

# The Impact of Consideration of Issues and Motivational Orientation on Group Negotiation Process and Outcome

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In 2 studies the authors tested the effects of motivational orientation (cooperative vs. individualistic) and issue consideration (simultaneous vs. sequential) on the negotiation process and outcome quality attained by 4-person groups engaged in a multi-issue negotiation. Study 1 ( $n = 84$ ) showed that both a cooperative orientation and simultaneous issue consideration improved outcome quality. Simultaneous consideration of issues also increased the likelihood of reaching agreement. Study 2, focusing on the negotiation process, showed that cooperative groups were more trusting and engaged in less argumentation. Simultaneous issue-consideration groups exchanged more information and had greater insight into the other parties' priorities. A lag sequential analysis showed that groups with a cooperative orientation overcame the limits of discussing issues sequentially by engaging norms of reciprocity and mutuality.

Many group decision-making situations are accurately characterized as multiparty, multi-issue negotiations. To make a decision, group members must reconcile conflicting preferences on a number of issues. Group negotiations characterize decision making between and within organizations, among government agencies and between these agencies and interest groups, and in many international situations. The example used in this research is the decision by four stores of whether to open a market together. The stores—a grocery, bakery, florist, and liquor store—must resolve five issues: an advertising plan, staffing, location within the market, temperature of the facility, and sharing of maintenance costs.

This article reports the results of two studies of group negotiations. The first study tested hypotheses about the effects of two interventions on the quality of group decisions: simultaneous versus sequential consideration of issues and cooperative versus individualistic motivational orientation. The second study was an exploratory, in-depth investigation of the deliberations and behavior of 4 groups, 1 from each condition. The second study's investigation was supplemented by questionnaire data from 12 groups, 3 from each condition.

## Study 1

Although there has been a great deal of research on group decision making, there has been relatively little research on groups faced with negotiation tasks in which issues can be

traded off so that one party's gain does not necessarily mean the other party's loss. Negotiation tasks provide opportunities for integrative decisions that maximize joint benefit for the parties. The research on dyadic negotiation indicates that dyads are frequently unable to reach integrative solutions (Bazerman, Magliozzi, & Neale, 1985; Pruitt, 1981, 1983). Because of the greater information-processing and interpersonal coordination demands in groups, groups may find integrative agreements that maximize joint benefit to be even more elusive (Bazerman, Mannix, & Thompson, 1988).

In this study, we investigated the effects of two interventions intended to help groups reach high-quality integrative decisions. The first intervention structured the way information about the issues was processed. This intervention consisted of either the simultaneous or the sequential consideration of issues. The second intervention focused on negotiators' motivational orientation and provided generalized goals that group members could use to guide behavior and evaluate potential agreements. The motivational orientation intervention encouraged group members to behave either cooperatively or individualistically.

These interventions were selected for theoretical and applied reasons. Prior research has demonstrated that each intervention affects coordination in dyadic negotiations and improves the quality of joint agreements (Pruitt, 1981). However, previous research on dyadic negotiation has not examined them together, so it is unclear whether the interventions' effects are compensatory or additive. In addition, some theorists speculate (Bazerman et al., 1988) that coordination may be more difficult in groups than in dyads. Thus, it is unclear whether these interventions are as effective for group negotiation tasks as they are for dyadic negotiation tasks. From a practical standpoint, these interventions are not extremely intrusive. If effective in groups, the interventions could easily be used to facilitate group decision making. For example, a group leader could begin a meeting by recognizing that group members have individual interests and that a good group decision requires that all group members' interests be met to the greatest extent possible. The

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leader might continue by encouraging group members to consider how a potential decision would affect other group members as well as themselves. Alternatively, a group leader could separate the discussion and decision phases of the meeting and force the group to consider packages of issues.

### *Sequential Versus Simultaneous Consideration of Issues*

Research has shown that negotiators in multi-issue negotiation tasks prefer to discuss each issue on its merits (Foroughi & Jelassi, 1990) and may view considering issues simultaneously as "inappropriate horse-trading" (Froman & Cohen, 1970). Nevertheless, when dyads do consider issues simultaneously they are able to increase joint benefit significantly (Erickson, Holmes, Frey, Walker, & Thibaut, 1974; Froman & Cohen, 1970; Kelley, 1966; Pruitt, 1981; Yukl, Malone, Hayslip, & Pamin, 1976). Pruitt noted that negotiators who resolve issues sequentially tend to make compromise concessions regardless of whether an issue is of high or low value to them. In contrast, negotiators resolving issues simultaneously make deep concessions on issues of low importance in exchange for similar deep concessions from the other party.

Groups, like individuals, often use agendas, or sequential consideration of issues, to manage complex decision-making tasks (Bazerman et al., 1988). Zander (1987), for example, advised simplifying the group's task by following a strict sequence of procedures to develop an "orderliness of effort." The major effect of members' conflicting interests and shifts in alliance, according to Zander, is confusion regarding what issue is under discussion, what information is salient to that issue, what solutions are being suggested, and how good those solutions are.

Thompson, Mannix, and Bazerman (1988) studied the sequential consideration of issues by using a three-person, three-issue negotiation task and comparing groups using agendas to those not using agendas. Results showed no differences in joint outcome across the two conditions. In a follow-up study, Mannix, Thompson, and Bazerman (1989) suggested that groups in the no-agenda condition in their prior study might have spontaneously generated agendas to manage the task and designed a study to compare sequential issue consideration (sequential agenda condition) with simultaneous issue consideration (package agenda condition) directly. They found that 25 of 48 three-person groups using simultaneous issue consideration were able to reach fully integrative agreements, whereas only 1 of 48 groups using sequential consideration reached a fully integrative agreement.

To reach fully integrative agreements in the Mannix et al. (1989) study, group members probably made two-issue trades, because that was all that was required by the task. However, two-issue trades may not be sufficient to maximize joint benefit in a multiparty, multi-issue group decision-making situation. Trade-offs involving three or more issues may be necessary in such situations, but the complexity of such trades may become overwhelming as the number of issues and number of alternatives for each issue mount (Pruitt, 1981). Winham and Bovis (1978) concluded that a six-issue negotiation between two groups was too complex to be resolved by each side alternatively proposing a complete package. Negotiating single issues se-

quentially resulted in even lower joint benefit. They advised negotiating pairs of issues.

Despite the complexities associated with considering multiple issues simultaneously, we expected that, like dyads and three-person groups, larger groups considering issues simultaneously would reach higher quality decisions—that is, decisions that maximally meet the interests of all individual group members—than would groups considering issues sequentially.

*Hypothesis 1:* Groups that consider issues simultaneously will reach higher quality decisions than groups that consider issues sequentially.

### *Cooperative Versus Individualistic Motivational Orientation*

A motivational orientation is a generalized goal that both directs and limits behavior. Two motivational orientations studied in the dyadic negotiation and gaming literature (Deutsch, 1958, 1973; Messick & McClintock, 1968) were used in the present research: cooperative, which involves maximizing both one's own and others' gains, and individualistic, which involves maximizing only one's own gains. In both orientations negotiators are concerned about maximizing their own gains, but in the cooperative orientation negotiators are also concerned about the gains of the other party. A competitive orientation, which involves maximizing the difference between one's own and others' gains, was not examined in this study because it was not appropriate to this study's task, a joint venture.

Research has shown that motivational orientation affects both behavior and outcomes in dyadic interaction. When both members of a dyad were cooperatively oriented, cooperative choices in a prisoner's dilemma task were reciprocated (Kuhlman & Marshello, 1975). A cooperative orientation has also increased negotiation dyads' joint benefit (Lewis & Fry, 1977; Pruitt, 1981; Pruitt & Lewis, 1975; Schultz & Pruitt, 1978).

The research addressing the effect of group members' motivational orientation on group performance (in nonnegotiation settings) also provides support for the superiority of a cooperative orientation. The prescriptive literature discussing intra-group conflict recommends using superordinate, group goals to manage conflict (Blake, Sheppard, & Mouton, 1964; Zander, 1977). This advice stems originally from Sherif, Harvey, White, Hood, and Sherif's (1961) findings that when confronted by an external threat, groups in conflict learned to work together to maximize joint gains. In addition, Deutsch (1949) found that cooperative groups, that is, groups that received a group payoff, produced more puzzle solutions per unit of time and suggested higher quality proposals for a human relations problem than did groups in which the payoffs were to individuals. The cooperative groups coordinated division of labor, achieved better communication between members, and invested more effort in group maintenance functions than did the individualistically oriented groups.

*Hypothesis 2:* Groups whose members are cooperatively oriented will reach higher quality decisions than groups whose members are individualistically oriented.

### *The Role of Satisficing*

The preceding discussion suggested that both issue consideration and motivational orientation would independently affect

decision quality. However, it is possible that when group members are cooperatively oriented and considering issues simultaneously, they may "satisfice" (Simon, 1957); that is, they may select a mutually satisfactory, but inferior, agreement rather than continue to search for an agreement that maximizes individual or joint gain. If satisficing occurs, we would not expect motivational orientation to have a direct effect on decision quality, as was proposed in Hypothesis 2. Instead, we would expect motivational orientation and consideration of issues to interact in affecting decision quality.

Satisficing is expected if group members assume that the task is zero sum such that one group member's gain is another group member's equal loss. Research on dyadic negotiation indicates that negotiators often assume that a negotiation task is zero sum (Thompson & Hastie, 1990). The effect of a zero-sum assumption on the quality of a group decision is expected to differ depending on group members' motivational orientations and the method of issue consideration used by the group.

### *Motivational Orientation*

To an individualistic negotiator, the zero-sum assumption suggests that he or she should continue negotiating and trying to improve his or her own outcome (at the expense of others) even after an agreement has been identified that all group members can accept. In contrast, to a cooperative negotiator, a zero-sum assumption suggests that he or she should discontinue negotiating as soon as a mutually acceptable agreement is found, thereby resulting in satisficing. To a cooperative negotiator, a zero-sum assumption implies that further deliberations will not be beneficial, because any future gains for one group member mean a loss for other group members, which will not further group members' progress toward their goal of maximizing joint profit. For this reason they satisfice, ending negotiations with a mutually acceptable, but potentially nonoptimal, agreement.

### *Consideration of Issues*

The pattern of results described above is expected to hold for groups considering issues simultaneously. Satisficing may be avoided in individualistic groups considering issues simultaneously if simultaneous consideration allows group members to discover that by trading off they can improve their own outcomes. Thus, when considering issues simultaneously, individualistic groups should reach higher quality decisions than should cooperative groups.

This pattern of results is not expected in groups considering issues sequentially. Individualistic group members considering issues sequentially do not have the opportunity to engage in explicit trade-offs. Without explicit trade-offs, individualistic negotiators cannot be certain of improving their own outcomes and may be concerned that further deliberations may be harmful to their outcomes. In contrast, cooperative group members considering issues sequentially may be able to identify trade-offs. Research has shown that cooperative dyadic negotiators were more likely to share information about the differential importance of issues (Pruitt & Lewis, 1975) because of higher levels of trust (Kimmel, Pruitt, Magenau, Konar-Goldband, &

Carnevale, 1980). If cooperative group members considering issues sequentially also share information about priorities, they may realize that by continued negotiations they can improve their own and the group's outcome.

*Hypothesis 3:* When considering issues simultaneously, cooperatively oriented groups will satisfice and therefore have lower quality decisions than individualistically oriented groups. When considering issues sequentially, cooperatively oriented groups will have higher quality decisions than individualistically oriented groups.

### *Impasse Rate*

In the task that we investigated, each store's ultimate decision to participate in the market depended on how the arrangements for the market affected its profits. If, in the final analysis, the pattern of arrangements appeared to be one that would be unprofitable for a particular store (i.e., below its reservation price), it had to refuse to join the enterprise and the group would reach an impasse.

We expected groups considering issues sequentially to reach an impasse more frequently than those considering issues simultaneously. Members of groups considering issues sequentially had to be alert to their priorities from the beginning of the meeting and be successful in getting the group to choose alternatives favorable to them on their high-priority issues. Once an issue was settled, it usually was not reopened for discussion. If a sequential consideration group member did not have a high-priority issue settled in his or her favor, that person might not receive enough value from the other issues to join the market. Members of groups considering issues simultaneously did not need to be quite so vigilant. Although they looked out for their own interests throughout the negotiation, options were not cut off for them, because no issues were closed until all issues were decided.

For groups considering issues sequentially, the impasse rate may also be affected by group members' motivational orientations. Cooperatively oriented negotiators reciprocate others' cooperation, whereas individualistically oriented negotiators do not (Kuhlman & Marshello, 1975). Thus, in a cooperative group considering issues sequentially, a member may reciprocate another member's concession on a prior issue by making a concession on a subsequent issue. In an individualistic group, such reciprocation of concessions across issues would not be expected, potentially leaving group members who made concessions on early agenda items without sufficient profits to join the market by the time the group reached the end of the agenda.

*Hypothesis 4:* The impasse rate will be higher in groups considering issues sequentially than in groups considering issues simultaneously. The impasse rate will be highest in individualistic groups considering issues sequentially.

### *Method*

#### *Task*

A multi-issue group decision-making task, Towers Market, was developed specifically for this study (Beggs, Brett, & Weingart, 1989). Subjects assumed the roles of representatives of four stores that were

interested in opening a joint market in which each store would be separate, but common areas would be shared. The stores included a grocery, liquor store, florist, and bakery.

Each merchant's decision to join the market was contingent on how the market would be managed. There were five issues remaining to be agreed on at the meeting, if the market was to proceed: temperature of the building, procedures for hiring and training of clerks, advertising style and cost distribution, distribution of maintenance costs, and location of the stores relative to the main entrance. The issues and alternatives are presented in the Appendix.

### Subjects

Three hundred thirty-six subjects working in groups of 4 (84 groups) participated in the study as part of a unit on group decision making in the required organizational behavior course in their MBA program. Each of these students had a minimum of 2 years of full-time work experience, and 148 students were working while pursuing their MBAs.

### Design

The experiment had a  $2 \times 2$  design, crossing issue consideration (sequential vs. simultaneous) with motivational orientation (cooperative vs. individualistic). There were 21 groups in the simultaneous-cooperative condition, 21 groups in the sequential-cooperative condition, 19 groups in the simultaneous-individualistic condition, and 23 groups in the sequential-individualistic condition. More groups were run in the sequential-individualistic condition because of the anticipation of impasses and the necessity of dropping impasse groups from some of the analyses.

### Procedure

At the class meeting before the experiment, students were informed that they would be participating in a group decision-making exercise. Background information about the exercise that was common to all roles was distributed. When the class met, students were randomly assigned to groups of 4. Each group had an experimenter who provided the materials, answered questions, and ensured that the group complied with the instructions. After groups were formed, group members were randomly assigned a role. Group members were given approximately 15 min to read their confidential role instructions.

Each group member's role instructions included confidential information about his or her store's preferences for each issue. This information was said to be provided by their store's management and was in the form of points assigned to each level of each issue. The role instructions said that the points represented the profits that the store would earn if the group agreed on a specific level or alternative for each of the issues. Subjects were told that their point data were confidential and that they were not to discuss issues in terms of points. Experimenters remained with their groups to ensure that this direction was followed.

In addition, each group member was given a reservation price: the minimum number of points across the five issues that would be necessary for his or her store to be profitable in the market. Subjects were told in their instructions that they could not go along with a group decision that would mean that their store would be unprofitable, and a group decision could only be reached if all members were in agreement.

A summary of each party's payoff schedule, including their reservation prices, is presented in Table 1. Several characteristics of the payoff schedule should be noted. First, we intentionally varied the total number of possible points for each role. Pretesting suggested that subjects assumed that the payoff matrix was symmetric, making trade-offs too

Table 1  
*Towers Market Summary of Points*

Issue & level	Store type			
	Bakery	Liquor	Florist	Grocery
Temperature				
A	0	0	40	0
B	0	0	30	0
C	20	0	10	0
D	40	0	0	10
E	40	0	0	0
Advertising				
A	0	0	0	80
B	40	0	40	100
C	10	20	30	60
D	10	60	10	0
E	60	100	20	0
Clerks				
A	20	30	0	10
B	20	30	0	40
C	20	40	0	30
D	30	0	80	10
E	40	0	100	0
Maintenance				
A	10	40	0	40
B	60	0	60	0
C	0	10	20	10
D	80	0	30	0
E	10	30	10	30
Position				
A	0	0	80	0
B	40	0	60	0
C	0	0	0	0
D	0	40	0	100
E	0	100	0	80
Reservation price	50	50	50	50
Total points	260	280	320	290

easy. After the first round of pretests, the payoff matrix was adjusted to remove symmetries. Second, we set the reservation prices so that there would be a very large number of potentially acceptable agreements. The actual number of possible agreements above all 4 group members' reservation prices was 1,320. Setting the reservation price low also meant that many acceptable agreements could be improved on, that is, many agreements were inferior to other potential agreements. In fact, only 161 agreements, or 12% of the possible agreements above the group members' reservation price, were Pareto optimal. (A Pareto optimal agreement is one that cannot be bettered for one party without worsening the agreement for other parties [Raiffa, 1982].) Thus, 1,163, or 88%, of the possible agreements were dominated by Pareto optimal agreements.

When all group members had finished reading their role instructions, the experimenter handed out instructions about the sequential or simultaneous issue-consideration process. The experimenter explained the issue-consideration process using standard instructions and answered questions about its use, again using standard answers.

Once the experimenter was satisfied that group members understood the issue-consideration process, the motivational orientation manipulation was administered. The experimenter handed each group member an envelope containing last-minute strategic advice from their store's management team.



To ensure that group members understood their instructions, the experimenter handed out a form with open-ended questions asking for each member's reservation price and primary objective for the meeting. The experimenter checked each group member's answers and explained the correct answers to any group members making errors.

After determining that group members had no further questions, each experimenter asked his or her group to begin its meeting. Experimenters remained with their groups throughout the session, interrupting at 15-min intervals to conduct votes, as required by the issue-consideration intervention. If at the time that the first vote was to be conducted the group did not have a specific level of an issue (sequential condition) or package proposal (simultaneous condition) on which to vote, the grocer was asked to propose one. At subsequent votes, any group member could propose an option to be voted on. In the sequential condition, experimenters were instructed to interrupt the group if it began to discuss issues further down in the agenda before the prior issue had been decided.

After 1½ hr of discussion (or when the group reached an agreement on all the issues), group members were told that the session was over and were given a questionnaire to complete individually.

## Manipulations

*Issue consideration.* The issue-consideration conditions were sequential consideration of issues (agenda) and simultaneous consideration of issues (proposal). Subjects in the sequential condition were told that they were to use an agenda to help them manage the large amount of information they were going to have to consider. Twelve different agendas were developed to avoid potential confounding of the order of the issues with the manipulations.

Groups in the sequential condition were only allowed to discuss one issue at a time. They were not allowed to discuss a new issue until the prior issue was decided by a formal vote, conducted by the experimenter. Before a formal vote, a group member proposed a specific level of an issue to be voted on, and group members handed the experimenter a sheet of paper indicating their role and their vote yes or no. If all group members voted yes, then the issue was considered resolved and the decision was binding. If one or more members voted no, then the experimenter informed the group how each member had voted and the group continued deliberating. The experimenter was available to conduct additional formal, binding votes whenever one or more members of the group requested that a vote be taken. Group members were allowed to take nonbinding, informal votes (e.g., make an offer on an issue and ask for a show of support) whenever they wished.

Subjects in the simultaneous condition were told that to manage the large amount of information in the task they would be voting for or against proposals that included all the issues. They were told that a proposal had to include a specific level for every issue to be decided. When voting, a group member made a proposal stating a specific level for each of the issues. Group members then handed the experimenter a sheet of paper, indicating their role and the vote yes or no. If all group members voted yes, then the decision was binding and the group's decision task was complete. If one or more group members voted no, then the experimenter informed the group how each member had voted and the group continued deliberations. The experimenter was available to conduct additional formal, binding votes whenever one or more members of the group requested that a vote be taken. If unanimous agreement was obtained, the decision was binding. Group members were allowed to conduct informal, nonbinding votes (e.g., make an offer on one or more issues) whenever they wished.

*Motivational orientation.* The two motivational orientation conditions were cooperative and individualistic. In both conditions, subjects received advice from the management of their store regarding how

they would like the negotiator to approach the meeting. In the cooperative condition, group members read the following:

The agreement you reach today will have a major impact on the profitability of the market as a whole. Points are indicators of profitability. The greater the total points for the market, the more profitable the market will be. In today's decision, you should not act purely out of self-interest. You should be concerned with how well the other parties are doing, as well as how well you are doing.

In addition, group members in the cooperative orientation condition were told that their primary objective was to maximize the group's outcome and that any agreement above their reservation price was preferable to no agreement.

In the individualistic condition, group members read the following advice:

The agreement you reach today will have a major impact on your store's profitability. Points are indicators of profitability. Therefore, the more points you get, the higher your store's profitability will be.

In addition, group members in the individualistic orientation condition were told that their primary objective was to maximize their own outcome without worrying about how well the other parties were doing and that any agreement above their reservation price was preferable to no agreement.

## Defining High-Quality Performance in a Group Negotiation

There are many ways to define high-quality performance in a group negotiation. Because we were working in an experimental paradigm, testing theory, we chose two indicators: joint benefit and impasse rate. Each measures a different aspect of group performance.

*Joint benefit.* Several different definitions of joint benefit are used in current research on negotiation (Pruitt, 1981). We chose to examine three: joint sum, Pareto optimality, and inferiority of the outcome.

*Joint sum* is the sum of group members' gains (Pruitt, 1981). *Pareto optimality* refers to whether an outcome can be improved for one group member without causing another group member to suffer (Raiffa, 1982). When a decision is Pareto optimal, even when it is not the highest joint sum, there is no other decision that would be equal to it or be an improvement for all group members. For example, Table 1 shows that agreement CCEED (Level C for temperature, C for advertising, E for clerks, etc.) resulted in 80 points for the bakery, 90 for the liquor store, 150 for the florist shop, and 190 for the grocery. This agreement is acceptable in that it is better than each group member's reservation price, but it is not Pareto optimal because a solution exists that is better for some members without reducing the value for the others. A superior solution, DBEDE, results in 200 points for the bakery, 100 for the liquor store, 170 for the florist shop, and 190 for the grocery. DBEDE is Pareto optimal because there is no other combination of options that offers as many, or more, points for all parties.

The *inferiority index* differentiates among non-Pareto optimal agreements. It identifies the number of agreements that are superior to the one chosen by the group. A high score indicates an inferior agreement. Equivalent outcomes were not included in this count. A Pareto optimal agreement received an inferiority index score of zero.

The distribution of the inferiority index was positively skewed (skewness = .41) because many groups reached Pareto optimal agreements or were very close to an optimal agreement. A few groups did very poorly, however, settling for agreements that were 60 or 200 agreements away from optimality. A constant of 10 was added to the inferiority index (to avoid taking logs of zero for Pareto optimal agreements), and

a log transformation was used to normalize the index (skewness after transformation = .23).

The measures of joint sum and Pareto optimality were expected to be positively correlated, and the inferiority index was expected to be negatively correlated with the other two measures. The data supported these expectations ( $p < .001$ ). Joint sum was positively correlated with Pareto optimality ( $r = .52$ ), and the inferiority index was negatively correlated with joint sum ( $r = -.83$ ) and Pareto optimality ( $r = -.51$ ).

**Rate of impasse.** Groups that did not reach an agreement that was above all group members' reservation prices by the end of the experimental session were scored as impasse groups. Groups that reached an agreement in which all members exceeded their reservation prices were scored as nonimpasse groups.

### Questionnaire Data

Subjects completed a brief postmeeting questionnaire that measured the subjects' recall of the manipulations.

### Analysis

The group was the unit of analysis for the tests of the hypotheses. The indicators of joint benefit were analyzed by a multivariate analysis of variance (MANOVA) using only the groups that reached an agreement ( $n = 74$ ). Impasse rate was analyzed by an analysis of variance (ANOVA) using all groups ( $N = 84$ ). The individual was the unit of analysis for the manipulation check items.

## Results

### Manipulation Checks

A series of chi-square analyses was conducted to determine whether the manipulations were perceived accurately. Subjects were asked in the postmeeting questionnaire to select from three choices describing their group's decision-making process: "vote on individual issues," "vote on a proposal incorporating all the issues," and "other." Subjects in the sequential condition were significantly more likely to choose "vote on individual issues," whereas those in the simultaneous condition chose "vote on a proposal,"  $\chi^2(2, N = 336) = 81.35, p < .001$ . Subjects were also asked to choose among three alternatives describing their primary objective in the meeting (i.e., motivational orientation): (a) maximize own outcome; (b) maximize group outcome, as well as own; and (c) other. Subjects in the individualistic condition were significantly more likely to choose "maximize own outcome," whereas those in the cooperative condition were likely to choose "maximize the group's outcome, as well as own,"  $\chi^2(2, N = 336) = 60.10, p < .001$ .

### Tests of Hypotheses

Our data supported Hypotheses 1 and 2. There were significant main effects of issue consideration on the joint-benefit variables, multivariate  $F(3, 68) = 2.94, p < .05$ , and of motivational orientation on the joint-benefit variables, multivariate  $F(3, 68) = 4.19, p < .05$ . Results of the univariate tests are reported in Table 2. Results showed that the main effect for motivational orientation was significant for the inferiority index and was marginal for Pareto optimality and joint sum. The main effect for issue consideration was significant for all measures of joint benefit.

Table 2  
Effects of Issue Consideration and Motivational Orientation on Joint Benefit

Joint-benefit index	MO		IC		MO $\times$ IC	
	<i>F</i> (1, 70)	<i>p</i>	<i>F</i> (1, 70)	<i>p</i>	<i>F</i> (1, 70)	<i>p</i>
Joint sum	3.15	.08	7.40	.01	0.66	.42
Pareto optimality	3.70	.06	5.72	.02	1.21	.28
Inferiority index	9.89	.01	5.30	.02	6.19	.02

Note. MO = motivational orientation; IC = issue consideration.

The marginal means in Table 3 indicate that sequential consideration of issues was inferior to simultaneous consideration of issues with respect to joint sum, Pareto optimality, and the inferiority index. Sequential consideration groups averaged 45 points less than simultaneous groups; only 32% of them reached Pareto optimal solutions, compared with 58% of the simultaneous groups, and they chose more inferior solutions.

The marginal means in Table 3 also indicate that individualistic groups' outcomes were inferior to those of cooperative groups. On average, individualistic groups gained 28 points less than did cooperative groups. Thirty-five percent of them reached Pareto optimal solutions, compared with 55% of the cooperative groups. Individualistic groups also chose more inferior solutions.

Our data did not support Hypothesis 3. The effect of the interaction between issue consideration and motivational orientation on the joint-benefit outcome variables was not significant, multivariate  $F(3, 68) = 1.44, ns$ .

The cell means in Table 3, however, illustrate an unexpected finding. They suggest that the individualistic groups considering issues sequentially did less well than groups in the other three conditions, all of which performed similarly to one another. Post hoc Scheffé (1959) analyses support this observation. The decisions of individualistic groups considering issues sequentially were significantly lower in joint sum, were less likely to be Pareto optimal, and were dominated by more superior potential solutions than were the decisions of the other three groups. We also compared the decisions of the cooperative groups considering issues sequentially with those of the cooperative and the individualistic groups considering issues simultaneously to determine whether their decisions were significantly different. Scheffé analyses indicated no significant differences between these three groups. Thus, the poor performance of the individualistic-sequential groups was unique to those groups. Table 4 shows the confidence intervals used for the Scheffé analyses.

The data did not support Hypothesis 4. Ten groups were unable to reach an agreement that met all group members' reservation prices. All 10 were in the sequential consideration condition. Results showed that groups in the individualistic-sequential condition (8 out of 23) were more likely to reach an impasse than were groups in any of the other conditions (2 out of 61),  $\chi^2(1, N = 84) = 8.26, p < .01$ .

The impasse rate in the two sequential conditions reflected the same pattern as the decision-quality data. Cooperative

Table 3  
Means and Standard Deviations of Indexes of Joint Benefits and Impasse

Issue consideration	Motivational orientation								
	Individualistic			Cooperative			Marginal		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Sequential									
Joint sum	525.33	101.83	15	570.00	57.93	19	550.29	82.07	34
Pareto optimality	0.13	0.35	15	0.53	0.51	19	0.32	0.47	34
Log inferiority index	1.54	0.58	15	1.09	0.14	19	1.29	0.45	34
Impasse	0.35	0.49	23	0.10	0.30	21	0.23	0.42	44
Simultaneous									
Joint sum	586.32	69.38	19	602.95	66.33	21	595.05	67.44	40
Pareto optimality	0.47	0.51	19	0.62	0.50	21	0.58	0.50	40
Log inferiority index	1.16	0.35	19	1.11	0.21	21	1.13	0.28	40
Impasse	0.00	0.00	19	0.00	0.00	21	0.00	0.00	40
Marginal									
Joint sum	559.41	89.27	34	587.30	63.89	40	574.59	77.33	74
Pareto optimality	0.35	0.49	34	0.55	0.50	40	0.46	0.50	74
Log inferiority index	1.33	0.49	34	1.10	0.18	40	1.20	0.37	74
Impasse	0.19	0.39	42	0.05	0.22	42	0.12	0.33	84

groups in the sequential condition were both more likely to reach an agreement than individualistic groups in the sequential condition and more likely to reach a high-quality decision.

### Discussion

This study demonstrates that two different interventions facilitate high-quality group decisions. Both simultaneous consideration of issues and cooperative motivational orientation affected the quality of agreements reached by four-person groups confronting five issues and 1,320 potentially acceptable agreements.

Groups that considered issues simultaneously, regardless of their motivational orientation, were unlikely to reach an impasse and were likely to reach high-quality decisions. Most

groups that were motivated to cooperate, that is, to consider both their own and other group members' interests in deliberating, were able to reach agreement. When they did so, the quality of their agreement was high.

These results are consistent with the findings from dyadic negotiation research in which both issue consideration and motivational orientation have been examined in separate studies. The results concerning simultaneous consideration of issues are also consistent with the results of Mannix et al.'s (1989) study of three-person groups deciding three issues. Our results contradict Winham and Bovis's (1978) conclusion that simultaneously considering more than two issues at a time is too complex for groups and counterproductive to high-quality decision making.

The juxtaposition of these two very different interventions in the same study points out a major deficit at the intersection of an individualistic motivational orientation and a sequential consideration of issues. Groups in this latter condition were frequently unable to reach agreements. Those groups that did reach agreements reached poor quality ones. Switching from sequential to simultaneous consideration of issues made up this deficit, both in terms of reaching an agreement and in terms of reaching a high-quality agreement. Switching from an individualistic to a cooperative motivational orientation did not quite make up the deficit in terms of number of agreements, but when agreements were reached they were of high quality.

How was this deficit made up? How did simultaneous consideration of issues facilitate group decision making? How did a cooperative motivational orientation facilitate group decision making? How did the cooperative orientation overcome the limitations associated with the sequential consideration of issues? We believed both of these interventions affected the way information was shared. We believed that simultaneous consideration of issues also affected the way in which concessions were coordinated. To investigate these beliefs, we conducted an in-depth analysis of the behaviors of one group from each con-

Table 4  
Scheffé (1959) Post Hoc Comparisons

Outcome measure	Contrast
Individualistic-sequential groups compared with other groups	
Joint sum	$29.60 \leq \Psi_g \leq 92.35$
Pareto optimality	$-0.61 \leq \Psi_g \leq -0.21$
Log inferiority index	$0.27 \leq \Psi_g \leq 0.57$
Impasse	$0.19 \leq \Psi_g \leq 0.45$
Cooperative-sequential groups compared with cooperative- and individualistic-simultaneous groups	
Joint sum	$-53.62 \leq \Psi_g \leq 53.62$
Pareto optimality	$-0.36 \leq \Psi_g \leq 0.33$
Log inferiority index	$-0.30 \leq \Psi_g \leq 0.21$
Impasse	$-0.19 \leq \Psi_g \leq 0.32$

Note. When confidence interval includes zero, the comparison is not significant.

dition and of the perceptions of the members of three groups from each condition.

## Study 2

The research on negotiating dyads does not provide a full picture as to why simultaneous consideration of issues and a cooperative motivational orientation facilitate high-quality outcomes. Pruitt (1981) discussed the processes underlying these interventions in terms of how each intervention affects the coordination of behavior. Pruitt pointed out that it is simply easier to coordinate through trade-offs when issues are considered simultaneously than when they are considered sequentially. Motivational orientation also affects coordination of behavior in that cooperative negotiators tend to match the other party's level of cooperation, whereas individualistic negotiators remain noncooperative (Kuhlman & Marshello, 1975).

### *Consideration of Issues*

Although Pruitt (1981) discussed the consideration of issues in terms of coordination of behavior and concession patterns, we expected that such behavior patterns emerge from different patterns of information sharing. We believed that the structure of how issues are considered cues group members about appropriate information-sharing behaviors, including sharing information about the relative priority of issues and engaging in substantiation of position on single issues.

Information about priorities across issues is crucial to developing integrative solutions (Lewis & Pruitt, 1971; Walton & McKersie, 1965; Yukl et al., 1976). Simultaneous consideration of issues appears to cue the sharing of such information, whereas sequential consideration of issues does not (Levine & Plott, 1977; Plott & Levine, 1978).

*Proposition 1:* Groups considering issues simultaneously will share more information about the priority of issues than will groups considering issues sequentially.

If information about others' priorities is to be of any use to a group member, it must be truthful and accurately perceived. Thus, a secondary result of considering issues simultaneously is accurate insight into others' priorities.

*Proposition 2:* Members of groups considering issues simultaneously will have more accurate insight into the other parties' priorities than will members of groups considering issues sequentially.

Sequential consideration of issues was expected to cue a different kind of information-sharing behavior: argumentation. When considering issues sequentially, group members may be cued to argue the merit of their position on an issue, even when the issue is not a priority for them (Froman & Cohen, 1970). Argumentation, in the form of justification and substantiation of positions on single issues, distracts negotiators from discovering the differences in priorities among issues (Pruitt, 1981).

*Proposition 3:* Groups considering issues simultaneously will engage in less argumentation or substantiation of position than will groups considering issues sequentially.

### *Motivational Orientation*

We did not believe that the processes by which motivational orientation influences the quality of group decisions were identical to the processes cued by simultaneous or sequential consideration of issues. An individualistic orientation directs group members to be concerned with their own performance; a cooperative orientation adds to this concern a concern for the performance of the group as a whole. Thus, members of cooperative groups may be more likely to seek and exchange information about the preferences of other members of their groups, as a means of ensuring that other group members' interests are being met.

Previous research on dyadic negotiations showed that negotiators given problem-solving (cooperative) instructions exchanged more truthful information than did individualistically oriented dyads (Pruitt & Lewis, 1975). We believed that cooperative group members were more likely to share this information because the shared goal of maximizing joint outcome engendered a feeling of trust (Kimmel et al., 1980). Carnevale and Lawler (1986) showed that negotiators who were concerned about and who trusted one another exchanged more information and incorporated the other party's interests into mutually agreeable solutions more often than did negotiators who distrusted one another. Distrust interferes with negotiators' willingness to disclose their needs and priorities and hence their ability to discover trade-offs between issues (Lewis & Pruitt, 1971; Walton & McKersie, 1965; Yukl et al., 1976).

*Proposition 4:* Cooperative groups will share more information about the relative priority of issues than will individualistic groups.

*Proposition 5:* There will be a higher level of trust within cooperative groups than within individualistic groups.

A secondary result of the information sharing expected in cooperative groups is a better understanding of the other group members' priorities than in individualistic groups.

*Proposition 6:* Members of cooperative groups will have more accurate insight about the priorities of others in their group than will members of individualistic groups.

An individualistic orientation, which focuses on maximizing one's own outcomes, results in the use of more distributive tactics (Carnevale & Isen, 1986; Pruitt & Lewis, 1975). Such an orientation may cue sharing of information about one's position on an issue and attempts to persuade others to accept that position. Single-issue offers provide information about one's position on an issue. Argumentation provides persuasive support for why the other party should accept that position.

*Proposition 7:* There will be more single-issue offers in individualistic groups than in cooperative groups.

*Proposition 8:* Individualistic groups will engage in more substantiating argument than will cooperative groups.

### *Information Sharing in Cooperative Groups Considering Issues Sequentially*

Study 1 showed that there were no significant differences in joint benefit between the groups in the cooperative-sequential



condition and both the cooperative and individualistic simultaneous groups. Thus, the cooperative-sequential groups were able to overcome the limitations imposed by the sequential consideration of issues. To better understand these results, a comparison of the patterns of information sharing in this condition with the communication patterns of the other conditions was conducted.

The cooperative-sequential groups in Study 1 appeared to be using a delayed reciprocity tactic. Group members offered to make a concession on the issue under discussion in return for an unnamed concession from the other group members on a future issue. Pruitt (1981) identified this tactic as an example of high-risk coordinative behavior. This tactic may have been used because the cooperative orientation stimulated mutual concern for others' well-being, trust, and the development of a "norm of reciprocity" (Gouldner, 1960). The individualistic-sequential condition precluded the development of high levels of trust that seems to be a condition for delayed reciprocity (Pruitt, 1981).

*Proposition 9:* Group members in the cooperative-sequential condition will suggest delayed reciprocity more frequently than will group members in the individualistic-sequential condition.

*Proposition 10:* Members of cooperative-sequential groups will trust one another more than will members of individualistic-sequential groups.

## Method

### Procedure

The Towers Market exercise was rerun, drawing from the same population as Study 1. Four groups from each condition were videotaped. However, because of acoustical problems on the videotapes, only one or two groups per condition were intelligible. As a result, only one group per condition was process analyzed. If two groups were codable, the group with all three joint-benefit measures closest to the means for that group's cell was selected. Each of the groups in Study 2 had an agreement that was within one standard deviation of the joint-benefit mean of the other groups in that cell.

### Coding

The audio portion of the videotapes was transcribed and then coded. The unit of analysis was the speaking turn. A speaking turn is a statement by one group member that is sandwiched between the statements of other group members.

The coding scheme was developed on the basis of our propositions and a review of existing coding schemes used in the negotiation research (Pruitt, 1981; Pruitt & Carnevale, 1982; Weingart, Thompson, Bazerman, & Carroll, 1990). Over 90% of the groups' discussions were classifiable into 13 categories. Table 5 lists these categories. If multiple behaviors occurred within a speaking turn, the coder coded each behavior. Later, a dominance criterion created on the basis of our propositions was applied to determine which coded behavior to include in the analyses (see Table 5). This was done because no more than one code per speaking turn could be included in the sequential analysis.

Two coders independently coded each transcript. Interrater reliability was assessed by comparing the coding of one full transcript. Cohen's kappa was computed ( $\kappa = .88$ ). After the calculation of interrater reliability, the two sets of codes for each transcript were compared. Disagreements were discussed and resolved by the two coders, resulting in one final set of codes for each transcript that was used in the analyses.

Table 5

*Coding Categories for Negotiation Behavior*

Category	LFA	LSA	Dominance order <sup>a</sup>
Offers		×	
Single-issue	×		3
Multi-issue	×		2
Information provision		×	
Preference for level within issue	×		6
Priorities across issues	×		4
Substantiation of position	×	×	5
Understanding of other parties' . . .		×	
Level preference	×		8
Priorities	×		7
Positions	×		9
Delayed reciprocity suggested	×	×	1
Mutuality of concerns	×	×	11
Procedural comments	×	×	10
Questions	×	×	12
Agreement-disagreement	×	×	13

Note. LFA = Log-linear frequency analysis; LSA = Lag sequential analysis.

<sup>a</sup> Lower numbers were dominant.

### Analysis

*Behavioral data.* We analyzed the behavioral data in two ways. First, we used the 13 coding categories to assess proportional frequency of behavior using log-linear analysis. Second, we collapsed the 13 categories into 9 more general categories for the sequential analysis (see Table 5).

We used hierarchical log-linear analysis, crossing motivational orientation (cooperative vs. individualistic) with consideration of issues (sequential vs. simultaneous) with the presence or absence of each of the 13 categories for each coded speaking turn, to determine whether the proportion of statements coded into a category differed across conditions. A fully saturated model was used. We examined the main effects of each manipulation on the proportion of statements in each coded category, if the two-way effects in the overall model were significant. Each overall model accounted for 12 d.f.s, 4 of which were associated with the two-way effects.

We used lag sequential analysis (LSA; Sackett, 1979) to analyze the patterns of the deliberations within the groups. LSA identifies systematic patterns of behaviors by comparing an observed pattern of behavior with the possibility of that pattern occurring by chance. (See Weingart et al., 1990, for a description of the technical aspects of this procedure.) The lag investigated was one speaking turn.

*Questionnaire data.* A postmeeting questionnaire provided additional data. This questionnaire was completed by members of all 12 groups before group members began to discuss the exercise. To measure insight into the other members' priorities, group members were asked to rank each issue according to the way they thought each of the other group members would rank the issues for themselves. The absolute value of the difference between the respondents' rankings and the true importance rankings across issues and other group members were summed. The resulting scale ranged from a score of 0 (*completely correct*) to 19 (*completely incorrect*).

The measure of trust was embedded in a series of questions about the general atmosphere of the group's meeting. Participants used a semantic differential scale to rate the honesty and trust evident in the negotiation (anchors = *honest-dishonest* and *trusting-distrusting*). The correlation between these two items was .56 ( $p < .001$ ,  $n = 47$ ). These items were summed to measure trust.

## Results

### Proposition Tests

Results of the log-linear analysis showed that Propositions 1 and 3 were supported. The proportional frequency of information about priorities (Proposition 1) was greater in the simultaneous groups than in the sequential groups (simultaneous = .04, sequential = .01,  $\lambda = .50$ ,  $SE = 0.19$ ,  $Z = 2.56$ ). The proportion of substantiation (Proposition 3) was greater in the sequential groups than in the simultaneous groups (simultaneous = .26, sequential = .39,  $\lambda = -.20$ ,  $SE = 0.04$ ,  $Z = -5.56$ ).

Proposition 2 was not supported by the behavioral data but was supported by the questionnaire data. Members of simultaneous groups did not verbally indicate greater understanding of the other members' priorities than did the members of the sequential groups (simultaneous = .01, sequential = .00,  $\lambda = .26$ ,  $SE = 0.22$ ,  $Z = 1.20$ ). However, members of simultaneous groups identified other group members' priorities across issues more accurately than did members of sequential groups,  $F(1, 43) = 5.14$ ,  $p < .05$ . The mean for groups considering issues simultaneously was 10.35 ( $SD = 3.16$ ); the mean for groups considering issues sequentially was 8.13 ( $SD = 3.47$ ).

Propositions 4 through 8 suggested the effects of motivational orientation on group member perceptions and behavior. Proposition 4 was not supported by the behavioral data. Results of the log-linear analyses showed that motivational orientation did not affect the proportional frequency of information about priorities (individualistic = .01, cooperative = .02,  $\lambda = .27$ ,  $SE = 0.19$ ,  $Z = 1.37$ ).

Proposition 5, suggesting greater trust within cooperative than within individualistic groups, was supported by the questionnaire data. Cooperative group members reported a more trusting and open atmosphere ( $M = 7.75$ ,  $SD = 1.56$ ) than did individualistic group members ( $M = 6.52$ ,  $SD = 1.67$ ),  $F(1, 43) = 6.92$ ,  $p < .05$ .

Proposition 6 was not supported by any of the data. Motivational orientation did not affect the verbal expression of insight into the other parties' priorities (individualistic = .00, cooperative = .01,  $\lambda = .16$ ,  $SE = 0.22$ ,  $Z = 0.73$ ). Perception of insight, measured on the questionnaire, was also not significantly different,  $F(1, 43) = 1.37$  (cooperative groups:  $M = 9.79$ ,  $SD = 3.34$ ; individualistic groups:  $M = 8.61$ ,  $SD = 3.40$ ).

Proposition 7 was marginally supported by the behavioral data. Individualistic groups made more single-issue offers than did cooperative groups (individualistic = .06, cooperative = .04,  $\lambda = -.14$ ,  $SE = 0.07$ ,  $Z = 1.93$ ). Proposition 8 was supported. Individualistic groups engaged in proportionately more substantiation of position than did cooperative groups (individualistic = .41, cooperative = .30,  $\lambda = -.18$ ,  $SE = 0.04$ ,  $Z = -5.02$ ).

Proposition 9 addressed delayed reciprocity. A planned comparison between the cooperative-sequential and the individual-sequential group showed that the cooperative group used more delayed reciprocity (cooperative-sequential = .04, individualistic-sequential = .005),  $\chi^2(1, N = 715) = 4.70$ ,  $p < .05$ . The explanation for this effect was also supported (Proposition 10). In the postsession questionnaire, cooperative-sequential group members reported a more trusting and open atmosphere ( $M = 6.08$ ,  $SD = 1.34$ ) than did individualistic-sequential group members ( $M = 4.58$ ,  $SD = 1.73$ ),  $F(1, 22) = 5.52$ ,  $p < .05$ .

### Negotiation Process in the Cooperative-Sequential Group

Results of the LSA showed that the patterns of communication reflected differences between the cooperative-sequential group and the other three groups. Table 6 summarizes the significant Lag 1 relationships found in the cooperative-sequential group and the corresponding patterns in the other three groups.

All groups tended to respond similarly to substantiation. The most frequent communication pattern across all groups was substantiation followed by substantiation (see Table 6). Table 6 shows that the observed relative frequency of substantiation following substantiation for the cooperative-sequential group was .54 (54% of the occurrences of substantiation were followed by more substantiation). The chance expected relative frequency was .34, and the Z score comparing the observed and expected frequencies was significant at 5.45, suggesting that the content of what was said held a specific meaning that was responded to in a predictable manner. Another significant effect of substantiation in all but the individualistic-simultaneous group was a decrease in the probability of providing information.

Table 6 also shows ways in which the cooperative-sequential group differed from the other three groups. First, statements suggesting a norm of reciprocity occurred 19 times and were reciprocated in the cooperative-sequential group (observed = .14, expected = .04), but only occurred 2 times in the other three groups. This suggests that delayed reciprocity mostly occurred in this group and that when it occurred it was responded to with similar suggestions. Second, reciprocity resulted in a decrease in substantiation in the cooperative-sequential group, suggesting that once the group engaged in delayed reciprocity, such tactics as substantiation were less likely to occur.

Third, the provision of information resulted in an increased likelihood of statements reflecting mutuality (e.g., joint goals of forming a common market). Statements reflecting mutuality were not made in the other groups. Fourth, group members responded to information provision with questions, suggesting a chain of questions and responses. Although this chain did not occur in the cooperative-simultaneous or individualistic-sequential groups, it did occur in the individualistic-simultaneous group. Fifth, providing information resulted in significantly less substantiation in the cooperative-sequential group than would be expected by chance. This pattern was not significant in the other three groups.

Sixth, in the cooperative-sequential group, members responded to mutuality with the provision of information and a decrease in the use of substantiation. As stated earlier, mutuality did not occur in the other groups.

## Discussion

Study 2 investigated three questions left unanswered by Study 1: What processes accounted for the effect of sequential versus simultaneous consideration of issues on joint outcome? How did motivational orientation (cooperative vs. individualistic) impact joint outcome? How did cooperative groups overcome the limiting effects of considering issues sequentially?

Table 6  
*Results of Lag 1 Sequential Analysis: Cooperative–Sequential Versus Other Groups*

Criterion behavior → Target behavior	Cooperative		Individualistic	
	Sequential	Simultaneous	Sequential	Simultaneous
Substantiation → Sub				
Obs	.54	.56	.60	.53
Exp	.34	.18	.50	.33
SD	0.04	0.07	0.05	0.05
Z	5.45*	5.83*	2.01*	3.75*
Substantiation → (Info)				
Obs	.06	.15	.03	.17
Exp	.14	.35	.08	.23
SD	0.03	0.08	0.03	0.05
Z	-2.81*	-2.47*	-1.96*	-1.25
Reciprocity → Recip				
Obs	.14	1.00 <sup>a</sup>	.00 <sup>a</sup>	NA <sup>b</sup>
Exp	.04	.05	.01	
SD	0.04	0.21	0.07	
Z	2.14*	4.51*	-.14	
Reciprocity → (Sub)				
Obs	.00	.00 <sup>a</sup>	.00 <sup>a</sup>	NA <sup>b</sup>
Exp	.34	.18	.50	
SD	0.10	0.38	0.35	
Z	-3.40*	-0.46	-1.41	
Provide information → Mutual				
Obs	.08	.00 <sup>c</sup>	.00 <sup>c</sup>	.00 <sup>c</sup>
Exp	.04	.00	.00	.00
SD	0.02	0.00	0.00	0.00
Z	2.16*	0.00	0.00	0.00
Provide information → Quest				
Obs	.20	.10	.00	.24
Exp	.10	.09	.05	.10
SD	0.04	0.04	0.05	0.04
Z	2.82*	0.30	-0.97	3.27*
Provide information → (Sub)				
Obs	.20	.10	.29	.24
Exp	.34	.18	.50	.33
SD	0.06	0.05	0.12	0.06
Z	-2.47*	-1.56	-1.68	-1.34
Mutuality → Info				
Obs	.32	NA <sup>c</sup>	NA <sup>c</sup>	NA <sup>c</sup>
Exp	.14			
SD	0.08			
Z	2.28*			
Mutuality → (Sub)				
Obs	.05	NA <sup>c</sup>	NA <sup>c</sup>	NA <sup>c</sup>
Exp	.34			
SD	0.11			
Z	-2.67*			

*Note.* Parentheses and negative Z scores indicate a decrease in behavior. Sub = substantiation of position; Info = information provision; Recip = delayed reciprocity; Mutual = mutuality of concerns; Quest = questions; NA = not applicable; Obs = observed relative frequency of target behavior following criterion behavior; Exp = expected relative frequency of target behavior following criterion behavior; Z = Z score testing whether observed relative frequency differs significantly from expected relative frequency.

<sup>a</sup> Reciprocity only occurred once in this group. <sup>b</sup> Reciprocity never occurred in this group. <sup>c</sup> Mutuality never occurred in this group.

\*  $p < .05$ .

### Issue Consideration

The results suggest that considering issues simultaneously (and making multi-issue offers, as was required by the intervention) cued group members to share information about prefer-

ences and priorities across issues. This information resulted in a greater understanding of the structure of each group members' preferences. In addition, simultaneous groups engaged in less substantiation than did sequential groups. Groups that argued less about specific positions (i.e., less substantiation)

seemed to be able to stay focused on the task of discovering joint outcomes. Groups that argued more seemed to get caught in a spiraling series of arguments.

### *Motivational Orientation*

Cooperative groups substantiated less and made marginally fewer single-issue offers than did individualistic groups. Thus, a cooperative motivational orientation also decreased the use of tactics that distribute outcomes across group members.

However, motivational orientation did not seem to stimulate information sharing and increased insight. This finding is interesting in light of previous research on dyads that showed that a cooperative motivational orientation influenced joint outcome through information sharing and increased insight (Pruitt & Lewis, 1975). Instead, the cooperative groups in our study increased joint gain because they trusted one another to a greater extent than did individualistic group members. This trust seemed to have encouraged reciprocity. That is, one group member conceded to another's request, believing that the other was telling the truth about his or her needs and would make a later concession. Members of the cooperative-sequential group actually discussed reciprocity.

### *Cooperative-Sequential Group Process*

The cooperative group considering issues sequentially seemed to overcome the limits of sequential consideration by developing explicit norms of reciprocity and mutuality. In this group, statements of reciprocity and mutuality were reinforced by other group members with statements of reciprocity, mutuality of concern, and the provision of information. These behavior patterns were unique to this group and were apparently the key to its success.

The norm of delayed reciprocity apparently allowed a member of the cooperative-sequential group to make a concession early in the negotiation with confidence that a similar concession from another group member would be forthcoming later in the negotiation. This tactic may have been effective because of the higher level of trust in the cooperative groups than in the sequential groups.

The norm of mutuality apparently encouraged information sharing. Statements about how much group members needed each other to reach an agreement were responded to by the provision of information.

### *Future Research*

Future research is necessary to replicate and extend the findings of this study because in our research we evaluated only one group per cell. In terms of outcomes, these four groups were each representative of their conditions. However, we cannot be sure whether the processes used were unique to these groups or are characteristic of other groups in the same conditions.

The results of this study suggest that the processes in groups by which simultaneous consideration of issues influences joint benefit are similar to those in negotiating dyads: information sharing and insight into others' priorities. Further research is required to determine whether these same processes influence

joint benefit in cooperatively oriented groups. Prior research on cooperatively oriented dyads suggests that the processes that influence joint benefit include trust, which engenders information sharing, which in turn stimulates insight (Pruitt, 1981). In the cooperative groups studied here, trust appeared to result from the cooperative motivational orientation, but trust was not accompanied by greater information sharing or insight. Instead, it appears that the key process in cooperative groups was reciprocity. This was clearly seen in the cooperative group considering issues sequentially.

Perhaps groups, as opposed to dyads, rely on reciprocity (rather than information exchange) as a way to cope with the greater amount of information associated with having more than one opponent. Rather than gain full understanding of each person's interests (a task that is easier to do in dyads than groups), group members instead rely on trusting one another to reciprocate concessions.

Further research is needed to determine if cooperative groups can use both the information sharing with insight and the trust with reciprocity approaches or if the two processes are mutually exclusive. Nevertheless, even if future research shows that cooperative groups use an information-sharing with insight or some hybrid process, our results show that insight is not always a result of a cooperative motivational orientation.

### *Conclusion*

These studies contribute both to the theory of negotiations and to the understanding of group decision-making processes. Study 1 showed that groups faced with a negotiation task can improve the quality of their decisions by considering issues simultaneously or by orienting group members to behave cooperatively. Both interventions improve the quality of group decisions, but results suggest that they are compensatory rather than additive or interactive. For example, in Study 1, each intervention resulted in approximately 58% of the agreements being Pareto optimal; however, the intersection of the two interventions did not raise joint outcome above this level. We believe that these interventions are compensatory, because a performance ceiling was not reached.

Study 2 examined the processes underlying the effects identified in Study 1. Results suggested that although both simultaneous issue consideration and a cooperative motivational orientation reduced substantiation, they also influenced joint outcome through different processes. In groups considering issues simultaneously, information was shared and insight into one another's priorities was gained. In cooperative groups, increased trust resulted in delayed reciprocity. Future research needs to explore further the behavioral processes through which trust influences joint outcome.

In addition, other motivational orientations might be studied in group decision-making settings. In this study, individualistic group members were only concerned about their own outcomes, whereas members of the cooperative groups had dual concerns: maximizing their own outcomes as well as the group's outcome. Future research might examine groups composed of members who are solely concerned with maximizing the group's outcome, as well as competitively oriented groups and groups with mixed orientations.



These studies also have important practical implications for groups with negotiation tasks. The results indicate that groups can improve the quality of their decisions by using relatively straightforward interventions of motivational orientation and decision process. Although in practice it may not be as easy to influence group members' motivational orientation as it was in the context studied here, a group leader can still set "maximizing joint gains" as a group goal, articulate norms of reciprocity and mutuality, and call attention to that goal and those norms throughout the group's meeting. The leader may also facilitate patterns of mutuality and information exchange and break up patterns of substantiation and argumentation. Although many groups may feel reluctant to give up their agendas and consider issues simultaneously, leaders can refrain from forcing sequential decision making. They can also propose packages of agenda items for the group's consideration. By doing so, they may be able to increase the quality of their groups' decisions.

In addition, role-play cases, like Towers Market, can be used to train group members. The Towers Market case (Beggs et al., 1989) and other such cases are available with teaching notes for that purpose. For example, the interventions used in this study can be used to train group members to consider issues simultaneously and to behave cooperatively. With practice, group members should be able to transfer those skills developed in the role-play exercises to their daily group decision-making situations.

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## Appendix

### Towers Market Issue Options

#### Temperature

- a) 77°
- b) 74°
- c) 71°
- d) 68°
- e) 65°

#### Advertising

- a) combined campaign, advertising for market as a whole, costs to be divided equally among the market merchants
- b) combined campaign, advertising for market as a whole, to be paid according to percentage of the market's gross profits contributed by the merchant
- c) combined campaign, advertising the stores as individual units but on the same flyers, with each member given (and paying for) one quarter of ad
- d) separate campaigns for each member, each spends 6% of expected gross profits on advertising
- e) separate campaigns for each member, amount spent up to individual merchant

#### Clerks

- a) hire by group, train by group, distribute equally, paid for by group
- b) hire by group, train by group, distribute according to floor space, paid for by group
- c) hire by group, train individually, distribute according to demand for service, paid for by group
- d) hire individually, train individually, distribute according to demand for service, each merchant to pay from individual profits
- e) hire individually, train individually, each merchant to decide how many clerks, each merchant to pay from individual profits

#### Maintenance

- a) shared, each responsible for one quarter of total costs
- b) shared, each responsible for percentage according to floor space occupied
- c) shared, each responsible for percentage according to floor space occupied, but with the bakery paying double its percentage because of the nature of its carry-out business
- d) separate, each responsible for own floor space, plus common area maintenance cost as a function of floor space occupied
- e) separate, each responsible for own floor space plus equal contributions for common area maintenance

#### Position

- a) "spontaneous purchases" near entranceway
- b) small departments near entranceway
- c) common area near entranceway
- d) convenient location for department with highest volume of sales
- e) merchants stocking heavier products should be located near entrances and exits.

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