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IN PREDICTED ETHICAL RISK TAKING OF GROUPS.

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THE SOURCE OF INCREASED EMPHASIS OF GAIN
IN PREDICTED ETHICAL RISK TAKING OF GROUPS

by

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Abstract

THE SOURCE OF INCREASED EMPHASIS OF GAIN
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by

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Previous research has shown that in an ethical risk taking situation there is an increase in emphasis upon the reinforcement value of gain from an individual to a group situation.

Explanations of the increase are discussed: (a) The locus of control explanation proposes that control is passed from the individual to the group as a person enters a group. In return the individual expects a more positive outcome. (b) The rhetoric of risk or value explanations state that the communications process (e.g., vocabulary, arguments, etc.) available to the most risky individual is stronger and more persuasive. His communication must include some reference to the positive outcome to which the other group members subsequently also place more emphasis. (c) Although the situation seems unethical, justification for the act may be confounded with pure gain value and, therefore, such an extension of value theory could explain the previously observed increase in reinforcement value of gain.

A new form of the scale used to measure ethical risk taking was constructed which does not confound gain and justification.

Contrary to the justification explanation, a significant ($p < .01$) increase in emphasis upon reinforcement value of gain alone was still found.

A method of assessing the relative contributions of communication (rhetoric value) and locus of control was proposed using regression techniques. The rhetorical or value explanations predict that as divergence within the group increases, changes in judgments also increase. The locus of control explanation relies on a change in expectancy of outcome. Therefore, the change should occur even when the individuals within the group all hold the same initial positions. Through a regression analysis of data from 30 three-man groups from Hunter College using the original scale, and two sets of 10 groups using two new forms of the scale, it was determined that 55% ($p < .001$) of the shift was attributable to a communication type process, while 45% ($p < .10$) was attributable to change in expectancy.

As a further test of the rhetorical explanation, subjects were asked to judge on 5 scales (strong-weak; active-passive; good-bad; dramatic-drab; and complex-simple) the arguments presented by and the confidence of the individuals in their group. Of 54 (6 scales X 3 forms X 3 judge combinations) comparisons of individuals initially high versus low in sensitivity to reinforcement value of gain, 76% were in the predicted direction. When the judgments of all the group members were combined, the arguments of the high individuals were judged significantly ($p < .05$) more

"complex." When self judgments were compared, the high individual judged his own arguments significantly ($p < .05$) more "active," and himself significantly ($p < .01$) more confident than did the low individual.

Subjects were also asked whether in the future they "would prefer making such decisions as an individual" or "part of a group?" The locus of control explanation predicts that those individuals who prefer making such decisions as part of a group would show a greater increase in emphasis upon reinforcement value of gain. However, no significant main or interaction effects of choice were found.

Since it is possible that the value of risk may still be dominant in these "unethical" situations, and that it may be difficult to empirically differentiate between the value transmission and rhetorical aspects of the communication process, the data may support any one or both of these explanations.

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The risky shift paradigm has usually consisted of the individual alone making some risk relevant judgment and then making the same judgment during or after a group discussion of the risk relevant situation. The usual finding is that subsequent to group discussion the individual's judgment reflects greater risk (Wallach, Kogan, and Bem, 1962; Rettig and Turoff, 1967). The two most commonly used measures of risk taking are the Choice Dilemma Scale (Wallach and Kogan, 1961) and the Behavior Prediction Scale (Rettig and Rawson, 1963).

Choice Dilemma Scale

With the Choice Dilemma Scale the subject himself, or a hypothetical protagonist whom the subject is to advise, is faced with a choice between two actions, X and Y, whose outcomes differ in attractiveness and probability of occurrence. The successful outcome associated with alternative X is assumed to be more attractive than the successful outcome associated with alternative Y, but the probability of attaining X is less than that of attaining Y. Subjects are asked to consider themselves as advisors to the protagonist in each of twelve stories and to indicate the minimum probability of success they would consider acceptable in order to recommend action X. The first situation in the Choice Dilemma Scale reads as follows:

Mr. A, an electrical engineer who is married and has one child, has been working for a large electronics corporation since graduating from college five years ago. He is assured of a lifetime job with a modest, though adequate, salary and liberal pension benefits upon retirement. On the other hand, it is very unlikely that his salary will increase much before he retires. While attending a convention, Mr. A is offered a job with a small, newly founded company with a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership if the company survived the competition of the larger firms.

Imagine that you are advising Mr. A. Listed below are several probabilities or odds of the new company's proving financially sound. Please check the lowest probability that you would consider acceptable to make it worthwhile for Mr. A to take the new job.

Four major theories have been proposed to account for the risky shift from the individual to the group situation when the Choice Dilemma Scale is used. These four theories will be discussed briefly here. For a more complete discussion see Kogan and Wallach (1967), Dion, Baron and Miller (1970), or Brown (1965).

Responsibility Diffusion

The responsibility diffusion explanation originally proposed by Wallach, Kogan and Bem (1962) states that: group discussion allows for full group participation and for affective bonds to be formed between the individuals such that each individual is equal in the group. Thus, each individual feels less personal responsibility and anxiety for failure than if he were solely responsible for the decision. This theory's most obvious prediction is that group

discussion is necessary for the risky shift to occur. Teger and Pruitt (1967) found that a shift could be obtained without group discussion by simply an exchange of information concerning personal levels of risk between subjects. However, group discussion may play some part in the shift since Teger and Pruitt found an even larger shift when group discussion was permitted.

Leadership

It might be argued that those individuals who are initially more risky become leaders in the group discussion, and, therefore, are more influential or persuasive, causing a risky shift. Supporting evidence for the leadership explanation comes primarily from positive correlations found between perceived influence in the group and initial riskiness (Wallach, Kogan & Bem, 1962; Flanders and Thistlethwaite, 1967). However, Teger and Pruitt's (1967) finding that no group discussion is necessary for the shift to occur seems to question leadership as a sole explanation for the risky shift. Furthermore, contrary to the leadership hypothesis, risky individuals are not more influential when arguing for a risk neutral topic (Wallach, Kogan & Burt, 1968).

Familiarization

An individual, upon first exposure to the risk taking problems, prefers to be cautious and not go out on a limb. Upon

further consideration and comprehension of the relevant information through group discussion or private study, the individual is willing to be more risky. This explanation requires no group process.

Bateson (1966) and Flanders and Thistlethwaite (1967) both found a risky shift equal in magnitude to that produced by group discussion under a familiarization condition, where subjects, after their initial decisions, were told to reconsider each Choice Dilemma item. However, Puritt and Teger (1967), as well as other investigators, have on several occasions tried to replicate these findings to no avail.

Cultural Value and Information Exchange

Probably the most widely accepted theory was proposed by Brown (1965). This theory contends that under certain circumstances there is a cultural norm to be risky. When individuals make decisions on the Choice Dilemma items they take this norm into account and attempt to be risky without being foolhardy. However, when the group meets, some of the individuals find that they are more conservative than the others (unless all hold the same risk level). To conform to the norm these individuals shift their position in the risky direction. This explanation has been supported by two important experiments. The first by Teger and Puritt (1967) showed that knowledge of the other's risk level is sufficient to produce a shift. The second by Pruitt and Teger (1967) showed

that all individuals initially perceived themselves as being more risky than some hypothetical other person.

Behavior Prediction Scale

The Behavior Prediction Scale (BPS) is more concerned with the determinants of unethical behavior. An "ethical risk" is, therefore, defined as a deliberate unethical action, which may be instrumental in obtaining a desirable alternative. The BPS describes to the subject a situation in which a bank teller is in conflict about stealing money from a bank. The subject is asked to predict on a scale ranging from 0 to 6 the chances that the teller will take the money. Up to six parameters of the situation described to the subject are varied (Rettig and Rawson, 1963). However, in the group risk taking studies only four of the parameters are used (Rettig, 1966, 1969; Rettig and Turoff, 1967). The four parameters and their respective high and low values are as follows:

1. Reinforcement value of gain (RV_{gn})--high: the money is needed for a crucial medical operation; low: the money is needed by other people.
2. Expectancy of gain (E_{gn})--high: the medical operation was guaranteed to cure the illness, the money obtainable would help many people; low: the success of the operation was not guaranteed, the money obtainable would help only very few people.
3. Negative reinforcement value of censure (RV_{cs})--high: the theft would result in expulsion from the bank and charge of criminal conduct; low: the theft would be settled in private with the bank president.

4. Expectancy of censure (E_{CS})--high: the theft would be detected; low: the theft would go unnoticed.

Since each parameter has two levels and there are four parameters, 2^4 or 16 possible combinations of the levels are possible. These 16 combinations make up the 16 items on the BPS scale. One of these items reads:

A bank employee was in urgent need of a large sum of money for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure his illness. The employee was certain that his theft would be detected sooner or later. However, the employee was convinced that if he was caught, he could settle the matter privately with the bank president.

The risk level on the BPS scale may be obtained by summing a subject's responses to all 16 items. A subject's sensitivity to a particular dimension may be calculated by pairing items such that only the level of the dimension in question varies between the two items. When this is done, the sum of the differences between the 8 pairs of items constitutes a measure of the subject's sensitivity to that dimension. When this procedure is completed for all 4 dimensions, one can compare the 4 scores to determine which dimension the subject is more sensitive to. The BPS, therefore, measures level of risk and importance of the 4 dimensions in determining level of risk.

Rettig and Rawson (1963) found that individuals pay most attention to the reinforcement value of censure dimension, i.e., the sum of the differences between the high and low item pairs of this dimension was greater than any other dimension.

Three subsequent papers compared individuals to groups in their responses to the BPS. The first paper by Rettig (1966) contained two important results: (1) the total BPS scores were significantly greater for groups than for individuals, indicating that groups predicted greater risk taking than individuals, and (2) although individuals pay most attention to the reinforcement value of censure component, the group was found to pay most attention to the reinforcement value of gain component.

Locus of Control

Rettig (1969) accounts for his findings by using the concept of "locus of control." In the individual condition all control of the decision making process falls upon the individual and, therefore, lies with him. He places most emphasis upon the consequences of a negative outcome. However, when an individual enters a group he gives up some control to the group. In return for giving up control, he expects a more favorable outcome. This change in expectation may produce a change in set making him more sensitive to the positive outcome or reinforcement value of gain.

It is assumed that if a person listens to a discussion he may incorporate some of the arguments presented, and, therefore, give up some control to the group to the extent that the group has affected the person's opinions, values, attitudes or behavior. Rettig and Turoff (1967) varied exposure to the group discussion and in so doing varied locus of control. In the direct exposure condition, the subject met with the discussants and sat in on the discussion, although he did not participate. In the tape condition the subject listened to a tape of the discussion. It is assumed that a subject in the tape condition gave up less control to the discussants since he never met them. The tape condition, therefore, becomes more like an individual condition because control is not given up to the group as much as in the direct exposure condition. As would, therefore, be expected, level of predicted risk (total BPS score) and the sensitivity to RV_{gn} was lower in the tape condition than in the direct exposure condition.

Rettig's (1969) most recent paper varies size of group (one to three) and discussion of relevant versus irrelevant material. Both of these variables seem to vary locus of control, if one views the giving up of control as covarying with the expectancy of a positive outcome. As group size increases, the number of minds that can be brought to bear on the situation increases, often increasing the output and enhancing the likelihood of success. The lack of relevant group discussion would produce

little or no shift of control to the group compared to the discussion of the BPS, which would produce a shift in control. As would, therefore, be predicted, when the group's discussion was relevant to the BPS, Rettig found an increase in both predicted ethical risk taking and sensitivity to the RV_{gn} dimension as group size increased. Also, sensitivity to the RV_{gn} dimension increased from the irrelevant to the relevant group discussion conditions.

An unpublished study recently conducted by Rettig contained three conditions. In two of the conditions confederates were instructed in the presence of the subject to either help or hinder the subject in making decisions during the discussion. The third condition was a control in which no instructions were given to the confederates in front of the subject. The help and hinder conditions were intended to maximize and minimize respectively the giving up of control to the group by the subject. As would be predicted, Rettig found significantly less total risk taking and sensitivity to RV_{gn} in the hinder condition than in the help or control condition.

Communication

Although Rettig's notion of locus of control accounts for the data thus far collected, an extension of Brown's Value Theory, the (1965) notion of rhetoric of risk may also account for Rettig's data. As described by Kelley and Thibaut (1969),

The "rhetoric of risk" (to use Brown's phrase) is likely to be more dramatic and far richer in connotations of myth and poetry than is the "rhetoric of caution." In debate, then, though not in the mere transmission of information by public balloting, the occupant of the risky position, regardless of the personality or situational factors that led him to espouse that position, would hold the advantage. Moreover, and secondly, the conflicts and uncertainties entailed in accepting the riskier alternatives might lead the proponent of such alternatives to state his arguments with a heightened intensity and amplitude ... In short, he may have the advantage of a more potent language, more intensively produced. (p.82)

Kelley and Thibaut then propose an explanation for Rettig's early findings:

... Rettig's (1966) recent finding that group discussion, leading to the risky shift, appears uniquely to involve a heightening of the "reinforcement value" of the gains accruing to riskiness. If it is correct to understand Rettig's results as indicating that during the group discussion the value of the prize and the resultant worth of the risky endeavor are increased, then any interpretation is strengthened that, within the constraints imposed by the prior discussion, proposes a mechanism (like the rhetorical advantages) capable of enhancing the group's valuation of the prize. (p.82)

The rhetoric of risk interpretation clearly implies that communication is the mechanism of the risky shift. One might, therefore, extend Kelley and Thibaut's interpretation by analyzing the variables used in Rettig's subsequent studies with respect to their effect upon the persuasiveness of a communication. McGuire (1969) offers a suitable frame of reference with his "matrix of persuasive communication." The independent variables within the

matrix have been shown to affect the persuasiveness of a communication. It will be shown that each operationalization of the variable locus of control corresponds to an independent variable within the "matrix of persuasive communication." Therefore, if one views the increase in predicted ethical risk taking as resulting from a rhetorical advantage then any decrease in that advantage (i.e., decrease in the persuasiveness of the communication) will produce a subsequent decrease in risk taking.

Direct versus taped exposure to the discussants used by Rettig and Turoff (1967) varies two variables in the matrix; attention and attractiveness of the communicators. Attention here is not used in the sense of "selective exposure" where the receiver attends only to those arguments or communications which are congruent with his own attitudes, but in the sense that a live discussion offers more varied stimulation than a tape and, therefore, is more likely to hold the listener's attention. As McGuire (1969) notes: "interpersonal liking (and to a somewhat lesser extent, social-influence valance) increases with amount of contact ... and closeness of contact ... (p.191)" Since the direct versus taped exposure varies amount and closeness of contact to the discussants one would, therefore, expect a difference in the attractiveness of the discussants between the two conditions.

With increase of group size from one to three (Rettig, 1969) both the probability of at least one individual within the group taking a pro-risk position increases, and the probability

of a "repetition of the persuasive message" is enhanced. McGuire (1969) cites several studies showing increased attitude change with increased repetition.

One of the variables used by Rettig (1969), risk relevant versus risk irrelevant discussion, does not have an explicit analogue in McGuire's matrix. However, if a subject's attitude is to be affected by a group or individual, he must have knowledge of or make assumptions about the latter's position, which the risk irrelevant discussion does not allow.

Finally, Rettig's unpublished study, in which the confederates were instructed to either help or hinder the subject, varies both the credibility and the attractiveness of the communicators.

The variables of relevancy of the communication, attention, repetition of the persuasive message, attractiveness, and credibility of the communicator that are implicitly used by Rettig when he varies locus of control, all affect the efficacy of the pro-risk communication. It is, therefore, clear that Rettig's data, when analyzed within a rhetoric of risk and, therefore, communication framework, can be adequately explained.

As explained more fully below, Rettig (1967) rejected value theory as an explanation for his findings because the BPS involves an unethical risk and should, therefore, produce a conservative shift. It is still possible in some purely unethical situations that the

value of risk may be dominant. If this were the case, then an increase in sensitivity to RV_{gn} could be interpreted as simply reflecting a change in orientation of some members of the group toward greater risk and, therefore, a greater accentuation of the positive outcome (RV_{gn}). Since the value and rhetorical explanations have a great deal in common, as several authors have implied (Kelley & Thibaut, 1968; Dion, et al., 1970), it may be difficult to differentiate between the two. Both, of course, rely on a communication type process to produce the shift.

Brown's Value Theory and Justification

Although Rettig (1967) discounts Brown's value theory as an explanation for the BPS's risk shift on the basis that the BPS involves unethical behavior and, therefore, the group discussion should accentuate the unethical nature of the situation producing a conservative shift, a closer examination of the BPS items reveals that the inclusion of justification for an unethical act may allow value theory to account for Rettig's findings.

Brown makes two important points which may be used to analyze Rettig's data. The first is that "a story problem involving risk may engage either the value on caution or the value on risk. The group decision will be more extreme than the individual decision-- in the direction of the value engaged, whichever that direction may be" (p.705). The second point is that we have "no general rule for

identifying in advance those problems that will cause a shift to risk and those problems that will cause a shift to caution." (p.705) Brown does with reservations make an attempt at this formulation of such a rule which reads: "One should be cautious in making a decision such that the stake involves the vital interests of others" (p.706).

It would not be too great an extension of Brown's rule to hypothesize that the shift will be in the risky direction when circumstances justify or at least do not detract from the risk, and that the shift will be in the cautious direction when circumstances make the risk morally or in any other way unjustifiable.

The increased emphasis upon the reinforcement value of gain may, therefore, be explained by this extension of value theory as follows. Instead of looking at the BPS scale as a unit, it may be viewed as 16 different situations. Half of those situations (high RV_{gn} items) involve stealing money for a crucial medical operation, quite possibly a justifiable reason in the eyes of college students for stealing the money. The other half of the situations (low RV_{gn} items) involve stealing money to lend to others, a possibly unjustifiable reason for stealing the money. Since for the high RV_{gn} items stealing the money may be justifiable, their value of risk should be accentuated in the group discussion and there should be an increase in the predicted likelihood that the person will steal the money. In the low RV_{gn} items stealing the money may not be justifiable and, therefore, there will be a conservative shift or a decrease in the predicted likelihood of stealing.

A risky and conservative shift on the high and low RV_{gn} items, respectively, will produce an increase in the difference score for the RV_{gn} dimension following group discussion. Because gain and justification are confounded on the RV_{gn} dimension, an extension of value theory which includes justification as a critical variable when the risk is unethical, may be able to account for Rettig's finding of an "increased emphasis" upon the reinforcement value of gain.

At the present, the justification explanation can only be conjecture. What evidence is there to support this explanation? Rettig (1967) reported that the increase in predicted risk taking occurred only in the high level of RV_{gn} , with the items representing the low level showing no shift. Other data of Rettig's (personal communication) show an increase in predicted risk taking for items in the high level of RV_{gn} (high justifiability) and a decrease for items in the low level of RV_{gn} (low justifiability). This result shows that the increased emphasis upon RV_{gn} may be due to differential shifts in the individual items as would be predicted by a justification explanation.

It may be determined empirically if college students do perceive the situations described in the high RV_{gn} items as being more socially justifiable than the low items of Rettig's BPS. Subjects were given the BPS and asked to judge on a 0 to 6 graphic scale either how justifiable the stealing was or how much gain was

involved for each of the 16 situations. A difference score representing differences in justification or gain was then calculated by summing the judgments on the low RV_{gn} items and subtracting from the sum of the high RV_{gn} items. Table 1 summarizes the results of the study, which is described more fully in Appendix I. The significantly positive difference scores for both justification and gain indicate that students view the high RV_{gn} situations as being more justifiable and involving more gain than the low RV_{gn} situations. These data support the value (justification) theory explanation of the increased emphasis upon RV_{gn} .

Rettig, in an unpublished study, presented five different ethically questionable situations to individuals and groups. Each situation was contained in two forms. In the "high justification" form, the unethical act was justified in some manner. In the "low justification" form, little justification for the act was presented. The justifications for three of the situations made the act justifiable for the individual engaging in the act but not necessarily for someone else (e.g., "He feels that the government doesn't pay him enough to support his family.") The justification in the other two situations were of a more universally (socially) acceptable nature (e.g., "This information may be put to use in producing better drugs."). Table 2 presents the difference between the individual and the group conditions under the two levels of justification for the five situations. If the importance of justification as stated

TABLE 1

Summary of difference of judgments of high and low components of RV_{gn} on two dimensions

	N	\bar{d}	SD_d	t
Justification	20	8.15	9.02	4.04**
Gain	20	12.50	10.25	5.46**

**p < .01

TABLE 2

Mean difference score^a (between individual and group condition) by item and level of justification

Risky Shift			
Item	Low Just. (d-score)	High Just. (d-score)	Difference (in d-scores)
A ^b	-.02	.64	.66
B ^b	.60	1.47	.87
C	.62	.24	-.38
D	.50	.62	.12
E	.59	.42	-.17

^a d-score is computed by subtracting the mean individual score from the mean group score.

^b item in which the high justification was of a universal nature

above is correct, then the greater the social justifiability of the risk, the greater the difference between the individual and the group condition. Items A and B in Table 2 involve a more universally acceptable type of justification in the high justification condition and also show an increase in risky shift (.66 and .87, respectively) from the low to high justification condition. Items C, D, and E, which involve a less universally acceptable justification in the high justification condition, show little or no increase in risky shift from the low to the high justifiability conditions (-.38, .12, and .17, respectively). These data do seem to support a universal value or social justification interpretation of the risky shift.

Although the above data are in no way conclusive, they do add weight to a justification explanation of the increased emphasis of RV_{gn} in the group condition.

If Brown's value theory with the addition of a justification variable in unethical situations is the valid explanation for the observed increase in emphasis upon RV_{gn} , then a question arises as to the status of the concept locus of control. Since value theory, as stated by Brown, requires communication between the members of a group of each individual's risk position, then the communication's ability to influence may correspondingly increase or decrease the risk shift. Since locus of control, when operationalized as an independent variable, may vary the communication's ability to influence, it should have a significant effect in determining the

amount of risk shift (Rettig, 1966, 1969; Rettig and Turoff, 1967). The original locus of control explanation (Rettig, 1969) would, therefore, need modification to include value theory.

To summarize, three competing explanations of Rettig's finding of an increased emphasis upon gain following group discussion have been presented: (1) The locus of control (Rettig, 1969) explanation assumes that when individuals enter a group, they will give up a certain amount of control to the group but in return they expect a more favorable outcome leading to an increased emphasis upon gain. (2) The communication (Rhetoric of risk, Kelley and Thibaut, 1969; value, Brown, 1965) explanation assumes that our language or culture gives the pro-risk advocate a decided advantage. Since the pro-risk arguments are likely to include an enhancement of the possible positive outcomes, there will be a corresponding increased emphasis upon gain. (3) The justification explanation, as an extension of Brown's (1965) value theory, states that the high and low components of the reinforcement value of gain dimension elicit risky and cautious cultural values, respectively, because of the difference in justifiability of the two situations.

The purpose of this study is to discriminate between the three explanations proposed by constructing experimental situations where the three explanations make contradictory predictions.

Justification Versus the Other Two Explanations

Justification in contrast to the other explanations views the function of the BPS quite differently with respect to the increased emphasis upon RV_{gn} . The justification explanation implies that the structure of the BPS is the cause of the apparent increased emphasis upon RV_{gn} because it varies social justification (besides gain) in the RV_{gn} dimension. This would clearly indicate that if a new BPS were written in which personal gain but not social justification were varied in the RV_{gn} dimension, then there would be no increase in emphasis upon RV_{gn} in the group condition.

The rhetorical or value explanation states that the risky arguments carry more weight and also enhance "the group's valuation of the prize." (Kelley and Thibaut, 1969). The original locus of control explanation states that the increase in sensitivity to RV_{gn} is due to an increase in sensitivity to gain. Neither of these explanations require a variation of social justification on the RV_{gn} dimension for an increase in sensitivity to that dimension. Therefore, if either of these explanations are valid, then a new BPS, in which gain but not necessarily social justification were varied on the RV_{gn} dimension would exhibit a greater emphasis upon RV_{gn} in the group than in the individual condition.

Hypothesis 1. If a Behavioral Prediction Scale were constructed such that only gain and not justification were varied in the RV_{gn} dimension, then, if the justification explanation is valid, there will be no increase in emphasis upon RV_{gn} on the new BPS. If, however, RV_{gn} increases in emphasis even under pure gain conditions, then the justification explanation may be discounted.

Locus of Control versus Communication

Assuming that the above manipulation will permit the justification explanation to be rejected, then it becomes necessary to further discriminate experimentally between the remaining two theoretical explanations: locus of control and communication. Such a discrimination is, however, a more difficult problem. Using locus of control as an independent variable, that theory would predict an effect upon RV_{gn} . The problem is that a communication explanation would also predict the same effect, since the variable "locus of control" may determine the effectiveness of the communication. Varying the communication brings one to similar problems. For example, if one taped two group discussions, one favorable and the other unfavorable to risk, they could be presented to two sets of subjects to determine their differential effect upon RV_{gn} . The communication explanation would, of course, predict a differential effect. But it could just as well be argued that there were two different sets of control producing cues (i.e., persuasiveness, friendliness, etc.) produced by the taped discussions which caused the listening members of the two groups to give up or not give up control and, therefore, exhibit or not exhibit a shift. The simple fact of a risk neutral (or pessimistic) attitude might be enough to prevent a listener from giving up controls.

In view of the above difficulty it is suggested that BPS responses be examined in detail to determine which of two¹ factors is most responsible for the changes following group discussion.

The first factor is a communication (rhetoric, value) effect, which assumes that the most risky or conservative member (depending upon the situation being discussed) in some way is the most effective in changing the others' judgments. The rhetorical explanation predicts this type of effect.² The rhetorical explanation

¹A third factor to be considered is convergence, which is the movement of all judgments toward the mean of the group. Convergence may be caused by conformity, a psychological process (Sherif, 1947). However, the contribution of this process is not of great importance here because convergence cannot produce the risky shift. Convergence may, however, cause a change in an individual's judgment. For the more risky individual, the change is in the cautious direction. For the more conservative individual, the change is in the risky direction. It is assumed that the amount of change is inversely related to the discrepancy from the group mean.

Although convergence does not produce the risky shift when shifts are averaged over individuals in a group, it has been discussed here because it may be confounded in an individual subject with the other factors. For example, if the most risky individual exhibits no change in judgment, it may be due to: (a) the opposing forces of convergence and sensitivity to gain as real factors and the irrelevance of communication to the risky shift, or (b) communication which does not affect the most risky individual and the irrelevance of convergence and sensitivity to gain to the risky shift. It may, therefore, be inappropriate to examine the shifts of individuals to determine the source of the risky shift (e.g., Vidmar, 1970).

²It will be noted that the justification explanation also relies on a communication type of effect. Justification as an extension of value theory assumes that the most risky position in the group is the most desirable when the unethical risk is justifiable and, therefore, the further a person is away from that position the more he will shift in that direction. Therefore, if justification is supported by Hypothesis 1, the subsequent finding of a communication effect will not be contradictory.

states that the risky arguments carry most weight and are, therefore, most effective. As Insko (1967) states, "It may be that for most uninvolved issues, assuming at least a moderately credible communicator, the relationship between discrepancy and influence is linear and not curvilinear," where discrepancy is the difference in attitude between the communicator and the listener. Figure 1 presents the proposed linear relationship between amount of change (Δ_c) and relative conservatism or riskiness (d_c), where d_c is the difference between an individual's judgment and that of the most risky or conservative individual in the group. Whether relative conservatism or riskiness will be used to measure d_c will depend upon the direction of the shift. This relationship may be expressed as: $\Delta_c = Cd_c$, where C is the slope of the line.

The second factor is increased sensitivity to gain, which is hypothesized by the locus of control explanation. This factor is assumed to affect all individuals equally.³ Figure 2 presents this relationship between d_c and change due to increased sensitivity to gain (Δ_g). This relationship may be expressed as: $\Delta_g = G$, where G is a constant.

³The locus of control explanation as stated by Rettig (1969) originally implies that amount of control given up to the group is not related to the individual's initial position. The locus of control explanation can be considered as an alternative to Brown's value theory because of the latter's inability to explain the risky shift on the BPS, a set of situations involving unethical behavior. If value theory is completely rejected, then there are no grounds to assume on the basis of the locus of control explanation alone that the more risky individual will be more influential in the group and, therefore, give up less control than the less risky person.

The total change (Δ_i) for an individual may then be obtained by summing up the two changes mentioned above, i.e., $\Delta_i = \Delta_{ci} + \Delta_{gi}$, where the subscript "i" denotes the individual; c, communication; and g, gain. The mean change ($\bar{\Delta}_g$) in a group may then be obtained by summing over all the changes for an item on the BPS and dividing by n, the total number of subjects in a group:

$$\begin{aligned}\bar{\Delta}_g &= \frac{\sum \Delta_i}{n} \\ &= \frac{\sum \Delta_{ci}}{n} + \frac{\sum \Delta_{gi}}{n} \\ &= \frac{c}{n} \sum d_{ci} + \frac{1}{n} \sum G\end{aligned}$$

The first term cannot be further reduced and the second term becomes "G." The formula for the mean shift is therefore:

$$\bar{\Delta}_g = \frac{c}{n} \sum d_{ci} + G$$

The contributions of the two factors, communication and expectancy of gain, are equal to the two terms, respectively, in the preceding equation. An estimation of the relative contribution of the two factors reduces to an estimation of the parameters C/n and G .⁴ If either of these are zero, then the contribution of its respective factor is zero.

⁴It should be noted that the values of C/n and G may not be determined by examining the shifts of individuals since these shifts also have a convergence component to them. This component is, however, effectively eliminated by summing over the group members.

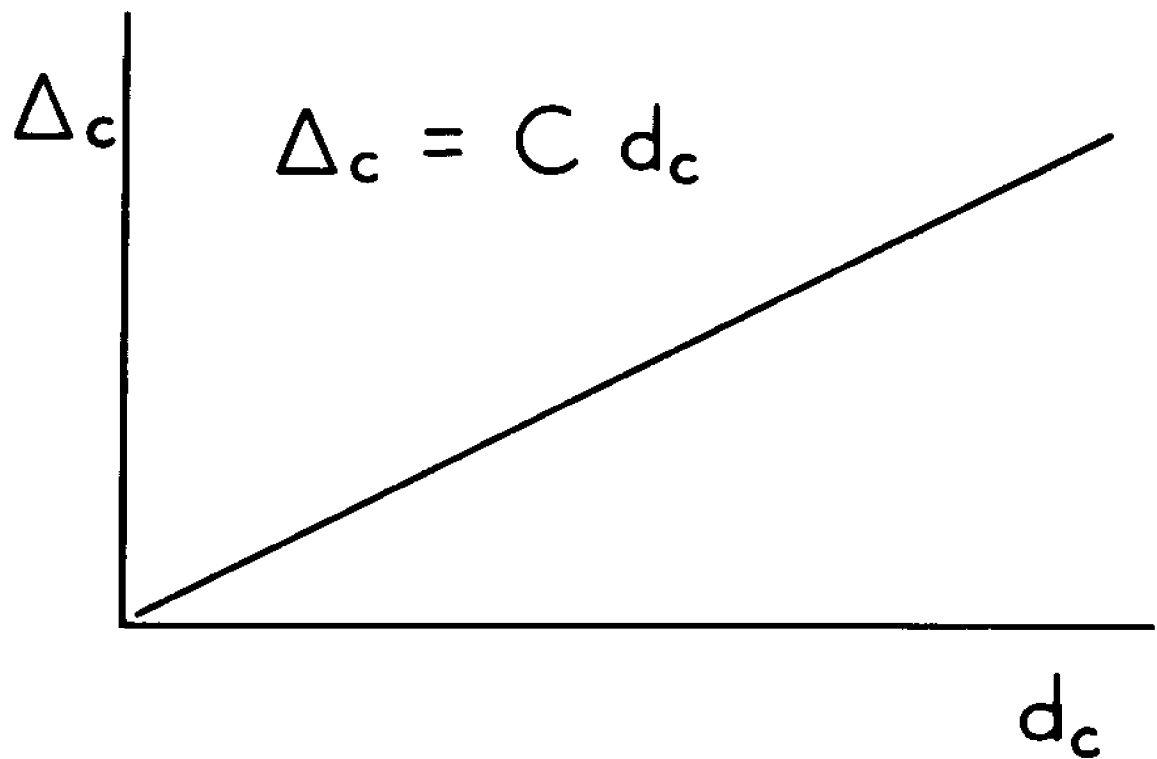


Fig. 1. Relationship between distance from most risky (or conservative) member and amount of shift in that direction due to communication.

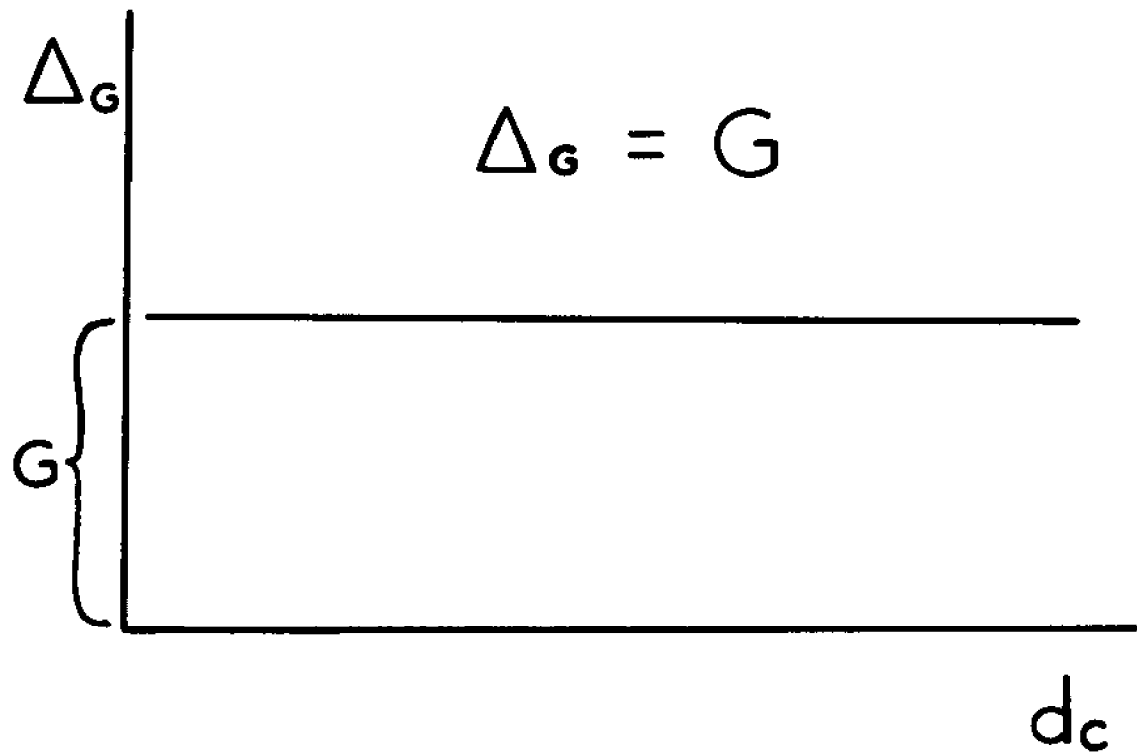


Fig. 2. Relationship between initial position and amount of shift due to increased sensitivity to gain.

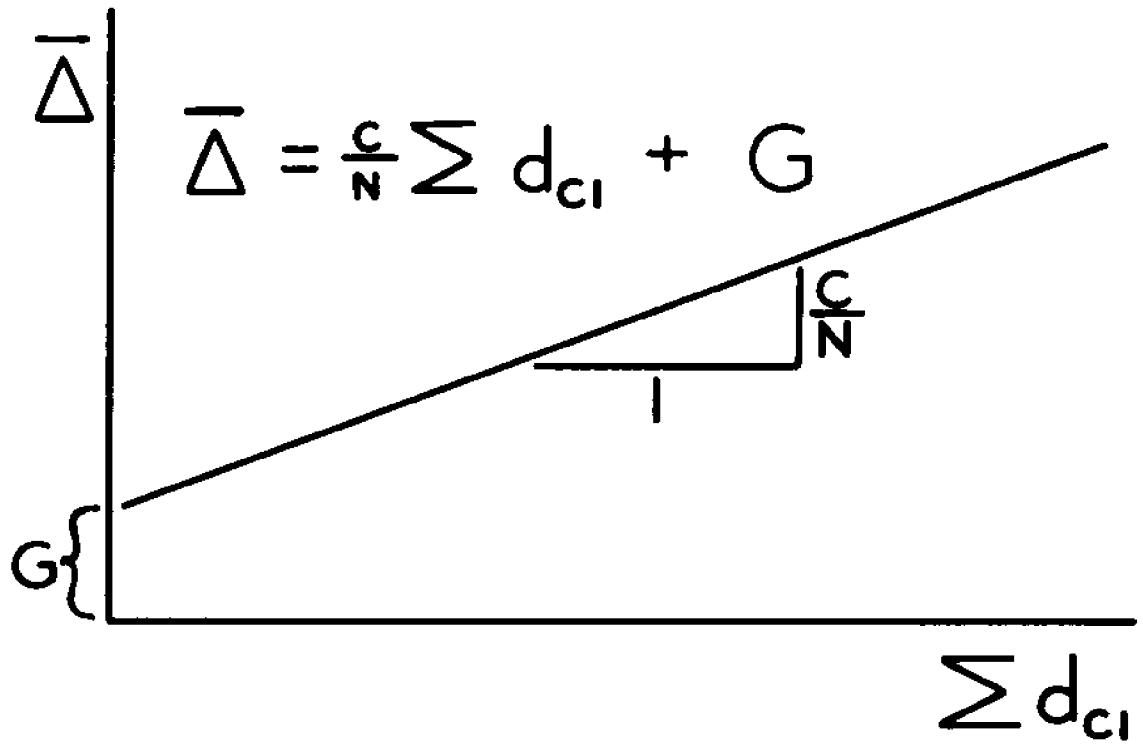


Fig. 3. Relationship between mean shift and total distance between most risky (or conservative) member and other members in the group.

The actual percent of the shift contributed by the two factors may be obtained by first finding the mean change over all groups ($\bar{\Delta}$). This may be done by summing the above equation over all groups and dividing by N_g the number of groups:

$$\bar{\Delta} = \frac{\sum \bar{\Delta}_g}{N_g} = \frac{\frac{c}{n} \sum \sum d_{ci}}{N_g} + \frac{\sum G}{N_g}$$

This equation may be simplified by substituting D_i for $\sum d_{ci}$, where D_i is the sum of deviation in group "i." The equation, therefore, becomes:

$$\bar{\Delta} = \frac{c}{n} \bar{D} + G$$

where \bar{D} is the mean deviation. The percentage contribution to the shift of communication is, therefore:

$$\frac{\frac{c}{n} \bar{D}}{\bar{\Delta}} \times 100$$

While the percentage contribution to the shift by sensitivity to gain is:

$$\frac{G}{\bar{\Delta}} \times 100$$

The determination of C/n and G then becomes a matter of finding the slope and zero intercept of the line depicted in Figure 3. The slope is C/n and the intercept is G , where "n" is the number of subjects in the group.

Hypothesis 2. The relative contributions to the risky shift of communication and sensitivity to gain may be determined by the regression analysis as described above.

The logic of the present study will now be summarized.

Three explanations of the increase in emphasis upon RV_{gn} will be experimentally pitted against each other. In the first part of the study a new form of the BPS will be administered in which a justification explanation predicts no increase in RV_{gn} . If justification is supported, the regression analysis may be used to gain additional support for justification as an extension of value theory since it also predicts communication to be the prime source of the risky shift. If the justification explanation is rejected, then changes in judgments from the individual to the group condition will have to be analyzed in terms of the relative contributions of communication (rhetorical or value explanations) and sensitivity to gain (locus of control explanation). The validity of these two explanations will depend upon their respective contributions being non-zero.

Questionnaire

Additional information on the validity of the locus of control and rhetorical explanations may be obtained by administering a questionnaire to subjects after the group discussion.

Locus of Control. As the locus of control explanation states, individuals give up control to the group because they expect

a greater outcome (more gain) through group membership. If this is so, then individuals who increase their sensitivity to the RV_{gn} dimension should prefer groups as a mode of problem solving. This preference may be determined by asking the subjects.

Hypothesis 3. If the locus of control explanation is valid, then when individuals are divided on the basis of their preference for either a group or individual mode of problem solving, the former set of subjects should show a greater increase in sensitivity to RV_{gn} than the latter.

Rhetoric of Risk. The rhetoric of risk explanation implies that there are differences in the "tone" of the language used by the most and least risky individuals in a group. To again quote from Kelley and Thibaut (1969):

... the riskier alternative might lead the proponent of such alternatives to state his arguments with a heightened intensity and amplitude ... In short, he may have the advantage of a more potent language, more intensively produced (p.82).

Since it is primarily sensitivity to RV_{gn} and not overall level of riskiness which changes during the group discussion, one would expect the arguments presented by the member most sensitive to RV_{gn} to be the most dynamic. If they exist, these differences in language may be observable by the subjects in the group, and if so, they should be able to report these differences.

Hypothesis 4. Assuming that the rhetorical explanation is valid, then when judged by subjects in the group on bipolar scales such as: strong-weak; active-passive; good-bad; dramatic-drab; and complex-simple, the individual initially most sensitive to RV_{gn} should have his arguments judged more in the direction of strong, active, good, dramatic, and complex, than the least sensitive individual, and the most sensitive individual should be judged more confident.

Method

Materials

In addition to Rettig's original BPS, described earlier in this paper, the design used two new forms of the BPS. In one of the new forms the RV_{gn} dimension varied both justifiability and gain, while in the other form only gain was varied in the RV_{gn} dimension. The validity of these assertions has been determined by having subjects judge the two new forms for both justifiability and gain as was done for the original BPS (see Appendix I).

The first form (Form J) varied both gain and justification on the RV_{gn} dimension. The four dimensions for Form J read as follows:

1. Reinforcement value of gain (RV_{gn}) high: this information, which the smaller company wouldn't make use of anyway, will lead to the development of an important new life-saving drug, and bring considerable fame to himself; low: the information would lead to a slight improvement in an existing drug.
2. Expectancy of gain (E_{gn}) high: he is sure of the outcome; low: there is a small chance of the outcome.
3. Negative reinforcement value of censure (RV_{cs}) high: since he signed an agreement that he would never divulge information, he would be personally sued and dropped from the bio-medical society so that he would find it difficult to secure a job in the future; low: although he signed an agreement that he would never divulge information, there is nothing the smaller company can do to enforce the agreement.
4. Expectancy of censure (E_{cs}) high: there is a good chance that the smaller company will find out that he divulged the information; low: there is little chance that the smaller company will ever find out that he divulged the information.

An example of two items from Form J read as follows:

A biochemist has been hired by a large drug company from a much smaller one. His new firm wants him to reveal all he knows about the smaller company. He is sure that this information, which the smaller company wouldn't make use of anyway, will lead to the development of an important new life-saving drug, and bring considerable fame to himself. There is little chance that the smaller company will ever find out that he divulged the information, and although he signed an agreement that he would never divulge information, there is nothing the smaller company can do to enforce the agreement.

A biochemist has been hired by a large drug company from a much smaller one. His new firm wants him to reveal all he knows about the smaller company. There is a small chance that the information might lead to a slight improvement in an existing drug. There is a good chance that the smaller company will find out that he divulged the information, and since he signed an agreement that he would never divulge information, he would be personally sued and dropped from the bio-medical society so that he would find it difficult to secure a job in the future.

Subjects were asked to predict on a scale ranging from 0 to 6 whether or not the person will divulge the information. The second new form of the BPS was designated Form G. This form varied only gain on the RV_{gn} dimension. The four dimensions of Form G read as follows:

1. Reinforcement value of gain (RV_{gn}) high:
A stock broker has a chance to illegally sell some stock and make \$100,000 profit; low:
A stock broker has a chance to illegally sell some stock and make \$250 profit.

2. Expectancy of gain (E_{gn}) high: the other party will probably buy the stock; low: the other party will probably not buy the stock.

3. Negative reinforcement value of censure (RV_{cg}) high: if he is caught selling the stock, he will have his license revoked for five years and will have to spend two years in jail; low: if he does get caught selling the stock, he will only have to buy the stock back.

4. Expectancy of censure (E_{cg}) high: the chances are great that he will get caught; low: the chances are low that he will get caught.

An example of two items from Form G follows:

A stock broker has a chance to illegally sell some stock and make \$100,000 profit. The other party will probably buy the stock, and the chances are low that he will get caught. However, if he does get caught selling the stock, he will only have to buy the stock back.

A stock broker has a chance to illegally sell some stock and make \$250 profit. The other party will probably not buy the stock, and the chances are great that he will get caught. If he is caught selling the stock, he will have his license revoked for five years and will have to spend two years in jail.

Subjects were asked to predict on a scale ranging from 0 to 6 whether or not the person will attempt the illegal stock transaction.

The complete text and instructions for all three forms of the BPS may be found in Appendix V.

Procedure and Subjects

Forms O, J, and G were administered to 30, 10 and 10 different groups of three subjects each. The total number of groups was, therefore, 50, so that 150 subjects were required.

These subjects were recruited from psychology classes offered during Hunter College's summer session. All subjects were randomly assigned to discussion groups and BPS forms.

The three subjects in each group were first separated and individually asked to complete the BPS as follows:

Please take a seat and make yourself comfortable. On the table you will find a booklet and answer sheet. Read the instructions on the front of the booklet and answer the questions.

At this point they did not know that they would participate in a group discussion.

After all three had finished and their answer sheets collected, they were brought together, seated in three chairs arranged in a circle, and instructed:

On your seat you will find a new answer sheet. I would like you to discuss among yourselves each item in the booklet and then respond to that item. First discuss item one and then respond to that item on the answer sheet. Then discuss item two and respond to that item, and so on until you complete all 15 items. When you respond to the items on the answer sheet, you are to do so as individuals. No consensus is required. Are there any questions?

Following the collection of the second set of BPS response sheets, each subject made judgments of the arguments presented by and the confidence of both himself and the other two group members. In addition, the sheet asked whether the subject would prefer making decisions similar to those on the BPS in a group or as an individual. These judgments were made by the subjects as individuals with no discussion. A copy of the questionnaire is contained in Appendix IV.

Results

Hypothesis 1

Using Forms O, J, and G, 30, 10 and 10 groups were run at Hunter College. For each Form of the BPS the sensitivity to the four components, and the Total BPS score may be calculated for each individual both before (Individual condition) and after (Group condition) the group discussion. The means for the four components and Total BPS score as a function of the Form of the BPS and the Individual versus Group conditions are presented in Table 3. Looking at the Individual judgment condition for each Form, it can be seen that of the four components in Form O, the subjects are most sensitive to RV_{gn} , with RV_{cs} second. This is somewhat contrary to expectations, since Rettig (1966, 1969) has consistently found sensitivity to RV_{cs} to be greater than to RV_{gn} in the individual condition. However, a correlated t-test on the present data found the two dimensions not to be significantly different ($t = 1.34$, $df = 89$; $p > .10$, 2-tail). For the two new Forms of the BPS (J and G) the subjects are most sensitive to RV_{cs} which is consistent with Rettig's findings on the original Form of the BPS.

Since the subjects responded to the BPS scale twice, a repeated measures analysis of variance was performed on the Total BPS score and on each of the four components with Form and Individual versus Group condition of judgment as the two independent variables. Table 4 presents the analysis of Total

TABLE 3

Means for the Total BPS and components as a function of the individual or group for each Form of the BPS

	Total BPS	RV_{gn}	E_{gn}	RV_{cs}	E_{cs}
<u>Form O</u>					
Individual	45.59	11.94	8.81	10.17	5.21
Group	44.13	15.00	6.84	9.89	5.44
<u>Form J</u>					
Individual	52.07	12.40	6.33	16.93	3.60
Group	52.70	18.70	7.77	17.43	4.83
<u>Form G</u>					
Individual	38.67	6.87	9.13	15.87	12.00
Group	37.23	10.10	6.43	18.97	12.17

TABLE 4

Summary of repeated measures analysis of variance of Total BPS score with BPS Form and Individual versus Group judgment as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: BPS Form	2	4020.0	9.35**
Subjects within Form (error)	147	429.8	
<u>Within Subjects</u>			
B: Individual vs. Group	1	32.7	0.68
A X B	2	27.8	0.57
B X Subjects within groups (error)	147	48.3	

**p < .01

BPS score. This analysis reveals a significant ($p < .01$) main effect of BPS Form upon Total BPS score, but no main or interaction effects of Individual versus Group judgment upon Total BPS score. The lack of a main or interaction effect of condition of judgment indicates that there was no significant change in Total BPS score for any of the BPS Forms. Although this result is somewhat contradictory to Rettig's finding of an increase in Total BPS score, it is not surprising since his findings (Rettig and Turoff, 1967; Rettig, 1969) have generally been only marginally significant ($.10 > p > .05$).

The main effect of BPS Form upon Total BPS score is not of much interest, because it reflects differences between Forms in overall level of predicted risk taking. These differences are to be expected since each Form depicts a different situation. For the same reason, the main effect of BPS Form upon the four component scores is not important, and will not be discussed below in detail.

Table 5 presents the analysis of RV_{gn} . This analysis reveals a significant ($p < .01$) main effect of Form upon sensitivity to RV_{gn} and a significant main effect of Individual versus Group judgment, with no significant interaction between the two variables. An examination of Table 3 indicates that on each Form of the BPS the sensitivity to RV_{gn} increased from the Individual to the Group condition. This is consistent with Rettig's findings of an increase in RV_{gn} on Form O, and indicates that his findings have been

TABLE 5

Summary of repeated measures analysis of variance of RV_{gn} component with BPS Form and Individual versus Group judgment as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: BPS Form	2	1017.5	7.30**
Subjects within Form (error)	147	139.3	
<u>Within Subjects</u>			
B: Individual vs. Group	1	1018.8	34.61**
A X B	2	64.2	2.18
B X Subjects within groups (error)	147	29.4	

**p < .01

replicated in this study for the RV_{gn} component. This replication is crucial to the present study since the RV_{gn} component is its major concern. Table 9 presents correlated t-tests to determine the significance of shifts on each Form for each of the four components and Total BPS score. Looking at the column labeled RV_{gn} , it can be seen that the increase in sensitivity to RV_{gn} is significant ($p < .01$) for each of the BPS Forms separately.

Table 6 presents the analysis of E_{gn} . There are significant main effects of Form or Individual versus Group judgment on sensitivity to E_{gn} . However, a significant ($p < .05$) interaction of the two variables was found. Looking at the E_{gn} column of Table 9 the interaction seems to be caused by the decrease in sensitivity to E_{gn} on Forms O and G contrasted with an increase on Form J from the individual to the group setting. A post-hoc Scheffe comparison (Hayes, 1963) of Forms O and G with Form J was found to be statistically significant ($F = 6.85$; $df = 2/147$; $p < .05$).

Tables 7 and 8 present the analysis of RV_{cs} and E_{cs} , respectively. For both of these components there is a significant ($p < .01$) effect of BPS Form only, with no main or interaction effects of Individual versus Group condition of judgment. The latter findings are consistent with those of Rettig.

Hypothesis 2

To determine the relative contribution of communication and sensitivity to gain, a regression analysis will be performed.

TABLE 6

Summary of repeated measures analysis of variance of E_{gn}
 component with BPS Form and Individual versus
 Group judgment as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: BPS Form	2	14.7	0.29
Subjects within Form (error)	147	50.3	
<u>Within Subjects</u>			
B: Individual vs. Group	1	67.2	2.70
A X B	2	93.8	3.77*
B X Subjects within groups (error)	147	24.9	

*p < .05

TABLE 7

Summary of repeated measures analysis of variance of RV_{CB}
 component with BPS Form and Individual versus Group
 judgment as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: BPS Form	2	1361.0	16.43**
Subjects within Form (error)	147	82.8	
<u>Within Subjects</u>			
B: Individual vs. Group	1	71.0	1.91
A X B	2	60.3	1.62
B X Subjects within groups (error)	147	37.2	

**p < .01

TABLE 8

Summary of repeated measures analysis of variance of E_{cs}
 component with BPS Form and Individual versus Group
 judgment as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: BPS Form	2	1398.3	28.14**
Subjects within Form (error)	147	49.7	
<u>Within Subjects</u>			
B: Individual vs. Group	1	17.2	1.20
A X B	2	6.9	0.48
B X Subjects within groups (error)	147	14.3	

**p < .01

TABLE 9

Summary of t-tests to determine significant shifts from the Individual to the Group condition in Total BPS score and sensitivity to the four components

<u>Form O</u>					
Mean Change	-1.46	3.06	-1.97	-0.28	0.23
SD	10.68	8.27	7.14	8.10	5.05
t (df = 89)	-1.29	3.51**	-2.61*	-0.33	0.44
<u>Form J</u>					
Mean Change	0.63	6.30	1.43	0.50	1.23
SD	7.15	7.39	6.13	5.54	4.94
t (df = 29)	0.48	4.67**	1.28	0.49	1.37
<u>Form G</u>					
Mean Change	-1.43	3.23	-2.70	3.10	0.17
SD	8.98	5.37	7.28	11.72	6.26
t (df = 29)	-0.87	3.30**	-2.03	1.45	0.15

*p < .05

**p < .01

Since the analysis for this part of the study uses the group rather than the individual as the unit of analysis, the mean change for each group was first calculated for each item on each Form. In analyzing the data the direction and significance of the shifts on each item of each Form must first be determined.

Tables 10, 11, and 12 present by Form, level of RV_{gn} , mean group change, standard deviation and related t-test for each item of the BPS. Only the 12 items showing a significant shift will be used to determine the relative contributions of communication and gain to the change following group discussion, since these are the only items significantly affected by the group experience. Since neither communication nor sensitivity to gain could contribute to a non-existent shift, the non-shifting items would, therefore, not offer data useful to a discrimination between the communication and sensitivity to gain explanations.

To actually determine the contribution of communication and gain to the change, the slope ($C/3$) and intercept (G) of the linear equation relating group change to divergence (D) in the group must first be calculated. The rationale for this procedure is presented in the Introduction and Appendix II of this paper. The calculation of divergence (D) for a given group on an item depends upon the direction of the shift for that item (Tables 10, 11 and 12). If the shift is positive, then the divergence is the sum of the differences in predicted risk taking between the most risky individual

TABLE 10

Mean change from Individual to Group condition in predicted ethical risk taking on each of the sixteen items from Form O for Hunter College students

Item	Level of RV _{gn}	Mean Change	Standard ^a Deviation	t	p less than
1	L	-.278	.817	-1.86	N.S.
2	H	.033	.960	0.19	N.S.
3	L	-.744	1.160	-3.51	.01
4	H	.233	1.121	1.14	N.S.
5	H	.211	.895	1.29	N.S.
6	L	-.378	1.183	-1.75	N.S.
7	H	.067	1.273	0.29	N.S.
8	H	-.011	1.163	-0.05	N.S.
9	L	.000	.831	0.00	N.S.
10	L	.000	.525	0.00	N.S.
11	H	.011	.996	0.06	N.S.
12	L	-.056	1.178	-0.26	N.S.
13	L	-.300	.996	-1.65	N.S.
14	H	.100	.889	0.62	N.S.
15	H	.156	.720	1.18	N.S.
16	L	-.500	.736	-3.72	.001

^a Standard deviation is based on deviations of mean change within a group from overall mean change. Therefore, N equals 30 and df equals 29.

TABLE 11

Mean change from Individual to Group condition in predicted ethical risk taking on each of the sixteen items from Form J for Hunter College students

Item	Level of RV _{gn}	Mean Change	Standard Deviation ^a	t	p less than
1	L	-.267	.644	-1.31	N.S.
2	H	.533	.864	1.95	N.S.
3	L	.033	.675	0.16	N.S.
4	H	.000	1.556	0.00	N.S.
5	H	.567	.721	2.49	.05
6	L	-.333	.956	-1.10	N.S.
7	H	.667	1.176	1.79	N.S.
8	H	1.100	1.055	3.30	.01
9	L	-.667	.609	-3.46	.01
10	L	-.600	.516	-3.67	.01
11	H	.367	.332	3.50	.01
12	L	-.200	.526	-1.20	N.S.
13	L	-.133	.932	-0.45	N.S.
14	H	-.033	1.170	-0.09	N.S.
15	H	.267	.344	2.45	.05
16	L	-.667	.521	-4.05	.01

^a Standard deviation is based on deviations of mean change within a group from overall mean change. Therefore, N equals 10 and df equals 9.

TABLE 12

Mean change from Individual to Group condition in predicted ethical risk taking on each of the sixteen items from Form G for Hunter College students

Item	Level of RV _{gn}	Mean Change	Standard Deviation ^a	t	p less than
1	L	-1.000	.889	-3.56	.01
2	H	-.500	.572	-2.76	.05
3	L	-.100	1.007	-0.31	N.S.
4	H	.633	1.212	1.65	N.S.
5	H	.900	1.572	1.81	N.S.
6	L	-.500	1.363	-1.16	N.S.
7	H	.000	1.449	0.00	N.S.
8	H	-.033	.761	-0.14	N.S.
9	L	-.367	.823	-1.41	N.S.
10	L	-.200	.281	-2.25	.06
11	H	-.300	1.435	-0.66	N.S.
12	L	.067	1.313	0.16	N.S.
13	L	-.233	1.228	-0.60	N.S.
14	H	-.167	.478	-1.10	N.S.
15	H	.367	.949	1.22	N.S.
16	L	.000	.351	0.00	N.S.

^a Standard deviation is based on deviations of mean change within a group from overall mean change. Therefore, N equals 10 and df equals 9.

on that item and the other two group members. If the shift is negative, then divergence is the sum of the differences between the least risky individual and the other two group members. Divergence for positive shifting items would, therefore, be positive, and negative for negative shifting items. However, to facilitate the comparison of positive and negative shifting items the sign of both the direction of the shift and divergence within the group will be reversed for each of the items showing a negative shift.

Table 13 presents the calculated slope (C/3) and intercept (G) of the equation relating divergence to change for each of the 12 items showing a significant shift. As can be seen from the table, six of the items show a slope that is significantly different from zero, and one of the items shows an intercept significantly different from zero. It will also be noted in Table 13 that all but two of the slopes are positive and, therefore, in the predicted direction.⁵ The intercepts which were predicted also to be positive are negative for 3 of the 12 items.⁶

An overall test of significance for the slope and intercept can be performed by first combining the slopes and intercepts, respectively, within each Form. This was done by summing the slopes and intercepts separately. These sums are presented for

⁵That is, a communication-type explanation would say that as divergence in the group increases, the amount of shift should increase.

⁶The locus of control explanation predicts that since all the members increase their sensitivity to gain there should be a shift even when divergence in the group is zero. This implies a non-zero intercept.

TABLE 13

Slope (C/3) and intercept (G) of linear equation relating
divergence of judgments within the group to
mean shift of the group

BPS Form	Item	df	C/3	t	G	t
O	3 ^a	28	.0294	0.40	.606	1.48
	16 ^a	28	.1523	2.36*	.028	0.12
J	5	8	.2080	3.07*	.047	0.20
	8	8	.0861	0.52	.626	0.64
	9 ^a	8	.1035	0.66	.387	0.83
	10 ^a	8	.2076	6.01***	-.064	-0.48
	11	8	.2436	3.64**	.026	0.22
	15	8	.3296	8.80***	-.030	-0.61
	16 ^a	8	-.2058	-1.14	1.222	2.38*
G	1 ^a	8	.1618	2.14	.175	0.39
	2 ^a	8	-.0439	-0.80	.719	2.18
	10 ^a	8	.3169	7.06***	-.022	-0.46

^a For these items the direction of the shift has been made positive.

*p < .05

**p < .01

***p < .001

each Form in Table 14. The associated t-test for these sums may be determined by dividing the sum by their respective standard deviations. Calculating the standard deviations is somewhat complicated by the fact that for a given Form, neither the slopes nor the intercepts are independent, since they are calculated using data from the same group of subjects. However, the standard deviation of a composite may be calculated by summing the elements of the variance-covariance matrix of the elements which make up the composite (Nunnally, 1967), and taking the square root of the sum. The upper half of the symmetrical matrices for the intercepts and slopes may be found in Tables C through J in Appendix II. The calculation formulas for these matrices may also be found in Appendix II. The associated t-tests for the combined slopes and intercepts may be found in Table 14. The combined slopes were found to be significantly ($p < .05$, 2 tail) different from zero, for two of the three Forms, while the combined intercepts were not found to be significantly different from zero for any of the Forms.

Overall tests of significance may be determined by viewing the three Forms as three replications and calculating the exact p value for each (see Table 14). Winer (1962) gives a formula for calculating a X^2 based upon p values of several replications. When this procedure is used the slopes are found to be significantly ($p < .001$) different from zero (Table 14), while the intercepts are marginally significantly different ($p < .10$) from zero.

TABLE 14

Overall test of significance of combined slopes (C/3)
and intercepts (G) of linear equations

	Form O	Form J	Form G	Combined
df	28	8	8	6
Sum of slopes	0.1817	0.9726	0.4348	
t	1.85	3.16	4.51	$\chi^2=26.10$
p (2-tail)	0.07164	0.01313	0.00232	$p < .001$
Sum of intercepts	0.634	2.214	0.872	
t	1.31	1.76	1.48	$\chi^2=11.06$
p (2-tail)	0.19826	0.11413	0.17516	$p < .10$

The percentage contribution of communication and gain may be calculated by using the formulas:

$$\frac{(C/3) \bar{D}}{\bar{\Delta}} \times 100 \qquad \frac{G}{\bar{\Delta}} \times 100$$

respectively. The derivation of these formulas may be found in the introduction. Table 15 presents the percentage contribution of communication and gain to the shift calculated separately for each item.⁷ The overall contribution of communication and gain may be estimated by averaging over items. This was done in Table 16, first by finding the average for each BPS Form and then by averaging over Forms. When this is done, communication is found to contribute 54.90%, while gain contributes 45.10%.

Questionnaire

The questionnaires administered after the group discussion were completed by subjects in all 30 groups responding to Form O, by subjects in 9 of the 10 groups responding to Form J, and by subjects in 9 of the 10 groups responding to Form G.

⁷As will be noted from Table 13, several of the contributions are negative. This may occur if either C/3 (the slope) or G (the intercept) are negative. A negative contribution may be interpreted as either a statistical fluctuation below zero due to sampling or as a real inhibitory effect exerted by that factor upon changes in judgments. The former interpretation is preferred since: (a) neither rhetoric nor locus of control predicts an inhibitory effect, (b) none of the slopes or intercepts are significantly less than zero (Table 13), and (c) overall, the contribution of the two factors is positive (Table 16).

TABLE 15

Percentage of total change from the individual to the group condition attributable to communication or sensitivity to gain

BPS Form	Item	Percentage Communication	Percentage Sensitivity to Gain ^a
O (Hunter)	3	18.58	81.42
	16	94.44	5.56
J (Hunter)	5	91.75	8.25
	8	43.07	56.93
	9	41.93	58.07
	10	110.72	-10.72
	11	93.01	6.99
	15	111.24	-11.24
	16	-83.33	183.33
G (Hunter)	1	82.51	17.49
	2	-43.86	143.86
	10	110.93	-10.93

^a See Footnote 7 (p.53) for an explanation of negative percentages.

TABLE 16

Average percentage of total change attributable to
communication or sensitivity to gain

BPS Form	Percentage Communication	Percentage Sensitivity to Gain
O	56.51	43.49
J	58.34	41.66
G	49.86	50.14
Combined	54.90	45.10

Choice of Individual versus Group. The first question asked on the questionnaire was "...Do you feel that in the future you would prefer making such decisions as: an individual /? part of a group ?" It was thought that individuals who preferred making such decisions as part of a group would show a greater increase in sensitivity to gain than an individual who would rather act as an individual. To test this hypothesis, subjects were divided into those preferring the group versus the individual on the basis of the questionnaire. The means of Total BPS score, sensitivity to RV_{gn} , E_{gn} , RV_{cs} , and E_{cs} for these two types of subjects as a function of individual versus group judgment condition and BPS Form are presented in Appendix IV (Tables N through R).

Analyses of variance of the data presented in Tables N through R are presented in Tables S through W. An examination of these tables reveals that choice of individual versus group had no main or interaction effects upon Total BPS score or any of the four components. More specific to Hypothesis 3, the choice of individual versus group did not have any effect upon the amount of increase in sensitivity to gain from the individual to the group condition (see Table T).

Judgments of Arguments and Confidence. Also contained in the questionnaire were questions requesting the subject to make judgments of the arguments and confidence of both himself and the

other members of his group on six graphic scales. The prime concern here is to determine if there are any differences between individuals initially most and least sensitive to RV_{gn} with respect to the dynamics of the arguments they presented and their confidence.

In each group the individual highest and lowest in initial sensitivity to RV_{gn} was first found. Ties were broken by randomly choosing one of the individuals. The judgments of the High and Low sensitive individual by the three group members were summed over the three group members to get a total group judgment. The mean total group judgments for the High and Low sensitive individuals on each of the six graphic scales for each Form of the BPS are presented in Table 17. The mean differences between the High and Low individual on each of the scales are also presented in Table 17. Since lower numerical judgments indicate an argument more characterized by the first adjective in the pair for each scale, a negative difference indicates that the arguments presented by the subject High in sensitivity to RV_{gn} are more dynamic (i.e., Strong, active, good, dramatic, complex) than those of the subjects Low in sensitivity to RV_{gn} . Also, a lower numerical judgment of confidence indicates more confidence so that the subject High in sensitivity to RV_{gn} is more confident. The rhetorical explanation would, therefore, predict negative difference scores on each of the 6 scales. Since difference scores in Table 17 have been calculated separately for each Form of the BPS, there are a total of 6 times 3, or 18, difference scores.

TABLE 17

Mean sum of judgments of all group members of group member
most (High) and least (Low) sensitive to RV_{gn}

	Form O (N=30)	Form J (N=9)	Form G (N=9)
Strong-weak			
High	8.87	7.67	9.67
Low	9.20	9.33	10.44
High-Low	-0.33	-1.66	-0.77
Active-passive			
High	8.13	8.33	9.67
Low	8.07	10.00	11.00
High-Low	0.06	-1.67	-1.33
Good-bad			
High	7.63	7.00	7.89
Low	7.87	7.67	8.11
High-Low	-0.24	-0.67	-0.22
Dramatic-drab			
High	11.03	8.89	11.00
Low	10.70	10.89	11.22
High-Low	0.33	-2.00	-0.22
Complex-simple			
High	11.83	12.00	11.78
Low	12.40	13.22	12.67
High-Low	-0.57	-1.22	-0.89
Confidence			
High	7.60	7.22	9.33
Low	8.40	8.33	9.22
High-Low	-0.80	-1.11	0.11

Of these 18 scores, 15 are negative as would be predicted by the rhetorical explanation. A repeated measures analysis of variance was conducted on each of the 6 scales using sensitivity to RV_{gn} (High versus Low) and BPS Form as independent variables. The "All" column in Table 20 presents the main effect of sensitivity to RV_{gn} upon judgments by all group members. Only the Complex-simple scale reaches statistical significance ($p < .05$).

Besides judgment by all group members, the judgments by the High and Low sensitive individuals of only his own arguments and confidence were also compared. Table 18 contains the means of these self-judgments. Again, negative difference scores between the High and Low individuals indicate that the High sensitive individual presents more dynamic arguments and is more confident. Of the 18 mean difference scores presented, 15 are negative and, therefore, in the predicted direction. The "Self" column in Table 20 presents the repeated measures analysis of variance of these judgments with sensitivity to RV_{gn} , and Form as independent variables. A significant main effect of sensitivity to RV_{gn} was found for the Active-passive scale ($p < .05$), and confidence ($p < .01$).

The judgments of the High and Low individuals by the third individual in the group were also examined, because it was thought that he would be a more "objective" judge since he was not being judged. Table 19 presents the mean judgments of this third man.

TABLE 18

Mean self-judgments by group member
most (High) and least (Low) sensitive to RV_{gn}

	Form O (N=30)	Form J (N=9)	Form G (N=9)
Strong-weak			
High	2.73	2.22	3.44
Low	2.70	2.78	4.00
High-Low	0.03	-0.56	-0.56
Active-passive			
High	2.37	2.56	2.78
Low	2.47	3.67	4.11
High-Low	-0.10	-1.11	-1.33
Good-bad			
High	2.40	2.11	2.44
Low	2.20	2.78	3.67
High-Low	0.20	-0.67	-1.23
Dramatic-drab			
High	3.50	2.67	4.00
Low	3.57	3.67	3.89
High-Low	-0.07	-1.00	0.11
Complex-simple			
High	3.63	4.22	4.33
Low	4.40	4.33	4.67
High-Low	-0.77	-0.11	-0.34
Confidence			
High	2.27	2.11	3.00
Low	3.03	3.22	3.67
High-Low	-0.76	-1.11	-0.67

TABLE 19

Mean judgments by third man in group of group member
most (High) and least (Low) sensitive to RV_{gn}

	Form O (N=30)	Form J (N=9)	Form G (N=9)
Strong-weak			
High	3.00	2.89	3.33
Low	3.27	3.22	3.89
High-Low	-0.27	-0.33	-0.56
Active-passive			
High	2.80	3.11	3.33
Low	2.87	3.67	3.67
High-Low	-0.07	-0.56	-0.34
Good-bad			
High	2.80	2.56	2.89
Low	2.77	2.67	2.78
High-Low	0.03	-0.11	0.11
Dramatic-drab			
High	3.60	3.00	4.00
Low	3.60	3.44	4.33
High-Low	0.00	-0.44	-0.33
Complex-simple			
High	4.27	4.00	4.44
Low	4.13	5.11	4.33
High-Low	0.14	-1.11	0.11
Confidence			
High	2.63	2.89	2.89
Low	2.47	2.44	3.11
High-Low	0.16	0.45	-0.22

TABLE 20

Summary of repeated measures analysis of variance for main effect of sensitivity to RV_{gn} (High vs. Low--HvsL) of person being judged upon judgments by various judges

	Judgment by					
	MSS	<u>ALL</u> F ^a	MSS	<u>SELF</u> F ^a	MSS	<u>THIRD MAN</u> F ^a
Strong-weak						
HvsL	15.09	2.52	2.27	2.10	2.61	1.08
Error	6.00		1.08		2.42	
Active-passive						
HvsL	16.84	1.83	12.67	5.71*	1.79	0.69
Error	9.22		2.22		2.58	
Good-bad						
HvsL	2.46	0.88	5.58	3.68	0.00	0.00
Error	2.79		1.52		1.76	
Dramatic-drab						
HvsL	6.98	1.73	1.79	2.56	1.18	0.72
Error	4.03		0.70		1.65	
Complex-simple						
HvsL	14.03	6.52*	2.87	1.55	1.47	0.80
Error	2.15		1.85		1.84	
Confidence						
HvsL	6.34	1.58	12.67	8.89**	0.30	0.25
Error	4.01		1.43		1.18	

*p < .05

**p < .01

Of the 20 difference scores presented, 11 are in the predicted direction. The "Third" column in Table 20 presents the repeated measures analysis of variance of the judgments by the third member of the group. None of the main effects of High versus Low sensitivity to RV_{gn} are significant.

Since it is possible that the individual with the highest RV_{gn} score relative to his group is low compared to most individuals high in RV_{gn} , it would be informative to check if the above findings hold in a comparison of individuals "high" versus "low" in RV_{gn} irrespective of their relative position within the group. To accomplish this, individuals were ranked within BPS Forms with respect to RV_{gn} . Individuals in the upper quartile were labeled "high" and compared with those in the lowest quartile. The pattern of results which are contained in Appendix IV (Tables X through AA) are similar to those reported above and will only be summarized here.

When the judgments of all the subjects in the individual's group were combined, the "high" individual was found to be more dynamic or confident for 14 of the 18 comparison scores. However, none of the comparison scores reached statistical significance when combined over Forms.

When only the self-judgment of the individuals "high" and "low" in RV_{gn} were compared, the signs of 14 of the 18 comparison scores were in the expected direction. When combined over Forms, the Active-passive ($p < .05$) and Confidence ($p < .01$) comparisons reached statistical significance.

Finally, when the combined judgments of the other two subjects in an individuals group were used to compare "high" versus "low" individuals, 13 of the 18 comparison scores were in the expected direction. However, none of the scores reached statistical significance when compared over Forms.

Discussion

Hypothesis 1. If a new Behavioral Prediction Scale were constructed such that only gain and not justification were varied in the RV_{gn} component, then, if the justification explanation is valid, there will be no increase in emphasis upon RV_{gn} on the new BPS. If, however, RV_{gn} increases in emphasis even under pure gain conditions, then the justification explanation may be discounted.

Before the implications of Hypothesis 1 may be tested, it must be shown that Rettig's finding of an increase in sensitivity to RV_{gn} has been replicated for the present group of subjects on the original form of the BPS (Form O). As discussed in the results section, there was a significant increase in sensitivity to RV_{gn} on Form O. Rettig's finding has been replicated and we may proceed with an analysis of results from the other Forms of the BPS.

On the new form of the BPS, which also varied justification and gain (Form J) on the RV_{gn} component, an increase in sensitivity to RV_{gn} was found. This increase in sensitivity to RV_{gn} replicates the increase usually found on the original Form and widens the generality of Rettig's finding to a new ethical risk taking situation. No significant increase in Total predicted ethical risk taking was found for Form J.

A significant increase in sensitivity to RV_{gn} was also found on the new Form of the BPS (Form G), which varied only gain on the RV_{gn} dimension. This finding is crucial to Hypothesis 1 since it implies that justification for the risk is not a necessary condition for an increase in sensitivity to gain. As discussed in

the introduction, a justification explanation relies on the fact that justification is varied in the RV_{gn} component of Form O. That is, the justification and lack of justification for the ethical risk in the High and Low RV_{gn} items respectively, produces either an increase or decrease in the predicted ethical risk taking depending upon the justifiability of the risk. The increase on the High and decrease on the Low RV_{gn} items produces the increase in score on the RV_{gn} component. Since justification was not varied in Form G and still an increase in sensitivity to RV_{gn} was found, justification cannot account for the increase. This finding eliminates justification as an explanation for the increase in emphasis of gain in predicted ethical risk taking.

One might argue that a lack of any significant change in Total BPS score for any of the Forms of the BPS indicates that no risky shift has occurred on any of the BPS Forms. Although this is true in an overall sense, the occurrence of an increase in sensitivity to RV_{gn} for all Forms indicates an increase in predicted risk taking for some items and a decrease for others (see Tables 10, 11, and 12).

It is possible that the increase in sensitivity to RV_{gn} is a serial position effect (Deese and Kaufman, 1957), since the order of the components is constant for all items on Form O, i.e., RV_{gn} , E_{gn} , E_{cs} , and RV_{cs} . When a subject works as an individual, he remembers best and, therefore, pays most attention to the last

dimension (RV_{CS}). When the individual enters the group, he has already allotted sufficient attention to the last dimension and may, therefore, proceed to pay more attention to the RV_{gn} dimension which is first in order and, therefore, the second best remembered dimension. There are two problems with this explanation. First, Rettig (1966) has shown that individuals in groups without any prior experience with the BPS are still most sensitive to RV_{gn} . Therefore, contrary to the implications of the serial position explanation, two exposures to the BPS are not necessary for an increase in sensitivity to RV_{gn} . Secondly, the order of dimensions in Form J (E_{gn} , RV_{gn} , E_{CS} , RV_{CS}) is not the same as Form O. If a serial position effect is operating, then following group discussion, there should be an increase in sensitivity to E_{gn} . When compared with Forms O and G, in which E_{gn} is the second dimension, Form J shows a significantly ($p < .05$) greater increase in sensitivity to E_{gn} (see Table 9). This indicates that serial order may be playing some part in the increase in sensitivity to RV_{gn} on Form O. However, even on Form J where RV_{gn} is the second component, a significant ($p < .01$) increase in RV_{gn} was found, indicating that position is not a necessary condition for an increase in sensitivity to RV_{gn} .

With respect to changes in sensitivity to the RV_{CS} and E_{CS} components, the findings of the present study are consistent for all three Forms of the BPS with Rettig's usual finding of no change.

The only place in which his findings were not replicated was with respect to the E_{gn} component. While he finds no significant change in sensitivity to E_{gn} , the present study found a significant ($p < .05$) decrease in sensitivity on Form O. However, several of Rettig's (Rettig, 1966; Rettig and Turoff, 1967) studies have shown a non-significant decrease in sensitivity to E_{gn} .

Altogether, the present data further widen the generality of Rettig's data to two new situations (Forms J and G), and imply that his findings might well hold for most ethical risk taking situations.

Rettig's (1967) original reason for rejecting value theory as an explanation for the increase in sensitivity to RV_{gn} was that "Since these judgments are socially undesirable (unethical) ones, they should have become more conservative as a consequence of group discussion, since the discussion presumably accentuates the negative value of the risk (p.180)." It is possible that on all three Forms of the BPS the positive value of risk is still the strongest value. For example, the BPS depicts situations in which the harm or loss ensuing from the "unethical" act is incurred by an institution (e.g., bank) rather than by an individual or a small group of individuals directly. Perhaps this may tend to weaken the unethical nature of the risk. In contrast, the Choice Dilemma type items which exhibit conservative shifts involve direct harm to

individuals (an engaged couple, Wallach, et al., 1962; a very small community, Rabow, et al., 1966; expectant mother's life, Stoner, 1968).

Hypothesis 2. The relative contributions to the risky shift of communication (and sensitivity to gain) may be determined by the regression analysis as described above.

If one accepts the possibility that risk as a value is operating on the BPS, then it is possible to argue that the increase in emphasis of RV_{gn} in the group reflects the change in attitude of the more conservative group members. Since value theory relies on a communication type process (as noted in Footnote 2, p.22), it would also be supported by a significant contribution of communication as described in Hypothesis 2.

The rhetorical explanation also implies that, depending upon the item, the most or least risky individual in the group will be the most influential in the group. If a communication type process is producing the increase in sensitivity to gain, then as discussed in the introduction, the greater the divergence of initial positions in the group, the greater the change on a given item.

The locus of control explanation, as originally proposed by Rettig (1969), states that the increase in sensitivity to RV_{gn} is a consequence of giving up control to the group and thereby expecting a greater outcome. This explanation implies that the

giving up of control to the group and subsequent increase in sensitivity to RV_{gn} is independent of the initial positions of the group members. From this explanation one would, therefore, expect a shift in predicted ethical risk taking even when the initial positions of the group members were the same. The locus of control explanation would, therefore, predict a non-zero intercept at the point where divergence in the group is zero.

The data from the regression analysis of mean group change on divergence of initial position (Table 14) reveals an overall slope and, therefore, correlation that is significantly different from zero. This finding supports a communication type explanation. The data from the same analysis indicates that the difference of the intercept from zero is only marginally significant ($p < .10$). This finding leaves questionable the locus of control explanation in its present form as an explanation of the risky shift.⁸

As discussed in the introduction, it is possible to calculate from the regression analysis the relative contributions of

⁸A replication of the present design was performed at Bowdoin College using only Form O. The analysis of this data (Appendix III) revealed an overall slope significantly ($p < .001$) different from zero and an overall intercept not significantly ($p > .90$) different from zero. Although the Bowdoin students were males and considerably more homogeneous with respect to age and background, the results seem to question the reliability of a non-zero intercept and, therefore, further weaken the validity of the locus of control explanation.

communication, the process hypothesized by the rhetorical and value explanation, and sensitivity to gain, the process hypothesized by the locus of control explanation. When these percentages are calculated (Table 16), communication accounts for 54.90% of the shift, while "sensitivity to gain" accounts for 45.10% of the change in predicted ethical risk taking. From these results one may, therefore, conclude that a communication type explanation is the best explanation of Rettig's finding of an increase in sensitivity to RV_{gn} following group discussion.

Since both the value and rhetorical explanations rely on a communication type process, it is impossible to further differentiate between the two on the basis of the regression analysis. And, as several other authors (Kelley and Thibaut, 1968; Dion, et al., 1970) have noted, the rhetorical explanation may be difficult to test empirically, implying that in general it would be difficult to differentiate it from value theory.

Hypothesis 3. If the locus of control explanation is valid, then when individuals are divided on the basis of their preference for either a group or individual mode of problem solving, the former set of subjects should show a greater increase in sensitivity to RV_{gn} than the latter.

The locus of control explanation does not negate the possibility of individual differences in propensity to give up control to a group. These differences may depend upon differences in past group experiences. It is hypothesized, therefore, that individuals who are more willing to become a group member to solve

a problem are more willing to give up control to that group and will, therefore, show a greater increase in sensitivity to RV_{gn} than an individual who would prefer not to solve a problem as part of a group. The data (Table O and T) do not support Hypothesis 3 for shifts in the RV_{gn} component, since no significant main or interaction effects of the choice of individual versus group as a mode of problem solving was found. Nor does the choice variable have any significant main or interaction effects upon Total BPS score or the other BPS components. The rejection of Hypothesis 3 is a further disconfirmation of the locus of control explanation.

Hypothesis 4. Assuming that the rhetorical explanation is valid, then when judged by subjects in the group on bipolar scales such as strong-weak; active-passive; good-bad; dramatic-drab, and complex-simple, the individual initially most sensitive to RV_{gn} should have his arguments judged more in the direction of strong, active, good, dramatic, and complex, than the least sensitive individual, and the most sensitive individual should be judged more confident.

The rhetorical explanation implies that the verbal communications of the most sensitive individual are more dynamic in nature and that he should be more confident, since he is the individual who influences the others. The data (Tables 17 to 20) support this hypothesis moderately well, since of a total of 54 comparisons of individuals High versus Low in sensitivity to RV_{gn} (3 Forms X 6 Scales X 3 Judge combinations), 41 comparisons or 76% of the comparisons were in the predicted direction. An analysis of variance

performed on the judgments revealed that the arguments of the Highly sensitive group member were judged significantly more complex when the judgments of all the group members were combined, and that when only the self-judgments of the High and Low sensitive individuals are compared, the arguments of the highly sensitive individual were judged to be more in the active than the passive direction, and he was judged more confident. These data add support to the rhetorical explanation of the increase in sensitivity to RV_{gn} .

The locus of control explanation, as presented in this paper, implies that the giving up of control to a group is a necessary and sufficient condition for an increase in sensitivity to RV_{gn} . The results of the regression analysis of shifts in predicted ethical risk taking in this study indicate that mere giving up of control is not sufficient. Some other mechanism must be incorporated into the locus of control theory so that it may account for the shift. As the outcome of the present study indicates, the rhetorical advantage of the most risky individual or the value of risk may be the needed addition. The locus of control explanation would then involve two steps. First, an individual gives up control to the group, allowing the most risky individual in the group to then gain sway over him by means of his rhetorical or value advantage. Rettig's manipulations of locus of control to increase or decrease the risky shift may now be seen as a manipulation of the ability of the risky individual to influence the other group members.

It should be noted that Kelley and Thibaut (1969) also propose a two factor explanation of the risky shift, involving rhetoric and responsibility diffusion. They include responsibility diffusion to explain unpublished data by Kogan and Wallach (cited in Kelley and Thibaut, 1969) showing a decrement in the risky shift when subjects listened to a taped group discussion. This type of decrement has been observed by Rettig and Turoff (1967) and, as noted in the introduction to this paper, may be accounted for by locus of control. The substitution of locus of control for responsibility diffusion in a two factor theory of the risky shift seems plausible and, as noted by Rettig (1969), locus of control is "a more efficient description since its behavioral attributes are more clearly definable."

The analysis of factors influencing the risky shift and the rating of arguments presented by individual group members provides some of the more direct evidence for the rhetorical explanation called for by Kelley and Thibaut (1969) and Dion, Baron and Miller (1970). However, these results may also be explained by Brown's value explanation, and as noted earlier, the two theories may be indistinguishable experimentally.

Appendixes

Appendix I

To determine if college students actually do perceive the situation described in the high level of RV_{gn} as being more socially justifiable than the low level, students in the library of Brooklyn College were asked to respond for each item of the BPS to the question: "Considering the circumstances, how justifiable would you consider the action to be?" Responses were made on a 0 to 6 graphic scale, ranging from "completely unjustified" to "completely justified." The difference in justification between the high and low levels was then calculated by summing the responses to the eight low items and subtracting from the sum of the eight high items. Another group of subjects from the same library were asked to respond to the question: "If the outcome were successful, how much gain would it entail for the person involved?" on a scale ranging from "no gain" to "enormous gain." The difference between the high and low levels of RV_{gn} in response to this question was calculated in a manner similar to the method used for justification.

Each Form of the BPS was administered in the manner described above, plus an additional two groups were requested to predict the likelihood of the act (revealing information or selling stock illegally) for the two new Forms of the BPS. Each subject responded to only one Form of the BPS and on only one type of scale.

Table A presents the mean sensitivity scores to the four components as a function of BPS Form. On all three forms, RV_{CS} exhibits the largest difference score. The reliability of the three forms are all above .90.

Table B presents the mean difference scores between the high and low levels of RV_{gn} for judgments of justification and gain. The mean differences for gain are all significantly ($p < .01$) different from zero for Forms O and J, but not for Form G.

TABLE A

Predicted ethical risk sensitivity
as a function of BPS Form

Form	N	RV _{gn}	E _{gn}	RV _{cs}	E _{cs}	Total	Reliability
O ^a	54	8.0	9.5	12.5	8.8	43.9	.94 ^b
J	20	10.5	7.0	15.6	1.8	53.6	.92
G	20	1.6	5.1	14.3	8.4	42.8	.93

^a Rettig (1969)

^b Rettig (1966)

TABLE B

Mean differences in judgment
of gain and justification

Form	Justification			d	Gain		
	d	N	t		d	N	t
O	8.15	20	4.04**	12.50	20	5.46**	
J	13.50	20	7.18**	14.50	20	6.72**	
G	0.33	18	0.25 ^a	9.65	17	3.67**	

^a p > .80

**p < .01

Appendix II

The regression analysis involves the determination of the slope (C/n) and intercept (G) of the equation:

$$\bar{\Delta} = \frac{c}{n} \sum d_{ci} + G$$

For convenience, the variable $\sum d_{ci}$ will be replaced by D . The equation, therefore reads:

$$\bar{\Delta} = \frac{c}{n} D + G$$

The formulae for the slope and intercept of the above equation are (Hayes, 1963):

$$\frac{c}{n} = \frac{r_{D\bar{\Delta}} S_{\bar{\Delta}}}{S_D}$$

$$G = M_{\bar{\Delta}} - \frac{c}{n} M_D$$

where r_D is the correlation between D and $\bar{\Delta}$. $M_{\bar{\Delta}}$, $S_{\bar{\Delta}}$, M_D and S_D are the means and standard deviations of $\bar{\Delta}$ and D , respectively.

Whether or not C/n is significantly different from zero may be tested by the statistic:

$$t = \frac{r_{D\bar{\Delta}} \sqrt{N-2}}{\sqrt{1-r_{D\bar{\Delta}}^2}}$$

with $N - 2$ degrees of freedom and N being the number of groups.

The variance of G is given by Ostle (1963) to be:

$$s_G^2 = \frac{\sum \left(\frac{c}{n} D_j + G - \bar{\Delta}_j \right)^2}{N - 2} \left[\frac{1}{N} + \frac{(\sum D_j)^2}{N^2 \sum D_j - N(\sum D_j)^2} \right]$$

where the subscript "j" represents the group. Using this as the denominator, the difference of G from zero may be tested by the statistic:

$$t = \frac{G}{\sqrt{s_G^2}}$$

with N - 2 degrees of freedom.

Calculation of Variance-covariance matrix⁹

The regression equation may be represented as:

$$Y_{jk} = \hat{b}_j X_{jk} + \hat{a}_j + u_{jk}$$

where i and j are subscripts representing items on the BPS and k representing a group. Y_{jk} is then the mean shift of group k on item j , and X_{jk} is the divergence of group k on item j . \hat{b}_j is the estimate of the slope for item j and \hat{a}_j is the estimate of the intercept for item j . Finally, u_{jk} is the error in estimating the mean shift of group k on item j from the regression equation.

The covariance of \hat{b}_i with \hat{b}_j is given by:

$$\text{cov}(\hat{b}_i, \hat{b}_j) = \frac{N \hat{\sigma}_{ij} (N Q_{ij} - P_i P_j)}{(N Q_{jj} - P_j^2)(N Q_{ii} - P_i^2)}$$

and the covariance of \hat{a}_i with \hat{a}_j is given by:

$$\text{cov}(\hat{a}_i, \hat{a}_j) = \frac{\hat{\sigma}_{ii}}{N} + \frac{P_i P_j}{N^2} \text{cov}(\hat{b}_i, \hat{b}_j)$$

where $Q_{ij} = \sum X_{ik} X_{jk}$ and $P_i = \sum X_{ik}$. N is the number of groups.

The term $\hat{\sigma}_{ij}$ may be calculated by the formula:

$$\hat{\sigma}_{ij} = \frac{1}{N-2} \sum (Y_{ik} - b_i X_{ik} - a_i)(Y_{jk} - b_j X_{jk} - a_j)$$

⁹I wish to thank Robin Brooks of the Mathematics Department at Bowdoin College for his assistance in the derivation of these formulas.

TABLE C

Variance-covariance matrix of intercept (G)
for BPS Form O (Hunter)

Item	3	16
3	.16859	.00541
16		.05552

TABLE D

Variance-covariance matrix of slope (C/3)
for BPS Form O (Hunter)

Item	3	16
3	.00554	-.00001
16		.00415

TABLE E

Variance-covariance matrix of intercept (G)
for BPS Form O (Bowdoin)

Item	1	7	11	14	15
1	.13420	-.01598	-.00347	-.00376	.00498
7		.41305	-.00140	.06484	.00409
11			.04340	.01571	-.00167
14				.22014	-.00169
15					.00379

TABLE F

Variance-covariance matrix of slope (C/3)
for BPS Form O (Bowdoin)

Item	1	7	11	14	15
1	.00717	-.00024	-.00002	-.00002	.00035
7		.01758	-.00075	.00144	.00035
11			.00323	.00038	-.00007
14				.00993	.00006
15					.00103

TABLE I

Variance-covariance matrix of intercept (G)
for BPS Form G (Hunter)

Item	1	2	10
1	.20521	.01341	.00003
2		.10877	.00107
10			.00222

TABLE J

Variance-covariance matrix of slope (C/3)
for BPS Form G (Hunter)

Item	1	2	10
1	.00572	-.00013	.00000
2		.00299	-.00058
10			.00202

Appendix III

TABLE K

Mean change from Individual to Group condition in predicted ethical risk taking on each of the sixteen items from Form O for Bowdoin College students

Item	Level of RV _{gn}	Mean Change	Standard Deviation ^a	t	p less than
1	L	.685	.852	3.41	.01
2	H	.093	.839	0.47	N.S.
3	L	.000	.750	0.00	N.S.
4	H	.315	.796	1.68	N.S.
5	H	.333	.732	1.93	N.S.
6	L	.352	.844	1.77	N.S.
7	H	.741	1.213	2.59	.05
8	H	.556	1.252	1.88	N.S.
9	L	-.241	.703	-1.45	N.S.
10	L	-.148	.629	-1.00	N.S.
11	H	.722	.639	4.79	.001
12	L	.222	.871	1.08	N.S.
13	L	-.204	.951	-0.91	N.S.
14	H	.593	1.147	2.19	.05
15	H	.352	.450	3.32	.01
16	L	-.074	.421	-0.75	N.S.

^a Standard deviation is based on deviations of mean change within a group from overall mean change. Therefore, N equals 18 and df equals 17.

TABLE L

Analysis of Bowdoin College data to determine relative contribution of communication and sensitivity to gain toward the risky shift

Item	df	<u>Communication</u>		<u>Sensitivity to Gain</u>	
		Slope	t	Intercept	t
1	16	.2352	2.78*	-.217	-0.59
7	16	.2161	1.63	-.208	-0.32
11	16	.1875	3.30**	.160	0.77
14	16	.0851	0.85	.266	0.57
15	16	.2908	9.05***	-.036	-0.58
Combined	16	1.0147	4.96***	-.034	-0.04

*p < .05

**p < .01

***p < .001

TABLE M

Relative contribution of communication and sensitivity to gain
toward the risky shift for the Bowdoin College data

Item	Percentage Communication	Percentage Sensitivity to Gain
1	131.61	-31.61
7	128.02	-28.02
11	77.88	22.12
14	55.04	44.96
15	110.22	-10.22
Combined	100.55	- 0.55

TABLE N

Means for the Total BPS score as a function of the individual or group, choice of individual vs. group and BPS Form

	Choice of	
	Individual	Group
<u>Form O</u>		
Individual	45.42	45.74
Group	43.49	44.67
N	41	49
<u>Form J</u>		
Individual	52.78	50.44
Group	54.44	50.67
N	9	18
<u>Form G</u>		
Individual	33.00	41.64
Group	31.23	42.29
N	13	14

TABLE O

Means for the RV_{gn} component as a function of the individual or group, choice of individual vs. group and BPS Form

	Choice of	
	Individual	Group
<u>Form O</u>		
Individual	11.17	12.59
Group	14.56	15.37
N	41	49
<u>Form J</u>		
Individual	13.22	11.89
Group	18.00	18.44
N	9	18
<u>Form G</u>		
Individual	3.92	8.93
Group	7.23	12.43
N	13	14

TABLE F

Means for the E_{gn} component as a function of the individual or group, choice of individual vs. group and BPS Form

	Choice of	
	Individual	Group
<u>Form O</u>		
Individual	8.98	8.67
Group	6.76	6.92
N	41	49
<u>Form J</u>		
Individual	5.44	6.89
Group	8.00	8.22
N	9	18
<u>Form G</u>		
Individual	9.31	9.36
Group	7.85	5.57
N	13	14

TABLE Q

Means for RV_{CB} component as a function of the individual or group, choice of individual vs. group and BPS Form

	Choice of	
	Individual	Group
<u>Form O</u>		
Individual	10.05	10.27
Group	9.05	10.59
N	41	49
<u>Form J</u>		
Individual	18.11	16.56
Group	18.89	16.89
N	9	18
<u>Form G</u>		
Individual	15.77	15.50
Group	19.08	21.57
N	13	14

TABLE R

Means for E_{CS} component as a function of the individual or group, choice of individual vs. group and BPS Form

	Choice of	
	Individual	Group
<u>Form O</u>		
Individual	5.71	4.80
Group	5.68	5.25
N	41	49
<u>Form J</u>		
Individual	5.00	3.44
Group	4.44	5.89
N	9	18
<u>Form G</u>		
Individual	9.77	12.36
Group	9.39	12.43
N	13	14

TABLE S

Summary of repeated measures analysis of variance of Total BPS score with Form, Choice, and Individual vs. Group setting as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: Form	2	3775.3	8.54**
B: Choice	1	316.5	0.72
A X B		733.1	1.66
Subjects within groups (error)	138	442.3	
<u>Within Subjects</u>			
C: Individual vs. Group setting	1	6.9	0.14
A X C	2	25.2	0.51
B X C	1	4.7	0.09
A X B X C	2	15.7	0.31
C X Subjects within groups (error)	138	50.0	

**p < .01

TABLE T

Summary of repeated measures analysis of variance of RV_{gn} component with Form, Choice, and Individual vs. Group setting as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: Form	2	940.8	6.57**
B: Choice	1	185.1	1.29
A X B	2	136.4	0.95
Subjects within groups (error)	138	143.3	
<u>Within Subjects</u>			
C: Individual vs. Group setting	1	821.0	26.56**
A X C	2	33.1	1.07
B X C	1	2.6	0.08
A X B X C	2	6.2	0.20
C X Subjects within groups (error)	138	30.9	

**p < .01

TABLE U

Summary of repeated measures analysis of variance of E_{gn} component with Form, Choice, and Individual vs. Group setting as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: Form	2	14.4	0.27
B: Choice	1	0.7	0.01
A X B	2	15.8	0.30
Subjects within groups (error)	138	52.5	
<u>Within Subjects</u>			
C: Individual vs. Group setting	1	39.5	1.52
A X C	2	102.1	3.93*
B X C	1	13.2	0.51
A X B X C	2	8.2	0.32
C X Subjects within groups (error)	138	26.0	

*p < .05

TABLE V

Summary of repeated measures analysis of variance of RV_{CS} component with Form, Choice, and Individual vs. Group setting as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: Form	2	1357.2	16.06**
B: Choice	1	0.3	0.00
A X B	2	43.0	0.51
Subjects within groups (error)	138	84.5	
<u>Within Subjects</u>			
C: Individual vs. Group setting	1	133.9	3.84
A X C	2	119.9	3.44*
B X C	1	18.5	0.53
A X B X C	2	10.8	0.31
C X Subjects within groups (error)	138	34.9	

*p < .05

**p < .01

TABLE W

Summary of repeated measures analysis of variance of E_{CS} component with Form, Choice, and Individual vs. Group setting as independent variables

Source	df	MSS	F
<u>Between Subjects</u>			
A: Form	2	796.8	17.31**
B: Choice	1	24.2	0.53
A X B	2	57.8	1.26
Subjects within groups (error)	138	46.0	
<u>Within Subjects</u>			
C: Individual vs. Group setting	1	5.6	0.42
A X C	2	5.2	0.40
B X C	1	21.5	1.62
A X B X C	2	8.9	0.68
C X Subjects within groups (error)	138	13.2	

**p < .01

TABLE X

Mean sum of judgments by all group members of individual
in the highest and lowest quartile of sensitivity to RV_{gn}

	Form O (N High=21) (N Low=20)	Form J (N High=6) (N Low=6)	Form G (N High=7) (N Low=6)
Strong-weak			
High	9.19	7.00	9.14
Low	9.70	9.00	10.33
High-Low	-0.51	-2.00	-1.19
Active-passive			
High	8.00	7.50	9.29
Low	8.25	10.16	11.50
High-Low	-0.25	-2.66	-2.21
Good-bad			
High	8.10	6.00	7.71
Low	8.25	8.17	8.50
High-Low	-0.15	-2.17	-0.79
Dramatic-drab			
High	11.19	8.50	12.29
Low	10.70	12.67	10.83
High-Low	0.49	-4.17	1.46
Complex-simple			
High	12.14	11.17	13.14
Low	12.05	13.00	12.50
High-Low	0.09	-1.83	0.64
Confidence			
High	7.71	7.00	8.00
Low	8.35	9.17	9.33
High-Low	-0.64	-2.17	-1.33

TABLE Y

Mean self-judgment of individual in the highest
and lowest quartile of sensitivity to RV_{gn}

	Form O (N High=21) (N Low=20)	Form J (N High=6) (N Low=6)	Form G (N High=7) (N Low=6)
Strong-weak			
High	3.14	2.33	2.86
Low	2.85	3.00	4.00
High-Low	0.29	-0.67	-1.14
Active-passive			
High	2.71	2.17	2.86
Low	2.90	3.83	4.33
High-Low	-0.19	-1.66	-1.47
Good-bad			
High	2.81	2.00	2.29
Low	2.45	2.33	4.00
High-Low	0.36	-0.33	-1.71
Dramatic-drab			
High	3.76	2.50	4.14
Low	3.55	4.17	3.50
High-Low	0.21	-1.67	0.64
Complex-simple			
High	3.81	4.00	4.43
Low	4.30	4.17	4.50
High-Low	-0.49	-0.17	-0.07
Confidence			
High	2.33	1.67	2.71
Low	2.80	3.50	3.50
High-Low	-0.47	-1.83	-0.79

TABLE Z

Mean sum of judgments by the two other group members of individual in the highest and lowest quartile of sensitivity to RV_{gn}

	Form O (N High=21) (N Low=20)	Form J (N High=6) (N Low=6)	Form G (N High=7) (N Low=6)
Strong-weak			
High	6.05	4.67	6.29
Low	6.85	6.00	6.33
High-Low	-0.80	-1.33	-0.04
Active-passive			
High	5.29	5.33	6.43
Low	5.35	6.33	7.17
High-Low	-0.06	-1.00	-0.74
Good-bad			
High	5.29	4.00	5.43
Low	5.80	5.83	4.50
High-Low	-0.51	-1.83	0.93
Dramatic-drab			
High	7.43	6.00	8.14
Low	7.15	8.50	7.33
High-Low	0.28	-2.50	0.81
Complex-simple			
High	8.33	7.17	8.71
Low	7.75	8.83	8.00
High-Low	0.58	-1.66	0.71
Confidence			
High	5.38	5.33	5.29
Low	5.55	5.67	5.83
High-Low	-0.17	-0.34	-0.54

TABLE AA

Summary of analysis of variance for main effect of sensitivity to RV_{gn} (Highest vs. Lowest quartile--HvsL) of person being judged upon judgments by various judges

	Judgment by					
	MSS	$\frac{ALL}{F^a}$	MSS	$\frac{SELF}{F^a}$	MSS	$\frac{OTHER TWO}{F^a}$
Strong-weak						
HvsL	18.49	2.26	3.11	1.96	6.44	1.20
Error	8.19		1.59		5.36	
Active-passive						
HvsL	35.55	3.06	14.96	5.16*	4.39	0.67
Error	11.62		2.90		6.60	
Good-bad						
HvsL	13.04	2.58	3.85	2.33	2.72	0.65
Error	5.05		1.65		4.19	
Dramatic-drab						
HvsL	6.68	1.10	0.89	0.75	2.69	0.63
Error	6.08		1.19		4.29	
Complex-simple						
HvsL	1.63	0.25	0.72	0.26	0.18	0.04
Error	6.61		2.73		4.96	
Confidence						
HvsL	23.10	3.90	12.86	11.76**	1.49	0.47
Error	5.92		1.09		3.18	

^a df equals 1 and 60.

*p < .05

**p < .01

Appendix V

Form 0

This questionnaire presents 16 different situations, each portraying a person in conflict about taking money which does not belong to him. You are to read each situation carefully and make a prediction as to whether or not the person would take the money.

You will be given an answer sheet, on which you are to mark your predictions. For each situation, there is a set of numbers ranging from 0 to 6. Circle the 0 if you feel that the person will definitely not take the money. Circle the 6 if you feel that the person will definitely yes take the money. Circle the 3 if you think that the chances are about equal that the person will or will not take the money. Use the in-between numbers for the varying degrees of uncertainty; 1 or 2 being more on the no side; 4 or 5 being more on the yes side.

Remember: Your choice of numbers is to indicate whether or not the person would take the money, not how wrong taking the money would be.

Although the 16 situations may appear to you very alike at times, each situation differs in some respect from every other situation. Study each question carefully before reaching a decision. Make your prediction only after a careful consideration of all the facts.
DO NOT USE THE SAME NUMBER FOR EVERY SITUATION!

1

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would be enough to help a great number of people. The employee was sure that his theft would go unnoticed by the bank. However, the employee knew that if he were caught, he would be expelled from the bank and charged with criminal conduct.

2

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure his illness. The employee was sure that his theft would go unnoticed by the bank. However, the employee knew that if he were caught, he would be expelled from the bank and charged with criminal conduct.

3

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would be enough to help a great number of people. The employee was sure that his theft would go unnoticed by the bank. Furthermore, the employee was convinced that if he were caught, he could settle the matter privately with the bank president.

4

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure his illness. The employee was sure that his theft would be detected sooner or later. However, the employee was convinced that if he were caught, he could settle the matter privately with the bank president.

5

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure his illness. The employee was sure that his theft would go unnoticed by the bank. Furthermore, he was convinced that if he were caught, he could settle the matter privately with the bank president.

6

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would be enough to help a great number of people. The employee was sure that his theft would be detected sooner or later. However, the employee was convinced that if he was caught, he could settle the matter privately with the bank president.

7

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure his illness. The employee was convinced that his theft would go unnoticed by the bank. However, the employee knew that if he were caught, he would be expelled from the bank and charged with criminal conduct.

8

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure his illness. However, the employee was sure that his theft would be detected sooner or later. Furthermore, the employee knew that if he was caught, he would be expelled from the bank and charged with criminal conduct.

9

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would only be enough to help a very few people. The employee was sure that his theft would go un-noticed by the bank. However, the employee knew that if he were caught, he would be expelled from the bank and charged with criminal conduct.

10

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would only be enough to help a very few people. However, the employee was convinced that his theft would be detected sooner or later. Furthermore, the employee knew that if he was caught, he would be expelled from the bank and charged with criminal conduct.

11

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure his illness. The employee was sure that his theft would be detected sooner or later. However, the employee was convinced that if he was caught, he could settle the matter privately with the bank president.

12

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would only be enough to help a very few people. The employee was sure that his theft would go unnoticed by the bank. However, the employee was convinced that if he were caught, he could settle the matter privately with the bank president.

13

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would only be enough to help a very few people. The employee was sure that his theft would be detected sooner or later. However, the employee was convinced that if he were caught, he could settle the matter privately with the bank president.

14

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure his illness. The employee was sure that his theft would be detected sooner or later. Furthermore, the employee knew that if he was caught, he would be expelled from the bank and charged with criminal conduct.

15

A bank employee had to have some money to pay for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure his illness. The employee was sure that his theft would go unnoticed by the bank. Furthermore, the employee was convinced that if he were caught, he could settle the matter privately with the bank president.

16

A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money he could get would be enough to help a great number of people. However, the employee was sure that his theft would be detected sooner or later. Furthermore, the employee knew that if he was caught, he would be expelled from the bank and charged with criminal conduct.

Form J

This questionnaire presents 16 different situations, each portraying a person in conflict about revealing information. You are to read each situation carefully and make a prediction as to whether or not the person will reveal the information.

You will be given an answer sheet on which you are to mark your predictions. For each situation there is a set of numbers ranging from 0 to 6. Circle the 0 if you feel that the person will definitely not reveal the information. Circle the 6 if you feel that the person will definitely yes reveal the information. Circle 3 if you feel that the chances are about equal that the person will or will not reveal the information. Use the in-between numbers for the varying degrees of certainty; 1 or 2 being more on the no side; 4 or 5 being more on the yes side.

Remember: Your choice of numbers is to indicate whether or not the person would reveal the information, not how wrong it would be to reveal the information.

Although the 16 situations may appear to you very alike at times, each situation differs in some respect from every other situation. Study each question carefully before reaching a decision. Make your prediction only after a careful consideration of all the facts.
DO NOT USE THE SAME NUMBER FOR EVERY SITUATION!

1

A biochemist has been hired by a large drug company from a much smaller one. His new firm wants him to reveal all he knows about the smaller company. He is sure that the information would lead to a slight improvement in an existing drug. There is little chance that the smaller company will find out that he divulged the information, but since he signed an agreement that he would never divulge information he would be personally sued and dropped from the biomedical society so that he would find it difficult to secure a job in the future.

2

A biochemist has been hired by a large drug company from a much smaller one. His new firm wants him to reveal all he knows about the smaller company. He is sure that this information, which the smaller company wouldn't make use of anyway, will lead to the development of an important new life-saving drug, and bring considerable fame to himself. There is little chance that the smaller company will ever find out that he divulged the information, but since he signed an agreement that he would never divulge information, he would be personally sued and dropped from the biomedical society so that he would find it difficult to secure a job in the future.

3

A biochemist has been hired by a large drug company from a much smaller one. His new firm wants him to reveal all he knows about the smaller company. He is sure that the information would lead to a slight improvement in an existing drug. There is little chance that the smaller company will ever find out that he divulged the information, and although he signed an agreement that he would never divulge information, there is nothing the smaller company can do to enforce the agreement.

4

A biochemist has been hired by a large drug company from a much smaller one. His new firm wants him to reveal all he knows about the smaller company. There is a small chance that this information, which the smaller company wouldn't make use of anyway, will lead to the development of an important new life-saving drug, and bring considerable fame to himself. There is a good chance that the smaller company will find out that he divulged the information, but although he signed an agreement that he would never divulge information, there is nothing the smaller company can do to enforce the agreement.

5

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Form G

This questionnaire presents 16 different situations, each portraying a person in conflict about selling some stock. You are to read each situation carefully and make a prediction as to whether or not the person would sell the stock.

You will be given an answer sheet, on which you are to mark your predictions. For each situation, there is a set of numbers ranging from 0 to 6. Circle the 0 if you feel that the person will definitely not sell the stock. Circle the 6 if you feel that the person will definitely yes sell the stock. Circle the 3 if you feel that the chances are about equal that the person will or will not sell the stock. Use the in-between numbers for the varying degrees of certainty; 1 or 2 being more on the no side; 4 or 5 being more on the yes side.

Remember: Your choice of numbers is to indicate whether or not the person would sell the stock, not how wrong it would be to sell the stock.

Although the 16 situations may appear to you very alike at times, each situation differs in some respect from every other situation. Study each question carefully before reaching a decision. Make your prediction only after a careful consideration of all the facts.
DO NOT USE THE SAME NUMBER FOR EVERY SITUATION!

1

A stock broker has a chance to illegally sell some stock and make \$250 profit. The other party will probably buy the stock, and the chances are great that he will get caught. However, if he does get caught selling the stock, he will only have to buy the stock back.

2

A stock broker has a chance to illegally sell some stock and make \$100,000 profit. The other party will probably buy the stock, but the chances are great that he will get caught. However, if he does get caught selling the stock, he will only have to buy the stock back.

3

A stock broker has a chance to illegally sell some stock and make \$250 profit. The other party will probably buy the stock, and the chances are low that he will get caught. However, if he does get caught selling the stock, he will only have to buy the stock back.

4

A stock broker has a chance to illegally sell some stock and make \$100,000 profit. The other party will probably not buy the stock, but the chances are low that he will get caught. If he is caught selling the stock, he will have his license revoked for five years and will have to spend two years in jail.

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