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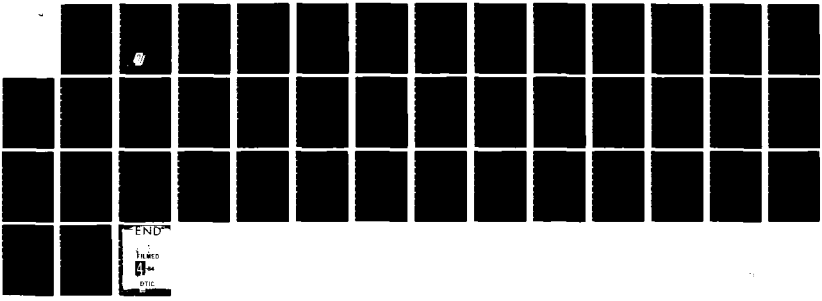

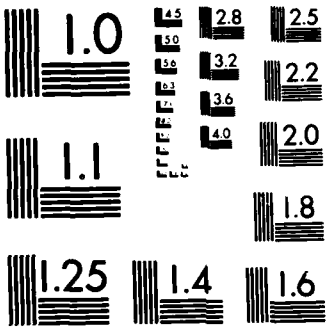

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REBECCA H. PLISKE AND CHARLES F. GETTYS

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WORK UNIT NUMBER NR 197-066

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER TR 8-2-83	2. GOVT ACCESSION NO. AD-A138053	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) THE ROLE OF CAUSAL EXPLANATION IN OUTCOME GENERATION		5. TYPE OF REPORT & PERIOD COVERED Interim 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Rebecca M. Pliske and Charles F. Gettys		8. CONTRACT OR GRANT NUMBER(s) N00014-80-C-0639
9. PERFORMING ORGANIZATION NAME AND ADDRESS Decision Processes Laboratory Department of Psychology, Univ. of Oklahoma Norman, OK 73019 (405) 325-3520		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR 197-066
11. CONTROLLING OFFICE NAME AND ADDRESS Office of Naval Research Engineering Psychology Programs, 800 N. Quincy St. Arlington, VA 22217		12. REPORT DATE 2 August 1983 13. NUMBER OF PAGES 29
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release: distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Outcome generation	Causality
Decision theory	Causal fields
Mental models	Perseverance effect
Causal schemata	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

It is assumed that Decision makers generate possible outcomes for action by creating a mental model, i.e., a causal schemata which represent the decision maker's model of the way the world works. Some causative factors are seen as relevant, and others are seen as irrelevant. Those relevant causal factors that are included in the mental model form a causal field, and the causal field determines to a large extent the outcomes that are generated. Therefore, when the decision maker first attempts to generate outcomes for an act, a causal

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S/N 0102-014-6601

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field is created, and this causal field may persist throughout the outcome generation task. The persistence of the causal field in the decision maker's thinking may make it difficult to create other, alternate mental models which might enable the decision maker to anticipate other outcomes for that act.

The present investigation examines the persistence of initial causal fields, and the cognitive mechanisms that may be responsible for this persistence. In the first study of this series, subjects were asked to explain one of several outcomes selected by the experimenter thus defining a causal field. Then they made predictions about the future outcome of the decision problem, identified factors in the causal field, generated alternate outcomes and estimated their likelihood, and made judgments about what factors would be important in determining the future. Subjects tended to focus on the same factors that were present in their initial explanation when generating additional outcomes, and their predictions about future events were biased by their initial explanation. However, they tended to generate the same numbers of success and failure outcomes, and their estimates of the likelihoods of these outcomes was also uninfluenced by the initial explanation they made. These results suggest the importance of the initial causal field has in outcome generation. A second study explored why the causal field persists. The persistence is not due to selective encoding of the task information, but rather seems to be due to persistence of inferences that the subjects made from the task information when making their initial explanation.

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The Role of Causal Explanation in Outcome Generation

Careful decision makers should identify alternative actions which could be taken to solve a decision problem and they should also consider the various outcomes which might result from taking each alternative action. Important decisions are often made with the help of decision analysis which structures the decision problem under consideration by constructing a decision tree consisting of the alternative actions and their associated outcomes. Much of the early psychological research on decision making was focused on whether human subjects made optimal choices when presented with a structured decision problem. Recently, there has been a growing interest in the "predecision" process of problem structuring. This interest is well justified because if a decision maker fails to construct a complete decision tree containing all reasonable actions and their associated outcomes, the decision analysis may be based on an incomplete model and the decision maker's subsequent decision may be suboptimal. In the present investigation, we examine the predecision process of outcome generation.

We view outcome generation as a complex prediction task in which the decision maker first identifies the causal factors which may influence the outcome of the action and then constructs a mental model to explain how these factors will cause a particular outcome to occur in the future. The importance of mental models (or causal schemata) in judgment and decision making tasks was discussed previously by Tversky and Kahneman (1980). The work of Einhorn and Hogarth (1982) and Mackie (1974) is particularly relevant to the present investigation; they have discussed the concept of differences in the causal field, differences which are those causes on which the decision makers' mental model is based. In the present investigation, we demonstrate that the decision maker's initial schemata affects which factors (or causes) they will subsequently identify as differences in their causal fields.

Previous investigators have demonstrated that identifying the potential causes of a future event increases subjective likelihood estimates of that event actually occurring. For example, Ross, Lepper, Strack, & Steinmetz (1977) gave subjects a clinical case history which contained background information for a clinical patient and asked the subjects to explain some critical event in the patient's latter life (e.g., committing suicide,

joining the peace corps). After subjects had provided a causal explanation of the critical event, they were told that the event was purely hypothetical. In a subsequent task in which the subjects were asked to rate the likelihood of a number of possible events in the latter life of the patient, subjects rated the "critical event" they had previously explained as being more probable than did subjects who had explained an alternative event or control subjects who had not explained any of the events. This finding has been called the "perseverance effect." We believe the perseverance effect is a result of the subject's formulation of an initial causal schema which specifies cause and effect relationships between the important factors involved in predicting the occurrence of the outcome. In order to explain why an outcome might occur, the subject must integrate the relevant information that is available to them into a coherent causal model or schema. Once this schema has been formed, it biases the subjects' subsequent judgments.

The subjects in the Ross et al. (1977) study were explicitly instructed to explain why a particular outcome might occur. Carroll (1978) investigated whether the explicit explanation of the relationship between the cause and effect is a necessary condition for the perseverance effect. Carroll's subjects were asked to imagine an outcome for a future event and were subsequently asked to make predictions about the event. Half of the subjects were also asked to explain the outcome. In accord with the perseverance effect, imagining a particular outcome increased expectations for that outcome. No additional effect on expectations was found for the subjects who were also instructed to explain the imagined event.

It appears that once subjects have either explained (or simply imagined) a future event, their subsequent expectations about the likelihood of the event's occurrence is biased. These results are very relevant to the study of the outcome generation process. Although the judgment biases demonstrated by the subjects in the Ross et al. (1977) and Carroll (1978) studies were "artificially" introduced by requiring subjects to explain or imagine an initial outcome before making their own likelihood estimates, a similar situation occurs when a person is faced with a real-life decision problem. However, in the latter case, the decision maker's generation of an initial outcome is influenced by his/her prior beliefs and expectations. We propose that after a decision maker has generated one possible outcome scenario, his or her subsequent outcome generation behavior may be biased because the

generation of the initial outcome scenario necessitates the construction of a causal schema. Once decision makers have identified differences in the causal field and formulated this initial causal schema, it "drives" their subsequent cognitive processing by making other alternative scenarios less accessible.

For example, consider an entrepreneur predicting the financial success or failure (i.e., the outcome) of opening a new restaurant in town (i.e., an action). This decision maker approaches the prediction task with prior expectations about the future of the restaurant; for example, he or she might believe that all it takes to have a successful restaurant is good food. When asked to generate the various outcomes which might result from opening the new restaurant, this decision maker might initially generate the following outcome scenario: "I hire the best chef in town who makes great food which causes my restaurant to be an enormous success."

In order to construct an initial outcome scenario, the decision maker has to identify the relevant factor or factors which are most likely to affect the outcome of taking a particular action. Some of the relevant factors may be under the decision maker's control; others may be "uncontrollable" states of nature. In order to make an accurate prediction about the future, a decision maker should consider **all** the relevant causal factors. However, once a decision maker has constructed a causal schema which focuses on one particular set of causal factors, he or she may fail to construct alternative outcome scenarios which include other important factors.

Consider once again the decision maker who is generating the alternative outcomes which might result from opening a new restaurant. If he or she is firmly convinced that the quality of the food is the only relevant factor pertaining to the restaurant's future success, then he or she may fail to generate scenarios which include other relevant factors, such as the managerial ability of the prospective manager, or the location of the restaurant. For example, the following scenarios may be neglected: "I hire the best chef in town, but the restaurant is located in such an out-of-the-way spot that it fails to attract many customers;" or "I hire the best chef in town, but since I have no prior experience managing a restaurant, we end up going out of business in less than a year." In sum, we are suggesting that decision makers' prior beliefs and expectations will influence which factors

they consider to be causes and which factors they consider to be differences in the causal field (cf. Einhorn and Hogarth, 1982).

The decision maker's prior beliefs and expectations may also predispose them to generate either positive or negative outcomes for an action. In our example, the decision maker may firmly believe the restaurant will be a financial success, and therefore he or she may fail to generate outcome scenarios in which the restaurant is a financial failure. Alternatively, it is possible that the decision maker will generate failure outcomes, but assign these outcomes unrealistically low probabilities of occurrence.

In the present study we manipulated the "prior beliefs" of our subjects by requiring them to explain one particular outcome before generating alternative outcomes. When we asked our subjects to explain one particular outcome, we were encouraging them to construct a particular causal schema which would integrate the available information into a set of cause/effect relationships. The research of Ross and Lepper and their colleagues suggests that belief perseverance occurs when subjects base judgments on their own beliefs (Lord, Lepper, & Ross, 1979) or on beliefs instantiated by the experimenter (Ross et al., 1977). Carrol (1978) has shown that imagining a causal scenario gives rise to similar results to that of a formal explanation. Although the causal schema instantiated by our laboratory manipulation is probably not as well developed as a causal schema based on the real-life decision maker's own beliefs, we predicted that the initial explanation made by our subjects would interfere with their ability to generate alternative outcome scenarios.

EXPERIMENT 1

Method

Problem.

The problem used in the present study dealt with a decision made by a young man, named Brad Simmons, to manage a Ford car dealership, called Simmons Ford, in a small town in Missouri. The text describing the dealership included information about Brad's educational background, the local economy, the previous success of the dealership, and the current difficulties faced by the American auto industry. The text was modified several times based on the responses of pilot subjects. We tried to include enough information in the text to make the problem meaningful to our subjects; yet at the same time, we wanted the information presented to be somewhat ambi-

guous so that subjects with different schemas might impose different interpretations on the same data. The complete text for the problem is in Appendix A.

Design

Two different causes (the person or the state of the economy) were crossed with two different outcomes (financial success or bankruptcy) in a 2 X 2 factorial design. Subjects initially explained one of the following four outcomes:

1) Subjects in the Person-Success condition explained why the young man would cause the dealership to be a financial success by 1985.

2) Subjects in the Person-Failure condition explained why the young man would cause the dealership to be bankrupt by 1985.

3) Subjects in the Economy-Success condition explained why the state of the economy would cause the dealership to be a financial success by 1985.

4) Subjects in the Economy-Failure condition explained why the state of the economy would cause the dealership to be bankrupt by 1985.

In addition to the four experimental conditions, a control condition was included in which subjects were asked to explain their own prediction about the future of the car dealership.

Subjects.

Subjects were 142 male and female introductory psychology students who received course credit for participating in the experiment. Subjects were randomly assigned to the different conditions. There were 26 subjects in each of the four experimental conditions and 42 subjects in the control condition.

Procedure.

Subjects were run in small groups of two to five students. All subjects within a group received the same experimental manipulation. The experimental manipulation was imposed at the beginning of the experimental session. Subjects were given written instructions telling them to use the material presented in the description of Simmons Ford (the text shown in Appendix A) to support a detailed and persuasive explanation of one of the four outcomes described above. Subjects were allowed to spend up to 15 minutes on their explanation. Most subjects finished before the 15 minutes were over. The written explanations were collected from the subjects, but they were told to keep the description of Simmons Ford in case they wanted to refer to it during the remainder of the experiment.

Subjects were then given a test booklet which contained several tasks. On the first page of the booklet, they were told that

> . . . we actually have no way of knowing whether Simmons Ford will be a financial success or failure in 1985. Nor do we know what will cause Simmons Ford to succeed or fail. We just wanted you to consider one possible outcome in detail before you make your own predictions.

On the same page, they were asked to indicate their own prediction regarding the financial future of Simmons Ford by circling a number on a 14 point scale. The lowest point on the scale (1) was labeled "Simmons Ford will definitely declare bankruptcy by 1985" and the highest point on the scale (14) was labeled "Simmons Ford will definitely be a financial success by 1985."

On the next page of the booklet, the concept of a causal scenario was defined as follows: "A causal scenario describes how a set of factors or events will cause a particular outcome to occur." Subjects were given an example which involved predicting a student's success or failure on a future chemistry exam. Several factors which might affect the student's performance were identified (e.g., how hard they studied). The factors were then combined into two different causal scenarios. One of the scenarios described a successful outcome, whereas the other scenario described a failure outcome.

Subjects were next asked to identify the factors which they thought would be important in determining the financial future of Simmons Ford. Subjects then constructed causal scenarios describing how the various factors may combine to determine the financial future of Simmons Ford. They were told that each of the scenarios they constructed should end by stating the degree to which Simmons Ford will be a financial success or failure in 1985. They were asked to construct as many scenarios as they could think of, but to construct at least five different scenarios. Next, subjects rated the relative likelihood of the various scenarios they had constructed by assigning a number from 1 (least likely to occur) to 14 (most likely to occur) to each scenario.

At this point the booklet of scenarios was collected and subjects were given two additional tasks to complete. They were asked to assign importance weights to a list of 15 factors which might affect the potential success or failure of Simmons Ford. The list of 15 factors was compiled from pilot data. The factors were rated on a 7 point scale where 1 was labeled "Not a factor," 3 was labeled "A minor factor," 5 was labeled "A major factor," and 7 was labeled "An extremely critical factor."

In the final task, subjects made predictions about how the various factors would turn out "in the future." They had to choose between two contradictory statements and then rate their confidence in their judgment on a 7 point scale. For example, they had to choose between "Ford's new cars will have quality workmanship" and "Ford's new cars will not have quality workmanship" by placing an X next to the statement which they thought was true. They then circled a number on a confidence scale where 1 was labeled "not at all confident" and 7 was labeled "very confident."

Control condition. The procedure for the control condition was very similar to that for the experimental conditions except that the subjects in the control condition were not asked to explain any particular outcome. Whereas subjects in the experimental conditions were told what outcome they were supposed to explain (e.g., Personal Success) and then allowed to read the text describing Simmons Ford, subjects in the control condition were simply asked to read the text. After the control subjects had finished reading the text, they were given a page with a discussion or similar to the one given the experimental subjects. The control condition was told ". . . that we actually have no way of knowing what will happen to Simmons Ford in the future." They were then asked to make their own prediction about the financial future of Simmons Ford on the same 14 point scale used by the experimental subjects where 1 was labeled "Simmons Ford will definitely declare bankruptcy by 1985" and 14 was labeled "Simmons Ford will definitely be a financial success by 1985."

The control subjects were then asked to give a brief explanation of their prediction. "Explain why you made the prediction above. That is, what will cause your prediction to come true?". These explanations were collected before continuing with the remainder of the experiment which was identical to that described above for the experimental conditions.

Results and Discussion

Success/failure rating. The results of the subjects' own predictions about the success or failure of the car dealership reflect a significant perseverance effect, thus replicating the results of Ross et al. (1977). These results are shown in Table 1. An ANOVA indicated that there is a reliable main effect of the outcome specified, $F(1,100)=16.38$, $MS_e=7.6$, $p<.0001$. Subjects who had initially explained a success outcome subsequently indicated the car dealership was more likely to be successful than subjects

who initially explained a failure outcome. The mean rating made by subjects in the control group was 8.2. When this value is compared to the means presented in Table 1, it suggests that requiring subjects to explain a failure outcome lowered their subsequent prediction of the success of the car dealership, but that requiring subjects to explain a success outcome did not have much effect on their subsequent prediction.

Table 1

Means ratings for subjects's own predictions about the success or failure of the car dealership from Experiment 1.

		OUTCOME SPECIFIED	
		Success	**Failure**
ATTRIBUTION OF CAUSALITY	Person	7.5	5.8
	Economy	8.6	5.9
	Mean	8.1	5.9

Factor listing task. After subjects made their own predictions about the success of the car dealership, they were asked to list the causal factors that they thought would be important in determining the financial future of the car dealership and to incorporate these factors into at least five different outcome scenarios. We predicted that if subjects had initially explained why one factor (i.e., either the person or the economy) would determine the future success or failure of the car dealership, then that factor (or similar factors) would be more likely to appear in their factor lists and in the outcome scenarios that they generated.

Two independent raters classified the factors mentioned in the subjects' factor lists into the three factor categories shown in Table 2. The percentage of agreement between the raters was 98 per cent. The person category in Table 2 includes any factor pertaining to the young man mentioned in the text (e.g., his ability, his motivation, etc.). The economy category includes any factor pertaining to the economy (e.g., inflation, unemployment, etc.). The product category includes factors pertaining to the product itself (e.g., quality of new cars, import taxes on foreign cars, etc.).

A 2 X 2 (Cause by Outcome) MANOVA, using the three categories of factors as the dependent variables, indicated there is a reliable main effect of Cause, $F(3,98)=6.71$, $p<.001$, and a reliable interaction of Cause and Outcome, $F(3,98)=3.24$, $p<.03$. Individual ANOVAs indicated the inter-

action is only significant for the product category, $F(1,100)=13.7$, $MS_e=1.5$, $p<.001$. Economy-Success subjects listed more product factors than Economy-Failure subjects, but Person-Failure subjects listed more product factors than Person-Success subjects. The individual ANOVAs indicated that there are significant main effects due to Cause for the person and economy categories. As predicted, subjects in the Person conditions listed more person factors than subjects in the Economy conditions, $F(1,100)=4.3$, $MS_e=1.1$, $p<.04$; whereas, subjects in the Economy conditions listed more economy factors than subjects in the Person conditions, $F(1,100)=18.2$, $MS_e=1.0$, $p<.001$.

Table 2

The average number of factors in each category generated by subjects for the factor listing task from Experiment 1.

	FACTOR CATEGORY		
CONDITION	**Person**	**Economy**	**Product**
Control	1.8	.7	1.4
Person-Success	1.5	1.3	1.3
Person-Failure	1.4	.8	1.7
Person Conditions	1.4	1.0	1.5
Economy-Success	.7	1.6	2.4
Economy-Failure	1.1	1.7	1.0
Economy Conditions	.9	1.7	1.7

The data presented in the first row in Table 2 indicate that subjects in the control group were more likely to list person and product factors than economic factors. Subjects in the Economy conditions listed more economy factors and fewer person factors as compared to subjects in the control condition. These results suggest that an initial explanation of an outcome does influence which differences in the causal field are identified as relevant.

Surprisingly, subjects in the Person conditions did not list more Person factors than subjects in the control condition. This may reflect a judgmental bias similar to the "fundamental attribution error" (c.f. Ross and Anderson, 1982) reported in the social psychology literature. The fundamental attribution error refers to subjects' propensity to see the behavior of an individual as reflecting a dispositional quality of the individual

instead of the environmental context in which the behavior occurred. People seem to be predisposed to attribute causality to people rather than to the environment, and thus t. control subjects performance is actually quite similar to the performance of subjects explicitly told to create an initial outcome based on person factors.

Scenario generation task. Table 3 presents the data for the scenario generation task. Each scenario generated by each subject was coded in terms of whether or not a particular type of factor (e.g., person factors) was

Table 3

Mean percentage of scenarios in which a particular factor category was mentioned for the scenario generation task from Experiment 1.

	FACTOR CATEGORY		
CONDITION	**Person**	**Economy**	**Product**
Control	58.2	36.2	52.1
Person-success	42.3	32.7	35.4
Person-failure	48.8	38.5	44.2
Person Conditions	45.6	35.6	39.8
Economy-success	33.1	56.2	63.8
Economy-failure	31.2	52.5	43.5
Economy Conditions	32.1	53.8	53.7

mentioned in it. The percent of scenarios in which each type of factor was mentioned was calculated for each subject. For example, if a subject had mentioned the economy in three of the five scenarios he or she had generated, then the subject would receive a percent score of .6 for the Economy factor for this analysis because he or she had mentioned the economy in 3 out of 5 scenarios (or 60% of the scenarios) he or she had generated. Similarly, if the subject had also mentioned the product in four of the scenarios and mentioned the person in two of the scenarios, then he or she would also receive a percent score of .8 (4/5) for the Product factor and .4 (2/5) for the Person factor for this analysis. Two independent raters had to agree that a particular type of factor was mentioned in a scenario for it to be included in this analysis.

These data show a pattern which is very similar to the data from the factor listing task presented in Table 2. A MANOVA, using the three factor categories as the dependent variables, indicated there is a reliable main effect of Cause, $F(3,98)=5.25$, $p<.002$. Individual ANOVAs indicated that subjects in the Person conditions mentioned person factors in more of the

scenarios they generated as compared to the subjects in the Economy conditions, $F(1,100)=4.39$, $MS_e=.11$, $p<.04$); whereas, subjects in the Economy conditions mentioned economy factors [$F(1,100)=7.92$, $MS_e=.11$, $p<.01$] and product factors [$F(1,100)=5.14$, $MS_e=.10$, $p<.03$] in more of the scenarios they generated as compared to the subjects in the Person conditions.

Likelihood estimation task. The outcome scenarios subjects generated were also coded in terms of the outcome specified. Two independent raters read each alternative scenario generated by the subjects and rated the outcome specified in each scenario on a 5-point scale where +2 indicated that a definite success had been specified and -2 indicated that a definite failure had been specified. A mean success/failure rating was computed for each subject by averaging the ratings for all of the scenarios generated by that subject. This measure should reflect the degree to which the initial explanation of a success or failure outcome perseveres during the scenario generation task. The mean success/failure ratings for all conditions were very close to zero. This indicates that most subjects generated approximately equal numbers of success and failure outcomes.

Actually, the fact that subjects in all the conditions generated both success and failure scenarios is not surprising given the demand characteristics of the scenario generation task. However, it seems quite plausible that subjects who initially explained a success outcome may subsequently rate the likelihood of their success scenarios as being greater than the likelihood of their failure scenarios, whereas subjects who initially explained a failure outcome may subsequently rate the likelihood of their failure scenarios as being greater than the likelihood of their success scenarios. Therefore, we did another analysis in which we weighted each outcome generated by each subject with the likelihood estimate that subject had made for that scenario. However, this analysis also indicated that there were no significant differences between the conditions ($F<1$). This suggests that although a success/failure bias was present in the subjects' first judgment concerning the future success of the dealership, subjects were able to generate alternative scenarios which described both success and failure outcomes. Furthermore, subjects' likelihood estimates for the alternative scenarios does not appear to be affected by their initial explanation. This result is similar to results reported by Pennington (1981). He found that subjects asked to generate their own outcomes showed "little or no biases"

in probability estimates of outcomes in an experiment comparing hindsight with foresight.

The final two tasks included in the study asked subjects to assign importance weights to 15 factors and to make predictions about how these would turn out in the future. We included these tasks to see if subjects' initial causal schema instantiated when they made their first explanation would affect judgments made **after** they had generated alternative outcome scenarios.

Factor weighting task. For the factor weighting task, we computed average importance weights for each of the three categories of factors for each subject. For example, the combined person factor includes subjects's weights for factors such as "Brad's willingness to work hard," and "Brad's educational background;" The combined economy factor includes subjects' weights for factors such as "The rate of inflation" and "The unemployment rate in Greenwood;" and the combined product factor includes subjects' weights for factors such as "Import quotas on foreign-made cars," and "Competitiveness of Ford's new cars with foreign cars."

Table 4

Average weights for each category of factors for the importance weighting task from Experiment 1.

	FACTOR CATEGORY		
CONDITION	**Person**	**Economy**	**Product**
Control	4.8	4.7	5.1
Person-success	4.8	5.2	5.1
Person-failure	4.8	4.7	5.1
Person conditions	4.8	4.9	5.1
Economy-success	4.5	5.3	5.5
Economy-failure	4.6	5.6	5.4
Economy conditions	4.6	5.5	5.5

We had predicted that subjects in the Person conditions might subsequently weight the person factors more heavily than subjects in the Economy conditions, and that subjects in the Economy conditions might subsequently weight the economy factors more heavily than the person factors. The results from this task, which are shown in Table 4, generally support our predictions. A MANOVA indicated that there is a significant main effect of Cause, $F(3,98)=4.39$, $p<.01$, and a significant interaction of Cause and Outcome,

$F(3,98)=3.82$, $p<.01$. Individual ANOVAs indicated the interaction is only significant for the economy category, $F(1,100)=6.51$, $MS_e=.76$, $p<.01$; and that there is a significant main effect of Cause for the economy category [$F(1,100)=10.39$, $MS_e=.76$, $p<.002$] and the product category [$F(1,100)=5.58$, $MS_e=.61$, $p<.02$]. As we predicted, subjects in the Economy conditions weighted the economy factors more heavily than the subjects in the Person conditions. In fact, they also weighted the product factors more heavily than subjects in the Person conditions. Although the mean factor weights for the person category are in the predicted direction (i.e., the subjects in the Person conditions assigned larger importance weights to the person factors than subjects in the Economy conditions), this difference was not statistically significant, $F(1,100)=2.37$, $MS_e=.82$, $p<.13$.

The interaction of Cause and Outcome for the economy factor category is quite interesting. Subjects in Person-Success condition weighted the economy factors more heavily than the subjects in the Person-Failure condition; whereas the subjects in the Economy-Success condition weighted the economy factors less heavily than the subjects in the Economy-Failure condition. One possible interpretation of this interaction is in terms of the necessity and sufficiency of the perceived causes. It is possible that subjects in the Person-Success condition might have thought that positive economic factors would be necessary for the car dealership to be a success so they weighted the economic factors relatively heavily; however, the subjects in the Person-Failure condition might have thought that the person alone was a sufficient cause for the car dealership to be a failure so they did not weight the economic factors very heavily. Similarly, the Economy-Success subjects might have thought that the economy was a necessary, but not sufficient, cause for the dealership to be a success (note that they weight the product factors quite heavily); but that the Economy-Failure subjects might have thought that the economy alone was a sufficient cause for the dealership to be a financial failure so they weighted economic factors more heavily. Although this interpretation is consistent with the pattern of assigned importance weights, other interpretations are also possible.

Prediction task. In the final task, subjects were asked to make predictions about how the 15 different factors would turn out in the future. We converted subjects' judgments to a 14-point continuous scale such that a high number indicates an optimistic judgment was made about that factor. As

in the Factor weighting task, we computed an average predicion for each category of factors (i.e., person, economy, and product) for each subject. The results from this judgment task are shown in Table 5.

We predicted that subjects who initially explained a success outcome would be more optimistic than subjects who initially explained a failure outcome. A MANOVA indicated there are significant main effects of both Outcome [$F(3,98)= 3.85$, $p<.01$] and Cause [$F(3,98)=2.78$, $p<.05$]. Individual ANOVAs indicated that although the means are in the expected direction for all three categories of factors, the only statistically significant difference for the main effect of Outcome is for the person category, $F(1,100)=7.61$, $MS_e=4.4$, $p<.01$. Subject who had initially explained a success outcome, subsequently made more optimistic judgments about the person (e.g., "He will be willing to work hard.") as compared to subjects who initially explained a failure outcome.

Table 5

Average predictions made by subjects for each category of factors from Experiment 1.

	FACTOR CATEGORY		
CONDITION	Person	Economy	Product
Control	9.9	6.3	8.4
Person-success	9.3	5.4	8.7
Economy-success	9.2	6.4	9.1
Success conditions	9.3	5.9	8.8
Person-failure	7.6	4.8	7.5
Economy-failure	8.7	5.6	8.4
Failure conditions	8.1	5.2	8.1
Person conditions	8.5	5.1	8.0
Economy conditions	9.0	6.0	8.9

We had not expected any differences on this task due to the original attribution of causality (i.e., the cause factor). Individual ANOVAs indicated that although the means for all three categories of factors are in the same direction, this effect is only statistically significant for the product category, $F(1,100)=6.01$, $MS_e=3.7$, $p<.02$. It appears that subjects who initially explained why the economy would determine the future of the car dealership subsequently made more optimistic judgments about the product

factors (e.g., "Ford's new cars will have quality workmanship.") as compared to subjects who initially explained why the person would determine the future of the dealership.

Summary of Experiment 1

The purpose of Study 1 was to determine if a decision makers' initial causal schema would affect their subsequent ability to generate alternative outcome scenarios. In particular, we were interested in whether subjects' initial explanation would determine which factors they would subsequently identify as causal factors. The results of this study suggest that after subjects have attributed a specified outcome (i.e., success or failure of the car dealership) to one particular category of factors (a person or the economy), their generation of alternative outcome scenarios is biased in that they tend to focus on the same factors which were present in their initial explanation. It appears that these factors become the salient differences in their causal field and that other potentially important factors are neglected to some extent.

The nature of the original outcome (i.e., success or failure) did not have a noticeable effect on the number of success scenarios or their associated likelihoods. Although a significant perseverance effect was found for the likelihood estimates which were made immediately following the subjects' initial explanations, subjects in the different conditions generated approximately equal numbers of success and failure outcome scenarios. Furthermore, we found no significant differences between the conditions for their likelihood estimates of these scenarios. This general finding is consistent with Pennington's (1981) research on outcome generations in hindsight and foresight judgments. Similarly, Slovic and Fischoff (1977) have found that asking subjects to generate alternative scenarios reduces the hindsight bias.

The factor weighting task and the prediction task, in which subjects made predictions about these factors, indicate that subtle differences between the conditions are present even after the subjects have generated many alternative outcome scenarios. Although the difference between the conditions are not very large for these tasks, it is quite surprising that any statistically reliable differences are found after subjects have been "forced" to consider alternative outcomes. By requiring subjects to generate alternative outcome scenarios we were encouraging them to formulate alter-

native schemata for organizing the available information. However, from the results of the data obtained in this study, it appears that the initial schema subjects form affects their subsequent assignment of importance weights and their subsequent predictions about future events.

EXPERIMENT 2

Experiment 1 demonstrated that requiring a decision maker to explain why a particular outcome might occur in the future affected his or her subsequent predecision behavior. We believe this finding is quite important because, as noted in the introduction to Experiment 1, "real world" decision makers experience a similar situation when they try to think of alternative outcomes which might result from a potential action. In Experiment 2, we attempt to determine why our subjects' initial explanations had such strong effects on their subsequent predecision behavior by exploring two of the cognitive mechanisms involved in the explanation task. Before discussing these particular mechanisms, we will review the explanation task itself.

Subjects were given a case description of the decision problem which contained various types of information about the car dealership and the young man who may decide to manage the dealership. The text included information about the young man's education, the local economy, the plight of the U.S. car industry, etc. (See Appendix A for a copy of the complete text). In the case description, we tried to present the important facts relevant to the success of the car dealership, but not make any inferences about the facts we presented. In fact, we tried to make these facts somewhat ambiguous so when subjects in the different conditions were constructing their initial explanations they might make different inferences from the same information.

Examination of the subjects' initial explanations in Experiment 1 indicated that subjects in the different conditions did make different interpretations of the data. For example, the young man's success in college was summarized in the text as follows:

> ". . . Brad had tried several different majors. He was getting D's in computer science so he changed into accounting where he made mostly C's. Brad eventually decided to major in marketing because he found his marketing courses to be interesting and he was able to make better grades than before."

A subject in the Person-Success condition used this information in their explanation in the following manner:

> "Brad is not a quitter and he proved that in his early college years. After failing in different majors he kept going on

strong until he graduated from college."

In contrast, a subject in the Person-Failure condition used the same information to make the opposite argument:

> "Brad seems to look for the easy way out of things. He couldn't do satisfactorily with his computer science or accounting majors--so he tried marketing . . ."

Although we found this aspect of the data collected in Experiment 1 to be very interesting, we were unable to develop a reliable coding system which captured the different inferences subjects made due to the ambiguity of their responses.

An inference mechanism. It is possible that the initial inferences the subjects draw from the information presented in the text may influence their subsequent predecision behavior. After subjects have interpreted the information presented to be consistent with their initial explanation, they may find it difficult to reinterpret the information in an objective manner. For example, once they have inferred that the young man is a "goof-off" in order to support a "Person-Failure explanation", it may be difficult for the subject to consider the possibility that the young man is actually a hard worker. Thus, the reason subjects' initial explanations have such powerful effects on their subsequent predecision behavior may be that subjects make inferences about the case based on the information presented in the text and then, once these inferences have been incorporated into their causal schemata, it is very difficult for them to reinterpret the information in an unbiased manner.

A selective encoding mechanism. There is another cognitive mechanism which might also explain the performance differences found in Experiment 1. It is possible that when subjects in the different conditions were told to explain different outcomes for the dealership, they selectively encoded different information from the text. For example, subjects who were asked to explain why the young man would cause the car dealership to succeed may have encoded the fact that he majored in business administration in college, but failed to encode the fact that he had gotten D's in computer science or that the local Chrysler dealership went bankrupt last year.

If subjects only encoded the information they thought was relevant to the initial outcome they were asked to explain, then this should bias their subsequent predecision behavior. For example, when the subjects in the Person conditions were trying to think of alternative outcomes, they might not have remembered the information presented about the local economy and so

did not include economy factors in their outcome scenarios. Although the subjects in Experiment 1 were allowed to refer back to the case description throughout the experiment, the experimenter noted that most subjects did not refer back to the text after they had completed their initial explanation.

Experiment 2 attempts to determine whether the effects demonstrated in Experiment 1 were due to inference or encoding biases by examining both the inferences subjects make after explaining a specified outcome and their memory for the original text. As in Experiment 1, subjects were told to explain a specified outcome before they made their own prediction about the future of the car dealership. After they had made their own prediction, they indicated the degree to which they agreed or disagreed with 20 inferences which could be drawn from the case description. Then they were given a surprise recall test in which they were asked to recall the facts presented in the case description. We predicted that subjects' original explanations would affect their subsequent performance on these tasks.

Method

Problem

Experiment 2 used the same decision problem as was used in Experiment 1 which involved a young man's decision to manage a car dealership.

Design

As in Experiment 1, two different causes (the person or the state of the economy) were crossed with two different outcomes (financial success or bankruptcy) in a 2 X 2 factorial design. A control group was also included in which subjects were asked to explain their own prediction about the future of the car dealership.

Subjects

Subjects were 120 male and female introductory psychology students who received course credit for participating in the experiment.

Procedure

As in Experiment 1, the experimental manipulation was imposed at the beginning of the experimental session. Subjects in each of the experimental conditions were given the text describing the case and were asked to explain why one particular outcome would occur in the future. Subjects were given 15 minutes to complete their explanation. After subjects had completed their explanations, the experimenter collected both the explanation and the text describing the case. Next, subjects were given a sheet of paper with the

same disclaimer used in Experiment 1 (". . . we actually have no way of knowing . . . [the future]. . . "). In Experiment 2, the experimenter read this disclaimer out loud to the subjects to insure they understood that we were now interested in their own predictions. The experimenter also suggested to the subjects that they should "take a few minutes and think about the case before making their prediction." A 14-point success/failure response scale appeared on the same sheet as the disclaimer. This scale was identical to the scale used in Experiment 1 which asked subjects to indicate their own prediction about the financial future of Simmons Ford. Thus, up to this point, the procedure for Experiment 2 essentially replicates Experiment 1. The only differences were that in Experiment 2, after the subjects' had completed their initial explanations, the experimenter emphasized that we were interested in the subjects' own opinions; and that subjects turned in both their explanations and the case description, whereas in Experiment 1 subjects were allowed to keep the case description during the entire experiment.

After subjects had made their own prediction about the success or failure of the car dealership, they were given a list of 20 inference statements. They were asked to read each inference statement very carefully before indicating the degree to which they agreed or disagreed with each statement by selecting a number on a 10 point scale where 1 was labeled "strongly disagree" and 10 was labeled "strongly agree." Each of the 20 statements was a possible inference which could be drawn from the facts presented in the case description. The 20 inferences included in the list were selected from the different inferences subjects in Experiment 1 had made in their initial explanations. For example, the list included statements such as "Brad is too young and inexperienced to be a good manager of Simmons Ford."

After the "inference task" data had been collected, subjects were given a surprise recall test. They were given a copy of the case description of the car dealership which had 38 different words or phrases missing through out the text. For example, the first line of the text read "Brad Simmons graduated from college in _____." Subjects were instructed to fill in the blanks with the correct words; they were also told that the length of the blank roughly corresponded to the number of words that were missing. Subjects were encouraged to guess if they were unsure of the exact wording.

Control condition.

The procedure for the control subjects was very similar to that described above for the subjects in the experimental groups. However, instead of being told to explain a specified outcome, control subjects were told to read the case description and then explain their own prediction about the future of the car dealership. In Experiment 1, the control subjects had simply been asked for "a brief explanation" of their prediction. In Experiment 2, the control subjects' instructions were very similar to the experimental subjects instructions in that they were told to spend 15 minutes writing a persuasive paragraph to support their prediction.

Results and Discussion

Success/failure rating. The results of the subjects' own predictions about the success or failure of the car dealership reflect a significant perseverance effect again replicating the results of Experiment 1 and other previous research (e.g., Ross et al., 1977). These results are shown in Table 6. An ANOVA indicated there is a significant main effect of the outcome specified, $F=28.49$, $MS_e=6.7$, $p<.0001$. As in Experiment 1, subjects who had initially explained a success outcome tended to make more optimistic predictions about the future of the car dealership than subjects who had initially explained a failure outcome.

The mean success/failure prediction for subjects in the control group was 6.3 for Experiment 2. The reader may recall that the mean success/failure prediction for subjects in the control group in Experiment 1 was 8.2. Thus, on the average, subjects in the control group in Experiment 2 made more pessimistic predictions than subjects in the control group in Experiment 1. This difference probably reflects the changes in the state of the economy in Oklahoma which occurred between the time the data was collected for the first experiment (Spring semester, 1982) and the time the data was collected for the second experiment (Spring semester, 1983). During this time, the bottom fell out of the domestic oil industry, one of the major industries in the state, and by the spring of 1983 Oklahoma was experiencing an economic recession.

Table 7

Mean responses to inference task from Experiment 2.

Statement	Control	Success	Failure	
1) Brad has a strong sense of responsibility.	6.0	6.7	5.4	**
2) The rate of unemployment in Greenwood will probably increase during the next few years.	5.7	5.4	6.3	
3) Brad is too young and inexperienced to be a good manager of Simmons Ford.	4.8	3.8	5.7	**
4) Greenwood is a good location for a Ford dealership.	5.3	6.7	5.3	**
5) The U. S. government will probably impose some type of trade restrictions on the importation of foreign cars.	7.0	6.6	6.2	
6) Brad probably knows a lot about Simmons Ford because his dad managed the dealership ever since Brad was born.	5.8	7.2	5.1	**
7) Simmons Ford is a well established business in Greenwood.	8.0	8.5	7.7	*
8) Brad looks for the easiest way to get by.	5.7	4.5	6.5	**
9) Simmons Ford will soon have a monopoly on U.S. car sales in Greenwood.	4.0	5.0	3.8	*
10) Brad is ambitious.	5.3	6.4	4.6	**
11) The U.S. auto industry will never be able to compete with foreign auto makers.	4.5	3.7	4.9	*
12) Brad's college education suggests that he is well prepared to be the manager of Simmons Ford.	4.9	6.5	4.3	**
13) Greenwood's economy appears to be "recession proof."	3.9	4.1	3.5	
14) Brad is the type of person who doesn't give up until he succeeds.	3.9	5.4	3.7	**
15) Simmons Ford's past success was primarily due to Tom Simmons' "workaholic" personality.	7.4	6.9	7.7	*
16) Brad will never be happy working at Simmons Ford.	6.6	4.8	7.1	**
17) The people in Greenwood will prefer American-made cars over foreign cars.	5.3	5.8	4.8	**
18) Brad is the type of person who is willing to make personal sacrifices for others.	6.3	6.7	5.6	*
19) The financial difficulties of the local Chrysler and Chevrolet dealerships suggests that Simmons Ford will soon be bankrupt.	4.9	4.8	5.5	
20) Brad is lazy.	4.1	3.7	4.7	*

* $p<.05$

** $p<.01$

Table 6

Means ratings for subjects's own predictions about the success or failure of the car dealership from Experiment 2.

		OUTCOME SPECIFIED	
		Success	**Failure**
ATTRIBUTION OF CAUSALITY	Person	7.8	5.6
	Economy	9.2	5.7
	Mean	8.5	5.7

Another possible explanation of the differences between the control groups in the two experiments concerns the small change made in the procedure. Whereas subjects in the control condition of the first experiment were asked to briefly explain their own prediction about the case, subjects in the control condition of the second experiment were told to write a persuasive paragraph to support their prediction. Although this could possibly account for the observed differences, it is not at all clear why it would cause subjects in Experiment 2 to become more pessimistic.

Inference task. Subjects' responses to the inference task were analyzed using a 2 X 2 MANOVA with Cause (Person or Economy) and Outcome (Success or Failure) as independent variables, and the 20 statements as dependent variables. This analysis indicated that there was a significant main effect of Outcome, $F(20,73)=4.42$, $p<.0001$. There was no significant main effect of Cause, nor was the Cause X Outcome interaction significant.

The mean responses for the inference task are shown in Table 7. The data have been collapsed across the Cause factor; thus the means in the Success column represent the data for both the Person-Success and Economy-Success conditions, and the means in the Failure column represent the data for both the Person-Failure and Economy-Failure conditions. The data from the control condition are also included in Table 7. Larger numbers indicate that on the average the subjects in that condition tended to agree with that statement.

Examination of these data indicate that subjects in the Success conditions tended to agree with statements that reflect positive inferences which could be drawn from the data presented in the case description, whereas subjects in the Failure conditions tend to agree with statements that reflect negative inferences. For example, Success subjects are more likely to agree with the positive inference that "Brad has a strong sense of

responsibility" as compared to Failure subjects; whereas Failure subjects are more likely to agree with the negative inference "Brad looks for the easiest way to get by" as compared to Success subjects. Individual ANOVAs were conducted on each of the 20 statements. The results of these analyses are summarized in Table 7. There were significant main effects of the Outcome specified in the subjects' initial explanation (Success versus Failure) for 16 of the 20 statements.

The results of the inference task indicate that once subjects have explained a successful prediction, they subsequently have a strong tendency to agree with positive inferences about factors related to the initial prediction. Similarly, once subjects have explained a failure prediction, they subsequently have a strong tendency to agree with negative inferences. This result is not affected by the type of factor (Person or Economy) to which subjects attributed the initial outcome. That is, it does not matter whether subjects initially attributed the success of the car dealership to the person or the economy, they will subsequently agree with more positive inferences about both the person and the economy as compared to subjects who initially explained a failure outcome. These data suggest that having subjects explain one particular outcome affects the kind of inferences they will make from the original information they were presented.

Recall task. The data from the surprise recall test was examined to determine if subjects in the different conditions had differential recall of the information presented in the case description. Each subjects' protocol was scored in terms of both a strict criterion (exact recall) and a more lenient criterion (partial recall). In order to receive credit for the exact recall measure, the subject had to fill in the blank with the exact words which were missing. For the partial recall measure, the subject received credit for filling in the blank with either the exact wording or wording which preserved the meaning of the original text. For example, for the partial recall measure, the subject's protocol was scored as being correct if the missing words were "slightly below" and the subject had written "below" or "a little below," however, his or her protocol was scored as incorrect if he or she had written "above."

The two memory scores for each subject were analyzed in a 2 X 2 MANOVA with Cause (Economy or Person) and Outcome (Success or Failure) as the independent variables. This analysis indicated there was a reliable main effect of Outcome, $F(2,910)=4.52$, $p<.01$; but no main effect of Cause nor an

interaction between Cause and Outcome. Individual ANOVAs indicated that subjects in the Success conditions had better recall for both the exact, $F(1,92)=8.92$, $MS_e=18.3$, $p<.004$, and partial recall measures, $F(1,92)=4.94$, $MS_e=24.1$, $p<.03$, than subjects in the Failure conditions. The average percent correct recall scores for the Success, Failure and control conditions are shown in the rows labeled "Entire Text" in Table 8.

Table 8

Percent correct recall scores for subjects in Experiment 2.

EXACT RECALL MEASURE

	Condition		
	Success	**Failure**	**Control**
Entire text	43.4	36.6	43.2
Paragraph describing:			
1. Brad's education	62.5	49.2	59.2
2. Local economy	47.1	38.6	41.4
3. Simmons Ford	33.3	30.0	36.7
4. Local car dealerships	30.0	28.3	35.0
5. Brad's career aspirations	30.0	26.7	33.3
6. Future of U.S. car industry	27.5	27.5	32.5
7. Brad's obligation to his family	33.3	26.7	30.0

PARTIAL RECALL MEASURE

	Condition		
	Success	**Failure**	**Control**
Entire text	76.8	71.1	78.4
Paragraph describing:			
1. Brad's education	85.8	77.5	85.8
2. Local economy	62.9	54.3	65.7
3. Simmons Ford	66.7	66.7	73.3
4. Local car dealerships	80.0	76.7	86.7
5. Brad's career aspirations	76.7	73.3	70.0
6. Future of U.S. car industry	80.0	72.5	52.5
7. Brad's obligation to his family	76.7	73.3	76.7

Note that although the average correct recall scores for the exact recall measure are not very high (they range from 37-44 percent for the different conditions), the partial recall scores are quite good (they range from 71-78 percent). These scores indicated that most of the subjects were able to recall about three-fourths of the material from the original case description.

In order to determine if subjects in the different conditions had differential recall for different types of information as would be predicted by a selective encoding mechanism, we analyzed the recall data by paragraph.

The information presented in the case description was organized into seven paragraphs; each paragraph discussed different types of information relevant to the future success of the dealership. For example, the first paragraph discussed the young man's educational background, the second paragraph discussed the local economy in Greenwood, Missouri, etc.

Exact and partial recall scores were computed for each of the seven paragraphs for each subject. The means for these measures are also shown in Table 8. Two separate 2 X 2 MANOVAs were done for the exact recall scores and the partial recall scores using the scores for the seven different paragraphs as the multiple dependent variables and Cause and Outcome as the independent variables. These analyses indicated there is a significant main effect of Outcome for the exact recall scores, $F(7,86)=2.39$, $p<.03$, but not for the partial recall scores. Individual ANOVAs were done on the exact recall scores for the seven different paragraphs. These indicated that there is only a significant main effect of Outcome for the information presented in the first paragraph, $F(1,92)=15.4$, $MS_e=4.2$, $p<.001$. Subjects in the Success conditions tended to have better exact recall of the information presented in the first paragraph. This information was primarily concerned with the young man's educational background. However, because there were no reliable differences between conditions for the partial recall measure, the differences found for the exact measure should be interpreted with caution.

The data from the recall memory task indicate that subjects had fairly good recall of the original case description and that there are only small differences between the experimental conditions in terms of subjects' ability to recall the missing information. These differences reflect a tendency for the subjects in the Success conditions to have somewhat better recall of the information, especially the information presented in the first paragraph.

It is not clear whether the differential recall observed for the information in the first paragraph is due to the type of information contained in that paragraph (i.e., information about the young man's education) or simply an elevation of a "primacy effect" for the Success conditions. It is clear, however, that there is little support for a selective encoding explanation of the results found in Experiment 1. Instead, there is clear evidence implicating the persistence of the initial inferences that subjects make from the case-history data.

Conclusions

In the present investigation we examined the role of causal explanation in the predecision process of outcome generation. We attempted to simulate the way decision makers' prior beliefs and expectations may affect their ability to generate alternative outcomes and their ability to evaluate these outcomes in an unbiased manner. We propose that when a decision maker thinks of one of the possible outcomes which might result from taking a particular action, he or she constructs a mental model or causal schema which specifies the cause and effect relationships that exist between the factors relevant to the outcome. Once this schema has been constructed, it may affect the decision maker's subsequent predecision behavior.

The results of Experiment 1 indicate that after decision makers have explained why one particular outcome may occur in the future, their subsequent predecision behavior is biased to some extent. After subjects attributed a specified outcome (i.e., the success or failure of the car dealership) to one particular category of factors (i.e., a person or the economy), they tended to focus on this same category of factors in their subsequent outcome generation behavior and they also tended to assign greater importance weights to these factors. These results suggest that once the decision maker has attributed the cause of a future event to one of many possible factors, this factor becomes a very salient difference in their causal field and they tend to neglect other potentially important causal factors in their subsequent predecision behavior.

We were interested in determining if the nature of the initial outcome (i.e., success or failure) might also bias subsequent outcome generation behavior. Intuitively, it seems quite likely that if a decision maker has strong expectations that the outcome of a particular action will be positive, it may be very difficult for him or her to think of negative outcomes for that action. The data from the outcome generation task in Experiment 1 do not support this intuition. Subjects in all conditions generated equal numbers of success and failure outcome scenarios. This may reflect demand characteristics of the generation task. Although subjects were not explicitly instructed to generate both success and failure scenarios, the instructions for the scenario generation task included examples of both success and failure outcome scenarios and this may have predisposed subjects to generate both types of outcome scenarios.

In Experiment 2 we explored two of the possible cognitive mechanisms

which might have produced the effects found in Experiment 1. We propose that when subjects formulated their original explanation they had to encode the information presented in the case description of the car dealership and, because of the ambiguous nature of the information provided, they also had to interpret the facts which were presented in the case description.

Subjects might encode different types of information from the case description depending on their experimental condition. However, the results of the surprise recall task given in Experiment 2 do not support selective encoding. Once the information presented in the case description had been interpreted to support one particular outcome (e.g., Person-Success), subjects' might have difficulty reinterpreting the information in an unbiased manner when they were subsequently asked to make inferences based on the original information. The results of the inference task in Experiment 2 support the explanation that the perseverance effect is due to the initial inferences. Subjects who had originally explained a success outcome subsequently made more positive inferences than subjects who originally explained a failure outcome.

Considering the combined results of Experiments 1 and 2, it appears that after subjects have explained one particular outcome, their subsequent predecision behavior is biased; and that these biases cannot simply be attributed to selective encoding of the original information. Instead, it appears that subjects may make inferences based on the original information they were presented, and once these inferences have been formed they persist and affect subsequent judgments.

The results of this investigation have important implications for decision analysis. To the extent that we have been able to simulate the way a decision maker's prior beliefs and expectations influence his or her subsequent predecision behavior, our research suggests that the decision analytic approach to problem structuring may need to be revised. In decision analysis, a client is usually asked to identify the different outcomes which might result from taking a particular action. This process is by necessity a serial process in which the decision maker generates one outcome at a time. Our results suggest that the cognitive processes involved in generating the initial outcome for such an analysis may cause certain inferences to be made and may define differences in a particular causal field. Subsequent outcomes tend to be generated using these inferences and differences in the causal field, and the mental model thus created tends to persist.

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APPENDIX A

Brad Simmons graduated from college in 1978. He received a degree in business administration with a specialization in marketing. During his first few years of college, Brad had tried several different majors. He was getting D's in computer science so he changed into accounting where he made mostly C's. Brad eventually decided to major in marketing because he found his marketing courses to be interesting and he was able to make better grades than before. Brad had hoped to get a job with one of the big marketing research firms after he graduated. However, a few months before graduation, Brad's father suffered a serious heart attack.

Tom Simmons, Brad's father, owned the Ford dealership in Greenwood, Missouri. Greenwood has a population of about 40,000. The closest big city is Springfield which is 90 miles away. The major sources of employment in the Greenwood area are the General Electric plant which manufactures microwave ovens and the Towmotor plant which makes fork lifts. Currently, the unemployment rate in Greenwood is slightly below the national average.

Simmons Ford used to be a very profitable business. Mr. Simmons started the dealership back in the 50's when Greenwood was not much more than an isolated rural community. Through a great deal of hard work, he has built it into the largest automobile dealership in Greenwood.

In the past few years the sales of American-made cars has steadily declined. Fewer people can afford to buy cars when there is a high rate of inflation. The local Chrysler dealer declared bankruptcy last winter and now the Chevrolet dealership is in financial trouble. The only car dealership which is thriving in Greenwood these days is the new Toyota dealership which opened two years ago.

After Mr. Simmons had his heart attack, Brad's parents asked Brad to abandon his own career plans and help his dad with the family business. Mr. Simmons had always wanted Brad to be part of the business, but Brad always argued that he should get some "outside experience" first. Actually, Brad never had any intentions of working at Simmons Ford. After seeing how hard his father had worked all these years, Brad had decided that it was not the kind of life he wanted for himself.

The future for American-made cars is uncertain. The American car industry is trying to make its new line of cars more competitive with foreign cars in terms of economy and quality. Some Americans still prefer the

larger, luxury cars which have traditionally been the mainstay of the American auto industry. It is possible that the U.S. government may start to regulate the number of foreign cars which can be imported into the U.S. during any given year.

When Brad graduated from college, he did not consider the prospect of taking over Simmons Ford to be an "ideal" job. However, he felt a sense of obligation to his family and so he went to work with his dad. Mr. Simmons suffered a fatal heart attack in February, 1982. Now, the Ford Motor Company has asked Brad to try to manage the dealership on his own.

November 1983

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