was also hypothesized that higher order interaction effects would also be present. Note was made of recent collective bargaining field studies relating to this current research. This chapter includes (1) a statement of the problem under investigation and (2) a detailed description of the research methodology to include design of the experiment, variables, instructions and statistical analysis.

Problem Statement

Study of social exchange relationships is widespread in social psychological literature. Considerable research evidence exists which pertains to bargaining or negotiation with four research paradigms accounting for a vast majority of the published empirical evidence. Collective bargaining, pervasive in our society, would seem to be an ideal mechanism to study exchange relationships.

Based upon these considerations, the focus of this study will be to determine the effect of interdependence bonds

A. Power Distribution

- 0 Equal
- 1 Unequal

B. Motivation Orientation

- 0 Cooperative
- 1 Competitive

on process outcome variables, effectiveness measures, and subject's perceptions

- 1. Rounds or Offers
- 2. Settlement
- 3. End differential
- 4. Round one initial offer
- 5. Payoff
- 6. Concession
- 7. Post-experiment assessment

in a collective bargaining simulation. Subjects were told they were either representing the Windsor Electric Contractor's Association (management) or a local of the International Brotherhood of Electrical Workers (labor). Research into previous empirical findings located a paucity of support for interaction effects of interdependence bonds, yet logic indicates a truly multivariate situation. This research aims not only to literally replicate main effects, but interaction as well.

In an experimentally manipulated situation, students will bargain against an unknown opponent in an attempt to resolve a realistically structured wage issue. Due to the nature of the experiment, a completely randomized factorial design will be employed in data analysis. During subsequent investigation of the research, covariates will be used to seek additional explanation in findings.

Experimental Design

For situations in which the dyad (both labor and management) is to be considered as a unit, a 2 x 2 ANOVA factorial design will be utilized. Such a dyadic requirement is necessary because labor and management shares the same score on a dependent measure (e.g., a settlement of \$0.84 occurred in round 12). Whenever dependent measures are different for each subject (e.g., after settling for eighty-four cents per hour the twelfth round, labor earned a \$1.70 payoff while the management opponent earned a \$1.80 payoff) a 2 x 2 x 2 (levels of role) ANOVA factorial design is applicable. Finally, wherever antecedent variables (i.e., sex, nationality and personality measures) are included, these antecedent variables will be presented as covariates.

Initially, it was felt that twenty subjects per cell in the 2 x 2 x 2 design would be suitable. Thus, for testing interdependence bonds main effects, 80 subjects per level of a factor would be available. As will be noted, actual numbers in the simulation varied from this goal.

Power distribution (PD), Factor A, was experimentally manipulated through written instructions to the subjects. Equal power bargainers read that the previous bargaining relationship with opponent (or other) was stable and that both parties are pleased with present negotiations, believing that satisfactory compromises have been reached on the major bargaining issues. The unequal power bargainers believed that other members of their bargaining team have done poorly in even reaching a compromise settlement on the major bargaining issues. In addition, the previous relationship was characterized as volatile--even unsuccessful.

Written instructions for both levels were embellished by elaborating on the behavioral dimensions of the relationship to a point where even the other was characterized as...(See Appendix E for complete experimental instructions).

Factor B, motivation orientation (MO), closely paralleled Deutsch's (1960) instructions. For the sake of simplicity and to keep the number of cells to a minimum, Deutsch's individualistic mode was not used. The two levels that were retained, cooperative and competitive, were manipulated via written instructions. At each level representatives were asked about their bargaining philosophy on a late-night radio talk show. Cooperative bargainers spoke in friendly terms about the partner (other) and consideration for the welfare and feelings of other. On the other hand, competitive negotiators considered their prime motivation as beating their opponent. Again, complete instructions are in Appendix E.

Finally, ROLE was considered to be the third independent variable. Subjects entered the laboratory and were randomly assigned to seats. Depending on the replication number (the experiment was run five separate times over two semesters) students in the front of the room could be either labor or management. Again, it should be remembered that the dependent variables to follow pertain to either the experimental design excluding role (2×2) or one with it ($2 \times 2 \times 2$).

Pre-Experiment Measures

In order to measure the impact of the bargaining simulation (in addition to the outcome) subjects took part in a pre-experiment, self-report session in the laboratory. Prior to the actual conduct of

bargaining subjects were asked to fill out fifteen semantic differential items pertaining to social exchange relationships. The measure was designed for this study to record an individual's perception of self in terms of previous interactions and self-description in general (reliability of this measure was not determined). Initially, the measure was intended to be indicative of interpersonal orientation but it appears as if the sole purpose will be in making pre- and post-experiment comparisons.

All subjects completed a test battery in the week prior to the simulation. The measures were selected because either (1) that measure was cited in previous bargaining research as a statistically significant construct or (2) the measure was generally more reliable than one reported in previous empirical studies. Those scales on the battery included--

1. Rotter (1967) - Generalized Interpersonal Trust
2. Budner (1962) - Tolerance of Ambiguity
3. Christie and Geis (1970) - Machiavellianism

It is obvious that the personality and attitudinal structure of a negotiator (their individual differences) cannot be ignored in studying bargaining outcomes.

Rotter's (1967) Generalized Interpersonal Trust construct is designed to measure an individual's predisposition to trust others. Although no studies were located which explicatedly used the Rotter measure there is ample evidence to suggest that trusting bargainers will engage in more cooperative behaviors than less trusting individuals. Tedeschi et al (1969), using the Prisoner's Dilemma, found that high trust in others negotiated more cooperatively than those who were low.

Similar findings were reported by Benton et al (1969) and Wrightsman (1966). For this study, the Chum and Campbell (1974) 12-item short version of the Rotter measure was used.

Individuals who prefer regularity, balance, and concreteness comprise one polar extreme of ambiguity intolerance. Pilisuk et al (1965) found that pairs who were tolerant were more likely to evolve a mutually cooperative relationship in a Prisoner's Dilemma game. Druckman (1967) measured close-mindedness using Rokeach's Dogmatism (1956) in a collective bargaining variant of the Bilateral Monopoly. Subjects who were highly dogmatic tended to yield less, resolved fewer issues, and viewed compromise as defeat. In short, they acted more competitively.

Christie and Geis (1970a) devised a scale which purports to measure exploitiveness, guile and deceit. It has been widely utilized in bargaining studies with predictable results. Subjects high in machiavellianism behave more competitively than others low on the construct. In their review of machiavellianism the authors offer several additional citations in support of the competitive nature of the high-mach person.

The measures cited above will be used as covariates in the 2 x 2 x 2 factorial design. No attempt will be made to dichotomize the measures for use in post hoc analysis. All pre-experiment and antecedent measures (personality battery) are found in Appendix B.

Dependent Variables

A number of dependent measures were recorded during and after the experimental simulation which included both process outcomes and post-experiment perceptual self-report questionnaires. For the 2 x 2

factorial design, the following dependent variables were operationally defined as:

1. ROUNDS - the number of rounds until both sides reached settlement or the simulation ended (20 rounds). One offer by management and a counterproposal constitutes one round. OFFERS is a similar variable using individual offers rather than rounds.
2. SETTLE - the hourly wage rate increase agreed upon by labor and management. If no settlement occurs, after 20 rounds, the variable is coded '0'.
3. END - the wage rate differential at the end of the simulation. For dyads who settled before or during round 20, the variable is coded '0'.
4. AGREE - the number of dyads reaching agreement during the simulation.

For the 2 x 2 x 2 factorial design, several additional process outcome dependent variables can be analyzed. They include

5. R1 - the initial offer made by management and the counteroffer of labor in the first round. Additional variables R2 through R20 were recorded during the simulation, but only R1 and R15 will be discussed.

6. PAYOFF - the bonus earned by either side which is based upon the final wage settlement. During the penalty period a five percent per round deduction is made from profit. Settlements below \$0.85 give management larger payoffs than labor. Above \$0.85 the opposite is true.
7. CONAMT - the absolute concession amount from R1 to SETTLE or END.
8. CONCESS - the difference between the perceived wage midpoint (\$0.85) and SETTLE or R20.

The post-experimental measure administered to all subjects immediately upon completion of the simulation was designed to be interpreted as the perceptual impact of the negotiation session on the individual. Based upon previous research conducted at Michigan State University (see Bigoness - 1974) eight Likert scaled statements were asked. The measure is included in Appendix C and contains the following variables:

9. POST 11 - satisfaction
10. POST 12 - cooperativeness
11. POST 13 - intensity
12. POST 14 - equality
13. POST 15 - intensity
14. POST 16 - cooperativeness
15. POST 17 - competitiveness
16. POST 18 - realism

Research hypotheses stated in Chapter II contain reference to effective bargaining outcomes (settlements tending to maximize joint

payoffs or tending to achieve equality between parties are dependent variables 1 through 8). Further, effective macro outcomes would be evidenced by

1. ROUNDS - fewer rounds to settlement
2. SETTLE - wage settlement close to the \$0.85 midpoint
3. END - small differential at simulation end
4. AGREE - greater number of dyads reaching settlement
5. R1 - initial offers far from extremes
6. PAYOFF - individual payoffs quite alike
7. CONAMT - smaller concession amount
8. CONCESS - smaller differences from midpoint

It is difficult to make a priori statements about a subject's perception of the simulation but in keeping with the definition of effectiveness the following post-assessment outcomes would be

9. POST 11 - greater satisfaction with outcomes
10. POST 12 - greater desire to settle
11. POST 13 - (foil)
12. POST 14 - greater belief that opponent was reasonable
13. POST 15 - lesser belief that initial differences were small
14. POST 16 - greater desire to reach agreement
15. POST 17 - (foil)
16. POST 18 - (foil)

The above dependent measures will be analyzed according to the statistical methodology described in the next section.

Methodology

For each of the dependent variables the following sets of statistical hypotheses are to be tested in a factorial ANOVA design:

1. Main Effects

$$\text{PD} \quad H_0: \alpha_i = 0$$

$$\text{MO} \quad H_0: \beta_j = 0$$

$$\text{ROLE} \quad H_0: \gamma_k = 0$$

2. Two-Factor Interactions

$$\text{PD} \times \text{MO} \quad H_0: (\alpha\beta)_{ij} = 0$$

$$\text{PD} \times \text{ROLE} \quad H_0: (\alpha\gamma)_{ik} = 0$$

$$\text{MO} \times \text{ROLE} \quad H_0: (\beta\gamma)_{jk} = 0$$

3. Three-Factor Interactions

$$\text{PD} \times \text{MO} \times \text{ROLE} \quad H_0: (\alpha\beta\gamma)_{ijk} = 0$$

The statistical analysis will be performed on the University of Windsor's IBM 360/65 using Nie et al's (1975) SPSS program with ANOVA routine. Covariate measures will be analyzed using the ANCOVA option of the ANOVA routine.

Subjects

Subjects for the simulation were recruited from undergraduate collective bargaining classes at the University of Windsor, told they would be participating in an experiential wage negotiation exercise and randomly assigned to experimental treatments. A total of 172 subjects completed the exercise during the Fall and Winter semesters in the 1976-77 academic year.

Ideally, caucasian males should be selected as a homogeneous group. Unfortunately, it was not feasible to exclude subjects based on sex or nationality and $n = 24$ females and $n = 23$ non-caucasians are included in the total sample. Analysis of covariance using sex and nationality as covariates will be performed.

Procedural and Experimental Instructions

A large auditorium at the university was used for all five replications of the study. Subjects were told that their class was meeting

in the auditorium. When they arrived they were randomly assigned to experimental treatments. The room contained long tables with two chairs per table. All subjects faced the front of the auditorium when the wage negotiation rules and instructions were read to them (approximately 20 minutes which included completing the pre-experiment assessment).

After all questions were answered, subjects in the back half of the room were asked to turn around and face the rear of the auditorium. At that time subjects learned whether they were management or labor and were instructed to remove their experimental manipulations from an envelope in the front of them. Bid runners were instructed which subjects would form dyads and told that each subject should have "about a minute" to decide what the wage offer was to be. Runners were also instructed to continue passing the offers sheet even though a dyad was settled. All questions were referred to the administrator.

The simulation is derived from Siegel and Fouraker's (1960) Bilateral Monopoly and modeled after Hammer (1975). The collective bargaining context was chosen to emulate a realistic real world environment. The objective of the exercise were stated as:

"the task for the two of you is to negotiate a single agreement on the increase of hourly pay for the next one year of the contract."

Written instructions reaffirmed that the permissible wage rate increase was from \$0.00 to \$1.70 per hour. Subjects then read the one and a half pages of experimental treatment which were followed by the procedural instructions for the simulation. Each party (labor or management) had its own Payoff Table and a Wage Offers Record Sheet to

keep track of the offers, counteroffers, and potential payoffs. Subjects did not know their opponent's payoff table. A yellow Wage Offer Sheet was exchanged via the bid runner at approximate one minute intervals. All procedural instructions are included in Appendix D.

Management began the negotiations by specifying an hourly wage rate between \$0.00 and \$1.70. Offers were carried to labor who then had the opportunity of seeing the management offer before entering their own counteroffer. Bids were then returned to management. During the remainder of the wage negotiation exercise subjects could stay at a certain offer or move toward compromise, but could not renege on a previous offer. Bid runners were instructed to watch for these instances. Throughout the simulation subjects were free to reread their experimental instructions or attempt to plan strategy if they wished.

The administrator made no comments during the exercise other than to inform the bid runners of the one minute limit. During the procedural instructions the administrator mentioned that

"As in the real world there is a cost (strike) attached to lack of settlement. Therefore, after round 15 there will be a 5% per round penalty to be deducted from the payoff. If the parties fail to settle after round 20, there will be zero payoff."

During the actual exercise, no announcement was made upon completing round 15. Subjects continued the simulation until the administrator passed out the post-experiment assessment. Everyone in the room was asked not to discuss the negotiation after leaving the auditorium. The administrator promised to return to the class later in the semester and discuss the simulation and personality measures. The subjects were then dismissed.

Data Coding and Statistical Analysis

Antecedent and dependent measures were classified according to the subjects' student numbers. Personality measures were later returned to the subjects by the administrator if gross errors were detected. (Several subjects misunderstood the forced choice instructions of the Mach IV version of machiavellianism.) Otherwise the entire personality battery was given to a keypuncher and entered on three cards. Likert items were scored on a 1-5 scale, semantic differential items were scored on a 1-7 scale and the machiavellianism measure was punched on a 1-2 basis if an item was checked. The personality measures were punched once in the Fall and once in the Winter semester by the same keypuncher.

Bargaining process outcomes were recorded on the yellow "Wage Offers" sheet (Appendix F) passed between labor and management. After the simulation the administrator coded these sheets with independent variables as well as replication number, subject's sex and nationality and then entered some dependent measures such as rounds, offers, settlement amount and end differential. The round by round offers were punched directly from the sheet. The pre-experiment assessment measure and post-experiment questionnaire were keypunched at the same time. The dependent measures were placed on three cards. Hence, a full data set consisted of six cards. Again, keypunching was done once each semester by the same keypuncher.

SPSS computer routines were used to identify any apparent data errors (such as out of range data points) and perform complex functions to calculate payoff, concession and personality measures. A copy of the

full program is located in Appendix G. Additional analyses, other than those stated in this section, have been run, but those findings will not be reported in this paper.

Summary

The final research design and methodology were a culmination of discussion with peers, additional background research into social psychological bargaining and findings from an experimental pilot study. The pilot study was especially helpful in determining that the subjects could understand and follow the procedural and experimental instructions, that the main effects were indeed statistically powerful, and that the wage negotiation exercise was not of undue duration.

Results of the pilot study were statistically noteworthy, but did show evidence of some confounding. For instance, sex was found statistically significant (consistent with much empirical evidence); the MBA's were not representative of students in collective bargaining (opening offers indicated naivety); subjects were allowed to pair off in a non-random fashion and faced each other across a table (later some subjects reported they engaged in cooperative behaviors to ensure that other received almost identical payoffs); and there were environmental seating and time constraints (subjects did not have time to internalize roles and could see the offers of others next to them). Despite these apparent problems, the pilot study affirmed the decision to continue with the proposed research.

Within this chapter an effort was made to reiterate the problem under investigation, operationally define the independent and dependent

variables in terms of bargaining effectiveness, describe the statistical analysis to be employed, and discuss the experimental manipulation and instructions used in the wage negotiation exercise. Chapter IV reports the quantitative results from each of the factorial designs and presents additional findings of interest from the covariate analysis.

Chapter IV. Results

In general, analysis of data from the wage negotiation exercise yielded predicted, significant findings consistent with empirical literature. For this research study, significant main effects and interactions were hypothesized for power distribution (PD) and motivation orientation (MO). Due to the nature of the simulation, an additional variable, labor or management (ROLE) assignment was utilized in certain analyses where a dependent variable did not take on the same value for each of the two roles.

This chapter is divided into sections according to the experimental design used in statistical analyses - - (1) PD X MO Factorial Design, (2) PD X MO X ROLE Factorial Design and (3) Factorial Designs Using Covariates. A post-experiment questionnaire was administered and findings will be presented in the second section. The latter section was deemed necessary due to the number of self-description, personality variables obtained prior to the wage negotiation exercise. In the same section, significant sex and nationality findings will be presented, as well as a gratifying discovery tentatively called cognitive - manipulative set (whether the subject's cooperative - competitive cognitive orientation was congruent or incongruent with the motivation orientation experimental manipulation).

Bargaining outcomes, defined in terms of effectiveness, con-
note cooperative outcomes from a personal point of view. Hypothesized

relationships for the dependent measures (by experimental design) are specified below (except for part C which specifies covariates):

A. PD X MD Factorial Design

1. AGREE - greater number of dyads reaching agreement
2. ROUNDS - fewer rounds to agreement
3. SETTLE - greater amount of settlement
4. END - smaller differential at end of simulation

B. PD X MD X ROLE Factorial Design

5. R1 - greater initial opening offer
6. PAYOFF - greater labor or management payoff
7. CONAMT - greater difference between opening offer
and settlement
8. CONCESS - smaller differential between settlement
and \$0.85 implicit midpoint
9. POST11 - greater satisfaction with outcome
10. POST12 - greater desire to settle before penalty
11. POST14 - greater belief that opponent was a
reasonable person
12. POST15 - lesser belief that initial difference was great
13. POST16 - greater desire to settle before round 20

C. Factorial Designs Using Covariates

14. SEX - sex of subject
15. NAT - nationality of subject
16. CMS - cognitive - manipulative congruence
17. ROTTOT - Generalized Interpersonal Trust

18. MACHTOT - Machiavellianism

19. BUDTOT - Tolerance of Ambiguity

For each of the dependent variables in the study, descriptive statistics and an ANOVA table are presented (except for AGREE). Brief discussion accompanies each ANOVA table, but a more detailed explanation is presented in the final chapter.

PX X MO Factorial Design

The initial focus of this research was to explore negotiated outcomes resulting from manipulations of perceived power and the individual's cognitive disposition in the dyadic relationship. The methodological paradigm employed was a variant of the Siegel and Fouraker (1960) Bilateral Monopoly written to simulate a collective bargaining environment. In this particular factorial design, the dependent variables of interest pertain to both members of the dyad; hence, management or labor role will be ignored. In total, eighty-six dyads bargained in this wage negotiation simulation under one of four experimental conditions shown below:

- (a) Equal PD - Cooperative MO (Cell 00)
- (b) Equal PD - Competitive MO (Cell 01)
- (c) Unequal PD - Cooperative MO (Cell 10)
- (d) Unequal PD - Competitive MO (Cell 11)

It was hypothesized that significant main effects would exist for each of the two factors and further a significant interaction would exist between variables. Each of the dependent measures to follow (except AGREE) are based upon the PD X MO factorial ANOVA design.

AGREE

To test the hypothesis that a greater number of agreements would be reached under the equal power level of PD, the cooperative level of MO, and the equal power - cooperative motivation orientation cell (Cell 00) of the 2 X 2 (R X C) contingency table, a Chi-Square crosstabulation was performed. Tables 1, 2 and 3, pages 46 to 48 present the results of the PD, MO and PD by MO analyses of the number of agreements (settlements) reached. Table 3 contains descriptive statistics for this dependent variable.

The hypotheses for agreements settled was confirmed for power distribution and the combination of power distribution and motivation orientation but not motivation orientation alone (although in the desired direction). It appears as if the power distribution factor is so potent in bargaining minds that it cancels out any interaction effects which might be present. An ANOVA table presenting the AGREE findings is located in Appendix H. Multiple R^2 was .128 for the AGREE variable.

ROUNDS

The number of rounds the dyad required to reach agreement was a second dependent variable of interest. The theoretical basis for this variable being that fewer rounds would be required for equal PD and cooperative MO and the equal PD - cooperative MO cell (Cell 00). Tables 4 and 5, pages 49 and 50, summarize these findings.

Table 3 Descriptive Statistics for AGREE (by Cell)

Power Distribution			
Motivation Orientation	Cooperative	Equal	Unequal
		Cell 00	Cell 01
		Mean .178	Mean .500
		SD .387	SD .507
		Cell 10	Cell 11
		Mean .238	Mean .609
		SD .431	SD .493

Competitive

Table 4 Descriptive Statistics for ROUNDS (by Cell)
Power Distribution

	Equal	Unequal
Motivation Orientation	Mean 17.911 SD 2.968 Cell 00	Mean 20.083 SD 1.713 Cell 01
	Mean 18.857 SD 2.170 Cell 10	Mean 20.261 SD 1.705 Cell 11

Cooperative

Competitive

Table 5 ANOVA Table for ROUNDS (by PD and MO)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *									
* * * * * ROUNDS * * * * * ROUNDS TO SETTLEMENT * * * * *									
* * * * * BY PD * * * * * PC#ER DISTRIBUTION * * * * *									
* * * * * MO * * * * * ACTIVATION ORIENTATION * * * * *									
* * * * * SOURCE OF VARIATION * * * * *									
* * * * * MAIN EFFECTS * * * * *									
* * * * * PD * * * * *									
* * * * * MO * * * * *									
* * * * * 2-WAY INTERACTIONS * * * * *									
* * * * * PD * * * * *									
* * * * * MO * * * * *									
* * * * * EXPLAINED * * * * *									
* * * * * RESIDUAL * * * * *									
* * * * * TOTAL * * * * *									
* * * * * SUM OF SQUARES * * * * *									
* * * * * MEAN SQUARE * * * * *									
* * * * * DF * * * * *									
* * * * * F * * * * *									
* * * * * SIGNIF OF F * * * * *									
77.509									
63.578									
8.720									
4.907									
4.907									
82.417									
425.217									
507.634									
38.755									
63.578									
8.720									
4.907									
4.907									
27.472									
5.186									
5.972									
7.474									
2.260									
1.682									
0.946									
0.946									
5.298									
0.001									
0.001									
0.198									
0.334									
0.334									
0.002									

86 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

The variable ROUNDS proved better than the number of offers (the number of times a bid sheet was passed between opponents) even though both had statistically significant results. Power distribution was highly significant ($F = 12.260$ and $p = .001$) and while motivation orientation was not significant, it was in the hypothesized direction and of some magnitude ($F = 1.682$ and $p = .198$). As shown below the ANOVA table, multiple R^2 (multiple coefficient of determination) was .153 or about fifteen percent of the variance of ROUNDS is explained by PD and MO.

SETTLE and END

The remaining two dependent variables in the PD X MO Factorial Design are similar in nature. For dyads who reached an agreement, it was hypothesized that the settlement amount would be greater for equal PD, cooperative MO and the equal PD - cooperative MO cell. END is a dependent measure which describes how far apart the parties were when the exercise ended after twenty rounds. Predictions from theory would indicate that the end differential would be smaller in the same configuration that SETTLE was hypothesized to be greater. Tables 6 and 7, pages 52-53, pertain to SETTLE and Tables 8 and 9, pages 54-55, give results for the variable END.

For both variables power distribution was again highly significant (SETTLE had $F = 10.971$ and $p = .001$ and END had $F = 10.242$ and $p = .002$). As with the ROUNDS variable, neither SETTLE nor END proved to be significant for the motivation orientation main effect or interaction. Multiple R^2 was 13 percent for each variable.

Table 6 Descriptive Statistics for SETTLE (by Cell)

Power Distribution

	Equal		Unequal	
	Mean	SD	Mean	SD
Cooperative	.785	.388	.447	.459
	Cell 00		Cell 01	
Competitive	.759	.441	.391	.459
	Cell 10		Cell 11	

Motivation
Orientation

Cooperative

Competitive

Table 7 ANOVA Table for SETTLE (by PD and MO)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *									
* * * * * SETTLE NEGOTIATED SETTLEMENT * * * * *									
* * * * * BY PD POWER DISTRIBUTION * * * * *									
* * * * * MU MOTIVATION ORIENTATION * * * * *									
SOURCE OF VARIATION		SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F			
MAIN EFFECTS									
PD		2.351	2	1.175	5.948	0.004			
MO		2.168	1	2.168	0.971	0.001			
		0.081	1	0.081	0.411	0.523			
2-WAY INTERACTIONS									
PD		0.011	1	0.011	0.056	0.814			
		0.011	1	0.011	0.056	0.814			
EXPLAINED		2.362	3	0.787	3.984	0.011			
RESIDUAL		16.201	82	0.198					
TOTAL		18.563	85	0.218					

86 CASES WERE PROCESSED.
 3 CASES (C.O. PCT) WERE MISSING.

Table 8 Descriptive Statistics for END (by Cell)

		Power Distribution	
		Equal	Unequal
Motivation Orientation	Cooperative	Mean .026 SD .068	Mean .169 SD .209
	Competitive	Mean .064 SD .128	Mean .190 SD .265
		Cell 00	Cell 01
		Cell 10	Cell 11

To summarize the PD X MO factorial design it was clearly evident that the power distribution experimental manipulation proved extremely potent. While there was no significant main effects attributable to motivation orientation, for the ROUNDS and END variables the F ratio exceeded 1 indicating that the variable MO had some very slight effect. It is interesting to note that in none of the PD X MO ANOVA's was the interaction of the two independent variables significant or anywhere near so. Discussion on the three independent variable factorial design follows.

PD X MO X ROLE Factorial Design

The remaining dependent variables in this study varied by individual and hence, role had to be added as an independent variable dimension. Nine variables will be discussed, four of which were measures taken during the negotiation exercise and related to the outcome of the process and five of which were attitudinal, post-experiment assessments. There were many additional dependent measures recorded (e.g., round by round offers and some post-experiment semantic differential repeats of the pre-experiment assessment) but they will not be presented in this study.

In total, one hundred sixty nine subjects completed all dependent measures (including pre-exercise assessments) and three subjects were discarded due to missing variables. Dependent variables in the following sections include initial offer, amount of concession, difference from implicit midpoint to settlement or end, and payoff earned by each side after the negotiation.

R1 and R15

Variable R1, the opening offer by management to labor and labor's response to management is perhaps the purest measure of the impact of the three main effects — power distribution, motivation orientation and role. Once again, significant main effects were hypothesized for each of the independent variables and in addition, a two-factor interaction was hypothesized in the PD X MO interaction. Tables 10 and 11, pages 58 and 59, show the descriptive statistics and ANOVA table for R1.

The ANOVA table reveals findings that confirm the existence of the three main effect differences. Power distribution was significant ($F = 4.793$ and $p = .030$), motivation orientation was significant ($F = 5.676$ and $p = .018$) and finally, as believed, role was extremely significant ($F = 40.967$ and $p = .000$). In conjunction with the last finding it should again be cautioned that labor had the opportunity to see management's opening offer before labor responded, hence, the potent role effect.

There were no significant two-factor interactions, but a notable (although non-significant) three factor interaction did occur. This may be an artifact due to the F value for the role main effect. Multiple R^2 was .252 for the opening round bid.

As an added insight it might be fruitful to briefly discuss R15, the last round dependent measure before the penalty period. Tables 12 and 13, pages 60 and 61, reveal that MO is no longer significant but two significant two-factor interactions are now present with one being the hypothesized PD X MO interaction

Table 10 - Descriptive Statistics for RI (by Cell)

Power Distribution		Management Role	
Motivation Orientation		Equal	Unequal
Cooperative	Mean	.328	.294
	SD	.193	.163
		Cell 000	Cell 100
Competitive	Mean	.266	.222
	SD	.139	.160
		Cell 010	Cell 110

		Labor Role	
Motivation Orientation		Equal	Unequal
Cooperative	Mean	.203	.102
	SD	.140	.098
		Cell 001	Cell 101
Competitive	Mean	.122	.100
	SD	.120	.120
		Cell 011	Cell 111

Table 12 - Descriptive Statistics for R15 (by Cell)

Power Distribution		Management Role	
Motivation Orientation	Equal	Unequal	Labor Role
	Cell 000	Cell 100	
Cooperative	Mean .879	Mean .704	Cell 101
	SD .190	SD .215	
Competitive	Mean .854	Mean .775	Cell 111
	SD .179	SD .207	
Cooperative	Mean .817	Mean .546	Cell 001
	SD .395	SD .153	
Competitive	Mean .593	Mean .560	Cell 011
	SD .124	SD .237	

Table 13 ANOVA Table for R15 (by PD, MO and ROLE)

ANALYSIS OF VARIANCE										SIGNIFICANCE									
POWER DISTRIBUTION										F		CF							
MOTIVATION ORIENTATION																			
ROLE-LABOUR OR MANAGEMENT																			
ROLE																			
SOURCE OF VARIATION										MEAN SQUARE		F		SIGNIFICANCE					
SUM OF SQUARES										DF									
MAIN EFFECTS																			
PD										2.221		3		0.740		14.547		0.000	
MO										0.744		1		0.744		14.619		0.000	
MC										0.068		1		0.068		1.327		0.251	
ROLE										1.280		1		1.280		25.145		0.000	
2-WAY INTERACTIONS																			
PD										0.450		3		0.150		2.945		0.035	
MO										0.238		1		0.238		5.663		0.019	
PD										0.004		1		0.004		0.087		0.768	
MC										0.173		1		0.173		3.408		0.067	
3-WAY INTERACTIONS																			
PD										0.052		1		0.052		1.013		0.316	
MO										0.052		1		0.052		1.013		0.316	
ROLE										2.723		7		0.389		7.641		0.000	
EXPLAINED										8.043		158		0.051					
RESIDUAL										10.769		199		0.055					
TOTAL										18.812		357		0.055					

16) CASES WERE PROCESSED.
3 CASES (1.3 PCT) WERE MISSING.

(the other is MO X ROLE). Multiple R^2 is a little over twenty percent for this variable.

One possible explanation for the emergent significance is that the subjects had internalized the roles and were bargaining in the manner as envisioned when the simulation was developed. Round 16 marks the beginning of the penalty period in which each participant loses five percent of payoff per round past fifteen. In addition, it was hypothesized that Cell 000 subjects would be more likely to settle before the penalty period than would the other cells (especially the Cell 111 subjects). The significant interactions are PD X MO ($F = 5.663$ and $p = .019$) and MO X ROLE ($F = 3.408$ and $p = .007$). This latter interaction could again reflect the role effect (Table 13).

PAYOFF

As can be seen in the procedural instructions, a payoff table was provided to each side; tables which were inversely ranked and included polar extremes of \$-2.00 and \$6.00. The implicit midpoint occurs at \$0.85 and results in a payoff of \$1.75 to each subject who settles during or before round fifteen. The five percent per round penalty begins at that time and the payoff becomes zero for those who failed to reach agreement.

It was hypothesized that the payoff received by each bargainer would be dependent upon the main effects of PD, MO and ROLE. Tables 14 and 15, pages 63 and 64, show confirmation of this belief. Both PD and ROLE were highly significant ($F = 22.904$ and $p = .000$ also $F = 12.610$ and $p = .000$) while MO was no longer

Table 14 - Descriptive Statistics for PAYOFF (by Cell)

Power Distribution		Management Role	
Equal		Unequal	
Cooperative	Mean .900	Mean .699	Cell 100
	SD .733	SD .773	
Competitive	Mean .668	Mean .418	Cell 110
	SD .665	SD .676	

Power Distribution		Labor Role	
Equal		Unequal	
Cooperative	Mean 1.717	Mean .806	Cell 101
	SD .950	SD .907	
Competitive	Mean 1.725	Mean .640	Cell 111
	SD 1.017	SD .856	

Motivation Orientation

significant (but again in the hypothesized direction). One significant interaction which existed was PD X ROLE ($F = 9.203$ and $p = .003$). It is still evident that the impact of power distribution and role cannot be ignored. Multiple R^2 for the payoff variable was twenty percent. Two additional dependent variables, total concession amount from opening to settlement or end and the difference between the implicit midpoint of \$0.85 and the settlement amount or round twenty offer (if the sides did not settle) are process outcome variables of interest.

CONAMT and CONCESS

For both variables it was believed that significant main effects and interactions would again be present. Tables 16 and 17, pages 66 and 67, pertain to CONAMT and Tables 18 and 19, pages 68 and 69, are for CONCESS. Of the two variables, CONAMT is perhaps a better measure of the impact of interdependence bonds or bargaining outcomes because it reflects the mood of bargaining as it progresses round by round. CONCESS is expected to be significant because of the number of contracts that remain unsettled in the unequal PD, competitive MO (and combination of the two variables) conditions.

Analysis of Table 17 on page 67 confirms the existence of CONAMT significant main effects for PD ($F = 9.395$ and $p = .003$), MO ($F = 2.843$ and $p = .094$), and ROLE ($F = 5.551$ and $p = .020$). Although none of these interactions are significant, some evidence of effect is present. CONCESS shows a tremendously potent main effect for PD ($F = 25.958$ and

Table 16 - Descriptive Statistics for CONAMT (by Cell)

Power Distribution		Management Role	
Motivation Orientation		Equal	Unequal
		Mean SD	Mean SD
Cooperative		Mean .599 SD .182	Mean .532 SD .200
		Cell 000	Cell 100
Competitive		Mean .690 SD .162	Mean .640 SD .155
		Cell 010	Cell 110
		Labor Role	
		Equal	Unequal
		Mean SD	Mean SD
Cooperative		Mean .723 SD .233	Mean .656 SD .155
		Cell 001	Cell 101
Competitive		Mean .796 SD .223	Mean .595 SD .279
		Cell 011	Cell 111

Table 18 - Descriptive Statistics for CONCESS (by Cell)

Power Distribution		Management Role
Equal	Unequal	
Cooperative	Mean -.077 SD .138 Cell 000	Mean .024 SD .152 Cell 100
	Mean -.106 SD .123 Cell 010	Mean -.012 SD .180 Cell 110

Power Distribution		Labor Role
Equal	Unequal	
Cooperative	Mean -.076 SD .161 Cell 001	Mean .092 SD .188 Cell 101
	Mean -.068 SD .209 Cell 011	Mean .155 SD .274 Cell 111

Motivation Orientation

Table 19 ANOVA Table for CONCESS (by PD, MO and ROLE)

* * * * * A L Y S I S O F V A R I A N C E * * * * *									
CONCESS CONCESSION MAGNITUDE									
BY PD POWER DISTRIBUTION									
MO MOTIVATION ORIENTATION									
ROLE ROLE-LABOUR OR MANAGEMENT									
* *									
SOURCE OF VARIATION					SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS									
PD					1.160	3	0.387	11.279	0.000
MO					0.890	1	0.890	25.958	0.000
MO					0.000	1	0.000	0.000	0.986
ROLE					0.204	1	0.204	5.954	0.016
2-WAY INTERACTIONS									
PD					0.171	3	0.057	1.660	0.178
MO					0.005	1	0.005	0.165	0.685
PD					0.104	1	0.104	3.026	0.084
MO					0.047	1	0.047	1.363	0.245
3-WAY INTERACTIONS									
PD					0.010	1	0.010	0.279	0.598
MO					0.010	1	0.010	0.279	0.598
EXPLAINED									
					1.340	7	0.191	5.585	0.000
RESIDUAL									
					5.519	161	0.034		
TOTAL									
					6.859	168	0.041		

169 CASES WERE PROCESSED.
 169 CASES (99.4 PCT) WERE MISSING.

$p = .000$) and also significance for ROLE ($F = 5.954$ and $p = .016$). As would be expected there existed significant PD X ROLE interaction ($F = 3.026$ and $p = .084$). The power distribution finding seems plausible because this CONCESS variable is an indication of reluctance to settle or aversion to compromise in the inequitable or competitive situation. Multiple R^2 for the two variables are .169 and .089 respectively.. The remaining dependent variables are taken from the post-experiment assessment found in Appendix C.

Post-Experiment Assessment

Immediately after the subjects were told that the wage negotiation exercise was finished, an eighteen item questionnaire was administered. The first ten items were semantic differential reports of self and other in terms of interactions. No present use of this data is anticipated. The remaining eight Likert scaled items contain three foils with no intended research purpose and five items intended to measure perceptual attitudes toward the bargaining process and outcomes.

POST11, satisfaction with the outcomes of bargaining, was intended to convey an idea that cooperative outcomes results in heightened satisfaction. Tables 20 and 21, pages 70 and 71, depict the descriptive statistics and ANOVA table for the satisfaction variable. PD is again highly significant ($F = 14.231$ and $p = .000$), MO is significant ($F = 2.699$ and $p = .102$) but role is no longer significant although it appears as if role does have some bearing

Table 20 - Descriptive Statistics for POST11 (by Cell)

Power Distribution		Management Role	
Motivation Orientation	Equal	Unequal	Labor Role
	Cell 000	Cell 100	
Cooperative	Mean 2.320 SD .988	Mean 2.882 SD 1.054	Cell 101
	Cell 010	Mean 3.636 SD 1.293	
Competitive	Mean 2.955 SD 1.214	Cell 110	
Motivation Orientation	Equal	Unequal	Labor Role
	Cell 001	Cell 101	
Cooperative	Mean 2.350 SD 1.268	Mean 3.211 SD 1.273	Cell 111
	Cell 011	Mean 3.042 SD 1.367	
Competitive	Mean 2.350 SD 1.137	Cell 111	

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE
MAIN EFFECTS					
POST11	27.625	3	9.208	6.323	0.000
BY PD	20.725	1	20.725	14.231	0.000
MO	3.931	1	3.931	2.699	0.102
ROLE	2.310	1	2.310	1.586	0.210
2-WAY INTERACTIONS					
PD MO	6.379	3	2.126	1.460	0.227
PD RULE	0.006	1	0.006	0.004	0.951
PD MC	0.225	1	0.225	0.155	0.695
MC RULE	6.244	1	6.244	4.287	0.040
3-WAY INTERACTIONS					
PD MC ROLE	0.216	1	0.216	0.149	0.700
PD MC	0.216	1	0.216	0.149	0.700
EXPLAINED	34.220	7	4.889	3.357	0.002
RESIDUAL	234.465	161	1.456		
TOTAL	268.685	168	1.599		

169 CASES WERE PROCESSED. 0 CASES (0.0 PCT) WERE MISSING.

on satisfaction. It is interesting to note that while the main effects are significant it is opposite to the predicted results. Likely it is caused by ambiguity with the word outcome and this will be discussed in detail. The MO X ROLE interaction is significant ($F = 4.287$ and $p = .000$).

POST12, the desire to settle before the penalty period, hypothesizes the relationship that equal PD and cooperative MO subjects would want to settle before the penalty period. None of the main effects nor interactions are significant but MO is close ($F = 2.460$ and $p = .119$). POST16, the desire to settle before round twenty, is an indication of the impact of bargaining especially on Cell 000 and Cell 111 subjects. As can be seen from Table 24 none of the hypothesized relationships exist. Results for POST12 are shown in Tables 22 and 23, pages 74-75, the ANOVA table for POST16 is on page 76.

POST14, belief that the opponent was a reasonable person, was the best post-experimental measure of the five variables included for study. It was hypothesized that subjects bargaining under the equitable conditions (equal PD and cooperative MO) would view their opponents as reasonable persons--a reflection of the experimental manipulation. Tables 25 and 26, pages 77 and 78 illustrate these important findings. Significant main effects were found for all three independent variables. PD ($F = 14.491$ and $p = .000$), MO ($F = 3.400$ and $p = .067$) and ROLE ($F = 4.752$ and $p = .031$) indicate strong feelings about the opponent.

Table 22 - Descriptive Statistics for POST12 - (by Cell)

Power Distribution		Management Role	
Motivation Orientation	Equal	Unequal	Labor Role
	Cell 000	Cell 100	
Cooperative	Mean 2.720 SD 1.137	Mean 3.294 SD 1.213	
Competitive	Mean 3.045 SD 1.133	Mean 3.227 SD 1.152	
		Cell 010	Cell 110
		Cell 001	Cell 101
Cooperative	Mean 3.050 SD 1.317	Mean 2.842 SD .958	
Competitive	Mean 3.350 SD 1.137	Mean 3.333 SD 1.049	
		Cell 011	Cell 111

Table 23 ANOVA Table for POST12 (by PD, MO and ROLE)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *									
* * * * * POST12 SETTLED BEFORE PENALTY * * * * *									
* * * * * BY PD PCWER DISTRIBUTION * * * * *									
* * * * * MO MOTIVATION ORIENTATION * * * * *									
* * * * * ROLE RULE-LABOUR OR MANAGEMENT * * * * *									
* * * * * SOURCE OF VARIATION * * * * *									
* * * * * MAIN EFFECTS * * * * *									
* * * * * PD 4.652 3 1.304 0.729 1.206 0.309 * * * * *									
* * * * * MO 0.729 1 0.729 0.563 0.563 0.454 * * * * *									
* * * * * MO 3.199 1 3.190 2.460 2.460 0.119 * * * * *									
* * * * * MO 0.391 1 0.391 0.302 0.302 0.583 * * * * *									
* * * * * 2-WAY INTERACTIONS * * * * *									
* * * * * PD 2.964 3 0.988 0.702 0.702 0.517 * * * * *									
* * * * * PD 0.113 1 0.113 0.387 0.387 0.769 * * * * *									
* * * * * PD 2.365 1 2.365 1.824 1.824 0.179 * * * * *									
* * * * * MO 0.685 1 0.685 0.528 0.528 0.468 * * * * *									
* * * * * 3-WAY INTERACTIONS * * * * *									
* * * * * PD 0.887 1 0.887 0.684 0.684 0.409 * * * * *									
* * * * * MO 0.887 1 0.887 0.684 0.684 0.409 * * * * *									
* * * * * EXPLAINED 8.543 7 1.320 0.941 0.476 * * * * *									
* * * * * RESIDUAL 208.746 161 1.297 * * * * *									
* * * * * TOTAL 217.289 163 1.293 * * * * *									

163 CASES WERE PROCESSED.
 3 CASES (2.0 PCT) WERE MISSING.

Table 25 - Descriptive Statistics for POST14 (by Cell)

Power Distribution		Management Role
Equal	Unequal	
Cooperative	<div> Mean 2.880 SD 1.269 </div> <div>Cell 000</div>	<div> Mean 3.353 SD 1.539 </div> <div>Cell 100</div>
Competitive	<div> Mean 3.409 SD 1.333 </div> <div>Cell 010</div>	<div> Mean 3.955 SD .950 </div> <div>Cell 110</div>

Power Distribution		Labor Role
Equal	Unequal	
Cooperative	<div> Mean 2.350 SD 1.089 </div> <div>Cell 001</div>	<div> Mean 3.579 SD 1.121 </div> <div>Cell 101</div>
Competitive	<div> Mean 2.800 SD 1.152 </div> <div>Cell 011</div>	<div> Mean 3.375 SD 1.013 </div> <div>Cell 111</div>

Motivation Orientation

The remaining dependent measure was POST15 (the belief that the initial differences between opponents was great) and it was not significant. It had been hypothesized that power distribution in particular would be significant, but that did not occur. Perhaps subjects felt the initial differences were great regardless of the experimental manipulation, and with no means of making comparisons, differences were not located. (See Table 27 on page 80.)

A word of comment about the significant main effects for the ROLE variable is warranted. It has been noted throughout this chapter that management or labor role has been highly significant in several instances. To review the conduct of the wage negotiation exercise, management began the exercise by offering labor a wage rate increase that was small in magnitude (according to custom). In the experimental instructions, subjects were instructed as follows:

"In the prenegotiation strategy sessions our side decided to start somewhere about twenty five cents from the extreme limit, but also that it would be dependent upon how the other issues were resolved prior to this wage negotiation."

Management undoubtedly followed these instructions intently (see Table 11 on page 59). While labor read identically the same manipulations it is foreseeable that labor not only reacted to management's opening offer, but responded as labor is expected to do in our society (i.e., extreme positions in the early stage of negotiations). This is a possible reason for the significance of ROLE. Further discussion of the role variable is anticipated in the next chapter.

In summarizing the PD X MO X ROLE factorial design, the significance of role, as mentioned, should be clearly evident. In addition, the potent power distribution main effect remained as noted in the previous section of this chapter. Also, the significance of motivation orientation is now apparent. One plausible reason why this independent variable was significant for R1, CONAMT, POST11 and POST14 is that those four measures are pure responses to the experimental manipulations.

The marginal significance of motivation orientation in this study remains a puzzle. MO was defined to be a cognitive disposition toward the opponent, but by not knowing the identity of the opponent, internalization of the manipulation may have been incomplete. In the following section some interesting findings uncovered during data analysis are discussed.

Factorial Designs with Covariates

The need to employ covariates with the PD X MO X ROLE factorial design became apparent during the period immediately following completion of the Fall 1976 bargaining replication. For example, previous bargaining research clearly indicates that sex and nationality are critical variable to control. This section reports on the statistical use of such covariates as

- (1) cognitive-manipulative set
- (2) sex and nationality
- (3) personality measures

Cognitive-Manipulative Set

As a by-product of statistical investigation, avenues of further exploration are sometimes warranted. During the analyses of dependent variables, it occurred to this author that perhaps additional explanation of the behavioral outcomes might accompany further insights into the experimental manipulations in the simulation. For instance, what if an individual who was cooperative by nature was placed in a competitive experimental setting. Might this apparent incongruence have a bearing on the negotiated outcomes?

To test this belief a new variable called cognitive-manipulative set (CMS) was created as a covariate. A subject was defined as congruent ($n = 61$) if the semantic differential self report of cooperative-competitive matched the experimental manipulation to which they were assigned. The remaining individuals ($n = 108$) were classified as incongruent (their internal cooperative-competitive cognition differed from the manipulation). Factorial ANOVA's with CMS as a covariate were run and the results proved enlightening and of course gratifying.

Table 28, page 83, shows that the CMS covariate was significant ($F = 7.401$ and $p = .007$) for the round one opening offer. Multiple R^2 was .265 as opposed to .227 without the covariate. The same increased explanation was noted in other printouts of rounds five and ten, but no longer held true for PAYOFF, CONAMT or CONCESS

Table 28 ANOVA Table for R1 (PD X MO X ROLE with CMS)

* * * * * A N A L Y S I S C F V A R I A N C E * * * * *									
* * * * * R1 * * * * *									
* * * * * BY PD MO * * * * *									
* * * * * ROLE * * * * *									
* * * * * WITH CMS * * * * *									
* * * * * FCWER DISTRIBUTION * * * * *									
* * * * * MOTIVATION ORIENTATION * * * * *									
* * * * * RCLE-LABOUR OR MANAGEMENT * * * * *									
* * * * * COGNITIVE-MANIPULATIVE SET * * * * *									
SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF	DF	F	SIGNIF	DF
COVARIATES	0.155	1	0.155	7.401	0.007	1	7.401	0.007	1
CMS	0.155	1	0.155	7.401	0.007	1	7.401	0.007	1
MAIN EFFECTS	1.069	3	0.356	16.989	0.000	3	16.989	0.000	3
PD	0.094	1	0.094	4.472	0.036	1	4.472	0.036	1
MO	0.101	1	0.101	4.799	0.030	1	4.799	0.030	1
RCLE	0.819	1	0.819	39.072	0.000	1	39.072	0.000	1
2-WAY INTERACTIONS	0.018	3	0.006	0.282	0.838	3	0.282	0.838	3
PD MO	0.007	1	0.007	0.352	0.554	1	0.352	0.554	1
PD ROLE	0.007	1	0.007	0.318	0.573	1	0.318	0.573	1
MO ROLE	0.004	1	0.004	0.179	0.673	1	0.179	0.673	1
3-WAY INTERACTIONS	0.024	1	0.024	1.123	0.291	1	1.123	0.291	1
PD MO ROLE	0.024	1	0.024	1.123	0.291	1	1.123	0.291	1
EXPLAINED	1.265	8	0.158	7.542	0.000	8	7.542	0.000	8
RESIDUAL	3.355	160	0.021			160			
TOTAL	4.621	168	0.028			168			

COVARIATE RAW REGRESSION COEFFICIENT

CMS -0.063

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

(see ANOVA tables in Appendix H). An explanation that definitely seems plausible is that the round by round progression of negotiations still carries the congruence-incongruence effect, but later the emotion of bargaining supplants the effect. Analysis of the post-experiment assessment variables yielded no significant findings for the CMS covariate. Further discussion of the CMS variable will be included in chapter five.

Sex and Nationality

While the purpose of this research was to analyze bargaining outcomes based on interdependence bonds, the effect of sex and nationality cannot be ignored. Previous bargaining research clearly states that sex and nationality are significant variables (see Rubin and Brown - 1975 for relevant citations). In the final $n = 169$ experiment, twenty-four females and twenty-three non-Canadians participated in the study. Rather than add factors for sex and nationality to the existing PD X MO X ROLE design, the two variables were treated as covariates.

Support of previous research differences attributable to sex and nationality were anticipated and confirmed. Tables 29 to 32, pages 85 to 88, contain ANOVA tables with sex and nationality as covariates. With respect to R1, Table shows the covariates were significant (SEX was $F = 3.842$ and $p = .052$ and NAT was $F = 5.754$ and $p = .018$) with females and caucasians making larger opening offers. The PAYOFF variable (Table 30) showed a significant effect for NAT ($F = 6.314$ and $p = .013$) and while SEX was not

Table 30 ANOVA Table for PAYOFF (by PD X MO X ROLE with SEX and NAT)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *					
* * * * * PAYOFF * * * * *					
* * * * * BY PD * * * * *					
* * * * * MO * * * * *					
* * * * * ROLE * * * * *					
* * * * * WITH SEX * * * * *					
* * * * * NAT * * * * *					
* * * * * PROFIT ASSOCIATED WITH SETTLEMENT * * * * *					
* * * * * POWER DISTRIBUTION * * * * *					
* * * * * MOTIVATION ORIENTATION * * * * *					
* * * * * ROLE-LABOUR OR MANAGEMENT * * * * *					
* * * * * SEX OF BARGAINER * * * * *					
* * * * * NATIONALITY OF BARGAINER * * * * *					
* *					

COVARIATE RAW REGRESSION COEFFICIENT

SEX 0.263
NAT -0.463

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

Table 31 ANOVA Table for CONCESS (by PD X MO X ROLE with SEX and NAT)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *									
* * * * * CONCESS BY PD MO * * * * *									
* * * * * WITH SEX NAT * * * * *									
* * * * * SETTLEMENT TO MIDPOINT DIFFERENCE * * * * *									
* * * * * POWER DISTRIBUTION * * * * *									
* * * * * ACTIVATION ORIENTATION * * * * *									
* * * * * ROLE-LABOUR OR MANAGEMENT * * * * *									
* * * * * SEX OF BARGAINER * * * * *									
* * * * * NATIONALITY OF BARGAINER * * * * *									
SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF				
COVARIATES									
SEX	0.115	2	0.057	1.663	0.193				
NAT	0.115	1	0.115	3.324	0.070				
	0.000	1	0.000	0.001	0.973				
MAIN EFFECTS									
PD	1.079	3	0.360	0.417	0.000				
MO	0.850	1	0.850	4.629	0.000				
MC	0.000	1	0.000	0.002	0.969				
ROLE	0.178	1	0.178	5.160	0.024				
2-WAY INTERACTIONS									
PD	0.170	3	0.057	1.644	0.182				
MO	0.009	1	0.009	0.255	0.614				
ROLE	0.104	1	0.104	3.003	0.085				
PD	0.041	1	0.041	1.202	0.275				
3-WAY INTERACTIONS									
PD	0.003	1	0.003	0.226	0.635				
MO	0.008	1	0.008	0.226	0.635				
ROLE	1.371	9	0.152	4.415	0.000				
EXPLAINED									
RESIDUAL	5.488	159	0.035						
TOTAL	6.859	168	0.041						

COVARIATE RAW REGRESSION COEFFICIENT

SEX -0.075
NAT -0.001

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

significant, it was of some magnitude ($F = 2.105$ and $p = .149$). Non-caucasian and female bargainers earned a larger payoff than caucasian and male bargainers.

For the concession variables (Tables 31 and 32), sex of subject was significant for CONCESS ($F = 3.324$ and $p = .070$) and nationality was significant for CONAMT ($F = 2.757$ and $p = .099$). Within the group of post-experiment assessment variables there was only two instances of significance. SEX was a significant covariate for only one variable--POST16 ($F = 3.819$ and $p = .052$)--indicating females reported a greater desire to settle before round twenty. Remember also that this variable (POST16) was not significant for any main effect or interactions. Nationality proved a significant covariate in only one variable--that being POST11 ($F = 3.043$ and $p = .083$). Caucasians were less satisfied with the outcome of bargaining than non-caucasians. These findings are shown in Tables 33 and 34 on pages 90 and 91.

Personality Measures

Prior to the initial pilot study a decision was made to incorporate some universally cited personality measures as covariates. At that time no statistical analyses were made using these measures, but they were still maintained in the pre-exercise assessment battery completed by each subject. That final assessment package included

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

1. Rotter (1967) - Generalized Interpersonal Trust
2. Budner (1962) - Tolerance of Ambiguity
3. Christie and Geis (1970) - Machiavellianism

Of the personality measures, neither Generalized Interpersonal Trust, machiavellianism nor Tolerance of Ambiguity offered added explanation to outcome variables of interest. The Christie-Geis measure was a statistically significant covariate for only one post-experiment measure--POST14, the belief that opponent was a reasonable person ($F = 3.972$ and $p = .048$). As shown in Table 35, page 93, the Machiavellian bargainer felt opponent was not a reasonable person; finding that makes logical sense. It was unfortunate that so few significant findings could be derived from this study especially when some empirical evidence of their validity does exist.

Summary of Results

Results obtained from the collective bargaining simulation, a single wage negotiation issue, were generally significant in confirming hypothesized main effects of interdependence bonds. The findings were not so gratifying in terms of retaining the interaction research hypothesis. A brief summary of the research findings will be presented in this section with the focus being the specific hypothesized relationships stated in Chapters II, III and IV. In terms of the omnibus research hypothesis of Chapter II, significant main effects were reported in some instances for power distribution (PD) and motivation orientation (MO).

Interaction effects were not present for any of the four

Table 35 ANOVA Table for POST14 (by PD, MO and ROLE with MACHTOT)

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PCST14 UPONNET A RESCNALE PERSON									
BY PD PCWER DISTRIBUION									
MO MCIVATION ORIENTATION									
RCLE FCLE-LAEQUR OR MANAGEMENT									
WITH MACHTOT TCTAL MACHIAVELLIANISM SCORE									
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COVARIATE HAS REGRESSION COEFFICIENT

MACHTOT 0.020

169 CASES WERE PROCESSED.
 0 CASES (0.0 PCT) WERE MISSING.

dependent variables in the two-factor (PD X MO) experimental design, but did occur in sporadic instances in the three-factor (PD X MO X ROLE) analyses. Statistically significant higher-order interactions were not present in this latter design. For the PD X MO factorial design hypothesized relationships were found for AGREE, ROUNDS, SETTLE and END by the power distribution (PD) independent variable. No significant relationships existed for any of the four dependent variables when motivation orientation (MO) was the main effect. As stated, there were no second-order interactions present in the 2 X 2 factorial design.

Management or labor ROLE was added as a third factor to the above 2 X 2 factorial design. Process or outcome dependent variables of interest included R1, PAYOFF, CONCESS and CONAMT. Five post-exercise assessment variables were also used as dependent variables. Round fifteen offer was analyzed in an attempt to see if the penalty period had an impact on the bargainers. Although MO was no longer significant, the PD X MO interaction was significant.

The hypothetical payoff earned by each side at the end of the exercise was significant for PD and ROLE. All three main effect hypothesis for both concession variables were confirmed (except for CONCESS by MO). No significant second-order interactions were present for either dependent variable.

In reviewing the PD X MO X ROLE factorial design it is apparent that power distribution main effect was extremely potent and may have cancelled some hypothesized motivation orientation effects. In addition, the role factor was also powerful--probably because bargainers may be reacting to the manipulators by exhibiting real world

behaviors.

Post-experiment assessment variables displayed a mixed pattern of significance. For the satisfaction with outcomes variable, POST11, both PD and MO were significant although opposite to anticipated direction. POST14, belief that the opponent was a reasonable opponent, was correctly predicted by theory for all three factors. The remaining dependent measures, POST12, POST16 and POST15 did not show any predicted results.

The final section in this chapter reported findings on the use of covariates with PD X MO X ROLE factorial design. A newly created covariate, cognitive-manipulative set (CMS), proved to be a significant variable in explaining additional experimental variation during the progress of the exercise. Outcome variables were not significant though.

Use of sex and nationality covariates proved rewarding affected the round one opening offer, the payoff earned, and each of the concession variables (as predicted). Little of noteworthy findings could be gleaned from the post-exercise variables.

Statistical analysis of two factorial designs and the use of covariates with a design yielded the results presented in this chapter. Hypothesized findings were discussed and, where applicable, confirmed. The last chapter of this study will focus on reviewing confirmation and discrepancy of predictions, implications of this research effort on theory and future research, and identifying study limitations so future research can become incrementally more sophisticated.

Chapter V. Discussion and Conclusions

Indeed, it is most gratifying when the hypothesized results of an experimental laboratory simulation prove statistically significant. Gratification is enhanced when additional analyses uncover findings of experimental importance and lastly, the administrator feels extremely pleased when the subjects verbally report that they "really got into the exercise" with attendant feelings toward their bargaining opponents. This was especially true for dyads negotiating under the equal power - competitive motivation orientation condition.

This chapter contains a report on the major statistical findings - and why certain hypotheses were retained and possible reasons why others were not confirmed as anticipated. The implications of the findings, both on this research and potential future research, is discussed. Emphasis will be placed on discussion of the limitations of the study, especially potentially confounding effects. The chapter will conclude with some theoretical observations on the importance of bargaining in our society and suggestions for replication research.

The principal intent of this research was to study the effect of Rubin and Brown's (1975) interdependence bonds (power distribution and motivation orientation) on negotiated outcomes in an experimental wage negotiation simulation. A third parameter in their framework, interpersonal orientation, was not

utilized in this study. A conceptual foundation for bargaining behavior, social exchange or interaction theory, suggests several omnibus research hypotheses for the independent parameters

- H₁: Pairs perceiving equality of power will bargain more effectively than pairs perceiving inequality of status.
- H₂: Subjects receiving instructions inducing a cooperative motivation orientation will bargain more effectively than those receiving competitive instructions.
- H₃: Bargainers with equal power and a cooperative motivation orientation will tend to function more effectively than those of unequal power and competitive motivation orientation.

It was previously suggested that behaviors and outcomes in negotiations are a consequence of a cost/benefit or input/output ratio perceived by the bargainer. According to the research hypotheses above, dyads would strive to be more effective (engage in cooperative outcomes) bargainers when they perceive this ratio as being in balance. Imbalances perceived as being inequitable will result in competitive behavioral outcomes.

For this collective bargaining simulation, empirical evidence on the dependent measures suggests the following relationships

A. PD X MD Factorial Design

1. AGREE - greater number of dyads reaching agreement
2. ROUNDS - fewer rounds to agreement
3. SETTLE - greater amount of settlement
4. END - smaller differential at end of simulation

B. PD X MD X ROLE Factorial Design

5. R1 - greater initial opening offer
6. PAYOFF - greater labor or management payoff
7. CONAMT - greater difference between opening offer
and settlement
8. CONCESS - smaller differential between settlement
and \$0.85 implicit midpoint
9. POST11 - greater satisfaction with outcome
10. POST12 - greater desire to settle before penalty
11. POST14 - greater belief that opponent was a
reasonable person
12. POST15 - lesser belief that initial difference was great
13. POST16 - greater desire to settle before round 20

Discussion of the research findings is organized according to factorial design or covariates. Where applicable implications and recommendations are included.

PD X MO Factorial Design

Very little disagreement as to the anticipated effect of unequal distribution of power or competitive motivation orientation of negotiations exists among social psychologists. Considering the motivation orientation

aspect first, Deutsch's (1960) experimental instructions for cooperative, competitive and individualistic cognitive disposition toward opponent have served as models for many bargaining experiments.

Several studies employing the Prisoners Dilemma report findings similiar to Deutsch. The only research employing the Bilateral Monopoly paradigm (as the simulation did) indicated partial contradiction to predicted effects; but only used the cooperative and individualistic levels of the factor. Schenitzki (1963) reports that under conditions of no communications, individualistic MO bargainers made greater profits - (contrary to theory).

One plausible explanation is that individual goal setting confounds the main effect. In other words cooperators may not have felt the need to maximize gain. It is unfortunate that concession variables are not reported, but the initial offer for individualists was significantly more extreme, a finding anticipated through theory and replicated by this research (see PD X MO X ROLE section to follow).

It is interesting to note that MO was not statistically significant for any of the four dependent variables. To this author one possible explanation is that the power distribution main effect was so potent that potential differences in motivation orientation were cancelled. To briefly summarize the MO variable, there is certainly an indication of the value of continued use of Deutsch's experimental manipulations.

The relevant citations on power distribution are many and generally conclusive (although power is a highly complex phenomena).

As evidenced from empirical literature the experimental means of manipulation power are varied. In this study the perceived historical and current relationship between labor and management was termed equal or unequal. Unequal PD was characterized as a degree of power discrepancy as perceived by self or an obvious imbalance position in social exchange theoretic terms.

Komorita and Barnes (1969) varied power in a Bilateral Monoply situation between buyer and seller. They found that equal power dyads reached agreement more often and required fewer trials to do so) than unequal power bargainers. Note the similar replication findings in this research. In both instances, dyads functioned more effectively in the equal power situation as evidenced by the mean settlement being closer to the implicit midpoint. The ending differential reaffirms the cooperative outcomes of equal power; that being a smaller differential.

In a second study employing the Bilateral Monoply Hornstein (1965) had subjects participate in a real estate simulation. With respect to the effects of power equality inspection of the results shows a partial confirmation (although not significant) of theory. One potential problem was that there were six levels of threat potential and this research had only the equal-unequal dichotomy. As for the PD variables, theory and findings appear in unison.

PD X MO X ROLE Factorial Design

Adding the role factor to the existing design was a necessity in order to analyze outcome and post-experiment assessments for each

subject rather than joint outcomes for the dyad. As before, significant main effects were hypothesized for the power distribution and motivation orientation variables. Although no literature was cited to suggest that a role variable would be significant, historical norms in collective bargaining might dictate such a hypothesis.

Referring to the Komorita and Barnes (1969) study they also reported that equal power pairs made larger concessions than pairs with unequal power. While findings in this study related to individuals the results were conclusive and in agreement with the study using dyads.

It is unfortunate that the hypothesized higher order interactions were not significant for either design. In retrospect it appears as if the power distribution and role variables, in concert, are highly significant for the payoff and concession variables, but not for the round one initial offer. At the onset of bargaining, the two pervasive forces, one experimental and one cultural, appear to outweigh the predicted findings. Later, as bargaining progresses, the role variable becomes less powerful and significant interactions are allowed to emerge. While this belief alone cannot be considered as confirmation of hypotheses it certainly lends credibility to the study.

Covariates

Employment of covariates in this study was felt necessary because of the small number of females and non-caucasians participating

in the research. Personality variables had been employed in the past with mixed results and the inconclusive evidence of these findings only serves to maintain the status quo. Lastly, the congruence of experimental manipulation and the individual's cognitive disposition towards other was a covariate which was found to be an effective predictor of round by round measures, but diminished when final outcomes were analyzed.

The sex and nationality covariates require some, albeit brief, explanation. While many studies can be cited which point to significant sex differences there is no decisive tendency for females to behave more cooperatively or competitively than males. Many such contradictory studies exist. The same ambiguity holds true for the nationality variable--there is no clear cut evidence to indicate that the "cultural natives" bargain in a consistent predictable manner. The obvious implication is that a homogenous sample (e.g., all males) be used in future research or that sex be treated as a practical objective rather than a statistical by-product.

A last word about cognitive-manipulative set is merited. Under the guise of random assignment, how many true differences have been concealed by the incongruence postulate? Future research would be fruitfully served by a thorough investigation into the random assignment assumption of experimental design. At the very least, the researcher could be armed with a series of semantic differential composites of the experimental manipulations with which to test preconceived beliefs about outcomes. The rewards might be well worth the effort.

Limitations

If criticism is to be leveled at the wage negotiation exercise, and some is certainly warranted, then it should be categorized according to its overall effect on the findings and their applicability to bargaining theory. This section will be divided into discussion on (1) the theory of bargaining, (2) the physical conduct of the simulation and the statistical analysis. Based upon the discussion preceeding this section and a critique of the exercise, it should be possible to make recommendations as to the directions for future research.

Bargaining Theory

At the onset it was noted that there is no unified theory of bargaining or negotiations, one which would accurately and consistently predict both social psychological behaviors and perceptions or theoretic game optima. Human nature, being what it is, dictates individual differences and individual differences dictate unpredictability. In addition to the unpredictable nature of the human, it is not at all clear that a bargainer operates under a social exchange or mutual relationships framework.

For instance, in this research we have virtually ignored such potentially powerful driving forces such as anxiety or fear; depressive reaction; ego needs; the achievement, power, affiliation, and security motives; and such collective bargaining issues as prevailing wage rates comparability, and fluctuating public sympathies for labor or management. Certainly, each is situational in nature, highly dynamic

and difficult to quantify. Inclusion of such variables in a study precludes parsimony--one of the central tenets of research. Even in bargaining theory, as with all theories of human behavior, the researcher is faced with two conflicting alternatives - - simplify (and risk missing important effects and interactions) or quantify (and risk creating such a highly complex situation that concise analysis is virtually impossible).

At the over-simplification level, power distribution and motivation orientation certainly do not adequately describe real world bargaining behaviors and outcomes. Yet to replicate previous research and make contributions to advancing the theory this is exactly what must be done. As in previous empirical research on bargaining, this simulation found significant main effects for the two independent parameters.

Analogies exist in the real world. In strategic arms limitation talks, the equal power distribution between two leading nations certainly affects the negotiated outcomes. Kissinger, in his heyday, was variously characterized as cooperative or competitive in his dealings with adversaries. His demeanor certainly had an effect on outcomes.

Lastly, in the field of collective bargaining, one hears of conflict almost daily. Some unions are known for militancy; for having an acknowledged power edge over management. In the not to recent past, Teamsters and Miners strikes serve as exemplary situations. In many areas of the country the Garment Workers are

noted for their cooperative endeavors with management in seeking to maintain employment and blunt foreign imports. The auto companies and Auto Workers seem equally powerful at the bargaining table.

We all realize that real world negotiations are complex behavioral phenomena with the public rarely ever knowing the true history about the parties. Plea bargaining, lately pervasive in our society, provides a case study. Prosecution and defense argue legal subtlties; municipal, state and federal criminal law; defendant's past criminal record; jail crowding conditions; experimental rehabilitation programs; recidivism rates; and a host of other ideals before arriving at an agreement. This complex situation cannot be replicated in the laboratory (nor would the researcher necessarily want to do so).

The dilemma over bargaining theory (simplification or elaboration) cannot neatly be resolved. Social exchange theories seem to be a plausible explanation for laboratory as well as real world bargaining endeavors. The former setting allows for both methodological and statistical control of variables which collective bargaining behaviors exhibit a multi-attribute nature.

The only practical recourse is to (1) continue as we have in the past seeking additional explanation, (2) actively develop alternative schemes for predicting bargaining outcomes and (3) test these beliefs against the present social exchange foundation. The behavioral sciences will surely benefit from the renewed effort.

Should any reader seek to use this experimental design, its procedural or manipulative instructions and dependent measures, or theoretic base, the following discussion of the simulation and statistical analyses is intended to be instructive as well as conceptual.

Simulation and Statistical Analysis

The wage negotiation was felt to be an intense, theoretically conceptualized and realistic attempt to model bargaining behaviors. The realm of collective bargaining was selected because it is a widely publicized medium for the resolution of conflictive situations. A vast majority of the subjects could enter into the simulation believing their contribution to be meaningful.

Rationale for the use of power distribution motivation orientation and interpersonal orientation is sound. Interdependence bonds of mutual relationships do exhibit both structural and social psychological components (Cross-1969). Relationships between parties, characterized as being in conflict, can be studied using the theoretical framework of social exchange or comparison. While the wage negotiation exercise did not explicitly test the individuals cognitive map of input/output ratios, the social exchange hypotheses seem a reasonable interpretation of real world collective bargaining behavior.

The simulation itself is too long (too many rounds) to be attempted when face to face contact is not permitted. While there appears to be an interesting pattern of incremental concessions taking place over the course of the bargaining, the initial offer, final settlement and concession rate or magnitude are the major dependent variables of interest. These would still be valid even in a shorter simulation.

Care should be taken to insure that subjects cannot see the responses of other bargainers in the same facility because failure to do so might result in the subtle encouragement toward prolonging the exercise. The computer would be an ideal mechanism by which the independence assumption can be maintained. Prospective researchers should explore different scoring and incentive schemes for the payoff matrices.

As mentioned previously, sex, nationality and some personality measures proved interesting covariates. Some attempt should be made to provide for other than statistical control for sex and nationality. Historical success with administering, scoring and analyzing personality measures will be prime determinants in which measures to use. Lastly, readers are urged to contact this author personally for subjective comments on the conduct of this simulation.

Portents for Future Research

Confirmation of the omnibus hypotheses were found in the data gathered from the wage negotiation exercise, a simulation of collective bargaining outcomes and behaviors. The written experimental manipulation for power distribution was significant; in fact extremely potent. If recent experience with the striking Teamsters or Miners is a true indication of the feelings of the union membership, then power distribution will continue to be significant in simulations modeled after collective bargaining situations. In short, the wage negotiation appears to be a valid means of depicting power distributions.

Rubin and Brown (1975) offer suggestions on methodology to vary power. Future research could continue to use the equal-unequal dichotomy (as it is significant), vary the payoff or reward structure or employ different experimental manipulations to vary power. The motivation orientation factor is relevant to social psychological process and should continue to be employed in research.

Effort should be expended to insure that the power factor (structural) does not overwhelm the behavioral dimension. Perhaps a physical manipulation of power (e.g., seating arrangements, provision for communications or departure from a bargaining schedule, or inclusion of a constituency variable) could be combined with the Deutsch (1960) experimental written instructions in an attempt to discover interaction effects.

The final interdependence bond, interpersonal orientation, is also social psychological in nature. The most frequently employed manipulation, physical manipulation of seating or interaction, does not accurately model interpersonal behaviors. In fact, physical manipulation of IO might be confounded with either written or physical manipulation of power. Care must be taken to insure that interaction effects can theoretically occur in the design.

The handling of role, either management or labor, can possibly cause carryover interaction effects due to the extreme power of the role variable. Three possible alternatives to this dilemma exist.

First, alternate the starting role so that labor does not always get to see management's opening offer. Second, force both management and labor to stipulate an initial offer before seeing the bids. In effect, sequential bargaining begins in the second round. Last, specify predetermined initial positions and let bargaining commence from that point.

The last area for potential research lies in using real world bargainers in a pseudo-validation study. The public sector offers a fertile testing arena because one-on-one bargaining frequently takes place in merit and promotional schemes between labor and management. If real world bargainers operated according to theory, and their outcomes potential or effectiveness could be measured in a laboratory experiment, then an ideal medium exists for testing negotiation ability in advance of an crisis or potentially crippling situation.

Appendices

Appendix A ~ Interpersonal Orientation Measure

Please indicate your feelings about these statements about people by circling the response you feel is most appropriate. Use the pattern:

1. strongly agree
2. agree
3. neither agree or disagree
4. disagree
5. strongly disagree

	SA	A	N	D	SD
1. The judiciary is a place where we can all get unbiased treatment.	1	2	3	4	5
2. If we really knew what was going on in international politics, the public would have more reason to be frightened than they now seem to be.	1	2	3	4	5
3. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.	1	2	3	4	5
4. It is safe to believe that in spite of what people say, most people are primarily interested in their own welfare.	1	2	3	4	5
5. Using the Honor System of <u>not</u> having a teacher present during exams would probably result in increased cheating.	1	2	3	4	5
6. Most idealists are sincere and usually practice what they preach.	1	2	3	4	5
7. Hypocrisy is on the increase in our society.	1	2	3	4	5
8. Even though we have reports in newspapers, radio and television, it is hard to get objective accounts of public events.	1	2	3	4	5
9. Parents usually can be relied upon to keep their promises.	1	2	3	4	5
10. Most salesmen are honest in describing their products.	1	2	3	4	5
11. The future seems very promising.	1	2	3	4	5
12. Most experts can be relied upon to tell the truth about the limits of their knowledge.	1	2	3	4	5

Appendix B - Pre-Experiment Assessments

Please indicate your feelings about these descriptions by circling the response you feel is most appropriate.

Extremely							
	Very		Slightly	Neutral	Slightly	Very	Extremely
1	2	3	4	5	6	7	

Interaction. Think of experiences in the past when you have interacted with one other person. In general, would you consider yourself:

Fair	1	2	3	4	5	6	7	Exploitive
Strong	1	2	3	4	5	6	7	Weak
Deceptive	1	2	3	4	5	6	7	Honest
Trusting	1	2	3	4	5	6	7	Suspicious
Yielding	1	2	3	4	5	6	7	Unyielding

Self-description. The following are some terms used to describe ourselves and others. In general, would you consider yourself:

Democratic	1	2	3	4	5	6	7	Autocratic
Emotional	1	2	3	4	5	6	7	Rational
Cooperative	1	2	3	4	5	6	7	Competitive
Submissive	1	2	3	4	5	6	7	Dominant
Other-Centered	1	2	3	4	5	6	7	Self-Centered

Attributes. Certain terms are used to describe human behavior and personality. In general, how would you describe yourself:

Risk Seeker	1	2	3	4	5	6	7	Risk Avoider
Abstract Thinker	1	2	3	4	5	6	7	Concrete Thinker
Intolerant of Ambiguity	1	2	3	4	5	6	7	Tolerant of Ambiguity
Seek Friendships	1	2	3	4	5	6	7	Avoid Friendships
Willing to Compromise	1	2	3	4	5	6	7	Unwilling to Compromise

Please use the same response pattern (strongly agree to strongly disagree) as used on the previous page.

	SA	A	N	D	SD
13. Human nature being what it is, there must always be war and conflict.	1	2	3	4	5
14. The most important thing a child should learn is obedience to parents.	1	2	3	4	5
15. A few strong leaders could make this country better than all the laws and talk.	1	2	3	4	5
16. Most people who don't get ahead just don't have enough will power.	1	2	3	4	5
17. Women should stay out of politics.	1	2	3	4	5
18. An insult to your honor should not be forgotten.	1	2	3	4	5
19. People can be trusted.	1	2	3	4	5
20. An expert who doesn't come up with a definite answer probably doesn't know too much.	1	2	3	4	5
21. Often the most interesting and stimulating people are those who don't mind being different and original.	1	2	3	4	5
22. Many of our most important decisions are based upon insufficient information.	1	2	3	4	5
23. A good job is one where what is to be done and how it is to be done are always clear.	1	2	3	4	5
24. I like parties where I know most of the people more than ones where all or most of the people are complete strangers.	1	2	3	4	5
25. There is really no such thing as a problem that can't be solved.	1	2	3	4	5
26. People who fit their lives to a schedule probably miss most of the joy of living.	1	2	3	4	5
27. Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and creativity.	1	2	3	4	5

Please use the same response pattern (strongly agree to strongly disagree) as used on the previous page.

	SA	A	N	D	SD
28. People who insist upon a yes or no answer just don't know how complicated things really are.	1	2	3	4	5
29. It is more fun to tackle a complicated problem than to solve a simple one.	1	2	3	4	5
30. A good teacher is one who makes you wonder about your way of looking at things.	1	2	3	4	5
31. The sooner we all acquire similar values and ideals the better.	1	2	3	4	5
32. I would like to live in a foreign country for a while.	1	2	3	4	5
33. What we are used to is always preferable to what is unfamiliar.	1	2	3	4	5
34. In the long run, it is possible to get more done by tackling small, simple problems rather than large and complicated ones.	1	2	3	4	5
35. A person who leads an even, regular life in which few surprises or unexpected happenings arise, really has a lot to be grateful for.	1	2	3	4	5

For each of the following twenty sets of statements, indicate which statement is most true (T) and which is most false (F) in the space provided before each statement. Obviously, one statement must be left blank.

1. ___ A. It takes more imagination to be a successful criminal than a successful business man.
 ___ B. The phrase, "the road to hell is paved with good intentions" contains a lot of truth.
 ___ C. Most men forget more easily the death of their father than the loss of their property.

2. ___ A. Men are more concerned with the car they drive than with the clothes their wives wear.
 ___ B. It is very important that imagination and creativity in children be cultivated.
 ___ C. People suffering from incurable diseases should have the choice of being put painlessly to death.

3. ___ A. Never tell anyone the real reason you did something unless it is useful to do so.
 ___ B. The well-being of the individual is the goal that should be worked for before anything else.
 ___ C. Since most people don't know what they want, it is only reasonable for ambitious people to talk them into doing things.

4. ___ A. People are getting so lazy and self-indulgent that it is bad for our country.
 ___ B. The best way to handle people is to tell them what they want to hear.
 ___ C. It would be a good thing if people were kinder to others less fortunate than themselves.

5. ___ A. Most people are basically good and kind.
 ___ B. The best criteria for a wife or husband is compatibility - other characteristics are nice but not essential.
 ___ C. Only after a man has gotten what he wants from life should he concern himself with the injustices in the world.

6. ___ A. Most people who get ahead in the world lead clean, moral lives.
 ___ B. Any man worth his salt shouldn't be blamed for putting his career above his family.
 ___ C. People would be better off if they were concerned less with how to do things and more with what to do.

7. ___ A. A good teacher is one who points out unanswered questions rather than gives explicit answers.
 ___ B. When you ask someone to do something, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.
 ___ C. A person's job is the best single guide as to the sort of person he is.

8. _____ A. The construction of such monumental works as the Egyptian pyramids was worth the enslavement of the workers who built them.
 _____ B. Once a way of handling problems has been worked out it is best to stick to it.
 _____ C. One should take action only when sure it is morally right.
9. _____ A. The world would be a much better place to live in if people would let the future take care of itself and concern themselves only with enjoying the present.
 _____ B. It is wise to flatter important people.
 _____ C. Once a decision has been made, it is best to keep changing it as new circumstances arise.
10. _____ A. It is a good policy to act as if you are doing the things you do because you have no other choice.
 _____ B. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.
 _____ C. Even the most hardened and vicious criminal has a spark of decency somewhere within him.
11. _____ A. All in all, it is better to be humble and honest than to be important and dishonest.
 _____ B. A man who is able and willing to work hard has a good chance of succeeding in whatever he wants to do.
 _____ C. If a thing does not help us in our daily lives, it isn't very important.
12. _____ A. A person shouldn't be punished for breaking a law that he thinks is unreasonable.
 _____ B. Too many criminals are not punished for their crimes.
 _____ C. There is no excuse for lying to someone else.
13. _____ A. Generally speaking, men won't work hard unless they are forced to do so.
 _____ B. Every person is entitled to a second chance, even after he commits a serious mistake.
 _____ C. People who can't make up their minds are not worth bothering about.
14. _____ A. A man's first responsibility is to his wife, not his mother.
 _____ B. Most men are brave.
 _____ C. It's best to pick friends that are intellectually stimulating rather than ones it is comfortable to be around.

15. _____ A. There are very few people in the world worth concerning oneself about.
 _____ B. It is hard to get ahead without cutting corners here and there.
 _____ C. A capable person motivated for his own gain is more useful to society than a well-meaning but ineffective one.
16. _____ A. It is best to give others the impression that you can change your mind easily.
 _____ B. It is a good working policy to keep on good terms with everyone.
 _____ C. Honesty is the best policy in all cases.
17. _____ A. It is possible to be good in all respects.
 _____ B. To help oneself is good; to help others even better.
 _____ C. War and threats of war are unchangeable facts of human life.
18. _____ A. Barnum was probably right when he said that there's at least one sucker born every minute.
 _____ B. Life is pretty dull unless one deliberately stirs up some excitement.
 _____ C. Most people would be better off if they control their emotions.
19. _____ A. Sensitivity to the feelings of others is worth more than poise in social situations.
 _____ B. The ideal society is one where everybody knows his place and accepts it.
 _____ C. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.
20. _____ A. People who talk about abstract problems usually don't know what they are talking about.
 _____ B. Anyone who completely trusts anyone else is asking for trouble.
 _____ C. It is essential for the functioning of a democracy that every-one vote.

Appendix C - Post-Experiment Assessment

Please indicate your feelings about this experiential exercise by circling the response you feel is most appropriate.

Opponent. How would you rate your bargaining opponent in the negotiation?

Strong	1	2	3	4	5	6	7	Weak
Cooperative	1	2	3	4	5	6	7	Competitive
Fair	1	2	3	4	5	6	7	Exploitive
Other-Centered	1	2	3	4	5	6	7	Self-Centered
Yielding	1	2	3	4	5	6	7	Unyielding

Self. How would you rate yourself in the negotiation process?

Strong	1	2	3	4	5	6	7	Weak
Cooperative	1	2	3	4	5	6	7	Competitive
Fair	1	2	3	4	5	6	7	Exploitive
Other-Centered	1	2	3	4	5	6	7	Self-Centered
Yielding	1	2	3	4	5	6	7	Unyielding

Outcomes. Please indicate your feelings about these statements about the exercise by circling the response you feel is most appropriate. Use

- 1 strongly agree
- 2 agree
- 3 neither agree nor disagree
- 4 disagree
- 5 strongly disagree

	SA	A	N	D	SD
1. I was satisfied with my outcome on the neogitation.	1	2	3	4	5
2. I wanted to make sure we settled before the penalty period.	1	2	3	4	5
3. I wanted to do a good job on this exercise.	1	2	3	4	5
4. My bargaining opponent seemed to be a reasonable person.	1	2	3	4	5
5. The intital difference in bargaining positions between me and my opponent was great.	1	2	3	4	5
6. It was important to me to reach agreement within the twenty round limit.	1	2	3	4	5
7. I am confident that I earned more than my opponent.	1	2	3	4	5
8. I would like to take part in a negotiation like this one again.	1	2	3	4	5

Appendix D - Procedural Instructions

WAGE NEGOTIATION EXERCISE

Instructions for Management Bargainer

Role: Labour Services Coordinator
Windsor Electrical Contractor's Association
Windsor, Ontario

WAGE NEGOTIATION EXERCISE

Instructions for Labour Bargainer

Role: Business Agent
International Brotherhood of Electrical Workers
Local 1773
Windsor, Ontario

Exercise Objective: Labour and management will engage in bargaining process to be carried out by means of written offers and counteroffers. The task for the two of you is to negotiate a single agreement on the increase in hourly pay for the next one year of the contract

You have been paired at random with one other person in this room. You will not be permitted to speak to this person or any other person engaged in or watching this bargaining exercise. Read your role instructions carefully!

Experimental Manipulations here (1½ pages)

It's nearly time to begin the bargaining exercise. Think about your opening proposal and the final negotiated settlement. The initial offer or counteroffer is left solely to your discretion. In the prenegotiation strategy sessions our side decided to start somewhere about twenty-five cents from the extreme limit, but also that it would be dependent upon how the other issues were resolved prior to this wage negotiation.

Read over these role instructions again. As a strategy think about an initial opening offer and what your opponent will open with. Try and determine where (what amount) and when (what round you feel the final settlement should occur. Bargaining will be in about five minutes.

Bargaining Instructions

A table entitled "Management Payoff Table" has been furnished to you. The full range of management offers and counteroffers (\$/hour Wage Increase) are listed on the payoff table. Corresponding net savings in labor costs or "Management Profit" is also shown on that same sheet. For example, if you and labor agree on a wage increase of \$0.12/hour you will receive a payoff of \$5.40 which will be paid to you as a bonus. For a settlement of \$1.18/hour you will receive \$0.10 as a bonus.

You will not be told the bonus award we are paying labor. In general, wage rate agreements which give management a high 'profit' will result in a low 'profit' to your opponent. The opposite also holds true. Your range of possible payoffs may be higher or lower than your opponent's range of possible payoffs depending on specific bargaining strategy instructions the labor team may be following.

The neogitation will begin by you stipulating a wage rate increase to be considered the initial offer. You may choose any hourly wage rate increase between \$0.00 and \$1.70/hour in whole cent increments. Once you have chosen a specific wage rate offer, you can never make an offer which is lower than the initial offer. In other words, you do not have to increase your offer in subsequent rounds, but once an offer is made, it cannot be reduced by you.

The Bargaining Process

The bargaining process is to be conducted as follows. You will write your initial wage offer in column "A" on the yellow sheet labeled "Wage Offers"

This yellow sheet will then be taken to your opponent. Labor then must either accept your offer or make a wage counteroffer of its own. If the offer is accepted, labor will write "accept" next to your offer--otherwise a counterproposal will appear in column "B". Just as for you, your opponent, once an offer is made, cannot increase that offer on subsequent rounds. However, your opponent may stick to an offer--there is no obligation to reduce the wage demand. You may not write messages on the "Wage Offers" sheet, or communicate with your opponent in any way except by the offer by counteroffer negotiation process.

You are also provided a second "Wage Offer" sheet which you should use to keep a round by round summary of your offers and your opponent's counter offers. In addition, in column "C" you would keep track of the payoff you would receive if your offer on that round was accepted. For example, if you offered \$0.48/hour to your opponent and a counteroffer of \$1.22/hour was tendered you should list both of these offers in columns "A" and "B" and in column "C" list the actual payoff associated with your offer of \$0.48/hour which is \$3.60 as a bonus.

The bargaining process will continue until one of you writes "accept" on the "Wage Offer" sheet (the yellow one). Note that only one agreement is to be made between the two of you. As soon as you reach an agreement, please remain seated until you receive further instructions.

You and your bargaining opponent will be given 20 rounds (a round is one offer and counteroffer and is labeled as such on the "Wage Offer" sheet) to reach agreement. If at the end of 20 rounds you have not reached agreement, the bargaining session will end and both you and your opponent will be paid nothing (zero payoff) for the session. If you do reach an agreement you will

be paid as a bonus an amount equal to the "profit" shown on your payoff table.

In addition to having at most 20 rounds to reach an agreement, there is one other restriction to the bargaining. Since the possibility of a strike exists, you and your opponent will each be penalized 5% per round of your "profit" for every round it takes you past round number 15 to reach an agreement. As in the real world, there is a "cost" to both management and labor to withstand a strike of any duration. As an example, if you agree on round 19 to settle at a wage rate increase of \$0.70, your payoff will be \$2.00 based on a profit of \$2.50 minus a penalty of \$0.50 which is 20% or 5% per round beyond round number 15. Your opponent will also be penalized 20% of the payoff.

If you have any questions about the negotiation process or the payoff table, please ask them now. Do not, inquire about or suggest appropriate bargaining strategies at any time today. As in the real world, there is no correct solution--any of the wage rate increases shown on your payoff table is possible.

At the end of the process you and your opponent will be paid the bonus and dismissed separately and you will not be allowed to talk to or discern the opponent's identity.

Wage Offers Record Sheet

Instructions: On this sheet keep track of your offers and your opponent's counteroffers. Management offers go in column "A" and labour offers go in column "B". Be sure to record your anticipated payoff if the other side accepts your offer in column "C".

	A	B	C
<u>Round Number</u>	<u>Management Wage Offers</u>	<u>Labour Wage Offers</u>	<u>Anticipated Payoff if Accepted</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____
11.	_____	_____	_____
12.	_____	_____	_____
13.	_____	_____	_____
14.	_____	_____	_____
15.	_____	_____	_____
<hr/>			
16.	_____	_____	_____
17.	_____	_____	_____
18.	_____	_____	_____
19.	_____	_____	_____
20.	_____	_____	_____

Management Payoff Table

<u>Negotiated \$/hour Wage Increase</u>	<u>Management Profit</u>	<u>Negotiated \$/hour Wage Increase</u>	<u>Management Profit</u>
\$0.00	\$6.00	\$1.00	\$1.00
0.02	5.90	1.02	0.90
0.04	5.80	1.04	0.80
0.06	5.70	1.06	0.70
0.08	5.60	1.08	0.60
0.10	5.50	1.10	0.50
0.12	5.40	1.12	0.40
0.14	5.30	1.14	0.30
0.16	5.20	1.16	0.20
0.18	5.10	1.18	0.10
0.20	5.00	1.20	0.00
0.22	4.90	1.22	-0.10
0.24	4.80	1.24	-0.20
0.26	4.70	1.26	-0.30
0.28	4.60	1.28	-0.40
0.30	4.50	1.30	-0.50
0.32	4.40	1.32	-0.60
0.34	4.30	1.34	-0.70
0.36	4.20	1.36	-0.80
0.38	4.10	1.38	-0.90
0.40	4.00	1.40	-1.00
0.42	3.90	1.42	-1.10
0.44	3.80	1.44	-1.20
0.46	3.70	1.46	-1.30
0.48	3.60	1.48	-1.40
0.50	3.50	1.50	-1.50
0.52	3.40	1.52	-1.60
0.54	3.30	1.54	-1.70
0.56	3.20	1.56	-1.80
0.58	3.10	1.58	-1.90
0.60	3.00	1.60	-2.00
0.62	2.90	1.62	-2.00
0.64	2.80	1.64	-2.00
0.66	2.70	1.66	-2.00
0.68	2.60	1.68	-2.00
0.70	2.50	1.70	-2.00
0.72	2.40		
0.74	2.30		
0.76	2.20		
0.78	2.10		
0.80	2.00		
0.82	1.90		
0.84	1.80		
0.86	1.70		
0.88	1.60		
0.90	1.50		
0.92	1.40		
0.94	1.30		
0.96	1.20		
0.98	1.10		

Labour Payoff Table

<u>Negotiated \$/hour Wage Increase</u>	<u>Labour Profit</u>	<u>Negotiated \$/hour Wage Increase</u>	<u>Labour Profit</u>
\$0.00	\$-2.00	\$1.00	\$2.50
0.02	-2.00	1.02	2.60
0.04	-2.00	1.04	2.70
0.06	-2.00	1.06	2.80
0.08	-2.00	1.08	2.90
0.10	-2.00	1.10	3.00
0.12	-1.90	1.12	3.10
0.14	-1.80	1.14	3.20
0.16	-1.70	1.16	3.30
0.18	-1.60	1.18	3.40
0.20	-1.50	1.20	3.50
0.22	-1.40	1.22	3.60
0.24	-1.30	1.24	3.70
0.26	-1.20	1.26	3.80
0.28	-1.10	1.28	3.90
0.30	-1.00	1.30	4.00
0.32	-0.90	1.32	4.10
0.34	-0.80	1.34	4.20
0.36	-0.70	1.36	4.30
0.38	-0.60	1.38	4.40
0.40	-0.50	1.40	4.50
0.42	-0.40	1.42	4.60
0.44	-0.30	1.44	4.70
0.46	-0.20	1.46	4.80
0.48	-0.01	1.48	4.90
0.50	0.00	1.50	5.00
0.52	0.10	1.52	5.10
0.54	0.20	1.54	5.20
0.56	0.30	1.56	5.30
0.58	0.40	1.58	5.40
0.60	0.50	1.60	5.50
0.62	0.60	1.62	5.60
0.64	0.70	1.64	5.70
0.66	0.80	1.66	5.80
0.68	0.90	1.68	5.90
0.70	1.00	1.70	6.00
0.72	1.10		
0.74	1.20		
0.76	1.30		
0.78	1.40		
0.80	1.50		
0.82	1.60		
0.84	1.70		
0.86	1.8-		
0.88	1.20		
0.90	2.00		
0.92	2.10		
0.94	2.20		
0.96	2.30		
0.98	2.40		

Appendix E - Experimental Manipulations

Background

The Windsor Electrical Contractor's Association and the International Brotherhood of Electrical Workers, Local 1773, are in the process of negotiating a new one year pact. You are a member of the bargaining team and are responsible for the wage determination portion of the new contract. With respect to wage increases, the permissible range is from \$0.00 to \$1.70 per hour with any whole cent increment in between being a compromise possibility. You expect no difficulties from the Anti Inflation Board.

Equal Power

All other issues on this year's bargaining agenda have been mutually resolved prior to this date--the wage issue is all that remains. Thus far, both parties are pleased with negotiations, believing that satisfactory compromises have been reached on the major bargaining issues--the medical, dental, and pension plans; a cost of living escalator clause; and several present contract provisions. Specifically, you have been instructed to negotiate a mutually satisfactory wage increase.

By all labour-management bargaining standards, the Contractor's Association-Electrical Workers relationship has been truly successful. Within the firms that compromise the construction industry, it is well known that their relationship is fairly stable. In fact, the Association has fewer grievances filed against it than any other in the industry. A local arbitrator, familiar with the Association-Local 1773 agreement has even commented "I'd starve if I had to make a living solely by ruling on their grievances".

Unequal Power

All other issues on this year's bargaining agenda have been mutually resolved prior to this date--the wage issue is all that remains. Thus far, you believe that the other members of your bargaining team have done poorly in even reaching a compromise settlement on the major bargaining issues--the medical, dental, and pension plans; a cost of living escalator clause; and several present contract provisions. Specifically, you have been instructed to obtain the very best settlement possible.

By all labour-management bargaining standards, the Contractor's Association-Electrical Workers relationship has been a grossly unsuccessful one. Within the firms that comprise the construction industry, it is well known that their relationship is highly volatile. In fact, the Association has more grievances filed against it than any other in the industry. A local arbitrator, familiar with the Association-Local 1773 agreement has even commented "I'd spend more time listening to labour and management argue than I spend with my wife".

Power Distribution

Equal

Unequal

<p>During this stable collective bargaining relationship you have always had excellent and congenial rapport with your bargaining partner--a person characterized as cooperative, equitable, and morally scrupulous. For instance, during the last round of negotiations two years ago, both of you discreetly resolved one sticky issue that could have been misinterpreted by those in the local community if word had ever leaked out to the news media.</p>	<p>Despite this volatile collective bargaining relationship you have always felt equal to your partner but without sufficient authority to deal with a person characterized as powerful, cooperative and morally scrupulous. For instance, during the last round of negotiations two years ago, you were accused of compromise on one particular issue where you truly felt an equitable compromise would be in the best interest of both parties and the community.</p>
<p>Despite the stable collective bargaining relationship you have always had heated but productive debate with your bargaining opponent--a person characterized as equitable, competitive but morally scrupulous. For instance, during the last round of negotiations two years ago, both of you engaged in loud verbal discussions but were always able to arrive at a final position on the issues which you were responsible for setting.</p>	<p>During this volatile collective bargaining relationship you have always felt an underdog to your powerful bargaining opponent--a person characterized as deceitful, competitive, and morally unscrupulous. For instance, during the last round of negotiations two years ago, you were widely accused of "buckling under", of losing some essential contract clauses, and of being "weak" when it came to face to face contact with your opponent.</p>

Cell 01

Cell 11

Cell 00

Cell 10

Cooperative

Competitive

Motivation Orientation

Motivation Orientation

Cooperative

Last week on a late-night radio talk show you were asked about your bargaining philosophy. At that time you were quoted as saying "Before starting the negotiations, let me emphasize that in bargaining I consider both sides to be partners. I am interested in my partner's welfare as well as my own. I do have an interest in whether he wins or loses. I care how well their side does, and he cares how we do. His feelings make a difference to me and I am sure my feelings make a difference to him. I want to negotiate as much as I can for my side and I want him to do well for his side. We've discussed it at length before and he feels exactly the same, he wants me to do well also. In other words, each of us wants to "win" and we also want the other side to "win" too. It's good for labour-management relations and its impact on the community".

Competitive

Last week on a late-night radio talk show you were asked about your bargaining philosophy. At that time you were quoted as saying "Before starting the negotiations, let me emphasize that in bargaining I consider my prime motivation should be to win as much for my side as I can and also to do better than my opponent. Not only do I want to come out ahead of any bargaining opponent, but I also want to win rather than lose issues or money if you wish. We don't know each other and we'll never have to see each other again. My opponent's feelings don't make any difference to me and I know my feelings don't make any difference to the other side either. Any way you look at it, I am out to beat my opponent, and for sure, he wants to beat the hell out of me. We've got to look strong in the community".

Wage Offers

Instructions: Management makes the first offer. Thereafter, a series of offers and counteroffers can be made by the labor and management sides in turn. Once either side is happy with the current round offer, write accept next to the offer just tendered. Otherwise, continue writing wage offers in the appropriate column. (Management offers in column "A" and labor offers in column "B") Remember, there is a 5% per round penalty after round 15, and if no agreement is reached by round 20, you and your opponent will receive zero payoff.

<u>Round Number</u>	<u>"A" Management Wage Offers</u>	<u>"B" Labor Wage Offers</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____
15.	_____	_____
16.	_____	_____
17.	_____	_____
18.	_____	_____
19.	_____	_____
20.	_____	_____

Appendix G - SPSS Program

```

COMMENT      TO INTERCHANGE DYAD AND INDIVIDUAL ANALYSIS REMOVE ALL CARDS
COMMENT      BETWEEN THE *****S
COMMENT      *****DO NOT REMOVE*****
COMMENT      INDIVIDUAL ANALYSIS
COMMENT      =====

VARIABLE LIST
PD,MO,IC,REP,SN,SEX,NAT,ROLE,ACCEPT,ROUNDS,OFFERS,SETTLE,END,
DIF01 TO DIF05,R01 TO R20,W0201 TO W0215,PRE01 TO PRE15,
POST01 TO POST18,G1 TO G64,GH1 TO GH28,W1,W2,RT01 TO RT12,F1 TO
F7,B1 TO B16,M1 TO M40
INPUT FORMAT
FIXED(4F1.0,F6.0,3F1.0,10X,F1.0,2F2.0,7F3.2/6X,20F3.2/6X,15F1.0,
1X,15F1.0,1X,18F1.0/6X,64F1.0/6X,28F1.0,2F1.0,1X,12F1.0,7F1.0,
16F1.0/6X,40F1.0)

N OF CASES      212
RECODE          SEX,NAT,ROLE (1=0)(2=1)
RECODE          R01 TO R20 (BLANK=0)
RECODE          W0201 TO W0215,POST11 TO POST18 (BLANK=3)(0=3)(6 THRU 9=3)
RECODE          PRE01 TO POST10 (BLANK=4)(0=4)(3 THRU 9=4)

COMMENT      BEGIN PAYOFF TRANSFORMATIONS
COMPUTE        PENROUND=ROUNDS-15
IF             (ROUNDS LE 15) PENROUND=0
IF             (OFFERS EQ 41) ROUNDS=21
IF             (OFFERS EQ 42) ROUNDS=21
IF             (OFFERS EQ 42) PENROUND=6
IF             (OFFERS EQ 42) PENROUND=6
COMMENT      BEGIN PAYOFF AND CONCESSION RATE CALCULATIONS

MISSING VALUES R10 TO R20 (0)
DO REPEAT      XLR=LR01 TO LR20/XR=R01 T3 R20/
IF             (ROLE EQ 1) XLR=XR
END REPEAT

DO REPEAT      XR=RC1 TO R20/XLR=LR01 TO LR20/
IF             (ROLE EQ 1) XR=1.70-XLR
END REPEAT

```

```

MISSING VALUES R10 TO R20,LR10 TO LR20 (.)
IF (ROLE EQ 0 AND ROUNDS LE 13)
  PAYOFF=6-5*SETTLE
IF (ROLE EQ 1 AND ROUNDS LE 13)
  PAYOFF=-2.5+5*SETTLE
IF (ROLE EQ 0 AND ROUNDS GT 13)
  PAYOFF=(6-5*SETTLE)-((ROUNDS-13)*(.05*(6-5*SETTLE)))
IF (ROLE EQ 1 AND ROUNDS GT 13)
  PAYOFF=(-2.5+5*SETTLE)-((ROUNDS-15)*(.05*(-2.5+5*SETTLE)))
IF (ROLE EQ 0 AND OFFERS EQ 42) PAYOFF=0
IF (ROLE EQ 1 AND OFFERS EQ 42) PAYOFF=0
IF (ACCEPT EQ 1 OR 2) CONRATE=SETTLE-R01/ROUNDS
IF (ACCEPT EQ 3) CONRATE=R20-R01/ROUNDS
IF (ACCEPT EQ 1 OR 2) CIOEND=SETTLE-R10/ROUNDS-10
IF (ACCEPT EQ 1 OR 2) COSEND=SETTLE-R05/ROUNDS-5
IF (SETTLE EQ 0) CONAMT=R20-101
IF (SETTLE NE 0) CONAMT=SETTLE-R01

COMMENT
END PAYOFF AND CONCESSION RATE CALCULATIONS

COMMENT
BEGIN TRANSFORMATION PACKAGE

COMMENT WOZNICK (1976)
COMMENT WOZNICK (1976) LABOUR-MANAGEMENT ATTITUDES TRANSFORMATIONS
COMMENT INPUT VARIABLES--W0Z01 TO W0Z13
COMMENT W0Z02,W0Z03,W0Z04,W0Z05,W0Z08,W0Z12,W0Z13
COMMENT (5=1)(4=2)(3=3)(2=4)(1=5)
COMMENT W0ZTOT=W0Z01+W0Z02+W0Z03+W0Z04+W0Z05+W0Z06+W0Z07+W0Z08+W0Z09+
COMMENT W0Z10+W0Z11+W0Z12+W0Z13+W0Z14
COMMENT SW0ZTOT=W0Z06+W0Z07+W0Z09+W0Z12+W0Z13+W0Z14
COMMENT LOW W0ZTOT INDICATES PRO-MANAGEMENT ATTITUDES
COMMENT HIGH W0ZTOT INDICATES PRO-LABOUR ATTITUDES
COMMENT W0ZTOT THEORETICAL RANGE IS 14 TO 70
COMMENT END WOZNICK (1976)

```

```

COMMENT
COMMENT
COMMENT
RECODE
MISSING VALUES
COMPUTE
DO REPEAT

      BEGIN GHISELLI (1971)
      GHISELLI (1971) SELF-DESCRIPTION INVENTORY TRANSFORMATIONS
      INPUT VARIABLES--G1 TC G64
      G1 TO G64 (BLANK=0)
      MISSING VALUES
      G1 TO G64 (0)
      SUPABLT=0
      ID=G4,G5,G14,G15,G21,G23,G25,G27,G30,G31,G33,G34,G35,G36,
      G41,G42,G44,G49,G50,G51,G54,G56,G60,G61/
      OK=2,1,2,2,1,1,1,1,1,2,2,1,1,2,2,1,1,2,2,1,1,1/
      WT=2,2,3,3,2,3,3,2,3,1,2,4,1,2,2,1,2,2,1,3,2,2/
      (ID EQ OK) SUPABLT=SUPABLT+WT
      IF
      END REPEAT

```

```

COMPUTE
DO REPEAT

      IQ=0
      ID=G3,G4,G8,G9,G10,G12,G13,G16,19,G22,G24,G25,G27,G34,G35,
      G37,G39,G40,G41,G42,G43,G45,G46,G47,G48,G50,G52,G53,G54,G55,G58
      G59,G60,G61,G62,G64/
      OK=2,2,1,2,2,1,1,2,2,2,1,1,1,2,2,2,1,1,2,2,2,1,1,1,1,1,
      1,2,2,1,1/
      WT=4,2,2,1,2,2,4,2,1,1,1,1,1,2,2,2,4,2,1,1,3,1,2,3,1,2,3,4,2,
      1,1,1,1,2/
      (ID EQ OK) IQ=IQ+WT
      IF
      END REPEAT

```

```

COMPUTE
DO REPEAT

      INIT=0
      ID=G3,G9,G11,G12,G17,G19,G21,G23,G32,G33,G35,G47,G53,G57,G59,G60,
      G61/
      OK=2,1,2,2,2,2,2,1,1,2,2,2,1,2,2,2,1,2,2,1,1/
      WT=3,2,3,2,3,2,3,5,2,3,3,3,3,2,3,5,4/
      (ID EQ OK) INIT=INIT+WT
      IF
      END REPEAT

```

```

COMPUTE
DO REPEAT
    EGO=0
    ID=G2.G7.G11.G12.G13.G16.G18.G21.G22.G24.G25.G26.G27.G30.G31.G33.
    G37.G38.G41.G42.G43.G46.G50.G51.G53.G56.G57.G58.G59.G60.G62/
    OK=2.2.2.1.1.2.1.1.2.1.1.2.2.2.1.1.1.1.1.2.1.1.2.1.1/
    WT=2.1.1.2.1.2.2.1.1.2.2.1.1.1.2.1.2.2.2.1.1.1.2.2.1/
    (ID EQ OK)EGO=EGO+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
    DEC=0
    ID=G1.G8.G9.G10.G12.G16.G19.G22.G24.G26.G30.G34.G38.(42.G45.G50.
    G53.G57.G60.G61.G63/OK=1.1.1.2.1.1.1.1.1.1.1.1.1.1.1.1.1.1/
    WT=2.1.2.1.2.2.2.2.1.1.1.2.1.1.2.1/
    (ID EQ OK)DEC=DEC+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
    GENDER=0
    ID=G5.G6.G11.G12.G18.G23.G24.G27.G30.G32.G33.G34.G36.G38.G39.G40.
    G46.G48.G52.G55.G59.G60.G64/
    OK=2.1.2.2.1.2.2.1.2.2.2.1.2.1.2.1.2.1.1/
    WT=1.2.1.1.1.2.1.1.1.1.1.1.1.1.1.1.1.1/
    (ID EQ OK)GENDER=GENDER+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
    MATURE=0
    ID=G1.G2.G6.G8.G10.G12.G13.G15.16.G18.G20.G21.G22.G28.G33.G34.
    G35.G37.G38.G40.G43.G46.G48.G59.G60.G61.G63/
    OK=2.2.1.2.2.1.2.1.1.2.1.2.1.2.2.2.1.1.1.2.2.1.1.1/
    WT=1.3.4.1.2.2.1.1.2.1.4.1.1.1.3.1.3.1.2.3.1.4.2.2/
    (ID EQ OK)MATURE=MATURE+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
  WORKCA=0
  ID=G2.G4.G9.G12.G13.G21.G25.G31.G34.G42.G43.G44.G45.G52.G54.G60.
  G63/OK=2.2.1.1.2.1.2.1.2.2.1.2.2.1.1.1.2/
  WT=2.1.2.1.2.2.2.1.1.2.2.2.2.2.2/
  (ID EQ OK)WORKCA=WORKCA+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
  ACHIEVE=0
  ID=G1.G2.G3.G6.G7.G20.G25.G26.G27.G32.G41.G47.G49.G50.G53.G55.
  G59.G61.G63.G64/ OK=2.2.2.1.1.2.1.1.2.2.2.1.1.2.1.1.1/
  WT=1.3.3.4.2.4.3.3.3.5.2.4.3.6.4.2.3.2/
  (ID EQ OK)ACHIEVE=ACHIEVE+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
  SLFACT=0
  ID=G3.G8.G11.G12.G14.G21.G26.G33.G36.G49.G56.G60/
  OK=2.1.2.1.2.1.2.1.2.2.1/WT=2.2.1.2.2.1.2.1.1.1.1/
  (ID EQ OK)SLFACT=SLFACT+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
  POWER=0
  ID=G7.G12.G18.G20.G24.G30.G33.G34.G35.G37.G42.G48.G51.G58.G55.
  G63.G64/OK=1.2.1.2.1.2.2.1.2.2.1.2.1.1.1.1.2.1/
  WT=1.1.1.1.1.1.1.2.1.1.1.1.1.2.1/
  (ID EQ OK)POWER=POWER+WT
IF
END REPEAT

```

```

COMPUTE
DO REPEAT
  MONEY=C
  ID=G6.G13.G16.G22.G29.G57.G59.G30/OK=2.1.2.1.1.1.1.2/
  WT=1.1.1.1.1.1.1.3/
  (ID EQ OK)MONEY=MONEY+WT
IF
END REPEAT

COMPUTE
DO REPEAT
  SECURE=0
  ID=G3.G7.G8.G11.G12.G14.G18.G20.G21.G27.G31.G36.G37.€45.G49.€53.
  G57/OK=1.2.1.1.2.1.1.2.1.1.2.1.2.1.1.2.1/
  WT=2.1.1.2.1.1.1.1.1.3.2.1.2.1.1.1.1/
  (ID EQ OK)SECURE=SECURE+WT
IF
END REPEAT

MISSING VALUES SUPABLT TO SECURE (0)
COMMENT
  END GHISELLI (1971)

COMMENT
  BEGIN GORDON-HALL (1974)
  GORDON-HALL (1974) SELF-CONCEPT TRANSFORMATIONS
  INPUT VARIABLES--GH1 TO GH28
  GH1 TO GH28 (BLANK=0)
  MISSING VALUES GH1 TO GH28 (0)
  DO REPEAT
    XVARSP=VARSP1 TO VARSP28/XGH=GH1 TO GH28/
  COMPLETE
  XVARSP=XGH
END REPEAT

```

```

MISSING VALUES  VARSPI TO VARSP28 (0)
COMMENT          FACTOR SCORING VARIABLES--VARSPI TO VARSP28
COMPUTE          SE1=.125*(VARSP1-2.3)/1.4+.196*(VARSP4-6.0)/1.0-
                  .081*(VARSP10-2.9)/1.4+.211*(VARSP13-3.2)/1.4
                  +.422*(VARSP16-4.0)/1.5+.182*(VARSP20-3.3)/1.2
                  +.109*(VARSP24-2.2)/.3+.087*(VARSP25-3.0)/1.6
COMPUTE          SE2=-.081*(VARSP2-4.7)/1.3+.487*(VARSP4-6.0)/1.0
                  -.097*(VARSP5-4.3)/1.5-.27*(VARSP9-2.3)/1.1
                  -.084*(VARSP11-5.4)/1.4+.106*(VARSP14-6.0)/.9
                  -.087*(VARSP21-5.1)/1.1+.158*(VARSP22-6.3)/.9
                  -.149*(VARSP24-2.2)/.9-.101*(VARSP28-5.6)/1.5
COMPUTE          SE3=.246*(VARSP6-5.6)/1.4+.091*(VARSP9-2.3)/1.1
                  +.345*(VARSP11-5.4)/1.4+.178*(VARSP14-6.0)/.9
                  +.123*(VARSP18-2.7)/1.2+.145*(VARSP19-4.5)/1.6
                  +.256*(VARSP21-5.1)/1.1+.107*(VARSP23-3.0)/1.0
COMPUTE          SE4=.252*(VARSP2-4.7)/1.3+.172*(VARSP3-5.9)/1.1
                  +.178*(VARSP5-4.3)/1.5+.109*(VARSP7-3.2)/1.1
                  +.198*(VARSP15-4.0)/1.6+.364*(VARSP17-4.9)/1.5
                  -.112*(VARSP21-5.1)/1.1
COMPUTE          SE5=.101*(VARSP7-3.2)/1.1+.132*(VARSP10-2.9)/1.4
                  +.1*(VARSP11-5.4)/1.4-.097*(VARSP13-3.2)/1.4
                  -.131*(VARSP16-4.0)/1.5+.238*(VARSP18-2.7)/1.2
                  +.614*(VARSP23-3.0)/1.0
COMMENT          END GORDON-HALL (1974)

```

```

COMMENT
COMMENT
COMMENT
COMMENT
RECODE
MISSING
RECODE
COMPUTE

      BEGIN ROTTER (1967)
      ROTTER (1967) INTERPERSONAL TRUST TRANSFORMATIONS
      INPUT VARIABLES--RT01 TO RT12
      REDUCED SUBSET FROM CHUN AND CAMPBELL (1974)
      RT01 TO RT12 (BLANK=0)
      RT01 TO RT12 (0)
      RT01,RT06,RT09,RT10,RT11,RT12 (1=5)(2=4)(3=3)(4=2)(5=1)
      ROTTOT=RT01+RT02+RT03+RT04+RT05+RT06+RT07+RT08+RT09+RT10+
      RT11+RT12
      LOW ROTTOT INDICATES LITTLE TRUST IN OTHERS
      HIGH ROTTOT INDICATES GREAT TRUST IN OTHERS
      ROTTOT THEORETICAL RANGE IS 12 TO 60
      END ROTTER (1967)
      BEGIN CAL F
      CALIFORNIA SHORT FORM F AUTHORITARIANISM TRANSFORMATIONS
      INPUT VARIABLES--F1 TO F7
      F1 TO F7 (BLANK=0)
      F1 TO F7 (0)
      F7(1=5)(2=4)(3=3)(4=2)(5=1)
      FTOT=F1+F2+F3+F4+F5+F6+F7
      LOW FTOT INDICATES EGALITARIANISM
      HIGH FTOT INDICATES AUTHORITARIANISM
      FTOT THEORETICAL RANGE IS 7 TO 35
      END CAL F
      VALUES

COMMENT
COMMENT
COMMENT
COMMENT
RECODE
MISSING
RECODE
COMPUTE

      BEGIN BUDNER (1962)
      BUDNER (1962) TOLERANCE OF AMBIGUITY TRANSFORMATIONS
      INPUT VARIABLES--B1 TO B16
      B1 TO B16 (BLANK=0)
      B1 TO B16 (0)
      RECODE NEGATIVE ITEMS
      B2,B3,B7,B8,B9,B10,B11,B13
      (5=1)(4=2)(3=3)(2=4)(1=5)
      BUDTOT=B1+B2+B3+B4+B5+B6+B7+B8+B9+B10+B11+B12+B13+B14+B15+B16
      LOW BUDTOT INDICATES INTOLERANCE OF AMBIGUITY
      HIGH BUDTOT INDICATES TOLERANCE OF AMBIGUITY
      BUDTOT THEORETICAL RANGE IS 16 TO 80
      END BUDNER (1962)
      VALUES

COMMENT
COMMENT
COMMENT
COMMENT
RECODE
MISSING
RECODE
COMPUTE
COMMENT
COMMENT
COMMENT
COMMENT

```

```

COMMENT
CCMMNT
COMMENT
RECODE
MISSING VALUES
DO REPEAT
    BEGIN CHRISTIE-GEIS (1970)
    CHRISTIE-GEIS (1970) MACHIAVELL, ANISM TRANSFORMATIONS
    INPUT VARIABLES--M1 TC M4) (2 PER QUESTION)
    M1 TO M40 (BLANK=0)
    M1 TO M40 (0)
    XMACH=MACH01,MACH02,MACH05,MACH7,MACH03,MACH13,MACH18/
    AA1=M1,M3,M11,M33,M5,M25,M35,BJL=M2,M4,M12,M34,M6,M26,M36/
    (AA1 EQ 1 AND BB2 EQ 3) XMACH=1
    (AA1 EQ 2 AND BB2 EQ 3) XMACH=3
    (AA1 EQ 1 AND BB2 EQ 2) XMACH=3
    (AA1 EQ 2 AND BB2 EQ 1) XMACH=3
    (AA1 EQ 3 AND BB2 EQ 2) XMACH=3
    (AA1 EQ 3 AND BB2 EQ 1) XMACH=7
    YMACH=MACH04,MACH05,MACH10,MACH1,MACH20,MACH07/
    AA1=M7,M9,M19,M21,M39,M13/BB2=M3,M10,M20,M22,M40,M14/
    (AA1 EQ 1 AND BB2 EQ 2) YMACH=1
    (AA1 EQ 3 AND BB2 EQ 2) YMACH=3
    (AA1 EQ 1 AND BB2 EQ 3) YMACH=3
    (AA1 EQ 3 AND BB2 EQ 1) YMACH=3
    (AA1 EQ 2 AND BB2 EQ 3) YMACH=3
    (AA1 EQ 2 AND BB2 EQ 1) YMACH=7
    ZMACH=MACH08,MACH09,MACH12,MACH15,MACH16,MACH14,MACH19/
    AA1=M15,M17,M23,M29,M31,M27,M37/BB2=M16,M18,M24,M30,M32,M28,M38/
    (AA1 EQ 3 AND BB2 EQ 2) ZMACH=1
    (AA1 EQ 1 AND BB2 EQ 2) ZMACH=3
    (AA1 EQ 3 AND BB2 EQ 1) ZMACH=3
    (AA1 EQ 1 AND BB2 EQ 3) ZMACH=3
    (AA1 EQ 2 AND BB2 EQ 1) ZMACH=3
    (AA1 EQ 2 AND BB2 EQ 3) ZMACH=7
    END REPEAT
  
```

```

MISSING VALUES MACH01 TO MACH19 (0)
COMMENT OUTPUT VARIABLES--MACH01 TO MACH120
RECODE MACH03,MACH07,MACH13,MACH14,MACH18,MACH19
        (1=7)(3=5)(5=3)(7=1)
COMPUTE MACTOT=MACH01+MACH02+MACH03+MACH04+MACH05+MACH06+MACH07+MACH08+
        MACH09+MACH10+MACH11+MACH12+MACH13+MACH14+MACH15+
        MACH16+MACH17+MACH18+MACH19+MACH20
COMMENT LOW MACTOT INDICATES LOW MANIPULATION OF PEOPLE
COMMENT HIGH MACTOT INDICATES HIGH MANIPULATION OF PEOPLE
COMMENT MACTOT THEORETICAL RANGE IS 20 TO 140
MISSING END CHRISTIE-GEIS (1570)
VALUES ROTTOT,FTOT,BUDTOT,MACTOT (0)
CCOMPUTE DIROTTCT=ROTTOT
COMPUTE DIFTOT=FTOT
RECODE DIFTOT(7 THRU 22=0)(23 THRU 35=1)
COMPUTE DIMACH=MACTOT
RECODE DIMACH(20 THRU 80=0)(81 THRU 140=1)
IF (DIROTTOT GT 32) IO=0
IF (DIROTTOT LE 32) IO=1

```

END TRANSFORMATION PACKAGE

COMMENT

```

COMPUTE AGREE=ACCEPT
RECODE AGREE (1 THRU 2=0)(3=1)
COMPUTE REP2=REP
RECODE REP2 (1 THRU 5=0)(6 THRU 7=1)
COMPUTE PRO=WOTOT
RECODE PRO (14 THRU 42=0)(43 THRU 70=1)
COMPUTE OPENER=R01
RECODE OPENER (0 THRU 20=0)(21 THRU 40=1)(ELSE=1)
COMPUTE OPENER3=R01
RECODE OPENER3 (.00 THRU .15=1)(.16 THRU .30=2)(.31 THRU 1.00=3)(ELSE=2)
COMPUTE REPS=REP
RECODE REPS (3 THRU 5=3)(6=4)(7=5)
COMPUTE WOTGR3=WOT15
RECODE WOTGR3 (1,2=1)(3=2)(4,5=3)
IF (OPENER EQ 0 AND AGREE EQ 1) UP_NAGR=1
IF (OPENER EQ 0 AND AGREE EQ 1) UP_NAGR=2
IF (OPENER EQ 1 AND AGREE EQ 1) UP_NAGR=3
IF (OPENER EQ 1 AND AGREE EQ 0) UP_NAGR=4
IF (ROUNDS LE 15) PENALTY=0
IF (ROUNDS GT 15) PENALTY=1
IF (PRE08 GE 5 AND MD EQ 1) CMS=0
IF (PRE08 LE 3 AND MD EQ 0) CMS=0
IF (PRE08 GT 3 AND MD EQ 0) CMS=1
IF (PRE08 LT 5 AND MD EQ 1) CMS=1
IF (SETTLE NE 0) CONCESS=.85-SETTLE

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IF
  COMPUTE
  COMPUTE
  VAR LABELS

(SETTLE EQ 0) CONCESS=.85-R20
R1=R01
R5=RC5
PD.POWER DISTRIBUTION/
MO.MOTIVATION ORIENTATION/
IO.INTERPERSONAL ORIENTATION/
REP.REPLICATION NUMBER/
SN.OBSERVATION NUMBER/
SEX.SEX OF BARGAINER/
NAT.NATIONALITY OF BARGAINER/
ROLE.ROLE-LABOUR OR MANAGEMENT/
ACCEPT.ROLE ACCEPTING/
ROUNDS.ROUNDS TO SETTLEMENT/
OFFERS.OFFERS TO SETTLEMENT/
SETTLE.NEGOTIATED SETTLEMENT/
END.DIFFERENTIAL AT GAME END/
DIF01.FIRST DIFFERENCE IN OFFERS/
DIF02.SECOND DIFFERENCE IN OFFERS/
DIF03.THIRD DIFFERENCE IN OFFERS/
DIF04.FOURTH DIFFERENCE IN OFFERS/
DIF05.FIFTH DIFFERENCE IN OFFERS/
PRE01.PRE-FAIR...EXPLOITIVE/
PRE02.PRE-STRONG...WEAK/
PRE03.PRE-DECEPTIVE...HONEST/
PRE04.PRE-TRUSTING...SUSPICIOUS/
PRE05.PRE-YIELDING...UNYIELDING/
PRE06.PRE-DEMOCRATIC...AUTOCRATIC/
PRE07.PRE-EMOTIONAL...RATIONAL/
PRE08.PRE-COOPERATIVE...COMPETITIVE/
PRE09.PRE-SUBMISSIVE...DOMINANT/
PRE10.PRE-OTHER CENTERED...SELF CENTERED/
PRE11.PRE-RISK SEEKER...AVOIDER/
PRE12.PRE-THINKER ABSTRACT...CONCRETE/
PRE13.PRE-AMBIGUITY INTOLERANT...TOLERANT/
PRE14.PRE-FRIENDSHIPS SEEK...AVOID/
PRE15.PRE-COMPROMISE WILLING...UNWILLING/
POST01.POST OPPONENT-STRONG...WEAK/
POST02.POST OPPONENT-COOPERATIVE...COMPETITIVE/

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POST03.POST OPPONENT-FAIR...EXPLOITIVE/
 POST04.POST OPPONENT-CENTERED OTHER...SELF/
 POST05.POST OPPONENT-YIELDING...UNYIELDING/
 POST06.POST SELF-STRONG...WEAK/
 POST07.POST SELF-COOPERATIVE...COMPETITIVE/
 POST08.POST SELF-FAIR...EXPLOITIVE/
 POST09.POST SELF-CENTERED OTHER...SELF/
 POST10.POST SELF-YIELDING...UNYIELDING/
 POST11.SATISFIED WITH OUTCOME/
 POST12.SETTLED BEFORE PENALTY/
 POST13.DU A GOOD JOB ON EXERCISE/
 POST14.OPPONENT A RESONABLE PERSON/
 POST15.GREAT INITIAL DIFFERENCE/
 POST16.SETTLE BEFORE ROUND 20/
 POST17.EARNED MORE THAN OPPONENT/
 POST18.NEGOTIATE AGAIN/
 OPENER.TYPE OF OPENING OFFER IN ROUND ONE/
 OPENER3.TYPE OF OPENING OFFER IN ROUND ONE/
 PRO.PRO LABOUR OR MANAGEMENT ATTITUDES/
 REP2.FALL AND WINTER REPLICATIONS/
 REP5.FIVE MAJOR REPLICATIONS BY CLASS/
 W0ZGR3.LABOUR IN ACCORD WITH MANAGEMENT/
 OPENAGR.OPENER AND AGREE COMBINED/
 PENALTY.SETTLED LE 15 ROUNDS/
 W0ZTOT.TOTAL LABOUR-MANAGEMENT ATTITUDES SCORE/
 SW0ZTOT.SHORT FORM WC2NICK LABOUR ATTITUDES/
 FTOT.TOTAL AUTHORITY TOLERANCE SCORE/
 BUOTOT.TOTAL AMBIGUITY TOLERANCE SCORE/
 ROTTOT.INTERPERSONAL TRUST SCORE/
 SUPABLT.SUPERVISORY ABILITY/
 IQ.INTELLIGENCE/
 INIT.INITIATIVE/
 EGO.SELF-ASSURANCE/
 DEC.DECISIVENESS/
 GENDER.MASCULINITY-FEMININITY/
 MATURE.MATURITY/
 WORKCA.WORKING CLASS AFFILIATION/
 ACHIEVE.ACHIEVEMENT MOTIVATION/
 SLFACT.NEED FOR SELF-ACTUALIZATION/
 POWER.NEED FOR POWER/

Appendix H

Descriptive Statistics for POST15

Power Distribution

	Power Distribution	
	Equal	Unequal
Cooperative	Mean 1.600	Mean 1.647
	SD .866	SD 1.169
Competitive	Cell 000	Cell 100
	Mean 1.682	Mean 1.636
	SD 1.041	SD .902
	Cell 010	Cell 110

Management
Role

Motivation Orientation

	Power Distribution	
	Equal	Unequal
Cooperative	Mean 1.750	Mean 1.632
	SD 1.020	SD .831
Competitive	Cell 001	Cell 101
	Mean 1.600	Mean 1.625
	SD 1.095	SD .770
	Cell 011	Cell 110

Labor
Role

Descriptive Statistics for POST16

Power Distribution

	Equal	Unequal	
Cooperative	Mean 2.320 SD 1.108	Mean 2.706 SD 1.359	Management Role
	Cell 000	Cell 100	
Competitive	Mean 2.227 SD 1.307	Mean 2.273 SD .935	
	Cell 010	Cell 110	

Motivation Orientation

Cooperative	Mean 2.400 SD .995	Mean 2.526 SD 1.124	Labor Role
	Cell 001	Cell 101	
Competitive	Mean 2.650 SD 1.137	Mean 2.333 SD 1.090	
	Cell 011	Cell 110	

ANOVA Table for CONCESS (by PD, MO and ROLE with CMS)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *									
* * * * * CONCESS SETTLEMENT TO MIDPOINT DIFFERENCE * * * * *									
* * * * * BY PD FCWER DISTRIBUTION * * * * *									
* * * * * MO ACTIVATION ORIENTATION * * * * *									
* * * * * ROLE FCLE-LABOUR OR MANAGEMENT * * * * *									
* * * * * WITH CMS COGNITIVE-MANIPULATIVE SET * * * * *									
SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F				
COVARIATES									
CMS	0.012	1	0.012	0.358	0.551				
	0.012	1	0.012	0.358	0.551				
MAIN EFFECTS									
PD	1.148	3	0.383	1.096	0.000				
MO	0.887	1	0.887	5.731	0.000				
MC	0.000	1	0.000	0.000	0.989				
ROLE	0.202	1	0.202	5.855	0.017				
2-WAY INTERACTIONS									
PD	0.174	3	0.058	1.682	0.173				
MC	0.006	1	0.006	0.187	0.666				
PD	0.106	1	0.106	3.073	0.082				
MO	0.048	1	0.048	1.395	0.239				
3-WAY INTERACTIONS									
PD	0.009	1	0.009	0.267	0.606				
MC	0.009	1	0.009	0.267	0.606				
ROLE									
EXPLAINED	1.343	8	0.168	4.870	0.000				
RESIDUAL	5.516	160	0.034						
TOTAL	6.859	168	0.041						

COVARIATE RAW REGRESSION COEFFICIENT

CMS 0.018

169 CASES WERE PROCESSED.
 0 CASES (0.0 PCT) WERE MISSING.

ANOVA Table for CONAMT (by PD, MO and ROLE with CMS)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *									
CONAMT CONCESSION MAGNITUDE									
BY PD FCWER DISTRIBUTION									
MO ACTIVATION ORIENTATION									
ROLE FCLE-LABOUR OR MANAGEMENT									
WITH CMS CCGNITIVE-MANIPULATIVE SET									
SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF. OF F				
COVARIATES									
CMS	0.080	1	0.080	1.926	0.167				
	0.080	1	0.080	1.926	0.167				
MAIN EFFECTS									
PD	0.655	3	0.218	5.250	0.002				
MO	0.404	1	0.404	9.722	0.002				
ROLE	0.099	1	0.099	2.381	0.125				
	0.208	1	0.208	5.000	0.027				
2-WAY INTERACTIONS									
PD	0.182	3	0.061	1.462	0.227				
MO	0.028	1	0.028	0.665	0.416				
ROLE	0.059	1	0.059	1.429	0.234				
MO	0.079	1	0.079	1.893	0.171				
3-WAY INTERACTIONS									
PD	0.062	1	0.062	1.457	0.223				
MO	0.062	1	0.062	1.457	0.223				
EXPLAINED	0.979	8	0.122	2.945	0.004				
RESIDUAL	6.650	160	0.042						
TOTAL	7.629	168	0.045						

COVARIATE RAW REGRESSION COEFFICIENT

CMS 0.045

169 CASES WERE PROCESSED.
 3 CASES (0.0 PCT) WERE MISSING.

SOURCE	CF	VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE
COVARIATES							
CMS			0.033	1	0.033	0.025	0.874
			0.033	1	0.033	0.025	0.874
MAIN EFFECTS							
PD			4.681	3	1.560	1.196	0.313
MO			0.740	1	0.740	0.568	0.452
RULE			3.209	1	3.209	2.460	0.119
			0.405	1	0.405	0.311	0.578
2-WAY INTERACTIONS							
PD MO			3.004	3	1.001	0.768	0.514
PD RULE			0.128	1	0.128	0.098	0.754
PD RULE			2.409	1	2.409	1.847	0.176
MO RULE			0.657	1	0.657	0.504	0.479
3-WAY INTERACTIONS							
PD MO RULE			0.904	1	0.904	0.693	0.406
			0.904	1	0.904	0.693	0.406
EXPLAINED			8.621	8	1.078	0.826	0.581
RESIDUAL			208.668	160	1.304		
TOTAL			217.289	168	1.293		

COVARIATE RAW REGRESSION COEFFICIENT

CMS 0.029

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

ANOVA Table for POST14 (by PD, MO and ROLE with CMS)

A L Y S I S O F V A R I A N C E									
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B Y P D									
M O									
R C L E									
W I T H C M S									
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COVARIATE RAW REGRESSION COEFFICIENT

CMS
0.175

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

ANOVA Table for POST15 (by PD, MO and ROLE with CMS)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE F
COVARIATES					
CMS	0.070 0.070	1 1	0.070 0.070	0.076 0.076	0.783 0.783
MAIN EFFECTS					
PD	0.032 0.014	3 1	0.011 0.014	0.011 0.016	0.998 0.901
MD	0.006 0.011	1 1	0.006 0.011	0.007 0.012	0.936 0.913
RCLE					
2-WAY INTERACTIONS					
PD MD	0.154 0.002	3 1	0.065 0.002	0.070 0.003	0.976 0.959
PD ROLE	0.025 0.159	1 1	0.025 0.159	0.026 0.171	0.871 0.680
MO ROLE					
3-WAY INTERACTIONS					
MC RCLE	0.153 0.153	1 1	0.153 0.153	0.165 0.165	0.685 0.685
EXPLAINED	0.443	8	0.056	0.060	1.000
RESIDUAL	148.249	160	0.927		
TOTAL	148.657	168	0.885		

COVARIATE	RAW REGRESSION COEFFICIENT
CMS	-0.043

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

169 CASES WERE PROCESSED. MISSING.
0 CASES (0.0 PCT) WERE

ANOVA Table for POST15 (by PD, MO and ROLE with SEX and NAT)

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* * * * * POST15 GREAT INITIAL DIFFERENCE * * * * *
* * * * * BY PD POWER DISTRIBUTION * * * * *
* * * * * MO ACTIVATION ORIENTATION * * * * *
* * * * * WITH SEX RCLE-LEADOUR OR MANAGEMENT * * * * *
* * * * * NAT SEX OF BARGAINER * * * * *
* * * * * NAT NATIONALITY OF BARGAINER * * * * *

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SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
SEX	0.656	2	0.328	0.353	0.703
NAT	0.588	1	0.588	0.633	0.427
	0.055	1	0.055	0.059	0.809
MAIN EFFECTS					
PD	0.028	3	0.009	0.010	0.999
MO	0.001	1	0.001	0.001	0.981
RCLE	0.002	1	0.002	0.002	0.964
	0.026	1	0.026	0.027	0.869
2-WAY INTERACTIONS					
PD MO	0.175	3	0.058	0.063	0.979
PD ROLE	0.000	1	0.000	0.000	0.999
PD ROLE	0.007	1	0.007	0.008	0.929
MO ROLE	0.160	1	0.160	0.172	0.679
3-WAY INTERACTIONS					
PD MO ROLE	0.165	1	0.165	0.178	0.674
	0.165	1	0.165	0.178	0.674
EXPLAINED	1.025	9	0.114	0.123	0.999
RESIDUAL	147.672	159	0.929		
TOTAL	148.697	168	0.885		

COVARIATE RAW REGRESSION COEFFICIENT

```

SEX      0.169
NAT     -0.052

```

169 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

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