

Reversals of Preference  
in Allocation Decisions:  
Judging an Alternative  
versus Choosing  
among Alternatives

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This paper identifies a systematic instability in the weight that people place on interpersonal comparisons of outcomes. When evaluating the desirability of a single outcome consisting of a payoff for oneself and another person, people display great concern for relative payoffs. However, when they choose between two or more outcomes, their choices reflect greater concern with their own payoffs and less concern for relative payoffs. Modal subjects in our experiments rated the outcome of \$500 for self/\$500 for other as more desirable than the outcome \$600 for self/\$800 for other when both were evaluated independently, but they chose the latter outcome over the former when presented with the two options simultaneously. We offer a theoretical explanation for this phenomenon and demonstrate its robustness. •

Understanding how people respond to the outcomes of allocation decisions is critical to interpreting the role of reward in organizations. While the perceived fairness of procedures and outcomes affects the evaluation of allocations, interpersonal comparisons may be even more important: How do my outcomes compare to the outcomes of others? Adams (1963, 1965) and Homans (1961), among others, long ago postulated that interpersonal comparisons are critical to how people make sense of social exchange situations. Recent research has shown that people can be so concerned about interpersonal comparisons that they will often prefer outcomes that reduce their own and other parties' payoffs in an effort to avoid inequalities (Loewenstein, Thompson, and Bazerman, 1989). In organizations, dysfunctional interpersonal comparisons of how scarce resources are distributed can result in motivational problems and organizational inefficiency. Yet inequitable resource allocations are often unavoidable across individuals, departments, and divisions (Mahoney, 1979; Baron and Pfeffer, 1990) due to budget decreases, staff layoffs, and salary compression, which are common organizational maladies of the 1990s. This paper takes a cognitive approach in exploring the negative impact of interpersonal comparisons in organizations. In particular, we examine a systematic inconsistency in how people apply interpersonal comparisons when evaluating allocations.

One of the most popular research streams for studying the effects of interpersonal comparisons on allocation decisions is the distributive justice literature. Here, judgments regarding justice, or "fairness," represent the degree of equality or equity across parties' payoffs that is considered normatively acceptable or desirable within a situation. Research in the organizational and social psychological literatures has found that both the degree of concern for others' outcomes and the nature of that concern (i.e., whether it is positive or negative) depend on a variety of factors. One important factor is the nature of the relationship between the parties (Deutsch, 1975; Clark and Mills, 1979). Allocating resources equally is viewed as fair when the goal of the interaction is to maximize cooperation and social harmony (Deutsch, 1975; Austin, McGinn, and Susmilch, 1980). Allocating resources equitably (i.e., in proportion to

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earned rights or inputs) may be seen as fair when relations focus on maximizing economic productivity (Walster, Walster, and Berscheid, 1978; Deutsch, 1986). Allocations based on need (i.e., to those in most need until equality of general circumstances is obtained) are typically viewed as fair when fostering personal welfare is the dominant goal (Yaari and Bar-Hillel, 1984; Deutsch, 1986).

In organizations, this framework suggests an equity-based approach to the distribution of resources, and a great deal of research has been inspired by equity theory (Adams, 1965) over the last 20 to 30 years. However, evidence regarding the consistency of equity as the accepted norm for allocating resources in organizations has been inconclusive, and interest in equity theory has waned (Miner, 1984; Reis, 1986; Greenberg, 1987). More recently, justice research in organizations has turned to the study of how perceptions of fairness are influenced by the procedures used to determine outcomes (Lind and Tyler, 1988). Greenberg (1990: 114) concluded that "recent research has shown that the procedures used to appraise employees, supervise them, and resolve conflicts between them are at least as important as determinants of perceived fairness and job satisfaction" as are the distributive characteristics of the outcomes resulting from these procedures.

In this paper, we introduce the argument that the importance that people place on interpersonal comparisons of payoffs and adherence to perceived distributive justice norms may also depend on how information about any relative inequities is presented. We discuss two studies that demonstrate that individuals' preferences regarding the trade-off between maximizing personal payoffs and maintaining norms of distributive equality often reverse, depending on whether potential outcomes are evaluated sequentially or simultaneously.

Loewenstein, Thompson, and Bazerman (1989) empirically demonstrated that individuals' utility calculations are a function of both interpersonal comparisons and the magnitudes of absolute payoffs. These findings were in contrast to traditional utility theories, which have been limited to individual decision making in nonsocial contexts. In particular, Loewenstein and his colleagues found that in assessing personal satisfaction about outcomes in a multiparty transaction characterized by an equality norm, individuals would often trade off increases in personal payoffs for greater equality of payoffs across all parties. Thus, individuals in their study often preferred outcomes in which their own payoffs were lower, but more equal to other parties', over outcomes in which their own payoffs were higher, but lower than other parties'.

An important methodological aspect of Loewenstein, Thompson, and Bazerman's (1989) study was that subjects rated a large number of outcomes one at a time; each was described by a payoff to oneself and a payoff to another party. Because of this design, subjects' trade-offs between absolute payoffs and relative payoffs were implicitly derived. When a subject rated a payoff of \$500 for self/\$500 for other as more satisfying than \$600 for self/\$800 for other,

he or she implied that the extra \$100 in the second outcome was not worth the \$200 inequality. However, the subject never made the trade-off explicitly. In rating the payoff of \$500 for self/\$500 for other, the subject might have reasoned, "This outcome gives me a generous \$500 and gives the other party the same amount." However, in evaluating the payoff of \$600 for self/\$800 for other, he or she might have thought, "I don't know how much is a reasonable amount to receive, but this outcome seems unfair since I'm getting \$200 less." In the second case, the subject would have ignored the fact that the second outcome provided \$100 more than the first.

Thus, we suggest here that Loewenstein, Thompson, and Bazerman (1989) may have systematically focused subjects' attentions on relative payoffs within outcomes and distracted their attention from differences in absolute payoffs across outcomes. If individuals were making choices between the same pairs of outcomes, they might be more inclined to make comparisons across those outcomes. The subject then would not be cognitively dependent on the other's payoff as the only available reference point for evaluating his or her payoff but could use his or her own payoff in one outcome as a reference point for judging his or her own payoff in another outcome. In a choice task, the subject evaluating the two outcomes from our earlier example simultaneously might reason, "Surely it is worth tolerating \$200 in inequality to receive an extra \$100." This is the intuition behind the two empirical studies and mathematical model (Appendix A) presented in this paper. In both studies, we show that how people weight relative versus absolute payoffs in allocation situations may, in part, depend on how information about alternative outcomes is presented.

## STUDY 1

The first study was designed to test our basic prediction that absolute payoffs to oneself will be more important than relative payoffs when individuals choose between multiple options. However, when individuals evaluate the same options separately, relative payoffs will be more important than absolute payoffs. We tested this prediction by presenting subjects with hypothetical resolutions of a dispute between themselves and another party. Some subjects were asked to evaluate the outcomes independently, using a separate rating scale for each outcome. This condition is referred to as the rating scheme. Other subjects were asked to evaluate the outcomes by choosing between every possible combination of pairs. This condition is referred to as the choice scheme.

Our primary interest was in studying preferences between pairs in which one outcome maintained equality (e.g., \$500 for self/\$500 for other), while the other increased the decision maker's payoffs and increased the inequality in a direction that favored the other party (e.g., \$600 for self/\$800 for other). The line of reasoning outlined above and predictions derived from our mathematical model both suggest that concern for outcome inequality, revealed by a preference for the equal-payoff pair, should be greater when the outcomes are evaluated independently.

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We were also interested in examining preferences between outcomes that held the payoff to oneself constant while increasing the payoff to the other party, such as a payoff of \$400 for self/\$400 for other and \$400 for self/\$600 for other. In this case, comparing the payoff to oneself in the first option to the payoff to oneself in the second option is cognitively equivalent to comparing the payoff to oneself to the payoff to the other party within the first option. Therefore, we predicted that, for pairs of this type, the two elicitation schemes should result in a similar pattern of preferences: one in which the equal payoff outcome was preferred. This prediction is also derived from the mathematical model in Appendix A.

Another goal of the first experiment was to test an alternative explanation for the predicted discrepancy between the rating and choice schemes. It is possible that subjects might implicitly interpret a rating task as a request to rate their personal satisfaction with an outcome and interpret a choice task as a request to judge which of the options within each pair is more acceptable to them. Tversky and Griffin (1990) presented subjects with two possible outcomes to a situation that involved unequal payoffs to oneself and another party. In outcome A, the payoff to oneself was higher than the payoff to the other party. In outcome B, the payoff to oneself was lower than the payoff to the other party, but it was higher than the payoff to oneself in outcome A. In this study, most subjects reported that they expected to be happier with outcome A than outcome B, i.e., they anticipated greater satisfaction from the option in which their payoff was higher than the other party's. In contrast, another group of subjects reported that they would be more likely to choose outcome B over outcome A, i.e., they anticipated that the outcome in which their own payoff was highest would be most acceptable. In our context, these findings suggest that the rating task might be interpreted as an opportunity for subjects to give free vent to feelings of resentment engendered by unequal payoffs, knowing that no decision actually rides on these responses. However, in the choice task, subjects might feel the need to suppress these emotions and to respond as if this were an actual choice. If this were true, the main effect that we predicted for the rating elicitation scheme would not occur if subjects were asked to assess acceptability, rather than satisfaction, in the rating format.

We thus explicitly manipulated the type of evaluation requested. In the rating task, half the subjects were asked to rate satisfaction with each resolution, while the other half were asked to rate the acceptability of different outcomes. In the choice task, half the subjects were asked to designate which alternative they would find more satisfying, while the other half were asked to designate which outcome they would actually accept. We expected that this manipulation would not have an effect, since we anticipated that any difference between choice and rating would reflect differences in cognitive framing induced by the elicitation method rather than differences in the question that subjects thought they were being asked.

Finally, in order to test the impact of the nature of relationships (Loewenstein, Thompson, and Bazerman, 1989), the rating/choice predictions were also explored under positive and negative relationship conditions. Subjects were told that they either liked or disliked the other party. We anticipated that the pattern of responses in the rating condition would not be affected by the nature of the relationship. This prediction stemmed from the finding in Loewenstein, Thompson, and Bazerman (1989) that preferences about disadvantageous inequalities (i.e., when the payoff to the other party is greater than the payoff to oneself) were not influenced by whether or not the subject felt positively or negatively toward the other party. We were uncertain, however, whether the nature of the relationship would have an effect on choices between outcomes. If subjects were to make more informed trade-offs when making choices between outcomes than when rating individual outcomes, and if subjects were to allow the nature of the relationship to influence their decisions, then an effect for a positive versus negative relationship would be likely in choice. When subjects liked the other party, they would be less concerned with interpersonal comparison than when they did not like the other party. This effect of relationship on choice was especially pertinent to the outcome pairs in which the payoff to oneself was held constant, such as \$600 for self/\$600 for other and \$600 for self/\$800 for other. Here, we expected that rating subjects would prefer equal payoffs in both positive- and negative-relationship conditions. However, choice subjects would be more likely to prefer equal payoffs when they did not like the other party than when they did. We thus predicted that positive-relationship choice subjects would be the only ones who might be willing to tolerate inequality such that they would choose for the other party to receive additional money when the subject would receive nothing by doing so.

## Methods

One hundred ninety-seven M.B.A. students at the J. L. Kellogg Graduate School of Management at Northwestern University and at the Graduate School of Business at the University of Chicago were randomly assigned in a  $2 \times 2 \times 2$  between-subjects design. The eight cells crossed rating/choice, acceptability/satisfaction, and positive/negative relationship. All subjects assessed 10 different outcome states dealing with the co-ownership of an empty lot that would either create funds (someone would buy the lot) or require funds (the city would tax the lot). The outcomes varied the level of the individual's own payoff and the degree of difference between the individual's own and the other's payoff. Five of the outcome states dealt with gains, and five dealt with losses:

	Self	Other		Self	Other
A.	+\$600	+\$800	F.	-\$400	-\$200
B.	+\$600	+\$600	G.	-\$400	-\$400
C.	+\$500	+\$700	H.	-\$500	-\$300
D.	+\$500	+\$500	I.	-\$500	-\$500
E.	+\$400	+\$400	J.	-\$600	-\$600

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Satisfaction subjects were asked to assess the outcomes based on their anticipated satisfaction, while acceptability subjects were asked to assess the outcomes based on how acceptable they felt that the options were. Rating subjects were presented with five outcomes at a time (either all positive or all negative) and were asked to assess each outcome separately. Their assessments for each outcome were recorded on an 11-point scale ranging from  $-5$  (extremely dissatisfied/unacceptable) to  $+5$  (extremely satisfied/acceptable). Choice subjects were presented with ten binary choices at a time (between each possible pairing of the five positive or negative outcomes) and asked to make a choice within each pair. Their responses for each choice were recorded by circling either "A" or "B," corresponding to the label assigned to each outcome.

All subjects were given a description of the other party, their neighbors the Smiths. For positive-relationship subjects, the background materials presented a positive image of the subject's relationship with the Smiths. The negative-relationship condition presented a negative image of the subject's relationship with the Smiths. Sample materials for the satisfaction/positive cell for gain items and the acceptability/negative cell for loss items are included in Appendix B. All factors were fully crossed, and half the subjects in each condition evaluated the positive outcomes (gains) first, while the other half evaluated the negative outcomes (losses) first.

## Results

Descriptive results are presented in an aggregate form in tables 1, 2, and 3. Table 1 shows the satisfaction data across subjects, and Table 2 shows the acceptability data. The basic pattern of results is consistent across the satisfaction and acceptability formats, and statistical analyses showed no effect. Thus, Table 3 shows the results averaged across the two conditions. In all three tables, each row entry represents the proportion of subjects who preferred the first outcome over the second outcome. Preference under the choice condition was determined by the subject's stated choice, while preference under the rating condition was calculated by comparing the subject's rating for each stimulus item. In each of the 10 comparisons, the outcomes

Table 1

### Preferences between Outcome Pairs, Study 1: Satisfaction Condition

Preferred outcome to self/ outcome to other	+ Relationship		- Relationship	
	Rating (%)	Choice (%)	Rating (%)	Choice (%)
1. \$500/\$500 over \$600/\$800	75	17	73	43
2. \$400/\$400 over \$500/\$700	64	14	73	33
3. \$400/\$400 over \$600/\$800	71	14	73	24
4. $-\$600/-\$600$ over $-\$500/-\$300$	75	10	68	29
5. $-\$500/-\$500$ over $-\$400/-\$200$	75	10	59	38
6. $-\$600/-\$600$ over $-\$400/-\$200$	75	7	55	24
7. \$600/\$600 over \$600/\$800	93	69	91	81
8. \$500/\$500 over \$500/\$700	79	52	86	90
9. $-\$500/-\$500$ over $-\$500/-\$300$	86	48	82	86
10. $-\$400/-\$400$ over $-\$400/-\$200$	93	66	77	81

Table 2

**Preferences between Outcome Pairs, Study 1: Acceptance Condition**

Preferred outcome to self/ outcome to other	+ Relationship		- Relationship	
	Rating (%)	Choice (%)	Rating (%)	Choice (%)
1. \$500/\$500 over \$600/\$800	67	33	70	48
2. \$400/\$400 over \$500/\$700	70	22	65	39
3. \$400/\$400 over \$600/\$800	63	26	70	39
4. -\$600/- \$600 over -\$500/- \$300	67	11	65	22
5. -\$500/- \$500 over -\$400/- \$200	67	15	65	22
6. -\$600/- \$600 over -\$400/- \$200	63	11	65	9
7. \$600/\$600 over \$600/\$800	93	67	95	91
8. \$500/\$500 over \$500/\$700	70	56	90	91
9. -\$500/- \$500 over -\$500/- \$300	74	52	75	87
10. -\$400/- \$400 over -\$400/- \$200	85	59	90	87

Table 3

**Preferences between Outcome Pairs, Study 1: Combined Acceptance and Satisfaction Conditions**

Preferred outcome to self/ outcome to other	+ Relationship		- Relationship	
	Rating (%)	Choice (%)	Rating (%)	Choice (%)
1. \$500/\$500 over \$600/\$800	71	25	71	43
2. \$400/\$400 over \$500/\$700	67	18	69	34
3. \$400/\$400 over \$600/\$800	67	23	71	30
4. -\$600/- \$600 over -\$500/- \$300	71	11	67	25
5. -\$500/- \$500 over -\$400/- \$200	71	13	62	30
6. -\$600/- \$600 over -\$400/- \$200	69	9	60	16
7. \$600/\$600 over \$600/\$800	93	68	93	86
8. \$500/\$500 over \$500/\$700	75	54	88	91
9. -\$500/- \$500 over -\$500/- \$300	80	50	79	86
10. -\$400/- \$400 over -\$400/- \$200	89	63	83	84

are ordered such that a preference for the first outcome demonstrates greater concern for relative payoffs than absolute payoffs.

Comparisons 1 to 6 examine trade-offs between maximizing the subject's own payoff and maintaining equality with the other party. For example, in comparison 1 of Table 3, did the subject prefer outcome 1 (\$500 for self/\$500 for other) or outcome 2 (\$600 for self/\$800 for other)? Our prediction for these pairs was that subjects would be more likely to rate 1 over 2 but choose 2 over 1.

Comparisons 7 to 10 hold the subject's payoff constant across outcomes and assess whether subjects would ever allow the other party to receive additional benefit or would strictly prefer equality. For example, comparison 8 provided a contrast between \$500 for self/\$500 for other versus \$500 for self/\$700 for other.

Comparisons 1 to 3 in Table 3 show a strong effect of choice versus rating. Subjects consistently *rated* the positive-outcome states in a way that showed they were willing to forego additional funds to maintain equality, but they consistently *chose* the positive-outcome states that maximized their own payoffs. For example, 67 percent of the subjects in the rating/positive-relationship condition rated the outcome of \$400 for self/\$400 for other higher than \$600 for self/\$800 for other. However, 77 percent of the subjects in the choice/positive-relationship condition

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exhibited reverse preferences—choosing \$600 for self/\$800 for other over \$400 for self/\$400 for other.

The same pattern is evident in comparisons 4 to 6, which provided a similar trade-off in the domain of losses. In *rating*, subjects were willing to pay additional funds to maintain equality. But *choice* subjects consistently chose the outcome that minimized their own losses. For example, 71 percent of the subjects in the rating/positive-relationship condition rated the outcome of  $-\$600$  for self/ $-\$600$  for other higher than  $-\$500$  for self/ $-\$300$  for other. However, 89 percent of the subjects in the choice/positive-relationship condition chose  $-\$500$  for self/ $-\$300$  for other over  $-\$600$  for self/ $-\$600$  for other.

In comparisons 7 and 8, in both rating and choice, a larger fraction of subjects demonstrated a concern for interpersonal comparisons than in comparisons 1 to 3. This discrepancy across items is not surprising, since, if people were willing to forego money to maintain equality in comparisons 1 to 6, why should they have tolerated disadvantageous inequalities when there was nothing to lose by preferring equality in comparisons 7 to 10? Here, in both rating and choice, the majority of subjects demonstrated a concern for interpersonal comparisons. For example, 93 percent of rating/positive-relationship and 68 percent of choice/positive-relationship subjects preferred \$600 to self/\$600 to other over \$600 to self/\$800 to other. The same pattern of results is consistent across comparisons 8 to 10.

Overall, the relationship manipulation does not appear to have had a significant impact on preferences in the rating condition, but it did affect preferences in the choice condition. In both the positive- and negative-relationship conditions, the range of percentages for subjects doing the rating vary little. However, in choice, people indicated a greater desire for equality in the negative-relationship condition than in the positive-relationship condition. Averaging over items 1 to 6, 16 percent chose the alternative giving equal payments in the positive-relationship condition, while 31 percent did so in the negative-relationship condition. Further, 59 percent did not want to give the other an extra benefit if they themselves gained nothing (comparisons 7 to 10) in the positive-relationship condition. That number increased to 87 percent in the negative-relationship condition. In the negative-relationship condition for outcomes 7 to 10, preferences elicited by choice virtually mimicked those elicited by rating.

**Analyses of significance.** The descriptive results appear to support many of our hypotheses. To test the statistical significance of these predicted effects, models were developed using five independent variables and two dependent variables. The independent variables included rating/choice, positive/negative relationship, satisfaction/acceptability, and the order in which subjects evaluated the outcomes—positive or negative outcome items first. In addition, the sign of outcomes as positive or negative was treated as a within-subjects variable.



The two dependent variables were compiled from each subject's responses across the ten comparisons used in tables 1 and 2. The first dependent variable, PREF1, measured the number of times each subject demonstrated a concern for relative payoffs in comparisons 1 to 6. It was measured separately for positive-outcome comparisons and negative-outcome comparisons by subject. Thus, there were two values of PREF1 calculated for each subject, corresponding to his or her indicated preferences in comparisons 1 to 3 and 4 to 6. In each case, a subject's concern for relative payoffs within a comparison was indicated by a preference for outcome 1 over outcome 2, as opposed to expressing indifference or a preference for outcome 2 over outcome 1. Thus, PREF1 measured the extent to which each subject, across several response items, demonstrated a dislike for unfavorable interpersonal comparisons enough to prefer to lose money to avoid inequalities. Again, since positive-outcome and negative-outcome comparisons were measured separately, PREF1's values could range from 0 to 3. The second dependent variable, PREF2, measured the number of times each subject demonstrated a concern for relative payoffs in comparisons 7 to 8 and 9 to 10. This variable was also calculated separately for positive-outcome comparisons and negative-outcome comparisons by subject. Thus, there were two values of PREF2 calculated for each subject, corresponding to his or her indicated preferences in comparisons 7 to 8 and 9 to 10. PREF2 measured the extent to which each subject, across several response items, demonstrated a dislike for unfavorable interpersonal comparisons enough to prefer to limit the other party's payoff when his or her own payoffs were unaffected. PREF2's values could range from 0 to 2.

To test the coherence of individual subjects' responses, we also compared preferences across outcomes in which the individual received the same amount as the other party. A very straightforward test of the principle of dominance was used. If the other was to receive the same amount as the subject, the subject should have preferred outcomes that yielded more to both parties, rather than less. For example, subjects should not have preferred the outcome of \$400 for self/\$400 for other over the outcome of \$600 for self/\$600 for other. The results indicated a very low incidence of dominance violation, reinforcing our confidence in the quality of our data. Overall, ratings subjects violated the principle of dominance in comparisons that maintained equality in only 10 out of 582 comparisons, and choice subjects violated the principle of dominance in only 8 out of 600 comparisons.

The overall MANOVA yielded significant main effects for rating versus choice, the nature of the relationship, and positive versus negative outcomes (marginally significant), but not for satisfaction versus acceptability or order. Two follow-up MANOVAs on PREF1 and PREF2 yielded significant effects on PREF1 for rating versus choice and positive versus negative outcomes, on PREF2 for rating versus choice and the nature of the relationship. The means, shown in Table 4, indicate that subjects were more sensitive to interpersonal comparisons in rating than in choice, when

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Table 4

Means for Significant Effects, Study 1*			
Main effects	PREF1	PREF2	Significance
Choice	.655 (1.154)	1.420 (.817)	$F_{2,180} = 39.29$ ( $p < .000$ )
Rating	2.046 (1.348)	1.696 (.632)	
Positive relationship	1.270 (1.449)	1.423 (.808)	$F_{2,180} = 5.65$ ( $p < .005$ )
Negative relationship	1.430 (1.410)	1.727 (.613)	
Positive outcomes	1.442 (1.437)	1.594 (.698)	$F_{2,180} = 2.76$ ( $p < .066$ )
Negative outcomes	1.239 (1.425)	1.518 (.786)	
Interactions			
Choice			$F_{2,180} = 4.78$ ( $p < 0.01$ )
Positive relationship	.473 (1.048)	1.170 (.879)	
Negative relationship	.886 (1.245)	1.739 (.597)	
Rating			
Positive relationship	2.082 (1.349)	1.682 (.634)	
Negative relationship	2.000 (1.353)	1.714 (.632)	

\* Standard errors are shown in parentheses.

the relationship with the other party was negative, or when the outcomes were positive.

The overall MANOVA also yielded a significant interaction for rating/choice by relationship. As predicted, the positive-versus negative-relationship manipulation had a more pronounced effect on choice than on rating—causing greater concern for interpersonal comparisons when subjects were told that they did not like the Smiths. This effect was stronger on PREF2 than on PREF1, where it was only marginally significant in the follow-up tests. There were also two unexpected three-way interactions on rating/choice by relationship by item order ( $F_{2,180} = 3.44, p < .03$ ) and on relationship by item order by positive/negative outcomes ( $F_{2,180} = 3.47, p < .03$ ).

## Discussion

The results of this study support the argument that when individuals evaluate multiple outcomes independently, they are more concerned with interpersonal comparisons than when they evaluate multiple outcomes simultaneously. Subjects in the rating condition consistently rejected outcomes that would have improved their own payoffs in favor of outcomes that offered equal payoffs across the parties. However, subjects in the choice condition sought to maximize their own payoffs across outcomes. When the subject's outcome was held constant (comparisons 7 to 10), subjects in both conditions preferred the outcome that maintained equality and rejected the outcome that would have increased the other party's payoff. However, subjects in both conditions were also somewhat more likely to be generous toward the other party in the constant payoff comparisons when they were told that they had a positive relationship with the other party rather than a negative one.

When subjects evaluated preferences between lower equal payoffs versus higher, disadvantageously unequal payoffs (comparisons 1 to 6), only choice subjects showed any greater shift away from equality toward being willing to increase both parties' payoffs when the relationship shifted

from negative to positive. Subjects in the rating condition appeared to be unaffected by this distinction. This finding could reflect differences in the cognitive or preferential processes underlying the two modes of elicitation. This finding could, however, reflect ceiling effects for ratings. Since a large majority of subjects in the rating condition stated a preference for equality in the positive-relationship condition, there was little room in the negative-relationship condition for a stronger interpersonal-comparisons response to be demonstrated.

Overall, this study reaffirms the important role of interpersonal comparisons in multiparty decision making. In addition, it shows that presentation of information in alternative forms can play a critical role in determining the degree to which individuals weight interpersonal comparisons in assessing utilities. While individuals are concerned primarily with their own absolute payoffs in making choices between alternative payment options, they seem to focus on interpersonal comparisons in assessing specific options. When multiple outcomes are evaluated separately, the payoffs of relevant others become the reference point. In a choice context, no referent is needed to judge outcomes to oneself, since outcomes to oneself can be easily compared with two (or more) choices.

## STUDY 2

In Study 2, we sought to extend the results of Study 1 in a number of ways. First, we responded to a methodological limitation of Study 1, where it could be argued that the rating/choice elicitation effect was due to the fact that subjects had no way to assess what a reasonable payoff was. The other party's payoff was the only available information with diagnostic value. While we believe that this is a common context for many real-world settings, here we wanted to show that the effects documented in Study 1 do generalize to contexts in which individuals are given sufficient information to judge their own outcomes without reference to other parties. For all positive outcomes, we gave subjects salient prior expectations that their payoffs were expected to be between \$400 and \$600, with all values being equally likely. For negative outcomes, subjects were told that their payoffs could lie between  $-\$400$  and  $-\$600$ , with all values being equally likely. If, as we believed, the outcomes of the other party would play the role of a salient reference point for rating subjects, we anticipated that these subjects would ignore this base-rate information as a metric for judging their own outcomes, and the findings of Study 1 would be replicated. If, however, the heavy weighting of relative payoffs in the rating condition was due to the absence of any other benchmark for evaluating one's own payoff, then the findings of Study 1 would not be replicated, and preferences in the rating condition would converge toward those obtained in the choice condition.

Second, in Study 1, we were surprised by the degree to which subjects in the choice condition assigned disutility to the other party receiving more than they did when the subject's payoff was held constant, especially when they

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liked the other party. For example, Table 3 suggests that 68 percent of the subjects with a positive relationship toward the other party chose the outcome of \$600 for self/\$600 for other over the outcome of \$600 for self/\$800 for other. Why didn't these subjects want their nice neighbors to receive an extra \$200? Is this effect robust? In this study, we wanted to find out if this finding was replicated.

In addition, we attempted to develop a framing mechanism as a means of reducing the general concern that all subjects demonstrated for interpersonal comparisons. Thaler (1985) pointed out that there are many ways to frame the same set of outcomes cognitively and that such framing can have significant hedonic consequences. For example, when an individual experiences a gain and a loss in close succession, he or she has the option of integrating them (adding them and treating them as a single composite outcome) or segregating them. The hedonic consequences of integration and segregation of outcomes depend critically on the shape of the individual's utility function. This same idea extends naturally to interpersonal comparisons. If a subject received an outcome of \$600 for self/\$800 for other, to what extent could the disutility of the \$200 difference be minimized by expressing it as \$600 for self/\$600 for other and segregating the \$200 into an alternative "mental account"? In this study, we predicted that concern for interpersonal comparisons could be reduced by inducing subjects to place the difference between their own and the other party's payoffs in a separate mental account.

Finally, much critical attention has been given to the use of student subjects (Sears, 1986; Neale and Northcraft, 1990). This study employed a non-student sample in an effort to generalize the primary results of the first study.

## Methods

One hundred and four managers from a Big Six accounting firm were randomly assigned to a  $2 \times 2$  design. The four cells crossed rating/choice and base condition/mental-accounting condition. The study was designed to employ a modified version of the materials from Study 1. All manipulations occurred on the response pages (page two) and are explained in detail below.

On page one, the materials were uniform across conditions. All subjects were told that they liked the other party and were assigned to the acceptability condition from Study 1. In addition, all study materials included the following statements about subjects' prior beliefs. In the *pay scenarios*, subjects were told, "As far as you can tell, your own tax bill will be somewhere between \$400 and \$600, with all values in between being equally likely." In the *receive scenarios*, subjects were told, "As far as you can tell, the third neighbor will be paying you somewhere between \$400 and \$600, with all values in between being equally likely."

On page two, all subjects assessed the same 10 outcomes as in Study 1; the equal-payoff outcomes were kept in the same format. However, the unequal-payoff format was changed. These outcomes were accompanied by a

one-paragraph cover story that justified the difference in payoffs between oneself and the Smiths. The exact form of the justification varied slightly depending on the base-condition and mental-accounting-condition distinction.

In the base condition, the single-outcome (rating) presentation for unequal-payoff pairs was maintained from Study 1. What changed was the addition of the cover story paragraph. For example, base condition subjects were asked to assess the acceptability of the following outcome:

You pay \$400, and the Smiths pay \$200.

This difference is due to the City's policy for reducing tax bills in exchange for landowner lot improvements. As far as you can tell, the Smiths' only improvement was their decision to move the broken, rusted park bench from their front yard to their side of the empty lot.

In contrast, in the mental-accounting condition, the unequal-payoff outcomes were broken into two parts—an equal-payoff outcome and a separate outcome involving only the Smiths. This separate outcome was used to induce the subject to create a separate mental account. Thus, under the mental-accounting condition, the outcome shown above was presented as follows:

You pay \$400, and the Smiths pay \$400.

The city also rebates the Smiths \$200 in taxes.

This rebate is due to the City's policy for reducing tax bills in exchange for landowner lot improvements. As far as you can tell, the Smiths' only improvement was their decision to move the broken, rusted park bench from their front yard to their side of the empty lot.

Subjects in the rating condition assessed the 10 outcomes in groups of five using separate scales for each outcome, and subjects in the choice condition chose between each possible pair of gains and each possible pair of losses (20 choices in total). For choice subjects in the base and mental-accounting conditions, options were identical to those for subjects in the rating condition, but they were presented in pairs rather than singly. Finally, half of the subjects in all conditions evaluated the positive-outcome items first, and half of the subjects evaluated the negative-outcome items first.

## Results

Table 5 presents the descriptive data for the same 10 comparisons used in Study 1. The same dependent variables were derived from subjects' responses as in Study 1. PREF1 summarized subjects' responses on comparisons 1 to 6, and PREF2 summarized subjects' responses on comparisons 7 to 10. Again, an overall MANOVA and two follow-up MANOVAs were performed.

The basic rating/choice results on PREF1 and PREF2 from this new sample mimicked those of Study 1, but were even stronger ( $F_{2,95} = 88.93, p < 0.000$ ). With standard errors given in parentheses, the means for significant effects were as follows: for choice, PREF1 = .363 (.864), PREF2 = 1.245 (.884); and for rating, PREF1 = 2.472 (1.016), PREF2 = 1.868 (.459).

Table 5

**Preferences between Outcome Pairs, Study 2**

Preferred outcome to self/ outcome to other	Base condition		Mental accounting	
	Rating (%)	Choice (%)	Rating (%)	Choice (%)
1. \$500/\$500 over \$600/\$800	92	23	89	20
2. \$400/\$400 over \$500/\$700	92	8	78	16
3. \$400/\$400 over \$600/\$800	92	4	78	16
4. -\$600/- \$600 over -\$500/- \$300	96	4	70	12
5. -\$500/- \$500 over -\$400/- \$200	96	15	85	12
6. -\$600/- \$600 over -\$400/- \$200	81	8	67	8
7. \$600/\$600 over \$600/\$800	100	73	93	64
8. \$500/\$500 over \$500/\$700	100	50	85	68
9. -\$500/- \$500 over -\$500/- \$300	96	46	93	64
10. -\$400/- \$400 over -\$400/- \$200	92	58	93	76

While there was no significant main effect for the mental-accounting manipulation, there was a marginally significant rating/choice by base-condition/mental-accounting condition interaction of PREF1 ( $F_{2,95} = 2.25, p < .11$ ). In choice, the mental-accounting manipulation tended to maintain or slightly heighten subjects' concern for interpersonal comparisons, while in rating, the manipulation tended to lessen this concern.

### Discussion

This study provides a robust replication of the first study. Again, subjects making choices between multiple outcomes were more concerned with personal payoffs under each option, while subjects rating the outcomes independently continued to focus more on the difference between their own payoff and the other party's. This effect held despite the availability of a straightforward benchmark against which to evaluate the payoffs to oneself. Thus, this study supports the argument that when subjects evaluate a single outcome, they naturally focus on the payoffs of others, regardless of the availability of an alternative, valid metric to assess their own payoff.

While the mental-accounting condition did not create the expected results overall, it did alleviate some of the concern for interpersonal comparisons demonstrated by subjects in the rating condition. The value of PREF1 for rating subjects fell from 2.731 in the base condition to 2.222 in the mental-accounting condition, which is still above the overall mean for positive-relationship/rating subjects in Study 1 of 2.082. The fact that concern for interpersonal comparisons in choice subjects held flat or increased slightly suggests a ceiling effect for reducing interpersonal comparisons through a multiple-outcome elicitation format. The slight increase in interpersonal comparisons might be explained by the specifics of the manipulation. Perhaps by separating out information about the inequality of payoffs from information about the subject's own payoffs across outcomes, the subject's attention to interpersonal comparisons was heightened. Whereas, before, all information was presented in one line and the subject tended to focus primarily on his or her own payoffs, here the subject was given an extra line

of information that had nothing to do with his or her own payoffs but that called attention to inequalities.

The marginal results from the mental-accounting manipulation reemphasize the critical role of interpersonal comparison processes in how individuals evaluate outcomes. Further, they suggest that the use of interpersonal comparisons in certain situations is based on well-ingrained tendencies and that shifting the presentation of information to focus less on interpersonal comparisons does not easily alter these tendencies.

## **GENERAL DISCUSSION AND CONCLUSIONS**

This paper has examined the important role of interpersonal comparisons on decision making in organizational allocation contexts. We began with the interpretation that judgments about the justice or fairness of outcomes represent the degree of equality or equity across parties' payoffs that is considered normatively acceptable within the multiparty allocation situation. We then offered the argument that the importance that people place on interpersonal comparison of payoffs and adherence to perceived distributive justice norms within these contexts depends, in part, on how information about any relative inequities is presented. Finally, we provided evidence from two studies that individuals' preferences regarding the trade-off between maximizing personal payoffs and maintaining norms of distributive equality can reverse, depending on whether potential outcomes are evaluated sequentially or simultaneously.

Thus, the primary contribution of this paper is to show that the presentation of information in alternative forms may play a critical role in determining the degree to which individuals weigh interpersonal comparisons in organizational decision making. While individuals are concerned primarily with their own payoffs when making choices between options, they focus on interpersonal comparisons in assessing specific situations. Because inequities are inevitable in organizations, our research suggests individuals should be encouraged to evaluate multiple potential resolutions of an allocation decision simultaneously. In this way, they may be less apt to overweight relative differences in payoffs between themselves and other parties in a way that is dysfunctional to the individual and the organization.

The reversals of preference documented in our experiments join an expanding list of elicitation effects observed in decision-making research. Numerous studies have found that subtle differences in elicitation can have a profound effect on stated preferences—changing people from risk-averse to risk-seeking (Kahneman and Tversky, 1979), changing their preferences on the timing of alternative outcomes (Loewenstein and Prelec, 1991), and reversing their preferences across an array of multiattribute prospects (Tversky, Sattath, and Slovic, 1988). Expressing an uncertain prospect either as a gamble or as the purchase of insurance (Hershey, Kunreuther, and Schoemaker, 1982), altering the perceived degree of compatibility between an individual's inputs and outputs (Slovic and Macphillamy, 1974; Slovic, Griffin, and Tversky, 1990), and many other factors

## Reversals of Preference

significantly influence the quantitative and qualitative characteristics of preferences elicited from individuals. The robustness of preference reversals has been demonstrated in a large number of studies that have employed substantial payoffs (Lichtenstein and Slovic, 1973), given feedback about the consequence of decisions (Grether and Plott, 1979), and have even exposed subjects to monetary losses as a consequence of the reversals (Berg, Dickhaut, and O'Brien, 1985). However, our research is the first to examine such reversals in the context of interpersonal decision making. Its unique aspect is that it occurs in the social interaction and arises from differential weighting of interpersonal comparisons.

One limitation of these two studies is that they use one method and one context. It is possible that the effects would fail to generalize using other methods and other contexts. Fortunately, preliminary results support the generalizability of the results. In Loewenstein, White, and Bazerman (1991), we have extended the findings of this paper to a real situation in which students could choose whether to earn extra money or not. In the process of canvassing an introductory class on decision making for volunteers for lab experiments, students were randomly assigned to one of three experimental conditions. Each condition varied whether the subject had the opportunity to participate in either experiment A, in which subjects would be paid equally at \$7 for 40 minutes of work, or experiment B, in which some subjects would be paid more than others for 40 minutes of work, either \$8 or \$10, depending upon an arbitrary factor—the last digit of their social security numbers. Of the subjects who evaluated the two money-making alternatives singly, significantly more subjects offered the \$7/\$7 experiment chose to participate (72 percent) than subjects offered \$8 in the \$8/\$10 experiment (55 percent), despite the fact that the latter experiment paid subjects more money for the same amount of work. In a third condition, which offered a choice between the two experiments, most subjects offered \$8 in the \$8/\$10 experiment chose participation (72 percent), and most of those choosing participation selected the \$8/\$10 experiment over the \$7/\$7 experiment (78 percent). We found that in evaluating whether or not to participate in a single experiment, the outcomes of other potential subjects was critical. However, when multiple opportunities were available, the outcomes of others became less important. In a related study, we are currently examining whether these results generalize to the problem of sequential decision making in job choice, a problem more directly linked to the organizational decision-making context.

An additional weakness of the current paper is the methodology that we used when asking subjects to make multiple ratings sequentially. Under our format, it is possible that subjects referred to earlier outcomes in rating later outcomes. If this routinely occurred, our rating task was closer to a ranking or choice task, which implies that our tests of rating versus choice might have been conservative. Presumably, subjects would be even more focused on interpersonal comparison information when the evaluation of



each outcome is more distinctly separate. The findings of Loewenstein, White, and Bazerman's (1991) subject-recruitment study, in which subjects in the rating condition saw only one outcome, are consistent with this prediction.

Given that rating and choice produce such different patterns of preference, a natural question that arises is which elicitation method comes closer to representing an individual's "true" preferences. We argue that choice deserves this status, because of the greater sensitivity of choice to the nature of the relationship. We believe that most people would be influenced by the relationship between themselves and another party when choosing whether to accept an unequal payoff in exchange for greater total gains across both parties. Moreover, the relationship should influence an individual's willingness to accept inequality, even when it only benefits the other person. The fact that choice subjects exhibited such a pattern, while rating subjects did not, seems to argue in favor of choice as being more reflective of actual norms of behavior.

The view of choice as a truer measure of preference also stems from the finding that rating subjects tended to choose Pareto-dominated (i.e., inefficient) outcomes more often than choice subjects did. An outcome is Pareto-dominated when there is an alternate outcome for the same situation that would make one party better off without decreasing the outcomes to the other. We expect that many individuals would not knowingly opt for a Pareto-dominated alternative. A world in which everyone's preferences correspond to those revealed by choice rather than by rating would be one in which everyone is better off materially. This conclusion mirrors Rawls' (1971) theory of justice, in which he argued that resources should be distributed equally, except in cases in which an unequal distribution works to everyone's advantage.

Thus far, we have argued that our results lead to the prediction that interpersonal comparisons will be more important in single-outcome assessment (i.e., rating) than in multiple-outcome assessment (i.e., choice). However, a broader prediction is that interpersonal comparisons are simply one of many possible external standards that people tend to employ more often in evaluating single outcomes than in evaluating multiple outcomes. This is because external standards are cognitively necessary in single-outcome assessment situations, when comparative information for interpreting payoffs to oneself is not available. An interesting implication of this argument is that procedural justice concerns (Lind and Tyler, 1988) may also serve as an external standard that is more important in assessing single situations than in making choices between situations. Imagine two situations, (1) a comparatively good outcome follows an unjust procedure and (2) a comparatively poor outcome follows a just procedure. We would predict that these two situations can be created such that the second will be more likely to be acceptable than the first if each alternative is assessed separately but that the first will be chosen over the second if they are compared as part of

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the same decision. We are currently developing a test of this prediction.

Understanding how interpersonal comparison concerns operate in assessing satisfaction with an outcome is critical to improving employee motivation and, correspondingly, organizational efficiency. Often, perceptions of equity are based on nuances in how information is presented. Here, we have asserted that an individual's relative preferences between maximizing personal payoffs versus maintaining situational norms of distributive equality can reverse depending on whether information about potential outcomes is presented multiply or singly. Our research suggests that when individuals are encouraged to evaluate multiple potential outcomes simultaneously, they are less concerned with relative outcomes than when they evaluate these same outcomes one at a time.

We realize that it is unrealistic to expect to eliminate individuals' concerns for interpersonal comparisons. Ample evidence exists to support the argument that people rely on reference points for making sense of information, and interpersonal comparisons often offer readily available reference points for evaluating personal outcomes. However, by understanding common judgment patterns, it may be possible to reduce some of the dysfunctional effects of interpersonal comparison processes in organizations. Most of us are unaware of how heavily we weight interpersonal comparisons and are even less aware of how inconsistent we are in doing so. Future research could constructively investigate the question of how to educate individuals about their true social utility preferences so that they are not as easily influenced by how information is presented.

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## APPENDIX A: Mathematical Formulation of the Rating/Choice Result

### The General Model

Consider a possible resolution of a dispute between two parties,  $X$ . Let  $X = (x_1, x_2)$ , where the subscripts refer to the payoffs for players 1 and 2.

People are concerned with payoffs to themselves and with the difference between their own payoff and that of a relevant other (Loewenstein, Thompson, and Bazerman, 1989). We focus on the perspective of player 1 as the focal decision maker and consider situations in which the decision maker receives the same or lesser outcomes than the relevant other. Thus, for the purposes of this analysis  $x_2 \geq x_1$ .

Let  $u$  and  $v$  represent additive utility functions for player 1;  $u$ , the utility function that player 1 uses to assign utility to his or her own outcome to the dispute, is continuous, concave, and monotonically increasing above zero and convex and monotonically increasing below zero;  $u(0) = 0$ ;  $v$ , the utility function that player 1 uses to assign utility to the comparison (difference) between his or her outcome and the outcome of the other player, is defined between negative infinity and zero and is convex and monotonically increasing;  $v(0) = 0$ .

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From the work of Loewenstein, Thompson, and Bazerman (1989), it follows that any outcome  $X$  for which  $x_2 \geq x_1$  can be assessed by player 1 according to the social utility function  $U(X) = u(x_1) + v(x_1 - x_2)$ .

### Rating

Now, let us define two outcomes  $X = (x_1, x_2)$  and  $Y = (y_1, y_2)$ , such that  $y_2 > y_1 \geq x_2 = x_1$ . As outlined above, the utility of each outcome to player 1, when rated independently, would be as follows:

$$U(X) = u(x_1) + v(x_1 - x_2) = u(x_1)$$

$$U(Y) = u(y_1) + v(y_1 - y_2).$$

In ratings,  $Y$  would be rated higher than  $X$  if and only if  $U(Y) > U(X)$ , which implies that  $u(y_1) - u(x_1) > -v(y_1 - y_2)$ .

### Choice

In choice, the utility of each of the outcomes to player 1 is expected to be calculated differently. Most people in a dispute do not like receiving a lower outcome than the other party (Loewenstein, Thompson, and Bazerman, 1989). In choosing between the options  $X$  and  $Y$ , player 1 will therefore weigh the incremental personal gain offered by outcome  $Y$  over outcome  $X$  against the increase in inequity. Thus, outcome  $X$ , which results in a lower but equal outcome for player 1, will be the referent by which player 1 judges outcome  $Y$ . The relative advantage of  $Y$  over  $X$  (written  $A(Y|X)$ ) is then,

$$A(Y|X) = u(y_1 - x_1) + v[(y_1 - y_2) - (x_1 - x_2)] = u(y_1 - x_1) + v(y_1 - y_2).$$

$Y$  will be chosen over  $X$  if and only if  $A(Y|X) > 0$ , which implies that  $u(y_1 - x_1) > -v(y_1 - y_2)$ .

### Rating versus Choice

Now a comparison can be made between the outcomes predicted by the utility functions in rating versus choice. For outcome  $Y$  to be preferred over outcome  $X$ , rating requires

$$u(y_1) - u(x_1) > -v(y_1 - y_2)$$

and choice requires

$$u(y_1 - x_1) > -v(y_1 - y_2).$$

From the concavity of  $u$  in the positive-values range and the convexity of  $u$  in the negative-values range, it follows that for all outcome states  $X$  and  $Y$ ,

$$u(y_1 - x_1) > u(y_1) - u(x_1).$$

Thus, when  $Y$  is rated higher than  $X$ , it will also be chosen over  $X$ . However, the opposite is not true. There will be cases in which  $Y$  is chosen over  $X$  but will not be rated higher than  $X$ . Such reversals will occur when,

$$u(y_1 - x_1) > -v(y_1 - y_2) > u(y_1) - u(x_1).$$

In the special case, in which  $x_2 = y_1$ , the model predicts that ratings and choice will converge such that there will be no systematic difference between the two. Consider outcomes  $X$  and  $Y$  such that  $y_2 > y_1 = x_2 = x_1$ . According to the above model,  $X$  and  $Y$  would be rated as

$$U(X) = u(x_1) + v(x_1 - x_2) = u(x_1)$$

$$U(Y) = u(y_1) + v(y_1 - y_2).$$

$Y$  would be rated higher than  $X$  if and only if

$$-v(y_1 - y_2) < 0,$$

which implies that player 1 likes disadvantageous inequality. Similarly, one would choose  $X$  over  $Y$  if and only if

$$A(Y|X) = u(y_1 - x_1) + v(y_1 - y_2) > 0, \text{ or}$$

$$-v(y_1 - y_2) < 0.$$

The choice condition is exactly the same as for rating. Therefore, we would anticipate that choice will be much more similar to rating on comparisons with  $y_1 = x_1$  than for comparisons in which  $y_1 > x_1$ . Note that all of the above predictions apply regardless of whether outcomes are in the domain of gains or losses. However, these predictions do not apply to outcomes in which the payoffs to player 1 and player 2 differ in sign or to outcome pairs in which the sign of the payoffs differ between outcomes  $X$  and  $Y$ .

## **APPENDIX B: Research Instruments, Study 1**

### **Satisfaction/Positive Relationship/Loss Items**

On page one, subjects were given the following scenario:

"You live adjacent to an empty lot separating you from your next door neighbor to your left, the Smiths.

"You like the Smiths a lot, and other neighbors share your opinion of them. The Smiths always help out others. They are more than happy to take care of pets, water plants, and collect mail. When they borrow gardening tools or other items, they return them promptly and in good condition. They are also good about picking up after their dog. Last week, they loaned you some very expensive tools for a repair project and offered their guest bedroom for one of your out-of-town guests. In short, the Smiths are kind, friendly, sincere, responsible, and dependable.

"No one knew who owned the lot separating your property from the Smiths', despite the fact that you and the Smiths have lived there for over 2 years. However, the city recently informed you that the lot actually belongs to both you and the Smiths, but the percentage owned by each of you is unclear.

"The lot is too small to sell. However the city has assessed taxes on the property that you and the Smiths must pay. You and the Smiths need to decide how to split the cost of the taxes.

"On the following page, please indicate how *satisfied* you would be with each of the following possible resolutions of the tax problem for you and the Smiths. Place a slash at the point on the scale that represents your response."

On page two, rating subjects assessed each of the five negative outcome states on separate 11-point scales. Choice subjects made 10 choices between every combination of the five negative outcomes by selecting the outcome listed in either column 'A' or column 'B'.

### **Acceptability/Negative Relationship/Gain Items**

On page one, subjects were given the following scenario:

"You live adjacent to an empty lot separating you from your next door neighbor to your left, the Smiths.

"You have had many unpleasant personal experiences with the Smiths. Your other neighbors also consider them to be obnoxious. The Smiths complain about others' lawn and house maintenance, yet they do not do any work on their own home. They borrow tools, but often fail to return them. Last week, they threatened to call the police on a small party you were having, returned your lawn furniture damaged after borrowing it for their own larger party, and failed to pick up after their dog had been in your yard. In short, the Smiths are selfish, irresponsible, argumentative, demanding, and insincere.

"No one knew who owned the lot separating your property from the Smiths', despite the fact that you and the Smiths have lived there for over 2 years. However, the city recently informed you that the lot actually belongs to both you and the Smiths, but the percentage owned by each of you is unclear.

"A third neighbor who lacks a backyard agreed to buy the property for gardening purposes. You and the Smiths would both be happy to have a garden between your houses. You and the Smiths need to decide how to split the profit.

"On each line on the following page, you are presented with two possible outcomes for you and the Smiths. For each pair, indicate which option you would be more willing to *accept* by circling option A or option B."

Again, on page two, rating subjects assessed each of the five positive outcome states on separate 11-point scales. Choice subjects made 10 choices between every combination of the five positive outcomes.