Cognitive Feedback in Negotiations.

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Cognitive Feedback in Negotiations about U.S. Nicaragua Policy.

Abstract.

In a search for methods for improving negotiations, the effect of presenting formal descriptions of negotiators' beliefs and values was studied. Liberal and conservative students were paired and required to negotiate an agreement about a U.S. policy toward Nicaragua. Before and after the negotiation, they evaluated U.S. policies, expressed their beliefs about the effects of these policies on four types of outcome in Nicaragua, and evaluated those Nicaraguan outcomes. Correlations among these evaluations provide measures of negotiator differences, convergence between the negotiators, stability of judgment, interpersonal influence, and interpersonal learning.

Cognitive feedback about each other's beliefs (concerning effects of U.S. policies) and/or values (concerning Nicaraguan outcomes) was provided. The feedback did not unambiguously improve the subjects' ability to predict the others' judgments. Males proved more likely to believe their opponent had opposing judgments, while females were more likely to believe the opponent had the same judgments.

People influenced each other's beliefs and values, so that their opinions converged when measured following the negotiation. Men were more likely to influence each other's beliefs, while women were (non-significantly) more likely to influence each other's values.

Feedback about beliefs prevented people's evaluations of U.S. policies from converging. Belief feedback tended to make subjects' beliefs more stable, while value feedback made their evaluations more stable. Feedback did not enable people of one political persuasion, more than the other, to increase their influence over the other's opinions.

1. Introduction.

What do people understand of their opponents when they must negotiate with people who have conflicting values? Does increasing their knowledge of the other's beliefs and values improve their ability to come to an agreement or to discover mutually satisfactory solutions? We conducted a study in which people with conflicting views concerning a political issue, U.S. policy toward Nicaragua, were required to negotiate an agreement with each other. We assumed that people's disagreements can be understood in terms of their beliefs and values. We modeled these beliefs and values using multiple correlation statistics, and presented these models to the participants to increase their mutual understanding.

Recent research in many areas of psychology has involved a dialectic between the assumption that people have a rational conception of the tasks they are engaged in, contradicted by demonstrations that they have not caught on to the most elementary aspects of the situation. For instance, in negotiations people do not understand their opponents (Hammond and Brehmer, 1973) and "leave money on the table", i.e., fail to exploit their shared interests (Mumpower, 1988). As with other dialectics, we might hope to discover a unified, more complicated conception under which both these types of observation may be understood.

Our approach is to use correlational judgment analysis techniques. The present analysis uses correlations among the negotiators' various judgments of two sets of stimulus objects: hypothetical U.S. policies toward Nicaragua and hypothetical outcome states in Nicaragua. For example, to measure how similar the negotiators' values are, we have them evaluate the U.S. policies individually, before the negotiation, and use the correlation between their evaluations as a similarity measure. To measure how accurately they understand one another after the negotiation, we have each estimate the other's judgments of the U.S. policies, and compare these estimates with the other's actual post-negotiation judgments.

The study is exploratory. This means three things. We describe our methods in sufficient detail for others to use them, even when a method produced no significant results in this study. We discuss findings with marginal statistical significance ($p < .10$). Finally, we look for support for hypotheses on either side of the rationality/irrationality dialectic, rather than emphasizing only those findings that support one class of hypothesis.

This report is preliminary. Results involving correlations between judgments are reported here. Further results involving Lens Model analyses (Hammond, Stewart, Brehmer, and Steinmann, 1975) of subjects' judgment policies (which consider the relative weights subjects put on different cues), subjects' subjective reports about the negotiation process, and their recall of the information they were given about their own and the other's judgment policies will be presented in another paper.

2. Cognitive Conflict in Conflict Resolution and Negotiation.

It is useful to distinguish between two major factors that may be involved in conflicts: facts (beliefs) and values (motivations). Our naive explanations of conflict focus on motivations: person A wants one state of affairs, person B wants another, and it is not possible to attain both. A more subtle type of value conflict has to do with people's sense of the relative importance of issues. In an experiment simulating UN arms control negotations, "strong differences between two negotiators in the relative importance of two issues hindered resolution attempts and increased the hostility between them" (Bonham, 1971, described by Druckman, 1973, p 15).

Although of course motivational differences are a major factor in conflicts, researchers have pointed out that people's divergent understandings of the issues also make it difficult for them to come to agreement. Druckman (1973) observed that "a number of issues in political decision making involve conflicts between

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experts over what will happen rather than over what should happen" (p 15). Hammond and Brehmer (1973) agree that cognitive conflict (disagreements about beliefs or facts, rather than about values) is an important source of difficulty in negotiations, and argue that this is compounded because people don't recognize it, but think instead that the issue is value conflict.

This raises the possibility that we may help people deal with their conflict by helping them understand each other better. However, not all attempts to increase understanding and thereby resolve conflict have been successful. Rapoport (1964) proposed that people should be encouraged to debate about deeper issues. But attempts to operationalize this through role reversal failed, because people did not learn the others' positions well enough (Druckman, 1973). Blake and Mouton (1962) found that people do not understand each other's positions even if they spend a long time talking before a debate. A recent review of thirty laboratory studies in which cognitive conflict was induced concluded that "persons are poor communicators of the parameters of their judgment policies" (Hammond and Grassia, 1985, p 243). However. giving "cognitive feedback", i.e., information about one's own and the other's judgment policies. reduced cognitive conflict. This suggests that such a method might be useful for reducing conflict in negotiations.

2.1. Use of cognitive feedback about opponents' judgments in conflict studies.
   People involved in a negotiation can be given insight into their own judgments, their opponents' judgments, and the differences between the two by using abstract descriptions of their judgment policies. Such descriptions can be produced using multiple regression techniques (Hammond, McClelland, and Mumpower. 1980), such as the POLICY program (see Appendix B). Such techniques have been used as a tool for measuring people's judgments in conflict situations. Balke. Hammond. and Meyer (1973. p 312) argue that they have special advantages that compensate for the fact that they require a large number of judgments of hypothetical objects, because in complex circumstances the human judgment process is: **covert** (so we must either rely on subjective reports. or seek some way of observing behavior in multiple instances): **inaccurately described** (subjective reports are inaccurate: fitting a regression model to judgment behavior is a way around this): and **inconsistent** (again. multiple observations are required for a general trend to appear). Their study of people involved in a labor negotiation demonstrates that conflict can be due to cognitive conflict rather than just motivational conflict. After the strike was settled. three people from labor and three from management were asked to participate in a study. which involved:

1. Preliminary judgment measurement. Twenty-five hypothetical labor contracts that varied systematically in key features were judged. Each subject also predicted the judgments of one of the people from the other side (whom they knew from the earlier negotiations).

2. Feedback. Subjects received cognitive feedback on their own and their counterparts' judgment policies. (A control pair received no information about the policies.) Next. the negotiators reevaluated the contracts. estimated their own subjective weights. and predicted how their counterparts would evaluate them.

3. Negotiation. Each pair attempted to reach agreement on the acceptability of the contracts.

The subjects' self-understanding was poor. Negotiators believed they understood their counterpart's policies. but did not. All participants' positions changed from first to second measurement. presumably due to insight gained from making the judgments and receiving feedback. Feedback facilitated agreement in the final negotiation. in contrast with the control condition (discussion only).

Hammond and Brehmer (1973) proposed that during a negotiation, parties' policies will get closer

together, even though their positions on particular cases will not. They attribute this to inconsistency. That is, people affect each others' central tendencies, but there is still disagreement about the present case due to inconsistency.

Multiple regression techniques that can be used for conveying information about cognitive (belief) conflict between negotiators can also be used for conveying information about value conflict. Is it more effective at informing people about one kind of conflict rather than the other? Does improvement in handling conflict follow automatically upon increased understanding of one's own and the other's beliefs and values? Focussing attention on values might be counterproductive. When broad underlying differences are called attention to, agreement may become more difficult (Druckman and Zechmeister, 1970). When positions are incompatible, information may make negotiations more difficult and increase competitiveness (Johnson, 1967). An additional complicating factor is that it may be harder to learn someone else's values when they are very different from one's own (Summers, Taliaferro, and Fletcher, 1970). It may therefore be particularly hard to use this method in exactly the situations where it is most needed: where people most disagree with each other. Our study was designed to answer these questions.

2.2. The present study.

We ran an experiment in which liberal and conservative college students were paired and required to negotiate an agreement about a U.S. policy toward Nicaragua. Before and after the negotiation, they evaluated a set of U.S. Nicaragua policies and a set of descriptions of outcomes in Nicaragua. These allow measurements of their **values**. In addition, they expressed their **beliefs** about the effect of the U.S. Nicaragua policies on each of four Nicaraguan outcomes. Having these measurements both before and after the negotiation allows us to measure the effects of the negotiation on the stability of the subjects' beliefs and values and on the extent to which the subjects came to agree with each other. In addition, after the negotiation each subject estimated the other's judgments of the U.S. Nicaragua policies. This allows us to assess their interpersonal learning. Because it has been claimed that men and women tend to negotiate differently in our culture, we used both male-male and female-female dyads.

The experimental manipulation was the provision of cognitive feedback concerning both parties' values, beliefs, or both. The effects of this cognitive feedback on whether the subjects succeeded in coming to an agreement and on the stability, convergence, and interpersonal learning of their belief and value judgments can be measured using this design.

3. Methods and Procedures.

Forty-eight college students, half liberal and half conservative, half male and half female, were paired into same-sex dyads on the basis of their responses to a screening questionnaire about their political knowledge and opinions (Appendix A-1 of Appendix A) and on the basis of their evaluations of a set of hypothetical U.S. policies toward Nicaragua (see below). To find a sufficient range of students, the screening questionnaires were distributed to students in psychology, sociology, and Army ROTC classes and to students manning tables for political organizations in the student center. Subjects who participated were given course credit or $20 upon completion of the three required sessions. The research assistants' manual in Appendix A (which itself has Appendices A-A to A-J) describes the procedures used for soliciting subjects and for the three sessions.

3.1. Judgment sessions.

In separate sessions before and after the negotiation session, subjects individually performed six judgment tasks using POLICY (see Appendix B), an IBM-PC program, by John Rohrbaugh and Sandor Schuman, that performs the same Lens Model analyses used by Balke, Hammond, and Meyer (1973) and

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described by Hammond, Stewart, Brehmer, and Steinman (1975). We used the program to present sets of hypothetical judgment objects, described on 3 or 4 varying dimensions, for the subjects to judge. It records the judgment ratings and optionally analyzes them, producing a judgment policy model, and displays the relative weights the subject puts on each dimension, and the dimension's function form, i.e., the shape of the relation between the judged dimension and the subject's rating. Before each task, the subject read instructions and definitions of the cue dimensions and the rating dimension (see Definitions document, in Appendix A-C). These tasks were developed through several iterations, and shown to about a dozen people knowledgeable about Central American politics and about U.S. citizens' knowledge of Central American politics, including teachers from the Sociology and Political Science departments at the University of Colorado, for their feedback concerning the realism, comprehensiveness, and understandability of the stimuli.

The first judgment task, Actions judgment, presented 18 hypothetical U.S. Nicaragua policies. These were defined in terms of the amount of money (in millions of dollars) the U.S. would spend per year on three types of activity: Reconciliation (friendly overtures and aid to the Sandinista government), Opposition (support for the internal political opposition), and Proxy War (support for the armed Contras). The possible levels for Reconciliation were $10, 50, and 90 M; for Opposition, $0, 20, and 40 M; and for Proxy War, $0, 60, and 180 M. To avoid unlikely combinations, no policies with (Reconciliation, Proxy War) values of ($50 M, $180 M), ($90 M, $180 M), or ($90 M, $60 M) were presented. This left 18 possible combinations. The subject rated how much he or she liked each of these policies, on a 1 to 10 scale.

The second judgment task, Outcomes judgment, presented 24 hypothetical outcomes in Nicaragua. These were defined in terms of four dimensions: Civil Life (open or restricted), Economy (healthy or depressed), Strife (war and violence or little conflict), and Government (leftist, moderate, or rightist). It was necessary to use three levels of Government to allow for the likely possibility that subjects had a preference function with an ideal point somewhere in the middle of the left/right dimension, rather than at an end. All 24 possible combinations of these levels on these dimensions were used. The subject evaluated these 4-dimensional outcomes descriptions on a 1 to 10 scale.

While the first two judgment tasks required value judgments, the last four required assessments of fact or belief. The subject considered each U.S. Nicaragua policy (using the same descriptions, in the same order, as presented for the Actions judgment task) and rated its effect on each of the four dimensions describing Nicaraguan outcomes that had been used in the Outcomes judgment task. These are called "Mapping" judgments. The ratings were on a 1 to 10 scale, where 10 means that the policy would most likely produce a very "good" level on the Civil Life, Economy, and Strife dimensions, and a very "right" level on the Government dimension. [Pilot work indicated that subjects found the task easier when the levels were aligned in this way.]

To specify the meaning of the rating scales, the phrases defining the levels of each outcomes dimension, and the associated paragraph definition (Appendix A-C), were assigned a specific number on the 1 to 10 scales. For example, on the Economy dimension "2" means "depressed" and "9" means "healthy". In order to save time, the subjects rated each U.S. Nicaragua policy for its effect on Civil Life, Economy, Strife, and Government, in that order, before seeing the next U.S. policy. Although this poses danger of halo effects in the judgments, it has the advantage of allowing deeper consideration of each policy in a given amount of time than would the approach of requiring each policy to be considered 4 separate times.

Following completion of all six judgment tasks in the first session, subjects were given feedback about their own Actions judgments. The purpose is to familiarize them with the concepts of weights and function forms, in preparation for the cognitive feedback they may receive about their own and the

other's judgments (Actions and/or Mapping) in the negotiation session. Subjects also indicated their ideal U.S. Nicaragua policy, in terms of the amount of money to spend on the Reconciliation, Opposition, and Proxy War activities. This is also preparatory for the negotiation session.

3.2. Negotiation session.

The subjects' Actions judgments (evaluations of U.S. Nicaragua policies) were used, in conjunction with the political knowledge and opinion screening questionnaire, to identify pairs of people (a) of the same sex, (b) with approximately equal degrees of political extremity, (c) who had either mild or extreme differences in their evaluations of U.S. Nicaragua policies (low or high negative intercorrelations). The attempt was made to find equal numbers of mildly and extremely different dyads, within sex. The available females tended to differ less than the available males, so different cut-off points were used for the males and females to separate the extreme from mild dyads. The mean disagreement for each sex was used as the cut-off point. Seven dyads of each sex were classified as mild in disagreement, five extreme. For each sex, the seventh, most extreme dyad in the mild group was classed as "mild" rather than "extreme" because it was closer to the mild dyads.

The dyads were randomly assigned to four cognitive feedback conditions: (a) no feedback, (b) Outcomes (values) feedback, (c) Mapping (beliefs) feedback, and (d) both Outcomes and Mapping feedback. When feedback was given, both subjects looked at information about own and each other's judgment policies. Three male and three female dyads were assigned to each condition, with the attempt made (not completely successful) to have both extreme and mild male and female dyads in each condition.

Materials for cognitive feedback were prepared ahead of time, using the subjects' judgments from the first session. For Outcomes feedback, graphs that expressed the relative weights and function forms of each of the four dimensions (Civil Life, Economy, Strife, and Government) were prepared. There were four graphs, each presenting both the liberal's and the conservative's function forms and weights. Because we felt it desirable to express the relative weight visually, as the degree of slope in the function curve, we did not use the graphic display from the POLICY program (which presents only the form and conveys the slope numerically), but rather wrote a program using the PLOT routine in SPSS-X. The numerical relative weights of each dimension were also displayed. Calculations were made using procedures described by Stewart (1988). The SPSS-X code is available from the authors. For Mapping feedback, graphs containing both the liberal's and the conservative's function forms, mapping each of the three dimensions of U.S. Nicaragua policy (Reconciliation, Opposition, and Proxy War) onto each of the four dimensions of Nicaraguan outcomes (12 graphs), were prepared. Thus the subjects in the condition with both values and beliefs feedback had to understand 16 graphs.

The research assistant started the session by seating the participants at a table facing one another, and explaining the negotiation task (Appendix A-D). Their task was to agree on the amount of money the U.S. should spend on each of the three categories of U.S. Nicaragua policies. They had no budget constraints, though they could not spend over $100 M for Reconciliation, over $50 M for Opposition, or over $200 M for Proxy War. When they came to agreement, both subjects would have to sign each other's copies of the agreement. This signature was required to make subjects take the task seriously. They were warned that if they could not come to agreement, the researcher sould flip a coint to determine which participant would unilaterally allocate money. The loser would still be required to sign the agreement. We felt this would provide a strong motivation to agree, even if it required compromise.

Then the research assistant interpreted the cognitive feedback for the subjects with feedback, and required them to interpret their own and the other's policies to each other (see Appendix A). All cognitive feedback graphs were posted on the bulletin board next to the negotiation table for the duration

of the session, for easy reference. Following the feedback, the subjects negotiated on their own. The respondents were told not to count on the researcher as a source of information during the negotiation session. The researchers were instructed not to interfere with the negotiation process, but to tape record and time the negotiations, record data, make sure that subjects did not produce agreements with expenditures contingent on Nicaraguan behavior, and if needed to declare a deadlock and flip the coin to determine the winner (Appendix A). If the respondents could not come to an agreement after two hours of negotiating, the researcher asked the respondents to write down their best offers, and to write down the policy that they would put in place if they won the toss. Then the researcher flipped a coin and declared the policy of the winner to be the outcome of the negotiation session. Of the 24 negotiation sessions, 3 reached impasses and required coin tosses.

After the negotiation, subjects filled out a questionnaire which asked for their subjective judgments of the opponent and the process, and for their recall (if they had received the feedback) or estimate (if they had not) of the weights in own and other's judgment policies (Appendix A-E). The researcher also made subjective ratings of the negotiation (Appendix A-F). As we have not yet analyzed these data, we will not describe the questions here.

3.3. Post-negotiation judgments.

Subjects returned individually to repeat the six judgment tasks. The same set of hypothetical objects were presented in the same order as in the pre-negotiation judgment session. As a seventh judgment task, each subject estimated how the opponent would judge the U.S. Nicaraguan policies (Actions). This provides a measure of the accuracy of interpersonal learning. Then subjects were given a debriefing sheet (Appendix A-H) and paid.

4. Results and Analysis.

The analysis in this preliminary paper focuses on the information conveyed by the correlations between the judgments that the subjects made on the six judgment tasks: two value judgments: the preference for U.S. Nicaragua policies (actions) and the evaluation of Nicaraguan outcomes described on the four dimensions of civil life, economy, strife, and government; and four belief judgments: the subjects' beliefs about the effects of U.S. Nicaragua policies on each of the four outcome dimensions, or how the actions "map" onto the outcomes. Section 4.1 presents the effects of subject characteristics (sex and extremity of political opinions) on the degree to which they had similar beliefs and values before the negotiations, as measured by the correlations between liberals' and conservatives' judgments. Section 4.2 covers the effects of prior similarity of beliefs and values on the subjects' ability to come to a negotiated agreement. The effect of cognitive feedback on interpersonal learning is assessed in Section 4.3 by measuring the accuracy of the subjects' estimates of the other's post-negotiation judgments of U.S. Nicaragua policies, through correlating these estimates with the other's actual judgments. The extent of subjects' **mutual** influence upon each other is studied in Section 4.4 using a measure of convergence that is derived from the subjects' intercorrelations before and after the negotiation. The extent of subjects' **relative** influence (Section 4.5) is measured by comparing the liberal before-conservative after correlation with the conservative before-liberal after correlation. Finally, stability of subjects' opinions is measured in Section 4.6 using the correlation of their judgments before and after the negotiation.

4.1. Initial differences in similarity of subjects' judgments.

The purpose of the study is to measure the effects of cognitive feedback on the results of a negotiation and on the changes induced in the participants by that negotiation. However, it is necessary to know whether there are any initial differences among the subjects that will influence the effects of negotiation and feedback. In addition to being liberal and conservative, subjects differed in two important respects at

the beginning of the study. Half the dyads were male and half female. In pairing subjects, the attempt was made to produce dyads that disagreed either mildly or extremely, using the correlation between their pre-negotiation judgments of U.S. Nicaragua policies as the measure of disagreement.

The mean correlations between liberals' and conservatives' pre-negotiation judgments on each of the six judgment tasks are shown in Table 1. [Throughout this paper, mean correlations are calculated and statistical tests are made using correlations that have been transformed using Fisher's z transformation. Means are transformed back to regular correlations for display in the tables.] Overall, people disagreed with respect to their evaluations of Actions, agreed most strongly in their evaluations of Nicaraguan outcomes, and were unrelated to each other in their judgments of the Mapping of actions onto outcomes. The Actions disagreement, of course, is the effect of our selection process. Female dyads were more similar than male dyads on all judgment tasks except the Mapping onto strife (War). This sex difference is significant for the evaluations of Outcomes.

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Insert Table 1 about here.

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Table 1.
Mean Liberal-Conservative Agreement of Males versus Females,
Before Negotiations.

	Actions	Outcomes	Civlife	Mapping Economy	War	Government
Male	-.325	.579	-.157	-.050	.141	-.088
Female	-.220	.735	.049	.217	.103	.142
t	.82	2.94	.80	1.12	.18	.92
p	.424	.008	.430	.275	.859	.369

There are two value judgment tasks and four belief judgment tasks. A measure of the general agreement for each kind is produced by averaging the Fisher z transformed correlations (Table 2). As with the specific judgment task data, the members of female dyads agree more than the males. This difference was significant for the Value Agreement means.

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Insert Table 2 about here.

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Table 2.
Mean pre-negotiation agreement on value judgment and
belief judgment tasks.

	Value Agreement (Actions & Outcomes)	Belief Agreement (Mapping)	Overall
Male	.160	-.039	.028
Female	.343	.128	.202
t	2.33	.94	1.32
p	.029	.358	.202

Liberals and conservatives were paired so that approximately half of the male and the female dyads differed extremely in their assessments of U.S. policies towards Nicaragua (Actions), and half differed

mildly. It proved to be difficult to find strongly disagreeing females. Therefore the cutoffs between the extreme and mild groups are not identical for both sexes. The mean agreement correlations are shown in Column 1 of Table 3. The males in dyads which disagreed more extremely on the Actions programs also disagreed more extremely on the Civil life Mapping, Economy Mapping, and Government Mapping judgments. However, these male dyads agreed more on the Outcomes and War Mapping judgments. The females from dyads which disagreed more extremely on the Actions judgments agreed less in their Civil Life, Strife, and Government mapping judgments than the females who disagreed mildly on the Actions judgments. Most of the differences due to extremity are nonsignificant (except for the Actions judgments on which the classification was based, $F_{(2,1)} = 32.61$, $p = .000$). There was a significant difference for the Government Mapping judgments ($F_{(2,1)} = 5.776$, $p = .026$). The males who strongly disagreed about their evaluations of U.S. Actions also disagreed significantly in their assessments of the effects of those actions on the composition of the Nicaraguan Government. Interactions between sex and extremity were found for the Actions judgments ($F_{(1,2)} = 5.43$, $p = .030$), on which extreme males disagreed more than extreme females, and for the War Mapping judgments ($F_{(1,2)} = 3.92$, $p = .062$), on which the extreme males agreed more while the mild females agreed more.

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Insert Table 3 about here.
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Table 3.
Pre-negotiation judgment task agreement as a function of sex
and extremity of Actions judgment disagreement.

	Actions	Outcomes	Civlife	Mapping Economy	War	Government	
Male extreme	-.635	.530	-.345	-.380	.430	-.544	n=5
mild	-.050	.611	-.010	.197	-.090	.282	n=7
Female extreme	-.380	.735	-.060	.217	-.050	.040	n=5
mild	-.100	.735	.130	.217	.207	.217	n=7

4.2. The effect of prior concordance of beliefs and values on success of negotiations.

It is natural to expect that people who have similar beliefs and values would find it easier to negotiate an agreement, and come to a more satisfactory agreement, than those with divergent beliefs and values. Measurement of the quality of a negotiation is difficult. Although the study included a number of measures that can be used to assess quality, such as self reports of satisfaction and measures of the equality of compromise between participants, the only measure available for this preliminary report is whether subjects succeeded in coming to a mutually satisfactory agreement, or else reached an impasse and required the researcher to flip a coin to determine which subject would decide how much money to spend on reconciliation, support for the internal Nicaraguan opposition, and support for the Contras.

Only three of the 24 dyads failed to come to an agreement: Two male dyads in the outcomes feedback condition, and one female dyad which received both outcomes and mapping feedback. The female dyad had a mild prior disagreement (r = -.10) in their evaluations of Actions (U.S. Nicaragua policies), while the male dyads had extreme disagreements (r = -.49 and -.88). The mean pre-negotiation agreements of the dyads who did and did not come to a negotiated agreement are presented in Table 4. The dyads that reached agreement had more similar judgment policies in every case except for the War Mapping judgments (effects of U.S. policies on the level of war in Nicaragua). The differences are only significant for the Actions judgments (evaluations of U.S. policies). The comparison of the general value

judgments is nearly significant. due primarily to the differences found in the Actions judgments.

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Table 4.
Mean pre-negotiation judgment similarities of dyads who did and did not
come to a negotiated agreement.

	Values			Beliefs (Mapping)		
	Actions	Outcomes	Civil life	Economy	War	Government
Agreement	-.222	.669	-.027	.133	.102	.321
Impasse	-.581	.626	-.245	-.250	.258	-.005
t	2.28	.44	.57	1.06	.51	.10
p	.033	.664	.575	.301	.618	.925

	Values	Beliefs (Mapping)		Overall
Agreement	.284	.060		.137
Impasse	.036	-.062		-.029
t	1.95	.44		.80
p	.06	.66		.43

4.3. The accuracy of subjects' learning of the others' beliefs and values.

One would assume that people who have spent time negotiating about an issue with other individuals would be able to predict each others' judgments about that issue. They should be able to learn the others' beliefs and values from what the other says and does. Further, the more guidance they are given in communicating their beliefs and values. the better their predictions of the others' judgments should be. And the more people care about an issue, the more attention they should pay to the others and the more accurately they should be able to predict the others' judgments.

Against this rationalist view, we may find that people do not learn about others' beliefs and values. They may maintain a rigid stereotype. or they may think the other is like them. Further. procedures designed to structure negotiators' thinking and to facilitate their communication may in fact confuse them and prevent interpersonal learning. Finally. increased involvement in the issues may not increase the accuracy with which people pay attention to the others' beliefs and values, but may increase the use of stereotypy and projection.

To address these issues. we measure how well the subjects have learned about the others' beliefs and values using three measures of correlation between judgments. The first is the correlation between the subject's guesses about what score the other would give each of the 18 U.S. policies. and the other's judgments of those policies. Being a correlation, this measure can vary from -1, meaning the other's judgments are completely the opposite from the subject's predictions, through 0. meaning no relation. to 1. meaning that the subject predicted the other perfectly (ignoring possible scaling factors). The second correlation measures the relation between the subject's predictions about the judgments the other would make about the 18 U.S. policies. and the subject's own judgments about the policies. The higher this correlation. the more the subject "projects". that is. thinks the other is like the self. The third correlation measures the relation between the subject's judgments of the U.S. policies and the other's judgments of those policies.

4.3.1. Measuring accuracy of estimation of other using r(self, estimate of other).

What influences the accuracy of the subject's estimates of the other's evaluations of the U.S. Nicaragua policies, as measured by the correlation between these estimates and the other's actual judgments? The data from 24 dyads were analyzed using a repeated measures analysis of variance, where the scores for the liberal and the conservative were the repeated measure (within dyad), and the between subjects measures were sex, presence or absence of cognitive feedback about both subjects' evaluations of Nicaraguan outcomes, and presence or absence of cognitive feedback about both subjects' beliefs concerning the connections between possible U.S. Nicaragua policies and Nicaraguan outcomes. The correlation between the subjects' evaluations of U.S. Nicaragua policies, prior to their negotiation, was used as a covariate in this analysis. [Essentially the same results were obtained when our classification of subjects' initial Actions judgment disagreements as "extreme" or "mild" were used as a fourth between-subjects factor.] The means for each of the main effects and for a number of interactions are shown in Table 5.

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Insert Table 5 about here.
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Table 5. Mean r(estimate of other, other) for various groups.

Outcomes feedback by mapping feedback, n per cell = 12.

		Outcomes Feedback		
		No	Yes	Mean
Mapping	No	.467	.584	.528
Feedback	Yes	.487	.527	.507
	Mean	.477	.555	.500

Sex by outcomes feedback by mapping feedback, n per cell = 6.

		Males						Females		
		Outcomes Feedback						Outcomes Feedback		
		No	Yes	Mean				No	Yes	Mean
Map	No	.386	.710	.498		Map	No	.541	.422	.483
Fdbk	Yes	.657	.294	.483		Fdbk	Yes	.269	.700	.516
	Mean	.535	.533	.534			Mean	.414	.577	.500

Outcomes feedback by political orientation, n per cell = 12.

	Outcomes Feedback		
	No	Yes	Mean
Liberal	.238	.606	.440
Conservative	.661	.501	.587
Mean	.467	.556	.517

Sex by mapping feedback by political orientation, n per cell = 6.

	Males					Females		
	Mapping Feedback						Mapping Feedback		
	No	Yes	Mean				No	Yes	Mean
Liberal	.399	.553	.480		Liberal	.541	.235	.399
Conserv	.702	.437	.585		Conserv	.421	.718	.589
Mean	.569	.497	.534		Mean	.483	.516	.500

The top section of Table 5 shows the effects of the two types of feedback on subjects' interpersonal learning, as measured by the accuracy of the subjects' estimates of the other's judgments. Although

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subjects who got any feedback did better than those who had none, the effects are small and nonsignificant (Outcomes feedback: $F_{(1,15)} = .41$, $p = .53$; Mapping feedback: $F_{(1,15)} = .07$, $p = .80$; Interaction: $F_{(1,15)} = .02$, $p = .89$). There was, however, a significant three-way interaction of sex and the two types of feedback (second section of Table 5). The males estimated the others' judgments better when they had one or the other of the types of feedback, but not both or neither, while females estimated the others' judgments better when they had both or neither ($F_{(1,15)} = 9.92$, $p = .007$). One possible interpretation of this result, supported by a researcher's observations of the negotiations, hinges on differences between males' and females' interest in technical information. Many males attended and successfully used the feedback, while many females were not interested in it and correspondingly did not understand it well enough to use it appropriately. In order to account for the results in the condition where both types of feedback were given, we must further postulate that the males got swamped when given both types of feedback. Females, who were already swamped with one type of feedback, did not even bother paying attention when given both types, and learned about the other, via informal means, as well as they had when given no feedback. This explanation is obviously speculative.

The accuracy of subjects' estimates of the other's judgments did not vary between the liberal and conservative subjects ($F_{(1,16)} = 1.33$, $p = .27$) nor between men and women ($F_{(1,15)} = .05$, $p = 82$). However, there was an interaction between political orientation and the provision of outcome feedback. Liberals were more accurate when they had outcome feedback, while conservatives were more accurate when they did not ($F_{(1,16)} = 4.11$, $p = .06$). There was also a three-way interaction among sex, political orientation, and mapping feedback. Liberal males and conservative females estimated the other's judgments more accurately when given mapping feedback, while conservative males and liberal females did better without mapping feedback ($F_{(1,16)} = 4.20$, $p = .057$). These are probably not stable findings.

4.3.2. Need and basis for more complicated measures of accuracy.

Although the r(self, estimation of other) and r(self, other) correlations are of interest on their own[1], we will not present those data because we believe more can be gained from considering them in combination with r(estimate of other, other). We shall do this using two procedures, one of which uses two dimensions and the other uses three. The need for such combined measures can be demonstrated by considering three ideal types of interpersonal learner:

1. The completely accurate judge: predictions of the other's judgments correlate perfectly with the other's answers (and have the same correlation with one's own judgments as the other's judgments have with one's own judgments).

2. The complete projector: assumes the other thinks what he or she thinks. Predictions of the other's judgments correlate perfectly with one's own answers (but are only haphazardly related to the other's answers: they have the same correlation with the other's judgments, as one's own judgments have with other's judgments).

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[1]Studying the influence of the various independent variables on r(self, estimate of other) would allow us to observe, for example, that a particular type of feedback makes the subjects get more accurate, while a different type of feedback does not make them more accurate, but makes them recognize that the other is different from them and therefore reduces the amount of projection. These two types of improvement might occur together; if so, separate analysis of the r(eo,o) and r(s,eo) correlations would not be necessary.

The strongest influence on r(s,eo) was the degree of disagreement between the dyads before they negotiated. Those with extreme disagreements had lower r(s,eo) than those with mild disagreements. This makes sense, but it also underscores the need to include the agreement r(s,o) in the analysis, as will be done below.

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3. The complete stereotyper: assumes the other thinks the opposite of what he or she thinks. (Such an assumption may seem reasonable in this study, because subjects were told that they would be paired with a person who holds opposite views.) Predictions of the other's judgments correlate highly negatively with one's own judgments (but are only haphazardly related to the other's judgments).

The discrimination among these types will be difficult in two cases:

1. The case where the two subjects agree perfectly. In this case, the correlation between one's estimates of the other's judgments and the other's judgments will be equal to the correlation between one's estimates of the other's judgments and one's own judgments.

    a. If one's estimates of the other's judgments agree with either the other's or one's own judgments, then they will have a correlation of 1 with both own and other's judgments. It will not be possible to tell whether one is completely accurate, completely projecting, or a mix of the two.

    b. If one's estimates of the other's judgments are inaccurate, the correlations between estimates and own judgments will equal the correlation between estimates and other's judgments.

    Either way, it will be difficult to discriminate the accurate judge from the projector.

2. The case where the two subjects are in perfect disagreement. Here it will be difficult to discriminate the accurate judge from the stereotyper.

The correlations of one's estimates of the other's judgments with the other's judgments [r(eo,o)] and with one's own judgments [r(s,eo)], for the liberals and conservatives, are shown in Table 6. [r(*,*) denotes correlation between two variables; eo = estimate of the other's judgments; s = self's judgments; o = other's judgments.] The r(eo,o) correlations in the ascending diagonal measure accuracy; the correlations in the descending diagonal, r(s,eo), indicate projection if positive and stereotyping if negative. The accuracy is significantly greater than the projection (F(1.16) = 6.57, p = .021).

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Insert Table 6 about here
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Table 6.
Correlations between predictions of the other's Action judgments,
and own and other's Action judgments.

	Estimates of other's judgments made by	
	Liberal	Conservative
Liberal's judgments	.047	.503
Conservative's judgments	.376	.204

4.3.3. Measuring accuracy of estimation of other using r(self, estimate of other) and r(estimate of other, other).

The first of our two procedures frames the issue in terms of the two dimensional space (see Figure 1) defined by x = r(s,eo) and y = r(eo,o), each of which can vary from -1 to +1. Assuming that the

subjects have opposite values, the procedure combines r(s,eo) and r(eo,o) into a single index that is low if a) the subject believes incorrectly that the other makes judgments that are just like his or her own judgments [r(s,eo) is high and r(eo,o) is low or negative; lower right corner of the graph] or b) the subject incorrectly believes the other's judgments are the opposite from his or her own [r(s,eo) is large but negative and r(eo,o) is low or negative; lower left corner of the graph], and is high if the subject accurately predicts the other's judgments without being distracted by his or her own judgments [r(eo,o) is high and r(s,eo) is near 0; upper center of the graph].

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************************************
        Insert Figure 1 about here
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Figure 1.
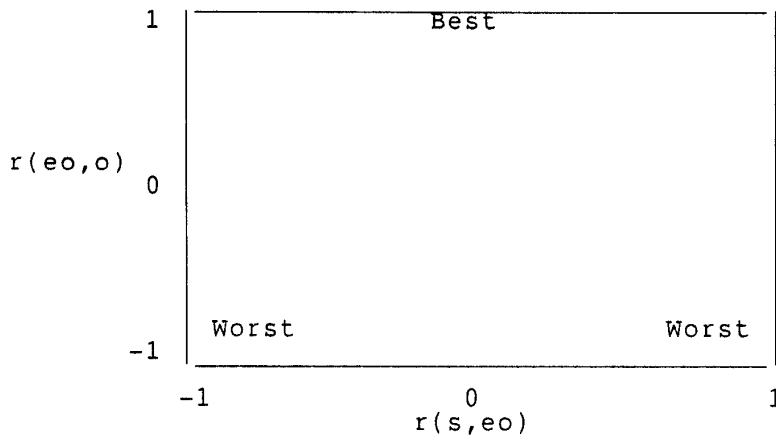
The data from our study are projected onto the space of Figure 1 in Figure 2. It is evident that most of the subjects are in the upper half of the square, indicating their estimates of the other's judgments are accurate, although 9 of the 48 have 0 or negative r(eo,o)'s, which are complete failures at understanding the judgments of a person with whom one has spent an hour discussing an issue. Twenty-three of the subjects with positive r(eo,o)'s are on the right, indicating projection, and 14 are on the left, indicating stereotypy.

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        Insert Figure 2 about here.
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Figure 2. Relation of r(est of other,other) to r(self,est of other)
   ++----+----+----+----+----+----+----+----+----+----+----+----+----+
  1+                              C
A  |                                  C        C    C          C
c  |              L    LC     L     C          L
c .75+           L    LC     L            C    L     C    C  L
u  |              L                       C          L
r  |              L         C         L   CL        C
a  |              L    C           L  L        L     C
c .5+              L    C              C        C  L      L
y  |                     C                       C        C
:  |
r  |
( .25+                                      L
e  |                                         C  L
s  |                                              L
t  |              L
o  0+            C              L        L
f  |                       L
o  |
t  |
h -.25+               L
e  |
r  |                           L
,  |            L
o -.5+                                              L
t  |                        C
h  |
e  |
r  |
) -.75+                                    C
   |
   |
  -1+
   ++----+----+----+----+----+----+----+----+----+----+----+----+----+
  -1.6      -1.2      -.8       -.4        0        .4        .8
```

Projection/stereotypy: r(self, est of othe
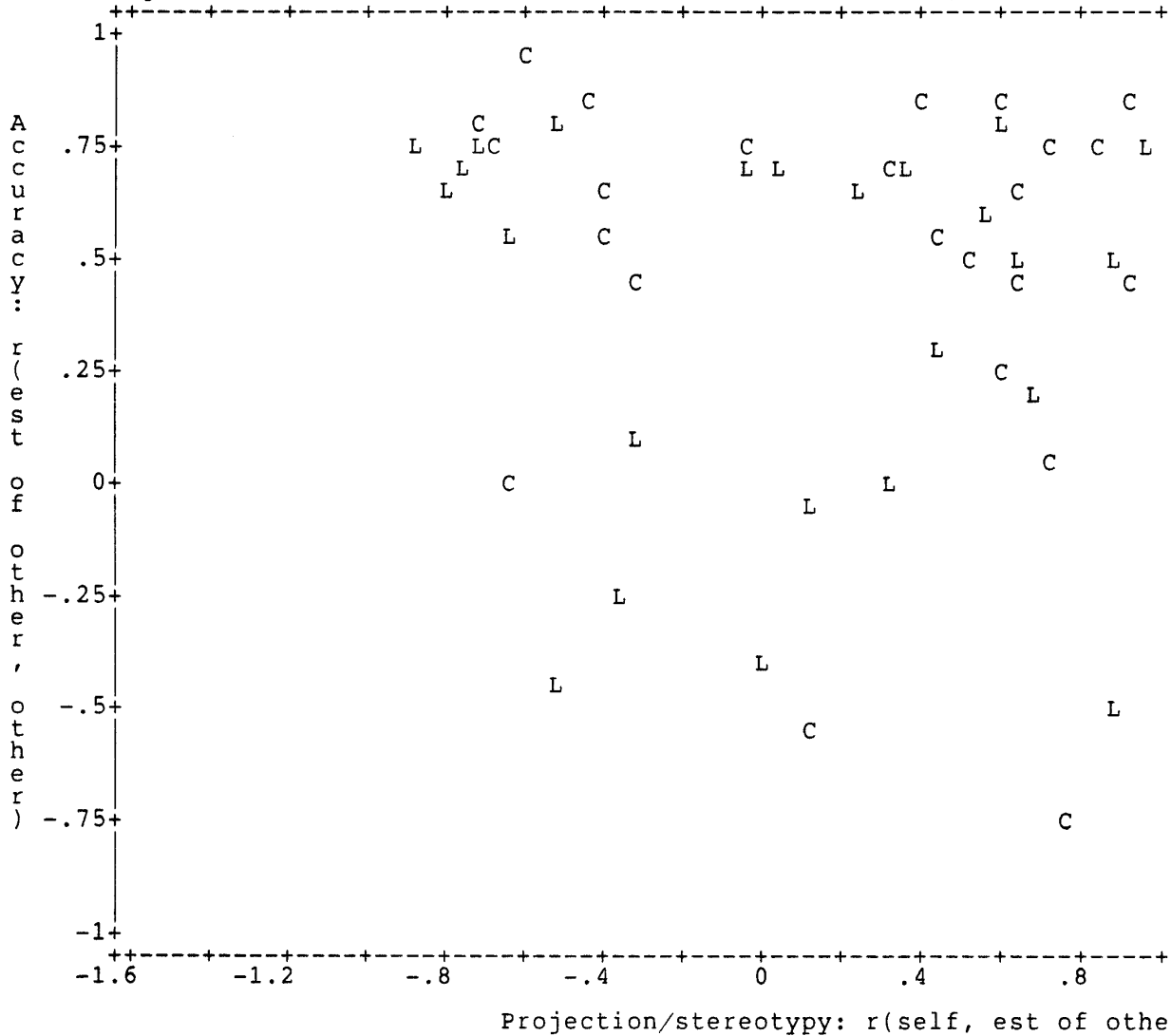
These two dimensions can be collapsed into a uni-dimensional index, using the following function:

$$I_{2d} = \frac{r(eo,o)'}{r(eo,o)' + r(s,eo)'}$$

where the correlations have been transformed before being entered into this ratio. First, the Fisher z transformation is applied to correlations on the -1 to 1 scale to produce numbers on approximately a -3 to 3 scale (with the exception that correlations near -1 and 1 [beyond +/- .995] approach infinity). Then 3 is added to the $r(eo,o)_{fz}$ to translate the scale to approximately the 0 to 6 range. In parallel, the absoluted value of $r(s,eo)_{fz}$ is multiplied by -2 and then 6 is added to it, so that it is on the same 0 to 6 range, and is largest when near the center of the square. The I_{2d} ratio can vary between 0 (in lower left or lower right corner of Figure 1) and 1 (in upper center), and is undefined at the bottom center

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(where both r(eo,o)' and r(s,eo)' equal 0).

The scores on this index for the 24 liberal subjects ranged from .30 to .62, with a mean of .432 (sd = .075). The conservative subjects' scores ranged from .29 to .62 (mean = .447). Thus there were no differences between the liberals and the conservatives on this measure. In addition, an analogous index was created for each dyad by adding the liberal and conservative subjects' scores, and these varied from .36 to .54 (mean .438).

The effects of the experimental variables of the study on the index I_{2d} are shown in Table 7. Although there was no general effect of outcomes or mapping feedback on the index, when people received mapping feedback alone they did a bit worse, and when they received both types of feedback, they did better, which interaction is statistically significant ($F(1,15) = 4.76$, $p = .045$) in a repeated measures analysis of variance which used the subjects' original agreement $r(s,o)_{pre}$ as a covariate. This interaction pattern differs for males and females, as shown in the second section of Table 7. The sex differences focus on the condition in which both types of feedback were given. Here the males did worse than in the other three feedback conditions, while the females did better than in the other conditions ($F(1,15) = 9.27$, $p = .008$). Although the difference between the liberal and conservative subjects was not significant ($F(1,16) = 0.46$, $p = .509$), those conservatives who received no outcomes feedback had higher scores on the I_{2d} index than those conservatives who received outcomes feedback, while liberals did better with outcomes feedback ($F(1,16) = 6.35$, $p = .023$).

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Insert Table 7 about here
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Table 7. Mean Two Dimensional Accuracy Index I_{2d} for various groups.

Outcomes feedback by mapping feedback, n per cell = 12.

		Outcomes Feedback No	Yes	Mean
Mapping	No	.44	.44	.44
Feedback	Yes	.42	.46	.44
	Mean	.43	.45	.44

Sex by outcomes feedback by mapping feedback, n per cell = 6.

Males		Outcomes Feedback No	Yes	Mean	Females		Outcomes Feedback No	Yes	Mea
Mapping	No	.45	.47	.46	Mapping	No	.42	.40	.41
Feedback	Yes	.44	.41	.43	Feedback	Yes	.41	.50	.45
	Mean	.45	.44	.44		Mean	.41	.45	.43

Outcomes feedback by political orientation, n per cell = 12.

	Outcomes Feedback No	Yes	Mean
Liberal	.40	.47	.43
Conservative	.46	.43	.45
Mean	.43	.45	.44

The pattern of results using the I_{2d} index is not the same as when just r(eo,o) was used (Table 5), although the interactions among the same combinations of variables were significant. This emphasizes the importance of our decision about how many of the correlations r(eo,o), r(s,eo), and r(s,o) should be

used in assessing the accuracy of interpersonal learning.

The I_{2d} index of the accuracy of the subject's estimates of the other's judgments is only approximate, because it does not take into account the third correlation, $r(s,o)$, the relation between subject's judgments and the other's judgments. Note the possibility that the other's and one's own judgments might be very close together. If so, accurate estimates of the other's judgments would have to be correlated with one's own judgments, and so the best score would be near the top left, rather than the top center, of Figures 1 and 2. In other words, without knowing $r(s,o)$, we do not know whether the people in the upper left [or right] quadrants of Figure 2 are stereotyping [or projecting] or judging accurately. Our next procedure incorporates $r(s,o)$ into the analysis.

4.3.4. Measuring accuracy of estimation of other, using r(self, estimate of other), r(estimate of other, other), and r(self, other).

It is possible to improve on the two dimensional index of accuracy of the estimates of other's judgments by considering the correlation between the two subjects' judgments. Adding this to Figure 1 defines a three dimensional cube (Figure 3) by adding depth, with $z = r(s,o)$, and with ranges from -1 to 1 on each dimension. It is possible to define locations in this space that correspond to the three ideal types: accurate judge, projector, and stereotyper. We can consider $r(s,o)$ to be externally determined, and $r(eo,o)$ and $r(s,eo)$ to be functions of the subjects' estimates of the other. The perfectly accurate judge has $r(eo,o) = 1$. This constrains $r(s,eo)$ to equal $r(s,o) = k_{aj}$. Thus perfectly accurate judges can be anywhere on the line $(x,y,z) = (k_{aj},1,k_{aj})$, a diagonal across the top face of the cube. The pure stereotyper, believing the other to have opposite values from the self, will have $r(s,eo) = -1$. This constrains the $r(eo,o)$ to equal $-r(s,o) = -k_s$. Thus the pure stereotyper can appear on the line $(x,y,z) = (-1,-k_s,k_s)$, a diagonal across the left face of the cube. Finally, the pure projector, believing the other to make the same judgments as the self, will have $r(s,eo) = 1$, which constrains $r(eo,o)$ to equal $r(s,o) = k_p$. The pure projector can appear on the line $(x,y,z) = (1,k_p,k_p)$, a diagonal on the right face of the cube.

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Insert Figure 3 about here.

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Figure 3.
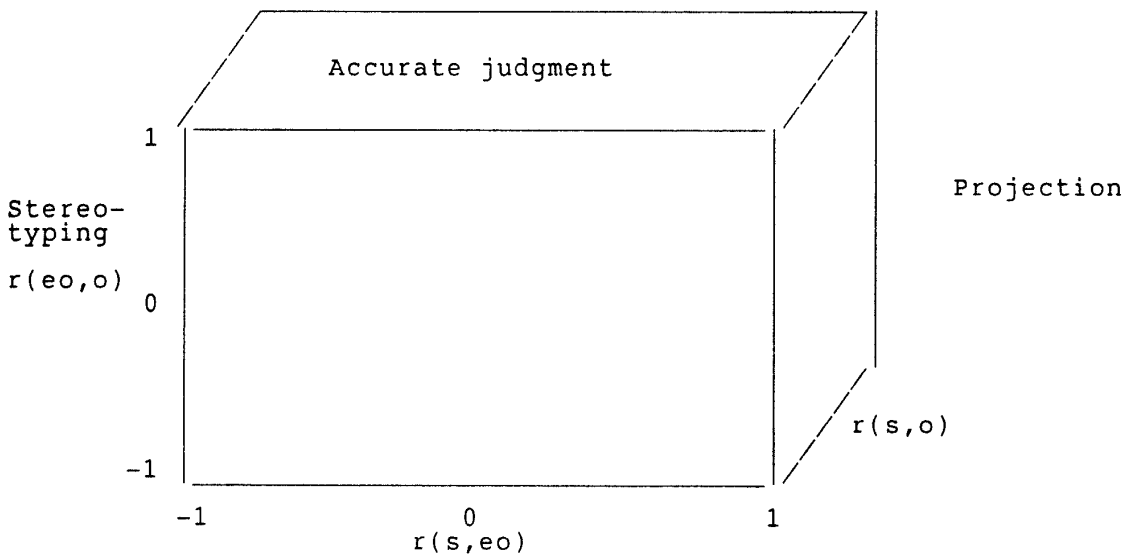
No subjects had perfect 1 or -1 correlations between any of these judgments. In fact, the correlations ranged from -.90 to +.95. The problem, then, is to define a procedure for determining whether a subject is sufficiently close to one of these three surface diagonals to be classed as the associated type, or falls in between, where the subject's judgments of the other are unrelated to anything. A related problem is discrimination between accurate judges and stereotypers in the vicinity of the front upper left corner of the cube, and between accurate judges and projectors in the back upper right corner. The procedure to be described next solves both of these problems in a minimal way.

The obvious approach for associating subjects with one of these three ideal types, or none, requires measurement of the subjects' distance from each of the ideal types. One way to do this would be to measure the nearest distance from the subject's data point to the diagonal lines (across the left, top, and right faces) that represent each of the three ideal types[2]. A shortcut is to measure the distances to the

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[2]A more complete solution would start with the categorization that will be described next in the text, and then measure the distance from the subject's data point to the diagonal across the face associated with the identified category. (The diagonal associated with the bottom face, completely inaccurate judgment, is (-1,-k,k), because r(eo,o) = -1. The diagonal associated with the front face, complete disagreement, is (k,-k,-1), because r(s,o) = -1. The rear face's diagonal, signifying complete agreement, r(s,o) = 1, is (k,k,1).) For example, to measure the distance between the subject's data point (x,y,z) and the diagonal across the left face that indicates pure stereotyping (-1,-k,k), we must discover the value of k that minimizes the distance between the point and the line.

Minimize (-1,-k,k) - (x,y,z)

Minimize $(-1 - x)^2 + (-k - y)^2 + (k - z)^2$

Minimize $x^2 + 2{*}x + y^2 + z^2 + 1 + 2{*}(y + z){*}k + k^2$

where x, y, and z are fixed. If x = -1, it becomes a 2 dimensional problem. If either y or z is -1 or 1, then both are and the distance is x + 1. But if none of these is true, then it is a 3-dimensional differention problem, which should be trivial for those who remember calculus.

nearest point on each of the faces, and put the subject in the category to whose face he or she is closest. In effect, we simply identify the dominant dimension [x, y, or z: r(s,eo), r(eo,o), or r(s,o)] by selecting the correlation that has the highest absolute value. If it is positive, then the subject is put in the category corresponding to the right (for x), top (for y), or back (for z) face. If the correlation with the largest absolute value is negative, the subject is put in the category corresponding to the left (for x), bottom (for y), or front (for z) face. Analytic derivation of this solution is presented in Appendix C.

The correlation data and the resulting categorizations, for liberal and conservative subjects, are presented in Table 8. It can be seen that while some subjects have one clearly dominant correlation, others have two or three of about equal size. In other words, they are near the boundaries of the categories. No subjects fell exactly on the categories' boundaries (by having two correlations with identical absolute values).

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Insert Table 8 about here.
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Table 8.
Correlations among subject's judgments of U.S. Nicaragua Policies, other's judgments, and subject's estimates of other's judgments, for each of the 24 dyads.

Liberal				Conservative			
Category	r(s,eo)	r(eo,o)	r(s,o)	Category	r(s,eo)	r(eo,o)	r(s,o)
top	.04	.72	-.108	left	-.65	.00	-.108
right	.89	-.52	-.612	top	-.58	.94	-.612
left	-.78	.71	-.565	top	-.42	.65	-.565
top	.36	.72	-.010	top	-.04	.73	-.010
left	-.63	.54	.032	bottom	.10	-.54	.032
right	.95	.74	.612	top	.59	.87	.612
left	-.82	.66	-.790	front	.74	-.74	-.790
back	-.34	.10	.379	top	.30	.71	.379
front	.10	-.06	-.479	top	-.71	.81	-.479
top	.25	.66	.539	top	.40	.83	.539
back	-.52	-.45	.850	right	.93	.85	.850
top	.62	.79	.743	back	.45	.56	.743
left	-.36	-.25	.328	right	.93	.43	.328
top	-.51	.80	-.359	top	-.45	.85	-.359
right	.68	.22	.384	right	.53	.48	.384
left	-.90	.74	-.795	front	-.33	.44	-.795
top	.55	.58	.340	top	.65	.66	.340
front	.32	.02	-.470	top	-.40	.53	-.470
back	.63	.51	.810	right	.85	.75	.810
right	.44	.30	.350	top	.72	.73	.350
top	-.03	.68	-.149	right	.71	.07	-.149
back	.00	-.38	.592	right	.60	.27	.592
top	-.71	.73	-.565	top	-.68	.75	-.565
right	.89	.48	.542	right	.64	.46	.542

The number of subjects who were classified in each of the six categories are presented in the left column of Table 9. There were more subjects in each of the ideal types we identified, accurate judges (top face), stereotypers (left), and projectors (right), than there were in the other three categories, those whose dominant feature was their agreement or disagreement with their opponent or the inaccuracy (not due to projecting or stereotyping) of their judgment of the other. This deviation from chance distribution through the cube (4 subjects expected per face) is statistically significant for all subjects and for the liberals and conservatives separately, though only at the p < .10 level for the liberals. Nonetheless, it

does not show that subjects are very accurate at predicting the judgments of people with whom they have spent an hour discussing an issue. For only half of the conservatives and one third of the liberals was their accuracy at predicting the other r(eo.o) the largest of their three correlations. X^2 tests showed that the pattern of distribution among these categories was not statistically significantly different for the liberals versus conservatives, for the males versus the females, nor for those dyads who had extreme versus moderate initial differences in their evaluations of the U.S. policies toward Nicaragua. Because the expected values in some of the cells are quite far below 5, the significance of these X^2 tests of different patterns between groups should be regarded with caution[3].

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Insert Table 9 about here.
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Table 9. Number of subjects in the categories corresponding to each face of Figure 3.

Face	Dominant dimension	Total	Politics		Sex		Difference	
			Liberal	Conser- vative	Male	Fe- male	Ext- reme	Mild
top	accuracy	20	8	12	10	10	8	12
right	projector	12	5	7	4	8	2	10
left	stereotyper	6	5	1	5	1	4	2
back	agreement	5	4	1	2	3	2	3
front	disagreement	4	2	2	3	1	3	1
bottom	inaccuracy	1	0	1	0	1	1	0
	N	48	24	24	24	24	20	28
	X^2	29.8	9.5	26.0	14.5	20.0	9.4	22.2
Significance, p <		.001	.10	.001	.025	.01	.10	.001
Interaction X^2			6.6		6.2		7.9	
Significance			p < .30		p < .50		p < .25	

Attention to the two types of inaccurate estimation strategy, stereotyping and projecting, suggests that males were more likely to stereotype than females (5 to 1), while females were more likely to project than males (8 to 4; X_2 = 4.0, df = 1, p < .05). Those who had extreme initial differences from their opponents were more likely to stereotype than those with mild differences (4 to 2), while those with mild differences were more likely to project than those with extreme differences (10 to 2; X_2 = 4.5, p < .05).

In evaluating the effects of cognitive feedback concerning beliefs and values on the accuracy of the subjects' estimates of their opponents' evaluations of the U.S. policies, it is important to remember that the subjects were given value related feedback that had to do with the other's evaluations of outcomes in Nicaragua, while they had to estimate the other's judgment of a distinct value related concept, the evaluation of U.S. policies toward Nicaragua. Therefore there is not a strong basis for expecting that Outcome feedback should enable accurate estimation of the other's Actions judgments, while Mapping feedback should not. It is possible to argue that the evaluation of U.S. policies is in fact composed of both the subjects' beliefs about how those policies affect outcome variables in Nicaragua and their evaluations of those outcomes. Therefore, a subject might need information about both the other's

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[3]We follow Rosenthal and Rosnow (1984, p 384) in not using Yates' correction when df = 1. They also argue that X^2 tests may be good with expected frequencies as low as 1 (citing Camilli and Hopkins, 1978).

Outcomes evaluations and Mapping beliefs in order to accurately predict the other's judgments. To allow tests of this theory, we present the results at two levels of aggregation: considering the outcome feedback (values) and mapping feedback (beliefs) independently (left 4 columns in Table 10), and considering the four possible combinations (right 4 columns). Receiving outcome or mapping feedback per se during the negotiation did not affect the accuracy of post-negotiation understanding of the other's judgments of the U.S. policies. When considered in combination, there is no apparent pattern of differences among the 4 conditions, although the pattern was statistically significant. (Again, due to expected frequencies well below 5, this test should be interpreted with caution.)

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Insert Table 10 about here.
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Table 10. Number of subjects in the categories corresponding to each face of Figure 3. For Outcome feedback and Mapping feedback.

Face	Dominant dimension	Outcome Feedback No	Outcome Feedback Yes	Mapping Feedback No	Mapping Feedback Yes	No Feedback	Outcome Feedback Only	Mapping Feedback Only	Both Kinds of Feedback
top	accuracy	11	9	9	11	5	4	6	5
right	projector	8	4	6	6	5	1	3	3
left	stereotyper	2	4	3	3	1	2	1	2
back	agreement	2	3	4	1	1	3	1	0
front	disagreement	1	3	1	3	0	1	1	2
bottom	inaccuracy	0	1	1	0	0	1	0	0
	N	24	24	24	24	12	12	12	12
	Interaction X^2	4.4		4.0			12.5		
	Significance	$p < .50$		$p > .50$			$P < .05$		

In summary, we have presented data using three measures of the accuracy of the subject's estimates of the other's judgments: using only the correlation between those estimates and the other's actual judgments, $r(eo,o)$; using both $r(eo,o)$ and the correlation between the subject's own judgments and his or her estimates of the other's, $r(s,eo)$; and finally using $r(eo,o)$, $r(s,eo)$, and the correlation between the two subjects actual judgments, $r(s,o)$. The more correlations involved, the more we take into account factors that should affect the interpretation of $r(eo,o)$, but the more our procedures have involved heuristic shortcuts.

Both the $r(eo,o)$ and I_{2d} results permitted analysis of the effect of the experimental variables in the study on the accuracy of the subjects' interpersonal learning. We did not find that providing cognitive feedback about the subjects' judgment policies concerning either Nicaraguan outcomes or the effect of U.S. Nicaragua policies o n these outcomes improved interpersonal learning. Instead, improvements depended on sex and political orientation in complicated ways that may not prove replicable.

The analysis that used all three correlations did not produce a unidimensional index and so does not permit analysis using parametric techniques. Counts of the subjects whose judgments of the others can be categorized as relying most on knowledge of the other, on stereotypy, or on projection showed that the feedback did not affect the frequency with which subjects chose these types of judgment strategy. However, the type of strategy seemed to be a function of the sex of subject and the degree of initial differences in the dyads. Males and people in dyads with extreme differences tended to stereotype, while females and people in dyads with mild differences tended to project.

4.4. Convergence or divergence of subjects' views after a negotiation.

It is generally assumed that people are influenced by the beliefs and values of those they talk with, even if they have the preconception that the other is an opponent whose influence must be resisted. Does cognitive feedback about beliefs and/or values moderate or intensify this influence? If so, do particular kinds of feedback have greater effect than others? In particular, does values feedback influence value judgments while beliefs feedback influences belief judgments?

We may measure the degree of mutual influence between the liberal and conservative members of a dyad by comparing the correlations between their post-negotiation judgments with their pre-negotiation correlations. If the correlation has become more positive, we would say that the subjects have converged; if it has become more negative, the subjects have diverged. In every judgment task, the subjects' judgments moved closer in agreement (Table 11). The Actions judgments show the largest change (t = 3.68, df = 23, p = .001). The convergence of Economy Mapping judgments is nearly significant (t = 2.03, df = 23, p = .054). The judgment on which liberal and conservative subjects agreed most before the negotiation was the evaluation of Nicaraguan outcomes, but the negotiation did not increase this agreement.

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Insert Table 11 about here.

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Table 11.
Mean correlations between liberals' and conservatives' judgments, before and after the negotiations.

	Values		Beliefs (Mapping)			
	Actions	Outcomes	Civlife	Economy	War	Government
before	-.241	.639	-.056	.084	.090	.022
after	.067	.601	.057	.262	.175	.063
diff	.308	-.038	.113	.178	.085	.041
t	3.68	.75	1.69	2.03	.91	.44
p	.001	.462	.105	.054	.373	.664

For the tests below, our measure of convergence between the liberals' and the conservatives' judgments is the difference between the Fisher z transformed post- and pre-negotiation intersubject correlations, for each of the 6 judgment tasks (values: actions and outcomes; beliefs: the mapping of actions on civil life, economy, war, and government). Thus a positive score indicates convergence and a negative score, divergence.

Differences between male and female dyads' tendencies to converge are given in Table 12. Females converged more on the value judgments, but males converged more on the belief judgments (Civil Life, War, and Government). The differences were significant for the Government Mapping judgments and the overall belief judgments (Mappings combined), and nearly so for the War Mapping judgments. The interaction pattern in which females exhibited more value convergence but males more belief convergence was not statistically significant (F(1,11) = 1.83, p = .20).

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Insert Table 12 about here.

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Table 12.
Sex differences in post-negotiation convergence of judgments.

	Action	Outcome	Civlife	Mapping Econ	War	Gov
Male	.3065	-.0533	.1567	.2345	.3026	.3481
Female	.4220	-.0066	.0837	.2449	-.1030	-.2029
t	.55	.32	.45	.05	1.91	2.45
p	.587	.753	.660	.961	.069	.023

	Values	Beliefs	Overall
Male	.1266	.2605	.2159
Female	.2077	.0057	.0730
t	.60	2.44	1.64
p	.554	.023	.115

The effect of the subjects' initial opinion differences on the extent to which their judgments converge is shown in Table 13. Those with mild initial disagreements converge a little more than those with extreme initial disagreements on every judgment task except judging the effect of U.S. policies on the composition of the Nicaraguan government. This is statistically significant for the subjects' judgments of Outcomes in Nicaragua. Note that all subjects' preferences for Actions converge more than do any other judgments. This suggests a regression to the mean phenomenon: subjects were paired on the basis of extreme scores on a single measure: repeated scores on the same measure might be closer to the mean, which we might misinterpret as "convergence". However, the fact that the extreme dyads did not converge any more than the mildly disagreeing subjects is inconsistent with regression to the mean.

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Insert Table 13 about here.
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Table 13.
Effects of dyads' initial disagreements on convergence.

	Action	Outcome	Civil Life	Mapping Econ	War	Gov
Extreme	.3396	-.2087	.0523	.1989	-.0130	.2713
Mild	.3819	.0978	.1687	.2688	.1803	-.0693
t	.20	2.29	.70	.33	.84	1.38
p	.845	.032	.488	.748	.407	.182

	Values	Beliefs	Overall
Extreme	.0654	.1274	.1067
Mild	.2399	.1371	.1714
t	1.31	.08	.70
p	.203	.936	.492

Does cognitive feedback affect subjects' mutual influence? The effects of receiving cognitive feedback about one's and one's opponent's pre-negotiation Outcomes judgments and Mapping judgments, on the convergence of the judgments of the liberal and conservative subjects, are shown in Table 14 (for each judgment individually) and Table 15 (aggregated into values and beliefs, and overall). The Actions judgments converged more for dyads who did not receive Mapping feedback. It is as if feedback about one's beliefs validates the evaluations that are based on the beliefs.

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            Insert Table 14 about here.
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Table 14.
Effect of Outcomes and Mapping feedback on subjects' convergence
of opinion, for six judgment tasks individually.

	Action	Outcome	Civil Life	Econ	War	Gov
				Mapping		
Outcomes Feedback						
No Out FB	.3726	.0197	.2355	.1317	.0857	-.0185
Out FB	.3561	-.0795	.0049	.3477	.1139	.1637
t	.08	.68	1.47	1.04	.12	.73
p	.939	.502	.157	.308	.903	.475
Mapping Feedback						
No Map FB	.5810	-.0625	.1056	.0638	.1906	.1639
Map FB	.1476	.0027	.1347	.4156	.0090	-.0816
t	2.28	.45	.18	1.77	.80	.73
p	.032	.660	.861	.090	.430	.474
Outcomes X Mapping Feedback						
Control	.5340	.1871	.1877	-.1259	.2547	.0006
Out FB	.6280	-.3122	.0235	.2535	.1264	.3271
Map FB	.2109	-.1478	.2832	.3894	-.0834	-.0377
Both FB	.0842	.1532	-.0137	.4418	.1013	.0004
F	1.847	4.025	.304	.486	.010	.987
p	.197	.066	.591	.498	.924	.339

The evaluations of Nicaraguan Outcomes became more similar for those in dyads which received either no feedback or both types of feedback. Those presented with one or the other tended to diverge. Economy Mapping judgments converged when either type of feedback was presented, and converged most with both types. Dyads' judgments of the effect of U.S. policy on the level of Strife in Nicaragua converged the most with no feedback. The Government Mapping judgments converged in the dyads which received Outcomes feedback only. People's Actions judgments converged more than their outcomes judgments did (F(1,11) = 4.98, p = .047). The pattern of interaction of mapping and outcomes feedback was significantly different for the Actions judgments and the Outcomes judgments (F(1,11) = 5.75, p = .035): with the Actions judgments, Mapping feedback prevented convergence, while with the Outcomes judgments, there was lower convergence when subjects got just one kind of feedback rather than neither or both (see first and second columns of bottom section of Table 14).

When we aggregate the judgments into the general categories (Table 15), feedback seems to have no effect on the overall amount of convergence, nor on the convergence of belief judgments. Its effect on the convergence of value judgments is due entirely to the Actions judgments effect. There were no differences in the extent of convergence between the belief judgments and the value judgments (F(1,11) = 0.77, p = .400), nor among the four different types of belief judgment.

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            Insert Table 15 about here.
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Table 15.
Effect of Outcomes and Mapping feedback on subjects' convergence
of opinion, for values, beliefs, and summarized overall.

	Total	Mapping	Act/Out
Outcomes Feedback			
No Out FB	.1377	.1086	.1961
Out FB	.1511	.1575	.1383
Mapping Feedback			
No Map FB	.1737	.1310	.2592
Map FB	.1152	.1352	.0751
Outcomes X Mapping Feedback			
Control	.1730	.0793	.3606
Outcomes FB	.1744	.1826	.1579
Mapping FB	.1024	.1379	.0316
Both FB	.1279	.1324	.1187

Three of the 24 dyads experienced an inability to come to agreement in their negotiations. This may
have involved feelings of hostility. One might expect that such hostility would make people's opinions
diverge. With no agreement. there would also be no motivation to change one's judgments in order to
reduce cognitive dissonance. since there is no source of dissonance (one has not come to an
uncomfortable agrement with someone who has different views). Data pertinent to these arguments (Tables
4 and 16) show that the Actions judgments of those who came to an agreement started off more similar
than the judgments of those who reached an impasse. and converged substantially, while the judgments of
the dyads who reached an impass did not converge. This supports the cognitive consistency theory rather
than the hostility theory. The only statistically significant difference in this small sample comparison (3
dyads against 21) is that those who could not agree on a U.S. Nicaragua policy actually had great
influence on each others' assessments of the effects of those policies on what party governs Nicaragua.
This convergence of belief was not enough to produce a convergence in evaluations of the Actions.

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Insert Table 16 about here.

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Table 16. Effects of failing to come to an agreement,
on convergence of opinions.

	Action	Outcome	Civil Life	Econ	War	Gov
				Mapping		
Agreement	.4215	-.0281	.1445	.2189	.0967	-.0126
Impasse	-.0366	-.0426	-.0569	.3853	.1215	.6694
t	1.51	.07	.83	.52	.07	1.92
p	.146	.949	.418	.607	.944	.068

	Values	Beliefs	Overall
Agreed	.1967	.1121	.1403
Impasse	-.0396	.2798	.1734
t	1.19	.96	.2
p	.248	.347	.815

4.5. Relative influence of liberals and conservatives.

Although there is no *a priori* reason to expect that people of one political persuasion will have more
influence over people of the other. than *vice versa*. the correlations provide a way to measure the
liberals' and conservatives' relative influence. and to determine whether any forms of cognitive feedback

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offer more of a persuasive advantage to one side than the other.

Comparison of the correlation between the liberal's and conservative's pre-negotiation judgments. r(l-before,c-before), with the correlation between the liberal's judgments on a pre-negotiation judgment task and the conservative's judgments on a post-negotiation judgment task, r(l-before,c-after), indicates whether the conservative has come to be closer to the liberal's original position on that task. Similarly, comparing r(c-before,l-after) with r(c-before, l-before) indicates whether the liberal has shifted toward the conservative's original views. The crossed before/after correlations shown in Table 17 show that there is no significant difference between the liberals and the conservatives on any of the six judgment tasks.

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Insert Table 17 about here.
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Table 17.
Mean correlations between liberals' pre-negotiation judgments and
conservatives' post-negotiation judgments, and between
conservatives' pre judgments and liberals' post judgments.

	Values		Beliefs (Mapping)			
	Actions	Outcomes	Civlife	Economy	War	Government
lib pre/ cons pre	-.241	.639	-.056	.084	.090	.022
lib pre/ cons post	-.142	.645	-.022	.180	.319	.064
cons pre/ lib post	-.033	.598	-.114	.207	.156	-.114
t	1.22	.82	1.10	.30	1.25	1.53
p	.236	.422	.284	.769	.223	.140

The difference between r(l-before,c-after) and r(c-before,l-after) indicates who has influenced the other more. This relative influence measure[4] is positive if the conservative has more influence and negative if the liberal has more. Sex differences in whether liberals or conservatives have stronger influence on the other are shown in Table 18. There are no significant differences. Male liberals seemed particularly influential on the question of the effects of U.S. policies on the level of Strife in Nicaragua.

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Insert Table 18 about here.
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[4]The difference between the Fisher z transformed correlations. r(l-before,c-after)$_{fz}$ and r(c-before,l-after)$_{fz}$.

Table 18.
Sex differences in relative influence of liberals and conservatives
on each others' opinions.

	Action	Outcome	Civlife	Mapping Econ	War	Gov
Male	.0118	-.0590	-.0597	.0401	-.3878	-.0860
Female	.2067	-.0543	-.1249	.0178	.0420	-.2707
t	1.09	.03	.38	.11	1.61	.78
p	.287	.974	.707	.912	.122	.441

	Values	Beliefs	Overall
Male	-.0236	-.1234	-.0901
Female	.0762	-.0840	-.0306
t	.75	.30	.63
p	.459	.764	.536

The extremity of dyads' initial differences in their evaluations of U.S. Nicaragua policies did not have any statistically significant effect on which political persuasion had more influence (Table 19). There seemed to be more unbalanced influence among the mildly disagreeing dyads. exercised by the conservatives on the question of the evaluation of U.S. Nicaragua policies, and by the liberals on the evaluation of the effects of U.S. policies on Nicaraguan Civil Life and Government.

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Insert Table 19 about here.

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Table 19.
Effects of dyads' initial disagreements on relative influence
of liberals and conservatives.

	Action	Outcome	Civil Life	Mapping Econ	War	Gov
Extreme	.0168	-.1451	.0567	.0108	-.2081	-.0333
Mild	.1753	.0065	-.1988	.0419	-.1478	-.2819
t	.87	1.08	1.54	.15	.21	1.05
p	.396	.290	.137	.879	.835	.304

	Values	Beliefs	Overall
Extreme	-.0641	-.0435	-.0504
Mild	.0909	-.1467	-.0675
	1.18	.79	.18
p	.252	.436	.861

The question whether the cognitive feedback concerning subjects' Outcomes judgments or Mapping judgments influenced the liberals' and conservatives' relative influence over each other is addressed by the data in Tables 20 and 21. If cognitive feedback increases the influence of one political perspective over the other. this would justify a party rejecting it. The liberals had strong influence on the conservatives' beliefs about the effects of U.S. policies on the quality of Nicaraguan Civil Life when there was no Outcomes feedback (third column of top section of Table 20; t = 2.55. p = .018). This was especially true when there was also no Mapping feedack (bottom section of Table 20). In judging the effects of U.S. policies on the Nicaraguan economy. the conservatives dominated when there was no Mapping

feedback. but the liberals dominated when there was (t = 2.17. p = .041). Similarly. with Mapping feedback the liberals had a strong influence on the conservatives' beliefs about the effects of U.S. policies on the composition of the Nicaraguan Government (T = 1.92. p = .067). and this was stronger with Mapping feedback alone than when both Mapping and Outcome feedback were provided. These results of feedback on the relative influence of liberals and conservatives do not fit into a coherent pattern.

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Insert Tables 20 and 21 about here.
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Table 20.
Effect of Outcomes and Mapping feedback on subjects' convergence
of opinion.

	Action	Outcome	Civil Life	Mapping Econ	War	Gov
Outcomes Feedback						
No Out FB	.2082	.0041	-.2853	-.0398	-.0368	-.2790
Out FB	.0103	-.1174	.1006	.0977	-.3090	-.0777
t	1.11	.87	2.55	.70	.98	.86
p	.280	.392	.018	.492	.335	.400
Mapping Feedback						
No Map FB	.0684	-.1453	-.1298	.2245	-.3224	.0345
Map FB	.1501	.0319	-.0549	-.1666	-.0234	-.3907
t	.45	1.30	.44	2.17	1.09	1.92
p	.659	.208	.666	.041	.289	.067
Outcomes X Mapping Feedback						
Control	.236	.01	-.430	.080	-.405	-.010
Out FB	-.097	-.30	.197	.345	-.217	.080
Map FB	.178	.00	-.110	-.159	.345	-.493
Both FB	.119	.07	.000	-.178	-.380	-.236
F	1.551	1.440	.482	1.808	.160	2.449
p	.235	.252	.500	.202	.696	.142

Table 21.
Effect of Outcomes and Mapping feedback on subjects' convergence
of opinion, for values, beliefs, and summarized overall.

	Total	Mapping	Act/Out
Outcomes Feedback			
No Out FB	-.0714	-.1602	.1061
Out FB	-.0493	-.0471	-.0536
t	.23	.89	1.23
p	.818	.385	.231
Mapping Feedback			
No Map FB	-.0451	-.0484	-.0384
Map FB	-.0756	-.1589	.0910
t	.32	.86	.99
p	.753	.397	.335
Outcomes X Mapping Feedback			
Control	-.09	.197	.12
Outcomes FB	.00	.110	-.20
Mapping FB	-.05	-.119	.09
Both FB	-.10	-.197	.09
F	2.182	.791	2.272
p	.163	.390	.156

Neither the liberals nor the conservatives had a general advantage in influencing the other's opinions. Among 30 comparisons involving sex, the intensity of initial opinion differences, or feedback of Outcomes, Mapping, or their interaction, there were two comparisons with significance levels of p < .05, but they did not present a pattern that makes sense in terms of any causal factors the authors could discern.

4.6. Stability of views through a negotiation.

The final issue that we shall discuss is the stability of subjects' beliefs and values through the negotiation. Are their judgments after the negotiation similar to their judgments before it? Stability may be regarded as a virtue, in that one does not allow oneself to be swayed by the opponent's attempts to persuade one to act against one's own interests. On the other hand, it may be reasonable to change one's beliefs when one has participated in a discussion in which information is exchanged, issues are reinterpreted, and one finds out more about the opponent's way of seeing things. Balke et al (1973), for example, viewed opinion change as a positive outcome of the provision of cognitive feedback. While stability is the opposite of change, this analysis is not redundant with the analysis of convergence, above, because change (instability) could diverge from or be unrelated to the other's views.

Stability of subjects' evaluations of U.S. Nicaragua policies and Nicaraguan outcomes, and of their beliefs about the connections between the policies and the outcomes, is measured by the correlation between a subject's pre- and post-negotiation judgments. For the purposes of data analysis (producing means and statistical tests of differences), these correlations are transformed using Fisher's z. Means are converted back to regular correlations for the tables.

Differences in the stability of each of the six judgments, between subjects with liberal and conservative political orientation and between males and females, are displayed in Table 22. The liberals tended to be more consistent on all tasks except for judging the effects of U.S. policies on the Nicaraguan Government (bottom section of Table 22). Most of the differences are quite small except for War Mapping judgments, where the liberals' post-negotiation judgments were much more similar to their pre-negotiation

judgments than were the conservatives'.

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Insert Table 22 about here.
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Table 22.
Effects of political orientation and sex on judgment stability.

Means of Pre/Post Correlations by Political Orientation and Gender

	Actions	Outcomes	Mapping			
			Civlife	Economy	War	Government
Means of Pre/Post Correlations by Political Orientation, collapsed across sex.						
liberal	.703	.873	.685	.668	.634	.496
conserv	.619	.845	.643	.591	.328	.530
t	1.23	.57	.53	1.04	2.91	.32
p	.233	.577	.602	.308	.008	.754
Liberal						
male	.790	.867	.797	.770	.749	.544
female	.585	.879	.523	.537	.485	.446
F	5.337	.041	9.977	6.437	4.745	.311
p	.037	.842	.008	.024	.048	.587
Conserv						
male	.658	.793	.647	.604	.345	.485
female	.572	.885	.641	.587	.310	.572
F	.766	2.158	.003	.040	.021	.239
p	.397	.166	.960	.844	.888	.633
Means of Pre/Post Correlations by sex, collapsed across political orientation.						
male	.731	.834	.731	.696	.585	.515
female	.578	.883	.585	.558	.397	.515
F	6.997	1.058	8.268	3.335	1.288	.000
p	.020	.322	.013	.091	.277	.998

As for sex (middle section of Table 22), the males' evaluations of Actions and their Beliefs concerning the effects of U.S. Nicaragua policies on Civil Life and Economy are more stable than the females'. The male advantages in stability are clearer with the liberal individuals (top section of Table 22). The liberal males were significantly more stable than liberal females on the Actions. Civil Life. Economy and War judgments.

When the Actions and Outcomes stability measures are combined into an overall Values stability measure. and the four Mapping stability measures are averaged into an overall Beliefs stability measure. the liberals were more stable but the differences were not significant.

Extremity. The subjects' judgment policy stability was little affected by the dyads' extremity, that is, the degree to which the participants' judgments of U.S. Nicaragua policies (Actions) differed before the negotiation (data not shown). Among the liberals, individuals from the mildly disagreeing dyads had beliefs about the effects of U.S. Nicaragua policies on the type of Nicaraguan government that were more stable than the beliefs of individuals from the extremely disagreeing dyads (F(1,4)=3.42, p=.087).

Effects of feedback. Does feedback of information concerning one's own and the other's judgments cause one to be more stable or less? There are two processes that might make people more stable when they receive feedback. First, during the negotiation they may refer to a description of their own policies for help in resisting the opponent's persuasions. Second, they may remember the abstract descriptions and use them as a guide during the post-negotiation judgment session when they are doing the judgments again, either because it is easier or because they want to be consistent. On the other hand, there are three processes by which feedback might make people less stable. Feedback might confuse them if it does not agree with what they think they believe. It might show them an aspect of their judgments that they had not known, such as an internal inconsistency, and motivate them to change. Or they might find that the other's values seem as reasonable as theirs, and become willing to be persuaded.

The effects of outcomes feedback on the stability of all 6 judgments, for liberal and conservative subjects, are shown in Table 23. Those who received feedback were more stable in every case, although most individual comparisons were not statistically significant. Repeated measures analysis of variance showed that receiving outcomes feedback caused subjects to be significantly more stable in their Actions judgments (F(1,15) = 4.56, p = .05).

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Insert Table 23 about here.
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Table 23.
Stability as an effect of Outcomes Feedback and Political Orientation.

	Actions	Outcomes	Civlife	Mapping Economy	War	Government		
No Outcomes Feedback								
Liberal	.598	.907	.617	.604	.598	.493	n =	24
Conserv	.537	.793	.629	.544	.328	.493	n =	24
Both	.565	.859	.623	.572	.478	.493	n =	48
Outcomes Feedback								
Liberal	.782	.827	.740	.721	.644	.501	n =	24
Conserv	.691	.885	.658	.635	.328	.565	n =	24
Both	.740	.859	.701	.641	.515	.537	n =	48

The effects of mapping feedback on judgment stability are shown in Table 24. As with the Outcomes feedback, those who received feedback about their own and the other's beliefs about the connections between U.S. Nicaragua policies and Nicaraguan outcomes had more stable judgments than those who did not. This difference is significant only for the judgment of the mapping on Civil life (F(1,15)=8.06, p=.012). Here where belief feedback was given, it was a belief judgment that was significantly more stable. Conservatives were less stable when predicting the effects of U.S. Nicaragua policies on the level of Strife in Nicaragua than for the other judgments.

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Table 24.
Stability as an effect of Mapping Feedback and Political Orientation.

	Actions	Outcomes	Civlife	Mapping Economy	War	Government	
No Mapping Feedback							
Liberal	.647	.834	.611	.635	.658	.470	n=24
Conserv	.629	.867	.530	.611	.264	.389	n=24
Both	.635	.851	.572	.623	.485	.430	n=48
Mapping Feedback							
Liberal	.749	.903	.744	.696	.604	.523	n=24
Conserv	.611	.821	.731	.572	.389	.647	n=24
Both	.686	.867	.740	.641	.508	.592	n=48

There were sex differences in the effects of cognitive feedback for several of the judgments (Table 25). While males receiving no outcome feedback had less stable Outcomes evaluations than females receiving none, the males were more stable when given outcomes feedback $(F(1,15) = 7.73, p = .014)$. In contrast, it was the females who had less stable Civil Life Mapping judgments when they received no mapping feedback, though again the sexes were equally stable when they received mapping feedback $(F(1,15) = 10.47, p = .006)$. With Government Mapping judgments, males were again less stable than females when they had no mapping feedback. This pattern was significant with the liberal subjects (shown in Table 25: $F(1,6) = 6.88, p = .021$) though not with conservatives or overall.

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Insert Table 25 about here.
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Table 25.
Sex differences in the effects of feedback on stability.

Effect of Outcomes Feedback on Stability of Outcome judgments.

		Outcomes Feedback		
		No	Yes	Mean
male		.744	.892	.834
female		.925	.818	.883
	Mean	.859	.859	.859

Effect of Mapping Feedback on Stability of Civil Life Mapping judgments.

		Mapping Feedback		
		No	Yes	Mean
male		.740	.721	.731
female		.345	.753	.585
	Mean	.572	.740	.664

Effect of Mapping Feedback on Stability of Government Mapping judgments, liberal subjects only.

		Mapping Feedback		
		No	Yes	Mean
male		.319	.706	.544
female		.592	.273	.446
	Mean	.470	.523	.493

To determine whether the effects of outcomes and mapping feedback on the stability of people's beliefs and values are additive, we display and analyze them in a 2 by 2 design (Table 26). The effects of

outcomes feedback and mapping feedback are visible, as in Tables 25 and 26. The additive nature of
these effects is evident in the finding that on all six judgments, subjects were more stable in the
condition where they received both types of feedback than when they received neither. There were no
significant interactions among the two types of feedback in their effects on the stability of any of the six
judgments.

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Table 26.
Interactions between outcomes feedback and mapping feedback for
all 6 judgments.

Stability of Actions judgments.
                  Mapping Feedback
                     No   Yes
Outcomes   No   .493   .629
Feedback   Yes   .744   .735

Stability of Outcomes judgments.
                  Mapping Feedback
                     No   Yes
Outcomes   No   .845   .872
Feedback   Yes   .856   .864

Stability of Civil Life Mapping judgments.
                  Mapping Feedback
                     No   Yes
Outcomes   No   .537   .701
Feedback   Yes   .611   .770

Stability of Economy Mapping judgments.
                  Mapping Feedback
                     No   Yes
Outcomes   No   .544   .604
Feedback   Yes   .691   .675

Stability of War and Violence Mapping judgments.
                  Mapping Feedback
                     No   Yes
Outcomes   No   .501   .446
Feedback   Yes   .470   .558

Stability of Government Mapping judgments.
                  Mapping Feedback
                     No   Yes
Outcomes   No   .422   .551
Feedback   Yes   .430   .623

There were significant sex differences in the effects of outcomes and mapping feedback on stability, for
the Economy Mapping judgments and the Government Mapping judgments (Table 27). For the
judgments of the effects of U.S. Nicaragua policies on the Nicaraguan economy, males were most stable
when they received outcome feedback alone or mapping feedback alone, but females were most stable
when they received both types of feedback ($F(1.15) = 6.4$, $p = .023$). For judgments of the effect of
U.S. Nicaragua policies on who governs Nicaragua, males with no feedback were very unstable while
those with mapping feedback were very stable. In contrast, females were most stable when given no
feedback or both types of feedback ($F(1.15) = 5.2$, $p = .037$).

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Table 27.
Sex differences in the combined effects of Outcomes and Mapping Feedback
on subjects' judgment stability.

Stability of Economy Mapping judgments.

No Mapping Feedback

Mapping Feedback

	Outcome Feedback					Outcome Feedback		
	No	Yes	Mean			No	Yes	Mean
males	.565	.811	.706		males	.716	.641	.680
females	.530	.508	.515		females	.454	.701	.592
Mean	.544	.691	.623		Mean	.604	.680	.641

Stability of Government Mapping judgments.

No Mapping Feedback

Mapping Feedback

	Outcome Feedback					Outcome Feedback		
	No	Yes	Mean			No	Yes	Mean
males	.178	.446	.319		males	.740	.585	.670
females	.617	.422	.530		females	.291	.658	.501
Mean	.422	.430	.430		Mean	.551	.623	.592

In conclusion. the judgments of the liberal subjects were more stable overall than the conservatives',
although this was statistically significant only for their judgments of the effects of the U.S. policies on
the level of strife. Reference to Table 18 shows that the conservatives' opinions moved toward the
liberals' on this task, more than *vice versa*, especially for the male dyads. This might be related to the
theory that people who support military intervention bolster their views by ignoring the consequent harm
to innocent civilians. The results suggest that the liberal males succeeded in getting their opponents to
recognize this effect of U.S. policies. Nonetheless. males' evaluations of the U.S. Nicaragua policies and
their beliefs concerning the effects of those policies on Nicaraguan Civil Life, Economy, and Strife were
more stable than females'.

With respect to the effects of cognitive feedback. both types of feedback made people more stable and
the effects were additive. Receiving Outcomes feedback. concerning both parties' evaluations. made the
value judgments about Actions (U.S. policies). be significantly more stable. Analogously. receiving
Mapping feedback. concerning beliefs. made one of the belief judgments. concerning the effects of U.S.
policies on Civil Life. be significantly more stable. This proves that the effects of different types of
cognitive feedback are selective. at least in their effects on judgment **stability**.

5. Discussion.

Our analysis has considered a number of intercorrelations among subjects' judgments. These have been
used to measure liberal-conservative similarity of opinion. interpersonal learning. stability of opinion, and
convergence (mutual influence) and dominance (unbalanced influence) of opinion.

The correlation between liberal's and conservative's judgments before the negotiation is a measure of
their prior similarity of opinion. The judgments of the liberals and conservatives in female dyads were
more similar than in male dyads. significantly so for the evaluations of Nicaraguan Outcomes. The
similarity of dyad members' pre-negotiation judgments proved to be related to whether they were able to
come to an agreement during the negotiation. The three dyads (of 24) who could not come to agreement

had greater than average opinion differences on every judgment task except the effect of U.S. Nicaragua policies on the level of Strife in Nicaragua. Their opinion differences were significantly greater than average on the evaluation of the U.S. policies.

While we expected that cognitive feedback would enable people to learn the others' way of thinking, there was no direct effect of feedback on the accuracy of people's estimations of their opponents' post-negotiation evaluations of the U.S. Nicaragua policies. We should note that the feedback was not about that particular judgment, but rather about either the subjects' beliefs about the effects of U.S. policies on outcomes in Nicaragua, or their evaluations of those outcomes. Nonetheless, one would expect that people could make use of this kind of information about the other to predict the other's evaluations of the U.S. policies.

There were several significant patterns of interaction between feedback and sex and/or political orientation, in their effects on interpersonal learning. However, these patterns were not constant when the quality of interpersonal learning was measured using two alternative heuristic methods. A third method, that takes full account of all the pertinent information, was developed up to the stage where it could serve as the basis for categorizing subjects according to the kind of strategy they used for judging the other. This analysis revealed some unexpected but unsurprising relations. Males were more likely to engage in stereotyping, assuming inaccurately that their opponent had the opposite evaluations of the U.S. Nicaragua policies from their own evaluations. Females were more likely to project, assuming inaccurately that their opponent had the same views as they. Similarly, people in dyads with extreme initial differences were more likely to stereotype, while people with mild initial differences were more likely to project.

It was found that the beliefs and values of the participants converged following the negotiations, as measured by comparing their agreement correlations after with their agreement correlations before. Males' belief judgments converged significantly more, but females' value judgments converged more (non-significantly). This interaction, although non-significant here (1/6 probability that it happened by chance), is coherent with popular theories of sex differences: the men focus more on facts when trying to persuade other men, while the women focus more on evaluative judgments when trying to persuade other women.

Receiving Mapping feedback prevented people's evaluations of U.S. Nicaragua policies from converging compared to those who did not receive it. The dyads' judgments of the effects of U.S. policies on the economy, a fairly uncontroversial dimension, converged most when there was Mapping feedback, while their judgments of the effects of U.S. policies on the level of Strife converged most when there was no Mapping feedback.

The opinions of the dyads who failed to reach an agreement did not converge as did the opinions of the other dyads. However, they did not diverge, either. This suggests that it is a lack of cognitive dissonance, rather than a presence of hostility, that accounts for the non-agreers' lack of opinion change.

Liberals had more stable opinions than conservatives. Males had more stable beliefs about facts, while females had more stable value judgments. Receiving cognitive feedback about one's own and the other's judgments made one's judgments more stable. This was particularly true for the type of judgments about which one received feedback. That is, Outcomes feedback made the value judgments about U.S. policies more stable, while Mapping feedback made the belief judgments about the effects of U.S. policies on Civil Life more stable.

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Acknowledgements.

Appendix A. The Research Assistants' Manual.
Respondent selection.

The questionnaire that will be used to screen perspective subjects appears in Appendix A-A.

Compile a list of classes to whom we can hand out the questionnaire. There is an advantage to using only those classes in which we will find students who might have strong feelings about the situation in Nicaragua, i.e. ROTC and political science classes. If we do this, however, we run the risk of making the results generalizable to only this type of student.

Hand out the questionnaire. This will involve going to the classes and administering the instrument, collecting it after it has been filled out, thanking the students and the teacher for the time etc. An issue here is that we should describe why we want these data. At the same time we do not want to tip our hand too much. It is sufficient to say that we are doing a project on how people negotiate. In order to study this we have selected the current issue of Nicaragua. We are interested in finding a collection of people to 1) Answer a series of questions covering their feelings about the U.S. policy toward Nicaragua. 2) Negotiate a U.S. policy toward Nicaragua with another respondent who will have a different political orientation. We will have to tell them that it is completely up to them to participate and that we will take the information from the questionnaire, select potential participants and get in touch with them in the near future in order to schedule a time to start the process. We need to tell them that the whole process will take about 3 to 5 hours spread over three different sessions. Once they have agreed to participate it is important that they continue through the entire process. There will be pay either in the form of money or university credit involved in participation. All the data will be locked and the results will be published only in the aggregate. The text is shown in Appendix A-A-2.

Select the dyads. This step involves the selection of those subjects who will participate in the final experiment. We need a pool of about 24 to 28 liberals and 24 to 28 conservatives. Those who are selected will be matched into 24 dyads. The general rule for matching dyads is to strive for symmetry in terms of both their political ideology and the intensity of their feelings about the situation in Nicaragua, but make sure that there is a sufficient difference between the two in terms of their political ideology. That is, we should try to match moderate conservatives who feel that Nicaragua is a moderately important issue with moderate liberals who feel that Nicaragua is a moderately important issue etc. In practice we may have to be been more flexible in the case of conservatives than liberals because of the difficulty of finding them on campus.

[Note: In fact, we matched dyads through the use of a combination of information from their screening questionnaire and data from the "actions" portion of the first computer session. The results of the "actions" session were put into a correlation matrix and a preliminary matching of dyads was done based on the strength of the negative correlation. This matching was then checked against the information in the screening questionnaire in order to match people of similar age, class standing and the like.]

Randomly assign people to experimental groups. One group will not see any feedback from the policy program. A second group will see feedback from "outcomes." A third group will see feedback from "mapping." Finally, a fourth group will see feedback from both "outcomes" and "mapping." The groups should be equal in size which means that the total number of dyads should be divisible by four. This means we should have 6 dyads in each experimental group, 3 male, 3 female.

After the dyads are matched and the experimental groups are established we need to contact each respondent, ask them again if they are willing to participate, fill in the dropouts and schedule them for the first computer run. In the telephone conversations we need to tell the respondents that if they

choose to participate they need to follow through with the whole study. The text for this conversation is in Appendix A-B.

First computer run. Schedule the participants for sessions on the computer. Be flexible enough to allow for the differences in people's schedules.

Start by giving them the consent forms. Have them read them over and sign them. See Appendix A-H.

The referee needs to outline the experimental procedure. step by step. and the respondents need to read the Definitions document (Appendix A-C). The text for comments preceding the first computer session are in Appendix A-C. These comments should be read as needed -- i.e., the comments concerning the first portion of the session should be read before the first session etc. In addition. the respondent should read the definitions as needed so that they understand what we mean with the different prompts. Finally, in the mapping session there is a visual representation of the response scale in the definitions document to which the individual can refer.

After the first session we need to show the respondents their feedback from ACTIONS. The point of this is to first. let them see what we are doing with the feedback information. and second to familiarize them with the meaning of the feedback information. Show the repondents the graphs and explain what the scales mean and what their responses mean. For example. "This axis is level of funding for the proxy war and this other one is how much you liked it. As you can see. the more money was given to the proxy war the less you liked it."

After the computer session ask the respondents how much money they would be willing to commit to reconciliation. opposition and proxy war using the form toward the end of Appendix A-E. In addition. we want to ask them for limits: 1) the most money they would commit to each of these. and 2) the least. Thus. we will have a band of willingness around an ideal amount.

A problem with this portion of the experiment is that the participants may become tired with the exercise. The best way to take care of this may be to encourage a short break between the different portions of the exercise. This is particularly important in the break before the mapping exercise. During that break we should tell them to get up and walk around for a few minutes. The participants must know that the session may take up to three hours so that they budget enough time for the entire exercise. We need to be very clear about this so that the participants do not feel rushed to finish nor deceived.

Following the completion of the subject's pre-negotiation judgments the data need to be read into the VAX and analyzed and the feedback produced. The experimenter should not know which experimental group the respondents are in. After the exercise the feedback will be produced. This means that we map out beforehand which dyads will be placed into which experimental groups. A series of SPSSX programs have been written which will produce graphs for outcomes and mapping. This was done because the needed information about the interaction of government with the other dimensions is not available from the POLICY program. This requires that we transfer the data from the POLICY program onto the mainframe and run the appropriate file in the time between the first computer session and the negotiation session.

Negotiation. Scheduling of the negotiating sessions. The next step will involve recontacting the respondents for the negotiating session. We will have to thank them for their earlier participation and we need to ask them if they are willing to participate in the rest of the experiment. Up until the

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negotiating session we can substitute people into dyads to cover those who drop out. However, if a person drops out from the experiment after the negotiating session and thus fails to complete the second computer session, then we have to throw out the data from the whole dyad. So, it is good to remind them again that we expect them to go through with the final two sessions.

This portion of the experiment will be the most time consuming of all. It will involve managing the negotiating session and recording, at some level, what happens in it. The output from this portion of the experiment is quite concise--the output from the negotiating sessions is simply an indication of the success or failure of the negotiations, and in the case of success we record the dollar values associated with Reconcilation, Opposition and Proxy War. There will be other data associated with the post negotiation questionnaire. This will be subjects' recall of their own and the other's weights on the cognitive feedback information of that dyad, if any.

We have decided not to schedule people to do the second (post negotiation judgement) computer session immediately after the negotiation session. This is to allow a delay between the two for all of the participants and not have some who did the second computer session with the negotiation session still fresh in their minds while others do not.

The negotiating sessions should be scheduled for a time that allows about two to three hours to complete. The sessions will take place in room D0014A. We have arranged that room with three chairs for the negotiators and the referee. In addition we can post the charts for the two negotiators so that they are easily seen and public. The role of the referee is to introduce the two negotiators to each other, to give them the appropriate set of cognitive feedback, to familiarize them with what the information means, and to watch for anything that is particular about the session. In addition, the referee will have to enforce the rules about what constitutes an acceptable outcome.

Before the negotiation session begins, we need to color in the lines on the computer output. We have developed the convention of using blue, green and black for the conservative and red, purple and orange for the liberal.

Before the actual negotiations begin, each of the negotiators needs to be familiar with the information on the charts. We have decided that the best way to do this is to have the referee explain some of the data on the chart and then ask each of the negotiators to explain some of the information. This should proceed as follows. First the referee needs to identify what the chart is about e.g. "This chart shows how each of you felt about the Nicaraguan economy under either a Contra or a Sandinista government. The horizontal axis shows how the economy is doing. Over here on the left is a poor economy and on the right is a healthy economy. The vertical axis shows how you evaluated that. The higher on the axis the better. The lines on the graph show what each of you thought about the economy for the two types of government. This line--shown in green--is how you, John, evaluated the economy when there was a Contra government. As you can see, if it were a contra government you thought that the worse the economy, the better. On the other hand, this yellow line shows what you, Frank, thought about the economy under a Contra government. You thought the healthier the economy the better. Etc. etc."
After the referee has explained several of the graphs he/she should turn the job over to the negotiaters. "Now here is a graph of the strife variable. John, could you explain what it means to us, then Frank could explain what the civil life chart means." The examination of the charts should first, examine the output of each of the individuals, and then compare the two. Do not describe the first person's function form and then compare that of the second person to it. The idea here is to try to make sure that each of the negotiators has to actively deal with the feedback information. Make sure they put into words what the other person's policy was. "John, tell us how Frank views it and how your views differ from his."

In the process of examining their output, we need to avoid the use of the words "liberal" and "conservative." When describing the two negotiators we should use "person one" and "person two," or their names. We want to avoid the labels so that the negotiating partners will not fixate on the labels, but rather they will examine the feedback data.

The referee should record the time, follow the session and note any interesting or different approaches to the session. In addition the referee needs to fill out the Referee Questionnaire (Appendix A-F). It is important to remember to answer question number III-2 as the session begins. This question simply asks for the referee's assesment of the potential for a successful negotiation depicted by the feddback.

Any resolution which contains a contingency is not to be allowed. That is, if the negotiators start to settle on a system where if x condition is met then an amount of money from one category will be released, but if another condition is met then an amount of money will be released from another category the referee should step in and disallow this. If the negotiators want to make specifications within categories this is allowed. For example they can specify that the money for opposition be given to x organization and not to y organization. All that we are interested in in this situation is that there be a single amount reported for each category on the negotiation form.

Finally, if two hours have passed and there is no resolution in sight, or if the negotiators are in an obvious deadlock the referee should ask whether they feel that they will be coming to an agreement soon, or whether in 5 minutes s/he should flip a coin to determine who specifies the amounts. As noted in the post-negotiation questionnaire, the referee needs to ask for the best offer of each of the negotiators immediately before the coin is tossed. This can be done verbally. In addition, the referee needs to get the values that each of the negotiators want should they win the toss. This data should be gathered in written form so that the respondents do not feel pressured by the amounts decided on by their negotiating partner. All of this is entered on the bottom of the REFEREE NEGOTIATION FORM. This is not an attempt to mediate the differences, simply the gathering of information.

The referee might follow a text such as is shown in Appendix A-D from which portions of the previous discussion have been taken.

Post-negotiation Questionnaire. This questionnaire will involve asking the respondents, among other things, to evaluate the negotiation session, and to recall cognitive feedback information which was shown to them during the negotiation session. In some cases we are asking the subjects to give us weights for things they have not seen. It is important to remind them of what weights are and to tell them that we know that they have not seen this data, but to do the best that they can. This form is attached below in Appendix A-E.

Second computer run. This session follows the general outline of the first computer session. The same approach can be taken in terms of scheduling the respondents in small groups and running them. In addition to the six judgment tasks that the respondents did in the first session, we will ask the respondents to judge a collection of actions taking the perspective of the person they negotiated with.

In the second computer session, as in the first computer session, we need to make sure that people from the same dyad are not scheduled for the same time. This is to avoid them having the sense that the other person is looking over their shoulder as they go through the judgment elicitation program.

Each respondent will need to have a copy of the Definitions document. The subject will use the same set of cues as in the first session. The set of actions judged from the perspective of the person they negotiated will be the same as the actions that they judge for themselves.

The last thing we need to do before the subjects leave is to give them a feedback sheet (Appendix A-H). In addition, the subjects need to be paid and **they need to sign a receipt for the money.**

APPENDIX A-A1

Questionnaire on U.S. Foreign Policy

You are invited to participate in a study of people's opinions concerning an important foreign policy issue. This questionnaire seeks information concerning your general political attitudes and your opinions on U.S. policy in Central America. It will be used to select people for further involvement in the study.

If you would not wish to participate in the later phases of this study, you need not fill out this questionnaire. Please return it to the researcher at this time.

If you should choose to fill out this questionnaire, your name and responses will be kept confidential, and the materials will be destroyed as soon as they are no longer needed for the purposes of the research.

The study you may be asked to participate in involves U.S. foreign policy with regard to Nicaragua. You, as a subject, will be asked to make judgments on various policy and outcome dimensions. Afterwards, you will be paired with another subject who holds a different perspective and be asked to discuss your opinions on U.S. policy.

I. General information. We ask these questions so that we may contact you about participating in the main study.

Name_____

Phone number_____

II. Demographic and personality variables. Please enter the correct response to each of the following questions.

1. **Sex:**   M   F

2. **Age:**   _____

3. **Level of college completed:**
    1 None   2 First year   3 Sophomore   4 Junior   5 Senior
    6 Masters   7 PhD.

III. General political attitudes.

1. Please rate yourself on the following seven-point scale, on which the political views that people might hold are arranged from extremely liberal to extremely conservative. Where would you put yourself on this scale?

Circle one of the seven numbers, or else check one of the two
statements that follow:

    1 extremely liberal
    2 liberal
    3 slightly liberal
    4 moderate, middle of the road
    5 slightly conservative
    6 conservative
    7 extremely conservative

    __ don't know
    __ not applicable

2. Where would you place the Democratic Party?

Circle one of the seven numbers, or else check one of the two
statements that follow:

    1 extremely liberal
    2 liberal
    3 slightly liberal
    4 moderate, middle of the road
    5 slightly conservative
    6 conservative
    7 extremely conservative

    __ don't know
    __ not applicable

3. Where would you place the Republican Party?

Circle one of the seven numbers, or else check one of the two
statements that follow:

    1 extremely liberal
    2 liberal
    3 slightly liberal
    4 moderate, middle of the road
    5 slightly conservative
    6 conservative
    7 extremely conservative

    __ don't know
    __ not applicable

IV. Opinions on Central America.

1. Some people think that in some situations it is okay for the United States to be involved in the
covert destabilization of the internal affairs of Central American countries. Others believe that this is not
ever acceptable.

Where would you place yourself on this scale?

Screening questionnaire.

Circle one of the seven numbers, or else check one of the two
statements that follow:

      1 It is sometimes acceptable for the U.S. to covertly
        destabilize governments
      2
      3
      4 Neutral
      5
      6
      7 It is never acceptable for the U.S. to covertly
        destablize governments

      __ don't know
      __ not applicable

2.   How important is it to you that the federal government do WHAT YOU THIN
IS BEST on this issue of involvement in Central American countries?
Is it EXTREMELY IMPORTANT, VERY IMPORTANT, SOMEWHAT IMPORTANT, or NOT
IMPORTANT AT ALL to you?

Circle one of the four numbers, or else check one of the two
statements that follow:

      1 Extremely important
      2 Very important
      3 Somewhat important
      4 Not important at all

      __ don't know
      __ not applicable

    3. Former Lt. Col. Oliver North currently faces charges on violation of U.S. law with respect to his
role in supplying the Contras with money to buy arms during a period when this was illegal. Assuming
that North actually did give them this money, which of the following best expresses your views on this
issue?

__ Ronald Reagan and Oliver North should both be punished
   for this.

__ North should be punished for this, but Ronald Reagan
   should not.

__ Ronald Reagan should be punished, but Oliver North
   should not.

__ Neither Ronald Reagan nor Oliver North should be punished.

__ don't know

    Thank you for your responses. If you wish to participate in the main study please make sure that you
have filled in your name and a phone number where we can get in touch with you and return your
questionnaire to the researcher.

APPENDIX A-A2. PROPOSED CLASSROOM PRESENTATION

Hello, I am working on a project which investigates how people negotiate. In order to study this we have selected a current issue about which we want people to negotiate a policy, specifically, a U.S. policy toward Nicaragua.

We are looking for volunteers to participate in our study and Professor ____ has kindly allowed us to come into this class in search of respondents. We will hand out a screening questionnaire for you to fill out. If you do not wish to participate, then you can simply return a blank questionnaire. On the other hand, if you think that you might like to take part in the experiment then please fill out the questionnaire including a phone number where we can get in touch with you later on if you are selected. In return for participation we can offer you either credit toward fulfilling the requirements of this class or payment for participation.

The experiment will involve answering a series of questions about your feelings toward Nicaragua and negotiating a U.S. policy. There will be three sessions which last about 1.5 hours each.

As I noted above, participation is completely voluntary. If you do not want to do this do not fill out the questionnaire. If you do fill out the questionnaire rest assured that your responses will be kept locked and your expression of opinion will in no way be used to evaluate you or your grade in this class. The data from this study will only be published in the aggregate.

APPENDIX A-B. PROPOSED TELEPHONE PRESENTATION

Hello. may I speak to _____. I am _____ from the CU Psychology department and I am working on the negotiating experiment that you filled out the questionnaire for in your _____ class. We want to know if you are interested in participating in the experiment?

(If they have any questions about the experiment you should respond to them using the PROPOSED CLASSROOM PRESENTATION. The point is not to tell them about the structure of the experiment in too much detail in order that the participants are all about equally aware of what the whole thing is about.)

```
(If no)
Ok, thanks for your time, bye.

(If yes)
(Schedule a time for the first computer run)
```

Thank you for agreeing to participate. Let me remind you that the experiment will involve 3 sessions that might last up to 2 hours apiece. It is very important for the design of the experiment that you participate in all three sessions. Are you sure that you want to commit yourself to this?

```
(If yes)
Thanks, we will see you _____.  We are located in Muenzinger
building, room D0041B.  Go in the front door, take a left and go
down the stairs all the way to the bottom--level 00.  From there
turn left and we are in the first cluster of offices on the left.  Our
phone number is 492-2936.

(If no)
Ok, thanks for your time.
```

APPENDIX A-C. PROPOSED COMMENTS FOR THE FIRST COMPUTER SESSION.

Introduction

Thank you for participating in our experiment. As you may know, we are interested in examining the way that people negotiate. The specific area that we have chosen for this experiment is negotiations over the correct U.S. policy towards Nicaragua.

Before we begin we need to make sure that all of you have filled out a consent form (Appendix A-I). Has everybody done that? (Note: hand out copies of the consent form to anybody.) In addition, we want to remind those of you who are being paid or receiving subject hours to participate that we will pay you after the completion of the experiment.

We are interested in taking you through three different exercises. The first part, which we will do today, will be a session with the computer where we will ask about your feelings about the U.S. policy towards Nicaragua. In the second portion, which will take place in the next week or so, you will be paired with another person, who is likely to have different opinions from your own, and you will be asked to come to an agreement on a U.S. policy toward Nicaragua. Finally, we will ask you to go through another session with the computer.

In today's session with the computer, there are three different tasks. First, we will ask you to give your opinion, on a scale of one (low) to ten (high), about a number of different possible U.S. policies toward Nicaragua. As with the world of international relations, there are several different aspects to each of the policies.

Please look at the "DEFINITIONS" document now.

Definitions for the Computer Exercises

You will be evaluating "actions", which are possible U.S. policies toward Nicaragua, and "outcomes", which are possible future conditions in Nicaragua. On the first page you will see what the screen on the computer will look like. As you can see, the policy toward Nicaragua would be a low level of support for reconciliation, a moderate level of support for the internal opposition and a moderate level of support for a proxy war. The DEFINITIONS document specifies what each of these three dimensions means.

```
Case #1

Reconcile          No U.S. effort
Opposition         Moderate U.S. effort
Proxy War          Moderate U.S. effort

How good?
```

You will rank the policy described in case one on a scale of one to ten, one meaning that you do not like it very much and ten meaning that you like it a lot.

Let's read through the first portion of "DEFINITIONS" now so that you will understand what each of these terms mean. In addition, as you go through this exercise you should refer to the definitions frequently so that you are clear on the meaning of the policies.

I. Description of dimensions and levels for the "ACTIONS" program.

A nation's foreign policy is complex, consisting of a variety of activities, each pursued to a greater or lesser degree. On the face of it, some of the activities may seem incompatible with others; yet incompatible activities are common in politics.

The U.S. strategies that we will ask you to judge are made up of three kinds of activities: those aimed at improving U.S./Nicaraguan relations (reconciliation), those aimed at increasing the strength of the internal Nicaraguan opposition (opposition), and those aimed at conducting war against the Nicaraguan government through the Contra armed forces (proxy war).

1. **Reconciliation:** This strategy involves activities which would lead to reconciliation of the U.S. and Nicaragua. It could be characterized more as an effort to reduce U.S./Nicaraguan conflict and to increase cooperation than to change Nicaraguan government and society.

   a. **High U.S. effort:** The U.S. would vigorously try to reconcile differences between our government and Nicaragua. Economic and humanitarian aid would be given to the current government without restrictions. Diplomatic channels would be actively used to facilitate economic and cultural exchanges between the countries. This alternative could cost about $90 million per year.

   b. **Moderate U.S. effort:** Humanitarian aid would be given to the country for particular programs. The funds, which would amount to about $50 million, could only be used for medicine, education, etc. None of the money could be used for military endeavors. Steps would be taken to normalize diplomatic and economic ties.

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   c. **No U.S. effort**: No effort would be made to reconcile with the Sandinistas. No aid would be given to the country for any purpose. We would maintain token diplomatic relations such as the presence of our embassy. The approximate cost of maintaining this level of effort would be $10 million.

2. **Opposition**: This strategy would seek to weaken the Sandinista government through supporting domestic opposition including labor unions. churches, political parties. the media, etc. but excluding armed opposition. The U.S. would exert its influence through licit and illicit funding of opposition political groups. the use of partisan media campaigns developed in the U.S. and distributed locally which are intended to support the Nicaraguan opposition, CIA orchestration of "dirty tricks" campaigns. and the like. Strategies such as visits by U.S. dignitaries to opposition organizations, intended to give them good domestic recognition, would be also be undertaken.

   a. **High U.S. effort**: The U.S. would devote a large amount of effort and money--around $40 million per year--to the following: 1) aiding the opposition by lending personnel to non-violent opposition forces within Nicaragua, 2) engaging in political "dirty tricks" and disinformation campaigns. and 3) championing opposition leaders on the stage of world opinion whenever possible.

   b. **Moderate U.S. effort**: The U.S. would provide a moderate amount of monetary aid-- around $20 million per year-- to political groups and media outlets that oppose the Sandinista government. and would support opposition leaders whenever possible.

   c. **No U.S. effort**: Minimal effort would be made to exert domestic influence. There would be no funding of the domestic opposition groups nor would there be any overt or covert attempts to influence public opinion.

3. **Proxy War**: This strategy involves efforts to overthrow the Sandinista government by force. seeking to change Nicaraguan government and society through the funding of the Contra armies. supported by U.S. diplomatic and economic pressures.

   a. **Active support**: It would become the official policy of the U.S. to support the Contra war. The U.S. would supply money for military and nonlethal supplies for the Contras. U.S. military advisors would function directly in combat roles and the U.S. would gather military intelligence on the Nicaraguans and pass it to the Contras. This option would cost the U.S. around $180 million per year. In addition. the U.S. would maintain economic sanctions against the Nicaraguans and cut diplomatic ties. We would encourage other countries to apply similar economic and diplomatic sanctions.

   b. **Moderate support**: The U.S. Congress would officially give non-lethal aid (food and medical supplies only) to the Contras. Military equipment would be provided in a covert manner through the CIA and private anti-communist organizations. Economic sanctions would be imposed to various degrees. while diplomatic ties would be maintained. This option could entail spending about $60 million per year.

   c. **Non-support**: The U.S. would not engage in the military or nonlethal funding of the Contras or the funding of any covert military action. In addition. the U.S. would have no economic or diplomatic sanctions against the Nicaraguans.

The second thing that we will do today is ask you to evaluate a number of different versions of the future in Nicaragua. We are interested in your evaluation of Nicaragua in terms of civil life, the economy, the incidence of war and violence and the form of government. Again, we will ask you to rank these different "pictures" of Nicaragua on a scale of one to ten where one is low and ten is high. The computer screen will look a lot like it did in the first exercise, only now the dimensions will be civil life, the economy, the level of strife and the type of government. You will be asked to tell us how much you would like it if that was the situation in Nicaragua. You are telling us how much you like or dislike the case, not whether you feel that the case is likely or unlikely. As with the first exercise, you should try to use the whole scale from 1 to 10. Also, if you make a judgement that you want to change during the session, note down the case number and we will be able to go back and change it at the end of the session. Now, let's read through what the different dimensions mean.

II. Outcomes: Conditions in Nicaragua. The following definitions refer to conditions that might exist in Nicaragua in the near future (one to five years from now).

1. **Civil Life**: This refers to the conditions of daily life within Nicaragua. It pertains to basic rights, such as freedom of the press and speech, the right to hold meetings and demonstrations, and the exercise of democracy. It also indicates the fairness and efficacy of the justice system (i.e., do law breakers get arrested and punished effectively? Are all people treated equally before the law?).

    a. **Open civil life**: There are few restrictions on civil life. Citizens are free to demonstrate against the government, participate in local political groups, and seek election regardless of ideology. The media are not censored. The justice system is effective and protects all individuals equally. One's ideology is not a factor in hiring or firing.

    b. **Restricted civil life**: Civil rights are restricted and the justice system operates selectively and inefficiently. Citizens with ideology that opposes the government are not allowed to participate in the government and are likely to be persecuted for their beliefs. The opposition is not free to participate in elections. The media are heavily censored. The justice system favors certain groups.

2. **Economy**: This refers to the state of the economy in Nicaragua. It includes consideration of the nation's overall economic well-being, e.g., inflation, employment rate, standard of living, national productivity, as well as the distribution of economic benefits, e.g., the extent of the gap between the rich and the poor, and the openness of economic opportunity.

    a. **Healthy**: The economy is doing fairly well, by Central American standards. The GNP is up and unemployment and inflation are down. Most people are able to find work sufficient to support their families. New types of economic activity are encouraged.

    b. **Depressed**: The economy is not doing well. Agricultural and manufacturing production are down, unemployment and inflation are high, and although the rich are surviving, many people are in desperate straits, unable to provide their families with the basics of food and shelter.

3. **Level of Strife**: This refers to the level of hostility and warfare in Nicaragua.

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    a. **Little Conflict:** There is no overt hostility or violence. There is very little physical strife between the government and the internal or external opposition.

    b. **War and Violence:** A state of conflict exists within Nicaragua. There are many acts of organized violence. between armed forces (government and opposition forces). and/or by the state against citizens who oppose the government. Both official combatants and civilians may be dying as the result of armed conflict. bombings. and terrorist acts. Human rights violations (imprisonments, beatings, death squad activity) may be common.

4. **Government:** This refers to the governing party in Nicaragua.

    a. **Rightist:** The government is solidly right wing and anti-communist. It is composed primarily of the Contra military aristocracy and their allies.

    b. **Moderate:** The government is comprised of people with ties to the Sandinista party as well as people from the business sector and the more conservative religous right. The nation has ties with the U.S. as well as the Soviets. The government is chosen by popular elections. possibly requiring the formation of coalitions among different parties.

    c. **Leftist:** The government is composed primarily of individuals associated with the left wing of the Sandinista party. It has economic and military ties with the Soviets and Cubans and is characterized as "Communist" in ideology.

When you have finished reading these definitions tell the experimenter that you are ready to judge the various outcomes in Nicaragua.

III. Scales for the mapping portion of the POLICY program

In this exercise we want a different type of information from you. Up until now, you have been telling us how much you like or dislike something. Now we want you to tell us what you think the effect of one situation will have on another. Specifically, we will show you a particular action that the U.S. might make. We want you to tell us how this policy will effect the civil life, economy, level of strife and form of government in Nicaragua over the next five years.

You will see a screen which looks something like the following:

```
Case #1

Reconciliation:    High U.S. Effort
Opposition:        Moderate U.S. Effort
Proxy War          Non-support


 Civil life?
```

At this point you would judge how the case presented would effect the civil life in Nicaragua. The scale that you will use to judge this is shown below:

```
Scale for the civil life variable

      1    2    3    4    5    6    7    8    9   10
      1----1----1----1----1----1----1----1----1----1
         restricted                        open
```

The "restricted" civil life described in Section II above was about a 2 on this scale. The "open" civil life described above was about a 9 on this scale.

After you have entered a number of between one and ten on the Civil life variable and have hit the return key you will be asked to judge the economy. The screen would then look like this:

```
Case #1

Reconciliation:    High U.S. Effort
Opposition:        Moderate U.S. Effort
Proxy War          Non-support

Civil life   8
Economy?
```

The scale that you will use to judge the economy is as follows:

```
Scale for economy
      1    2    3    4    5    6    7    8    9   10
      1----1----1----1----1----1----1----1----1----1
         depressed                     healthy
```
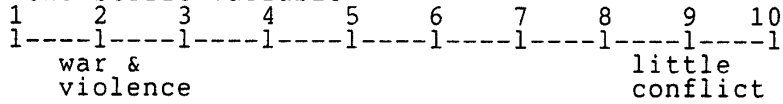
The "depressed" economy described above is about a 2 on this scale. The "healthy" economy is about

a 9 on this scale.

After you have judged civil life and economy, you will be asked to judge the relationship between the case and its impact on strife and the government. After that, a new case will be shown for you to judge on the four dimensions. For your reference the scales you will use are shown below.
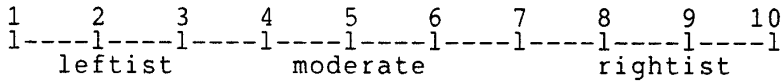
```
Scale for the strife variable
          1    2    3    4    5    6    7    8    9   10
          1----1----1----1----1----1----1----1----1----1
             war &                          little
             violence                       conflict
```

"War and Violence" as described above is about a 2 on this scale. "Little Conflict" is about a 9 on this scale.

The government scale also ranges between one and ten. In the case of this scale, however, if you think that the policy will lead to a leftist (more communistic) government, then you should rate the policy using a low number. On the other hand, if you think that the policy will lead to a government that is more rightist (more conservative), then you should give the policy a high rating. If you think that the policy will lead to a moderate government your response should be somewhere in the middle of the range.

```
Scale for the government variable

          1    2    3    4    5    6    7    8    9   10
          1----1----1----1----1----1----1----1----1----1
             leftist        moderate        rightist
```

A "Leftist" government as described in Section II above is about a 2 on this scale. A "Moderate" government is about a 5.5 on this scale. A "Rightist" government is about a 9 on this scale.

If you have any questions please feel free to ask us.

PREFERRED SUPPORT LEVELS

On the three lines below we want you to give us an idea of how much money you would like to commit to each of the three types of activity. For each activity we want to know how much money you think would be the ideal amount. In addition, tell us the highest and lowest amounts you would be comfortable with. Refer to your definitions document to see what each level of funding means. In addition, the specific amounts refered to in the DEFINITIONS document are shown below.

Monetary amounts for various levels of effort as described in DEFINE:

```
Money Supporting Efforts at Reconciliation

        No U.S. Effort           $   10 million
        Moderate U.S. Effort     $   50 million
        High U.S. Effort         $   90 million

Money Supporting the Opposition

        No  U.S. Effort          $    0 million
        Moderate U.S. Effort     $   20 million
        High U.S. Effort         $   40 million

Money Supporting the Proxy War

        Non-Support              $    0 million
        Moderate U.S. Support    $   60 million
        Active U.S. Support      $  180 million
```

For example, you might fill out the line for Dimension X as follows:

```
Dimension X
    I-(--I-X--I----I)---I----I----I----I----I
    0        50       100      150      200

        Ideal               $ 70   million
        Lower boundary      $ 20   million
        Upper boundary      $ 110  million
```

Money supporting efforts at reconciliation

```
    I----I----I----I----I
    0         50        100
```

Ideal	$_____	million
Lower boundary	$_____	million
Upper boundary	$_____	million

Money supporting opposition

```
    I----I----I
    0         50
```

Ideal	$_____	million
Lower boundary	$_____	million
Upper boundary	$_____	million

Money supporting the proxy war

```
    I----I----I----I----I----I----I----I
    0         50        100       150       200
```

Ideal	$_____	million
Lower boundary	$_____	million
Upper boundary	$_____	million

APPENDIX A-D. NEGOTIATION INSTRUCTIONS.

(Give each person a copy of the Definitions document and the Negotiation Agreement form.)

Hello, thank you for coming to this session. As you know you will negotiate about U.S. policy toward Nicaragua in this session. The two of you have been matched together through the use of the screening questionnaire and the first computer run. We have tried to match people together who have different political orientations.

Now, your task is to fill out the Negotiation Session Agreement Form with dollar amounts that you both agree on and to sign each other's copy of this form. You may agree to any amount within the following boundaries:

```
Support for reconciliation with Nicaragua    $0 - $100 million
Support for the internal opposition          $0 - $ 50 million
Support for the proxy war                    $0 - $200 million
```

If you are successful in negotiating a policy, congratulations. But, if you come to a deadlock where there is no possibility of negotiating an agreement, I will step in and resolve the deadlock. The way that I will do this is to flip a coin. The winner of the toss will be allowed to unilaterally decide on their own policy. We hope that this will encourage you to come to some form of agreement. Our experience is that the negotiations take about an hour and sometimes even longer. We want you to both feel like you have negotiated a good agreement, so please take your time.

(Read Definitions document.)

(Read to all dyads except those in the control group.)

Before we begin I want to show you some of the results from the first computer session.

(Show them charts from the first session. The charts should be easily seen by each of the negotiators, in addition the two should be able to face each other for the actual negotiation session. It is because of these requirements that I suggest that we post a copy of the charts for each of the participants on the wall such that both negotiators can easily see them.)

(Read to all dyads including the control groups.)

As you negotiate try to ignore the fact that I am here in the room with you. Treat me as a piece of furniture, and expect about as much information from me. Why don't you begin negotiating.

(Turn on the tape recorder.)

(Fill out the question on "Common Ground" in the Referee Questionnaire.)

(Note the time the negotiation started and the time that they agreed to a specific amount for each of the categories.)

(After the agreement--or in the case of a coin toss, after the toss-- take down the charts on the wall and hand out the post-negotiation questionnaire.)

APPENDIX A-E. POST-NEGOTIATION QUESTIONNAIRE.

		AGREE				DISAGREE	
1.	I feel more sure of my original position now than I did at the beginning of the session.	1	2	3	4	5	
2.	The other person suggested possibilities that I had not thought about before.	1	2	3	4	5	
3.	I thought that I was flexible in my position.	1	2	3	4	5	
4.	I thought that the other person was flexible in their position.	1	2	3	4	5	
5.	I am satisfied with the outcome of this session.	1	2	3	4	5	
6.	I compromised a lot to reach this agreement.	1	2	3	4	5	n/a
7.	The other person compromised a lot to reach this agreement.	1	2	3	4	5	
8.	This process of negotiation is effective.	1	2	3	4	5	
9.	This process of negotiation is enjoyable.	1	2	3	4	5	
10.	I understand why the other person says the things that he/she did.	1	2	3	4	5	
11.	I know a lot about the situation in Nicaragua.	1	2	3	4	5	
12.	The other person knows a lot about the situation in Nicaragua.	1	2	3	4	5	

OUTCOMES FEEDBACK INFORMATION.

Before you went into the negotiating session we gave you several graphs showing the importance of different elements which both of you have previously judged. Now we would like to ask you several questions about this information. What was your "weight" and the weight of your negotiation partner on the following items? Remember that the weights should sum to 100.

Dimension	Your Weight	The Other Person's Weight
Civil Life	_____	_____
Economy	_____	_____
Strife	_____	_____
Government	_____	_____
Total	100	100

MAPPING FEEDBACK INFORMATION.

Before you went into the negotiating session we gave you several graphs showing the importance of different elements which both of you have previously judged. Now we would like to ask you several questions about this information. What was your "weight" and the weight of your negotiation partner on the following items? Remember that the weights of each section -- such as Civil life -- should sum to 100.

Dimension	Your Weight	The Other Person's
Civil life		
Reconciliation	_____	_____
Opposition	_____	_____
Proxy War	_____	_____
Total	100	100
Economy		
Reconciliation	_____	_____
Opposition	_____	_____
Proxy War	_____	_____
Total	100	100
Strife		
Reconciliation	_____	_____
Opposition	_____	_____
Proxy War	_____	_____
Total	100	100
Government		
Reconciliation	_____	_____
Opposition	_____	_____
Proxy War	_____	_____
Total	100	100

NEGOTIATION AGREEMENT FORM.

As a part of our participation in an experiment in the Psychology department at the University of Colorado, we have agreed that the following is a policy that the U.S. should follow in their relationship with Nicaragua over the next year.

EFFORT AT RECONCILIATION BETWEEN THE U.S. AND NICARAGUA

(Must be between $0 and $100 million)   _____

AID TO THE DOMESTIC (NON-MILITARY) OPPOSITION TO THE CURRENT
NICARAGUAN GOVERNMENT
(Must be between $0 and $50 million)   _____

AID SUPPORTING THE PROXY WAR

(Must be between $0 and $200 million)   _____

Signed,

            _____

            _____

Date   _____

REFEREE NEGOTIATION FORM.

Note the agreed upon values for the three areas below and evaluate the negotiation process below

EFFORT AT RECONCILIATION BETWEEN THE U.S. AND NICARAGUA

(Must be between $0 and $100 million)   _____

AID TO THE DOMESTIC (NON-MILITARY) OPPOSITION TO THE CURRENT
NICARAGUAN GOVERNMENT

(Must be between $0 and $50 million)   _____

AID SUPPORTING THE PROXY WAR

(Must be between $0 and $200 million)   _____

TIME:

    Time "cognitive feedback" began   _____

    Time negotiation session began   _____

    Time negotiation session ended   _____

How willing were the two participants to compromise?

	Low				High
Liberal	1	2	3	4	5
Conservative	1	2	3	4	5

In the case of no agreement what were the best offers?
(Ask the negotiators immediately before the coin toss)

	Liberal	Conservative
Reconciliation	_____	_____
Opposition	_____	_____
Proxy War	_____	_____

In case of no agreement what were the levels the respondents would
set if they won the toss?
(Ask the negotiators immediately before the coin toss)

	Liberal	Conservative
Reconciliation	_____	_____
Opposition	_____	_____
Proxy War	_____	_____

Task Completion Form.

Dyad number_____   Condition_____   Date_____

I. Concerning the bargainers:

1. How flexible were the two participants?

	Inflexible				Flexible		
Liberal	1	2	3	4	5	6	7
Conservative	1	2	3	4	5	6	7

2. How much expertise did each individual display?

	Ignorance				Expertise		
Liberal	1	2	3	4	5	6	7
Conservative	1	2	3	4	5	6	7

3. How much negotiation skill did each participant demonstrate (i.e., use of persuasion, pointing out inconsistency, etc.)?

	Low					High	
Liberal	1	2	3	4	5	6	7
Conservative	1	2	3	4	5	6	7

4. Who dominated the session?

	Liberal			Conservative	
	1	2	3	4	5

II. Concerning the negoiation process:

1. What was the general level of conflict/tension throughout the session?

	Low			High	
	1	2	3	4	5

2. What bargaining orientation did the session seem to take?

	(adversarial) Distributive			Integrative		
	1	2	3	4	5	n/a

Comment:

3. To what extent did the bargainers bring up new ideas/creative solutions? How original were their ideas?

Task Completion Form.

```
                      standard                  original
                   1       2     3     4       5
```

Comment:

4. As an overall estimate of quality, how good was the session?

```
                      Poor                       Good
                   1       2     3     4       5
```

III. Concerning the negotiated agreement (if applicable):

1. Was the agreement fair (equal) to both parties given their original positions?

```
              Unfair                   Fair
              1     2     3     4     5
```

2. In your estimation, how much "common ground" was there between the bargainer's judgments demonstrated by the feedback?

```
              Very little           Quite a bit
              1       2     3     4     5
```

3. How similar were the bargainers' preferences for actions?

```
              Very little           Quite a bit
              1       2     3     4     5
```

4. Did both subjects seem happy with the agreement? How acceptable was it with each of them?

```
                 No                     Yes
Liberal          1     2     3     4     5
Conservative     1     2     3     4     5
```

5. Which of the following characterizes the agreement most accurately?

   a. A unilateral agreement: one party manipulates/coerces/persuades the other into compromising a great deal.

   b. A distributive agreement: splitting the losses and gains about equally. Both parties compromised.

   c. An integrative solution: a solution which maximizes both parties' gains. Better than a simple split of the losses.

6. Did the subjects tend to discuss the policy dimensions separately or as whole packages?

	Separately			Simultaneously	
	1	2	3	4	5

7. As an overall estimate of quality, this agreement could be ranked as:

	Poor			Good	
	1	2	3	4	5

Additional comments:

Time when each policy dimension was agreed upon.

Please note the time that the negotiators fill in the dollar amounts for each category of aid. If they change these figures after the initial agreement, note this also.

Time negotiation session began   _____

Time reconciliation agreed upon   _____

Time opposition agreed upon   _____

Time proxy war agreed upon   _____

Materials.

APPENDIX A-G. RESPONDENT TASK COMPLETION FORM.

Name   _____

Phone #   _____.____

Dyad #   _____

Condition   _____

Tasks completed

    Screening Questionnaire completed
            Questionnaire in file   _____
            Consent form signed

    1st Computer Session completed   _____
            Outcomes data in file
            Actions data in file

    Negotiation Session completed   _____
            Negotiation form in file

    Post-Negotiation Questionnaire completed   _____
            Questionnaire in file

    2nd Computer Session completed   _____
            Outcomes data in file
            Actions data in file

Data input into DYADS_____.DAT

    Screening questionnaire input
    OUTCOMES1 data input   _____
    OUTCOMES2 data input
    POLICY data input
    ACTIONS1 data input
    ACTIONS2 data input
    Negotiation form data input
    Post-Negotiation Questionnaire data input

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Feedback.

APPENDIX A-H. Feedback Sheet

The study in which you have participated was designed to investigate new methodology for conflict resolution. Cognitive factors have been found to intensify and even create conflict situations. Misunderstandings due to communication inadequacy, misperceptions and individual inconsistency are detrimental to the resolution of conflict. By giving individuals feedback about the other party's judgments and values, as well as their own, we are hoping to reduce "cognitive conflict" by clarifying the issues and, therefore, facilitating understanding.

The study also addresses the question of what type of cognitive feedback best helps reduce conflict. Feedback was given on either values, facts and values or neither. We are interested in finding out if there are differences between these types of feedback with regard to their effect on helping parties to pursue and form more integrative solutions.

If you are interested in reading more about this, here are some references:

Hammond. K. R. and Grassia. J. The cognitive side of conflict: From theory to resolution. In S. Oskamp (Ed.). Applied social psychology annual (Vol. 6) (pp. 233-254). Beverly Hills, CA: Sage, 1985.

Balke. W. M.. Hammond. K. R.. and Meyer. G. D. (1973). An alternative approach to to labor-management negotiations. Administrative Science Quarterly. 18. 311-327.

Brown. C. A. The central Arizona water control study: A case for multiobjective planning and public involvement. In H.R. Arkes & K.R. Hammond (Eds.). Judgment and decision making: An interdisciplinary reader (pp.144-158). Cambridge: Cambridge University Press, 1986.

If you have further questions about this research. you may call Dr. Robert Hamm at 492-2936, or leave a note in the ICS office (Muenzinger E-213).

Consent Form.

APPENDIX A-I. Information about the Study

You are invited to participate in a study of conflict resolution, conducted by Dr. Robert Hamm of the Institute of Cognitive Science, University of Colorado. The study involves the use of a computer program to facilitate discussion about U.S. foreign policy alternatives. You will be asked to rate various policy proposals for a particular region of the world, and to work with another individual on devising a strategy for the U.S. in that region. People find the procedure interesting, although it does require making a large number of judgments. You will need to reveal your opinions to another person, which sometimes makes people uncomfortable.

Your participation will consist of three sessions, ranging from one to two hours at a time. You will be paid $20 at the completion of the study.

You are free to discontinue your participation in the study at any time, without penalty except that you will not receive pay or credit.

Your responses will be confidential. We will not use your name as we analyze the data. No one except the research project personel will have access to any materials you will produce in the research.

Robert Hamm, Rich Ling or Michelle Miller will be glad to answer any questions you may have about the procedure. They may be reached at 492-2936 or at D-0041-B Muenzinger Hall, or a message may be left for them in the Institute for Cognitive Science office (Muenzinger E-213).

Questions concerning your rights as a subject in psychological research can be directed to the Human Research Committee at the Graduate School of the University of Colorado, and upon request you may receive a copy of this institution's General Assurance from the Human Research Committee Secretary, Graduate School, University of Colorado, Boulder, CO 80309.

****

I understand the above information and give my voluntary consent for participation in the experiment.

```
_____          _____
                 Signature                                     Date
```

Referee Questionnaire.

APPENDIX A-J. Checklist of Materials needed for each session.

Pre-Experimentation
            Appendix A-A-1   Screening questionnaire
            Consent form

First Computer Session

            Appendix A-C1   Session Instructions
                               Preferred Support Levels
            Appendix A-C2   Definitions document

            2 computer disks: 1 POLICY, 1 data disk

Negotiation Session

            Appendix A-C2   Definitions document
            Appendix A-D   Negotiation Instructions
            Appendix A-E   Post-Negotiation Questionnaire
                               Outcomes Feedback*
                               Mapping Feedback*
                               Government Feedback*
                               Negotiation Agreement Form
                               Referee Negotiation Form

Second Computer Session

            Appendix A-C1   Session Instructions
            Appendix A-C2   Definitions document

Post-Experimentation
            Appendix A-H   Feedback sheet
            Payment: $20, yellow subject hour card,
                      or combination of two
                      (a receipt must accompany money)

* This depends on the experimental group that the person is
included in. Not all groups will receive the same output.

Appendix B. The POLICY program.

In order to facilitate the subjects' discussions of their own and each others' beliefs and values, they were given information concerning their judgment policies, as defined by analyses using Brunswik's Lens model (Brunswik, 1957; Hammond, McClelland, and Mumpower, 1980). Use of this model is based on the assumption that many of the environments we live in are noisy and probabilistic. Things are difficult to predict and evaluate. People can keep approximate track of concepts in this sort of environment, using informal, intuitive judgment. As the elements of the situation vary, people's judgments vary along with them. To speak of accuracy of knowledge, then, we need to speak of how closely judgments covary with the world.

Multiple correlation statistics provide an expression of this theory (Hammond, Hursch, and Todd, 1965). A person's judgments of something are viewed as a function of a number of variable cues. For example, we ask our subjects to evaluate possible future conditions in Nicaragua, that we describe in terms of four cues or dimensions: the quality of civil life, the economy, the level of violence, and the identity of the government. These judgments are regressed onto the cues. The regression model provides measures of the direction of influence of each cue on the person's judgments, estimates of the relative importance of the cues in determining the person's judgment, and a measure of the consistency with which the person executes his or her judgment policy.

A computer program for modeling people's judgments and show the results to people immediately in graphic form, called the "Cognograph," was developed in the late 1960's by Hammond and coworkers. Several versions later there is a program that runs on the IBM PC, developed by John Rohrbaugh of SUNY Albany. Basically, it presents a subject with a number of things to judge, such as possible conditions in a future Nicaragua, and then fits the judgments with a multiple regression model.

Appendix C. Analysis of Accuracy of Interpersonal Judgment.

The analysis of the three dimensional space defined by the correlations $y = r(eo,o)$, $x = r(s,eo)$, and $z = r(s,o)$ will provide the basis for any indices that may be developed in the future for measuring the degree of interpersonal learning in a dyad, taking account of variations in agreement between participants. The argument below shows why nearness to a face is an adequate measure of nearness to the ideal types, accurate judge, stereotyper, and projector.

In the cube defined by these three correlations, we may define diagonal lines across three of the faces as the ideal types. The perfectly accurate judge is anywhere on the diagonal across the top face that goes from near top left to far top right. The pure projector is anywhere on the diagonal across the right face that goes from far top right to near bottom right. The pure stereotyper is anywhere on the diagonal across the left fact that goes from near top left to far bottom left. We would like to categorize the subjects into these types. One way to do this is to divide the cube into 6 tetrahedrons, whose bases are the faces and whose points join at the center point. Three of these pyramids are identified with the three ideal types, and the other three are anomalies. A first test of the validity of this analysis is whether there are more subjects who are in the three identified pyramids than in the other three. The subjects who fall on the boundaries can not be fairly categorized as nearer to one of the faces, so should not be categorized.

The boundaries are parts of the six planes that slice the cube from one edge to its opposite. These all intersect at the center point, and pairs of them intersect in either their diagonals or their middles. [There are 6 planes: there are 6*5/2 or 15 pairs of planes, of which 3 pairs intersect in lines that connect the center points of opposite faces (like the axis of a square wheel), and 12 pairs intersect in diagonals: there are six possible diagonals, so each diagonal must have 2 pairs of planes that intersect in it.] Let us label the edges as:

Appendix C. Analysis of Interpersonal Judgment.

Front face: front top, front left, front right, front bottom edges;

Back face: back top, back left, back right, back bottom edges;

Sides share edges with front and back, plus have: right top, right bottom,
   left top, left bottom edges.

The formulas for these planes are:

a. $(x,y,z) = (*,k,k)$ Back top edge to front bottom edge.
b. $(x,y,z) = (*,k,-k)$ Front top edge to back bottom edge.
c. $(x,y,z) = (k,*,k)$ Front left edge to back right edge.
d. $(x,y,z) = (k,*,-k)$ Back left edge to front right edge.
e. $(x,y,z) = (k,k,*)$ Right top edge to left bottom edge.
f. $(x,y,z) = (k,-k,*)$ Left top edge to right bottom edge.

In these formulas the k's indicate that whatever value is in the one position, must be in the other
position too (for the point to be on the plane). The stars indicate that that dimension can take any value,
and still be in the plane. In effect, the two specified dimensions are the diagonal of a face, and the
third, unspecified value, as it goes from low to high, sweeps that diagonal through the cube to the
opposite face.

From these we can determine that the loci that are nearest each face must simultaneously be on a
given side of each of four planes.

For the top face (accurate judgment), the zone is those points
   that are higher on the y dimension than planes a,b,e, and f.
For the left face (stereotypy), the zone is those points that are
   lower on the x dimension than planes c, d, e, and f.
For the right face (projection), the xone is those points that are
   higher on the x dimension than planes c, d, e, and f.
For the bottom face (completely inaccurate judgment), the zone is those
   points that are lower on the y dimension than planes a,b,e, and f.
For the front face (complete disagreement), the zone is those
   points that are lower on the z dimension than planes a, b, c, and d.
For the back face (complete agreement), the zone is those
   points that are higher on the z dimension than planes a, b, c, and d.

The remaining points are special, boundary points.

To determine whether a particular subject's data, $(x,y,z) = (r(s,eo), r(eo,o), r(s,o))$, is in a particular
direction from a plane [e.g., beyond that plane in the z dimension], we start with the values on the
other two dimensions, and then compare the value on the remaining [z] dimension with the value that is
on the plane. So: is $[r(s,eo),r(eo,o),r(s,o)]$ deeper than the plane $[*,k,k]$? Plug the values for the x and
y dimensions into the equation for the plane, and you find that the constraint $[z = y]$ gives you the
third value: $[r(s,eo), r(eo,o), r(eo,o)]$. This is a point on the plane, that shares two values (x and y)
with the subject's actual data $[r(s,eo), r(eo,o), r(s,o)]$. Our question: is the subject's actual data point
closer to the back face than this plane? Since we have identified a point on the plane that shares the x
and y values with the subject's data point, all we have to do is compare the z values: is the subject's
actual z value, $r(s,o)$, closer to the back face (a higher number) than the value we have identified that is
on the plane? If so, then we have proven that the subject's data point is closer to the back face than the
plane in question.

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For each of the 6 faces, we have to ask this question 4 times (essentially, by requiring that 4 inequalities between pairs of values be true) in order to establish that the subject is in the pyramid associated with that face. Consider the front plane. To be assigned to this category, the subject has to have a lower z value than that defined by each of 4 diagonal planes: a, b, c, and d.

Plane a is (*,k,k). To be closer than this plane, $r(s,o)$ [the subject's z value] must be less than $r(eo,o)$ [the z value of the point on the plane that has the subject's x and y values].

Plane b is (*,k,-k). To be closer than this plane, $r(s,o)$ must be less than $-r(eo,o)$.

Plane c is (k,*,k). To be closer than this plane, $r(s,o)$ must be less than $r(s,eo)$.

Plane d is (k,*,-k). To be closer than this plane, $r(s,o)$ must be less than $-r(s,eo)$.

The pattern seems simple: to be in the pyramid associated with a face, the subject's value on the dimension that that face is "at the end of" has to be more extreme than all of the following: the other two variables, and the negations of the other two variables. If it is equal to one or more, and more extreme than all the others, then it is on a boundary.

The face in whose pyramid/tetrahedron the subject falls represents the subject's dominant feature. It comes down to: which one has the largest absolute value? That determines the dominant dimension. Is it positive or negative? If positive, it is up, right, or back; if negative, it is down, left, or front. Left, top, and right are our meaningful dimensions. This is an ordinal analysis. Of course, this categorization could be determined by chance, if near the boundaries.