Two experiments were conducted to test the effects of making an attribution on later memory for the event that gave rise to the attribution. Subjects in Experiment 1 observed a scenario in which an actor's behavior was associated with high or low variance (distinctiveness) across situations, and high or low congruence (consensus) to the actions of others. Subjects either made attributions for the actor's behavior immediately following the scenario or not. One week later, subjects were asked to recall consensus and distinctiveness for the actor's original behavior. Subjects who made attributions were significantly better at estimating the high-high and low-low combinations of consensus and distinctiveness than were their no-attribution counterparts. It was suggested that making an attribution may allow for a reconstructed memory for the original event, but not enhance direct access to the original event information. A second experiment tested this concept further by having subjects view an edited version of the scenario in which either the distinctiveness or the consensus information was deleted and having subjects make attributions or not. One week later, subjects were asked to indicate their certainty that consensus and distinctiveness information was a part of the original scenario and to estimate the levels of consensus and distinctiveness. Subjects who made attributions were more confident and accurate in estimating the level of consensus or distinctiveness that was given in the original scenario than were no-attribution subjects. However, attribution subjects were also more confident that consensus information or distinctiveness information was contained in the scenario (when it was not) than were the no-attribution subjects. Results of the two experiments suggest that eliciting attributions can distort subsequent memory for the event on which the attributions were based.

The main thrust of attribution research in social psychology has been one of delineating the effects of certain variables (e.g., the distinctiveness of an actor's behavior) on subsequent attributions (e.g., observers' at-
tributions of cause to the actor or the environment). Although attribution researchers have identified a number of variables that have reliable effects on causal attributions made by an outside observer (Wells, 1981), little is known about how attributions affect subsequent cognitive processes. The cognitive consequences of having made an attribution represent an important link in the theoretical chain that might eventually relate attributions to behavior.

A basic question about the effects of making an attribution concerns how attributions might affect memory for the event that gave rise to the attribution. There have been recent studies of how memory, availability, accessibility, and so on affect attributions (e.g., Ferguson & Wells, 1980; Smith & Miller, 1979). The effect of attributions for a behavioral event on subsequent memory for the event, however, is an open question.

How might attributions affect memory? One possibility is that a request for an attribution directs attention toward, or produces a retrieval of, the causally relevant information. This, in turn, creates a type of elaborative rehearsal of the attribution-relevant information. Elaborative rehearsal leads to deeper processing and thus to enhanced retention (Craik & Lockhart, 1972). Although manipulations of elaboration strategies typically occur prior to initial exposure to the stimulus information it is believed that elaboration during a retention interval also enhances memory (Craik and Lockhart, 1972). Thus, attributional requests might improve memory for the information on which the attribution was based.

Another possibility is that attributions are stored as inferences that can then serve as cues or heuristics for generating a reconstructed memory (according to Bartlett, 1932). The reconstructive memory hypothesis operates on the assumption that people have schema or prototypes for personal and situationally caused events and that given the activation of a schema, people will later use the schema as a basis for their memory of the event. There is considerable evidence that people can infer or construct event information from knowing the nature of the attribution (e.g., Orvis, Cunningham, & Kelley, 1975) and that schemata can affect recognition memory for social information (Snyder and Uranowitz, 1978). Furthermore, there are studies of person memory indicating that the judgments one makes about a person affect one’s memory for the characteristics that gave rise to the judgment (see Ostrom, Lingle, Pryor, & Geva, 1980).

The levels of processing and the reconstructive memory processes are importantly distinct. The levels of processing hypothesis can be characterized as a “direct access” process. If this process is operative, then eliciting attributions should directly improve memory for any event information that is relevant to the attribution process. That is, memory for the information is not mediated by the type of attribution that is made. The reconstructive memory process, however, is an “indirect
access” model because memory for the attribution-relevant information is mediated by retrieving the attribution and inferring the relevant event information. Thus, the reconstruction process predicts that there should be an influence for the type of attribution that is made. The reconstruction viewpoint leads to the expectation that an ambiguous or complex attribution (i.e., one that does not clearly implicate either situational or personal causality) should not produce good memory for event information compared to that produced by a simple attribution (i.e., one that clearly implicates personal or situational causality).

The first experiment was designed to see whether eliciting attributions under variations in attribution-relevant event information had effects on memory for the relevant event information. There are studies in person memory that indicate that the judgments one makes about a target person affect memory for the target person’s characteristics (e.g., Carlston, 1980; Ostrom et al., 1980). These studies, however, involved judgments of social categories (e.g., occupational classifications or trait inferences) rather than causal attributions. Furthermore, the person memory work typically involves the manipulation of inferences prior to or during the presentation of the stimulus information. The current work, however, involves manipulating whether or not inferences (attributions) are made after the stimulus information is presented.

EXPERIMENT 1
Overview

Subjects observed a videotaped behavioral scenario and either made attributions or did not. Subjects were unaware that their memory for the scenario would be tested one week later. Previous research (e.g., Enzle & Schopflocher, 1978) has shown that the explicit elicitation of attributions engages attributional processing that might not occur otherwise. Thus, eliciting attributions served as the manipulation of engaging attributional processing. There were four versions of the scenario: the main actor’s behavior was associated with either high or low variance (distinctiveness) across situations and either high or low congruence (consensus) with the actions of others in that situation. Previous research has shown that high distinctiveness in behavior results in observers making greater external attributions (e.g., stimulus, circumstances) and lesser attributions to the actor’s internal characteristics (e.g., stable disposition) than does low distinctiveness (e.g., McArthur, 1972, 1976; Hansen & Lowe, 1976). Previous research has also shown that high consensus for an action results in observers making greater external attributions and lesser attributions to the actor’s internal characteristics than does low consensus (e.g., Hansen & Donoghue, 1977; Kassin, 1979; Lowe & Kassin, 1977; Wells & Harvey, 1977, 1978).
Subjects

Participants were 93 students from various sections of an introductory psychology course. Their participation was part of a course option. None had been previously exposed to attribution theory or any other aspects of social psychology as such material is not taught until the end of the term. Eighty-two participants completed both sessions of the experiment.

Procedure

Participants arrived in groups ranging in size from 3 to 5. On arrival, all subjects were informed that they would watch a videotaped scenario depicting a day in the life of a student. Participants were asked to pay close attention because they would be asked questions later.

Prior to viewing the scenario, subjects were informed that a mistake had been made on their original sign up. They had originally signed up for a 2-credit (2 hr) experiment, one to be taken now and the other to be taken 1 week hence. It was explained that this was only a 1-credit experiment, but since they had signed up for a 2-credit experiment and because experiments are often hard to schedule, the experimenter had arranged for all to participate the next week as scheduled, but in a different experiment. Anyone who didn’t want to be scheduled for the other experiment could so indicate at this time. Eight chose to find their own experiment. The remainder chose to take advantage of the fact that the experimenter had scheduled them for another experiment. This cover story (i.e., that the session for the next week was a different study) was given to prevent active rehearsal of the information in the first session.

Scenario. The scenario opened with a student, identified as Tom, who was sitting in a large classroom with approximately 210 other students. It was apparent that a lecture was in progress and that it was about to end (the instructor said, “OK, next time we shall discuss . . .”). Before the instructor dismissed the class, Tom stood up and boldly caught the attention of the instructor by saying “Dr. Stern, what is the relevance of this material? It also doesn’t seem to have any context or . . . well . . . any usefulness.” The instructor remarked that he would have something to say about that at the beginning of the next class period. Approximately 3 min passed in the scenario while students in the scenario gathered their books, conversed, and exited into a rotunda. Although most students left, a group of 12 others stood in the rotunda and talked. The information in the conversations constituted the manipulations of consensus and distinctiveness. The high-consensus manipulation was achieved by having one student remark to the group of 12 that “I think everyone in that class concurs with Tom’s assessment” which was followed by a second person who said, “C’mon, not everyone” to which the first person replied. “Well, not everyone, it’s a big class. Almost everyone.” The low-consensus manipulation was achieved by having the first person remark, “I don’t think that anyone in that class concurs with Tom’s assessment” which was followed by a second person who said, “C’mon, someone probably does” to which the first person responded, “Well, someone probably does, it’s a big class.” After the first person made his second remark, the camera panned the reactions of the other people in the group who were nodding in agreement, thus giving further credibility to the high- or low-consensus statement. The low-distinctiveness manipulation was achieved by having yet a third person from the group of 12 remark that “Tom asks that question in all of his classes as far as I can tell.” The high-distinctiveness manipulation was achieved by having the person remark that “I have never heard Tom do something like that.” Again, the camera panned reactions of the group and displayed the fact that people generally agreed with the comment.

There were several other topics of conversation between individuals in the group that
served as filler material. For example, two people discussed their schedules for the remainder of the day, one person remarked that Tom made a lot of money working as a computer programmer, one person noted that the term was almost half over, and one person remarked to the entire group that Dr. Stern was teaching only one course this term.

**Attribution questions.** Prior to each session it was randomly determined whether subjects would be under the Attribution conditions or the No-attribution conditions. Subjects under the Attribution conditions were asked the following 4 questions immediately after observing the scenario: To what extent was Tom’s voice “quivering” when he stood up to make his statement? (1, none; 7, very much); To what extent do you believe that Tom is well known on campus? (1, not known at all; 7, very well known); To what extent do you believe that Tom’s behavior was caused by his personal characteristics, such as his attitude, personality, etc.? (1, none; 7, very much); To what extent do you believe that Tom’s behavior was caused by characteristics of that situation, such as Dr. Stern’s (the instructor’s) particular approach to teaching or other circumstances surrounding that particular course? (1, none; 7, very much). The latter 2 items were the causal attribution questions which were deleted in the No-attribution conditions. In place of these 2 items, the No-attribution condition subjects were asked How long do you think Tom has attended University? (1, not long; 7, very long); and How often do you think Dr. Stern’s (the instructor’s) class meets? (1, seldom; 7, frequently). Subjects were told to take great care in answering each question.

At this point the subjects were partially debriefed by being told that we were interested in the inferences people make from limited information. They were then given a code name for retrieving an article on the topic, which would be placed on reserve in a campus library, that would give them a better understanding of the study. They were told that the article would be on reserve by a date that was always 10 days in advance of the current date, a statement that was true. This kept subjects from learning about the specific interest of the study prior to the second session.

**Second session.** As noted earlier, 8 of the 93 first-session participants chose to find their own second experiment. An additional 3 participants did not show up for the second session. The participants arrived in groups ranging in size from 2 to 5 at a room that was different from that of the first session. On arrival, participants were informed that the two experiments were in fact related and that we were interested in what they remembered about the videotaped scenario. All participants answered the following 4 questions: To what extent did other members of the class concur with Tom’s assessment that the lecture material lacked relevance, context, and usefulness? To what extent is Tom prone to argue lack of relevance, context, and usefulness in all of his courses? How much money has Tom made working as a computer programmer? How many courses was Dr. Stern (the instructor) teaching this term? The questions were placed on 7-point scales with endpoints labelled “not at all . . . totally”, “not at all . . . very much”, “very little . . . very much”, and “1 course . . . 7 courses”, respectively. After responding to these questions, participants were plenarily debriefed and dismissed.

**Results and Discussion**

**Manipulation Checks (Session 1)**

Separate $2 \times 2$ analyses on the personal and situational attribution items measured in Session 1 showed the expected main effects for con-

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1 Subjects at the University of Alberta are familiar with this reserve-reading procedure which is required of all experiments. Subjects are later tested over what they learned from the reserve article and the experiment in an exam administered in conjunction with their final exam.
TABLE 1
EFFECTS OF DISTINCTIVENESS AND CONSENSUS MANIPULATIONS ON PERSONAL AND SITUATIONAL ATTRIBUTIONS (EXPERIMENT 1, SESSION 1)

<table>
<thead>
<tr>
<th></th>
<th>Low consensus</th>
<th>High consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal attributions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low distinctiveness</td>
<td>5.20</td>
<td>3.71</td>
</tr>
<tr>
<td>High distinctiveness</td>
<td>3.53</td>
<td>2.90</td>
</tr>
<tr>
<td><strong>Situational attributions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low distinctiveness</td>
<td>1.96</td>
<td>3.19</td>
</tr>
<tr>
<td>High distinctiveness</td>
<td>3.26</td>
<td>4.78</td>
</tr>
</tbody>
</table>

Note. Higher means represent greater personal or situational attributions. Scales range from (none) to 7 (very much).

sensus, $F$'s (1, 38) = 4.6 and 5.1, respectively, $p$'s < .05, and for distinctiveness, $F$'s (1, 38) = 4.7 and 5.3, respectively, $p$'s < .05. The pattern of these main effects are shown in Table 1. Neither interaction was significant ($F$'s < 2.1). The 2 nonattribution items were unaffected by the manipulations of consensus and distinctiveness ($F$'s = 1.7 and 2.8, $p$'s > .10).

Memory Measures (Session 2)

Each of the 4 memory measures was analyzed as a 2 (consensus) $\times$ 2 (distinctiveness) $\times$ 2 (attribution elicited, no attribution elicited) between-subjects analysis of variance. As expected, there were no significant effects for conditions on the subject’s memory of how much money Tom was making or how many courses Dr. Stern was teaching. However, on the memory-for-consensus measure there was a significant main effect for consensus, $F(1, 74) = 5.12$, $p < .05$, a significant Consensus $\times$ Attribution elicitation interaction, $F(1, 74) = 6.71$, $p < .05$, and a significant Distinctiveness $\times$ Attribution elicitation interaction, $F(1, 74) = 4.21$, $p < .05$. All of these effects are modified by the significant 3-way interaction on the memory-for-consensus measure, $F(1, 74) = 6.21$, $p < .05$. A similar pattern of results was obtained on the memory-for-distinctiveness measure, namely, significant main effects for consensus and distinctiveness, as well as significant Consensus $\times$ Attribution and Distinctiveness $\times$ Attribution interactions and a 3-way interaction. $F$'s (1, 74) = 4.87, 4.62, 5.11, 4.18 and 5.57, all $p$'s < .05. Means for these analyses are shown in Table 2.

The subscripts in Table 2, derived from a Newman–Keuls analysis, indicate that neither consensus nor distinctiveness information affected memory for consensus or distinctiveness in the no-attributions-elicited conditions. When attributions were elicited, however, there were relatively robust effects on memory for consensus and distinctiveness.

A close examination of the attributions-elicited conditions in Table 2
Table 2

<table>
<thead>
<tr>
<th></th>
<th>Memory for consensus</th>
<th>Memory for distinctiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High consensus</td>
<td>Low consensus</td>
</tr>
<tr>
<td>No attributions elicited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High distinctiveness</td>
<td>3.90</td>
<td>3.73</td>
</tr>
<tr>
<td>Low distinctiveness</td>
<td>4.09</td>
<td>4.10</td>
</tr>
<tr>
<td>Attributions elicited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High distinctiveness</td>
<td>5.90</td>
<td>3.91</td>
</tr>
<tr>
<td>Low distinctiveness</td>
<td>4.20</td>
<td>2.10</td>
</tr>
</tbody>
</table>

*Note.* Means within a type of recall that do not share a common subscript differ at $p < .05$ using the Newman-Keuls procedure. Higher numbers represent higher levels of distinctiveness or consensus from 1 (not at all) to 7 (totally).

shows that there were significant effects for consensus information and distinctiveness information on subjects' memory for that information. Interestingly, however, consensus information also affected the subjects' recall of distinctiveness, and distinctiveness information affected the subjects' recall of consensus. In particular, each 2 x 2 (i.e., one for consensus recall and one for distinctiveness recall) in the bottom half of Table 2 shows two main effects. It appears that whenever the information is inconsistent (when consensus is high and distinctiveness is low or vice versa) there is no ability to accurately recall either consensus or distinctiveness information.

These results can be related to the original question regarding the effects of making an attribution on subsequent recall. First, there is evidence that eliciting attributions for an event can affect recall for the relevant event-information. It does not simply improve memory for relevant information in a general sense, however, but seems to provide a selective enhancement of those memories. When the event involved high consensus combined with low distinctiveness or vice versa there was no benefit for having elicited attributions. In fact, subjects seem to have no ability to remember this attributionally inconsistent information. The depth-of-processing notion in its elaborative-rehearsal form would seem to be unable to account for why elicitation of attributions affected only the consistent information (i.e., high-high or low-low levels of consensus and distinctiveness information, but not the high-low combinations). Furthermore, there is evidence that inconsistent information is processed more deeply (i.e., involves greater elaboration) and should, therefore, be better remembered than consistent information (e.g., Hastie & Kumar,
The fact that the opposite occurred in Experiment 1 is further evidence that the depth-of-processing notion, as discussed earlier, is not the process involved in these results.

How can this interaction effect between the consistency of the event information and the elicitation of attributions be explained? One possibility is that the elicitation of an attribution allows one to work backward from memory for the attribution to inferences of what the levels of consensus and distinctiveness "must have been." This is not possible, of course, when one's attributions are ambiguous. As noted in Table 1, the high-low and low-high combinations yielded no clear attributional tendency toward person or situational causality. These are precisely the conditions that produced poor memory and this suggests that subjects may be using the reconstructive process described earlier.

To the extent that the reconstructive memory model is correct, it might be expected that subjects' memorial reports would align better with their attributions than with the original event information. A correlational analysis provides evidence consistent with this in that the subjects' estimated levels of consensus and distinctiveness were more highly correlated with their attributions (average correlation, corrected for directionality, = .59, df = 40) than with the actual information levels provided (average correlation = .18, df = 40, which is significantly different from .59 at p < .05).

The data in Experiment 1, therefore, seem consistent with a reconstructive memory interpretation and not, as discussed previously, with a levels of processing conceptualization. Bartlett's (1932) view of reconstructive memory is characterized in his chapter "A theory of remembering" where he argues that "when a subject is being asked to remember, very often the first thing that emerges is something of the nature of an attitude. The recall is then a construction, made largely on the basis of this attitude, and its general effect is that of a justification of the attitude" (Bartlett, 1932, p. 207). In the current study Bartlett's argument could be rephrased as follows: When a person is being asked to remember information from a behavioral event, the person might first remember their attributional impressions. This is especially true if attributions were previously elicited and thereby readily available in memory. The recall of the event information is then a construction, influenced by the attribution, and its general effect is the generation of information consistent with the attribution.

This view of the effect of attributions on memory has a strong intuitive appeal. Experiment 1, however, does not provide all the evidence necessary to implicate this reconstructive memory viewpoint. Bartlett (1932) argued that there should be evidence that the individual is somehow acting to "construct or to infer from what is present the probable constituents" in that "this and this must have occurred, in order that my
present state should be what it is” (p. 202). Bartlett reasoned that one needed evidence “that they (subjects) display invention” to support the reconstructive view of remembering.

EXPERIMENT 2

As noted above, one characteristic of reconstruction processes is that reconstruction need not be veridical. Reconstructive memory is a process of filling memorial gaps through plausibilities determined by socialized knowledge, truisms or inferences that one recalls having made. Thus, if a person were to receive information about high consensus for an action but no information about distinctiveness, any later reports from the person indicating that the original information included high-distinctiveness information would indicate support for the reconstructive process. This is because high-consensus information leads to a situational attribution as the cognitive store, later resulting in an inability to distinguish between high consensus and high distinctiveness as having been the source of the attribution. In effect, this kind of procedure would be a probe for “invention” (as in Bartlett, 1932) or “false alarms,” i.e., reports that one had stimulus information that in fact was absent. If the reconstructive process is operative, the presentation of only one bit of information should produce false recollections of having been presented another bit of information and this should be most pronounced when an attribution is explicitly elicited (as in Experiment 1). A more precise criterion for evidence supporting the reconstructive-process viewpoint is that the memory be consistent with the attribution. Thus, the elicitation of attributions should not only produce reports of having been given consensus information when in fact only distinctiveness information was given (and vice versa), but the levels should also match one another. That is, high consensus, low consensus, high distinctiveness and low distinctiveness presented singly should produce faulty reports of having been presented high distinctiveness, low distinctiveness, high consensus and low consensus, respectively.

The scenario used in Experiment 1 was edited so as to delete either the consensus or the distinctiveness information yielding 4 different scenario versions: high consensus, low consensus, high distinctiveness, or low distinctiveness. Subjects either made attributions following the scenario or did not, and were tested 1 week later for their memory for the original scenario. Because it was necessary to probe subjects’ memories for information that was not contained in the event (e.g., ask about consensus information in the distinctiveness-only conditions), some questions were phrased in terms of each subject’s “confidence” that such information was presented. The confidence measure was chosen over alternatives such as “was information of type X in the videotaped scen-
ario?" because data from the latter would be dichotomous and potentially less sensitive than the scaled confidence measure.

A strict interpretation of the reconstructive memory conceptualization as developed herein predicts a main effect of eliciting attributions on the confidence measures for consensus and distinctiveness. That is, if eliciting attributions serves to activate a person or situation schema that is later used to recall event information, then the "recall" should not differentiate between consensus and distinctiveness as being part of the event information. If only high-consensus information was contained in the event, for example, the activation of a situational schema should produce inflated confidence that consensus information was presented and inflate confidence that distinctiveness information was presented.

Method

Subjects

Participants were 81 male and female students who participated for partial fulfillment of their introductory psychology course requirement. None had been previously exposed to attribution theory. Participants signed up for 2 credit hours as in Experiment 1 and their participation proceeded as in Experiment 1. One of the participants did not take the second experimental session option and 2 others did not show up for the second session, leaving a total of 78 participants.

Procedure

Session 1. The procedure was identical to that followed in Experiment 1 except that the videotaped scenarios were edited to produce 4 conditions: high consensus, high distinctiveness, low consensus, or low distinctiveness. Attributions were elicited from half of the subjects in each condition as in Experiment 1. The dependent measures in Session 1 were identical to those in Session 1 of Experiment 1.

Session 2. The procedure was similar to that of Session 2 in Experiment 1 except that the dependent measures of memory for the original information were formatted somewhat differently. Specifically, all subjects were asked the following 8 questions in this order: How confident are you that last week's scenario specifically included a statement regarding whether other people felt the way that Tom did, namely that the lecture material lacked relevance, context, and usefulness? (1, not at all; 7, totally); To what extent did other members of the class concur with Tom's assessment that the lecture material lacked relevance, context, and usefulness? (1, not at all; 7, totally); How confident are you that last week's scenario specifically included a statement regarding how much money Tom made as a computer programmer? (1, very little; 7, very much); How confident are you that last week's scenario specifically included a statement regarding how long Tom has lived on campus? (1, a short time; 7, a long time); [This last item was changed from that asked in Experiment 1 so that it could measure a potential "false alarm," comparable to that predicted for consensus or distinctiveness. That is, it was not a part of the scenario.] After responding to these questions, participants were plenarily debriefed and dismissed.
Results

**Manipulation Checks (Session 1)**

Each measure in Session 1 was analyzed as a 1-way analysis of variance. The 6 nonattribution measures were unaffected by the versions of the scenario, $F$'s < 2.1. The 2 attribution questions, however, were affected significantly by the consensus and distinctiveness manipulations. Personal attributions were associated with mean values of 3.3, 3.1, 5.1, and 5.2 for the high consensus, high distinctiveness, low consensus, and low distinctiveness conditions, respectively, $F(3, 35) = 4.11, p < .05$. Situational attributions were associated with mean values of 4.5, 4.9, 2.8, and 2.5 for the high consensus, high distinctiveness, low consensus, and low distinctiveness conditions, respectively, $F(3, 35) = 4.79, p < .05$. Thus, the manipulations were successful and almost as robust as when subjects received both consensus and distinctiveness.

**Confidence Measures (Session 2).**

Each measure in Session 2 was analyzed as a 2 (Attributions Elicited, No Attribution) x 2 (level High or Low for information) x 2 (Consensus or Distinctiveness information as part of scenario) analysis of variance. The confidence measure on consensus produced a significant main effect for eliciting attributions, $F(1, 70) = 5.66, p < .01$, but no other effects emerged. As shown in Table 3, the elicitation of attributions created higher confidence that consensus information was part of the original scenario than was found in the no-attribution conditions. The lack of any significant 2-way interactions and the absence of a 3-way interaction on each subject's confidence that consensus information was contained in the scenario is consistent with the reconstructive memory prediction. It indicates that the elicitation-of-attributions manipulation was as likely to elevate a false confidence that consensus information was present (i.e., when it was not) as it was to elevate a correct confidence that the consensus information was present (i.e., when it was).

Confidence that distinctiveness was a part of the scenario information was significantly affected by the elicitation of attributions, $F(1, 70) = 4.10, p < .05$. A significant 2-way interaction between type of information and elicitation of attributions also emerged. The 2-way interaction appears due to the fact that elicitation of attributions produced an elevated confidence that distinctiveness was part of the scenario when it was in fact a part of the scenario, more than when it was not a part of the scenario. This could be explained by arguing that there were stronger attributions formed from distinctiveness information than from consensus information. This is consistent with the manipulation check wherein high versus low distinctiveness produced mean differences of 2.1 and 2.4 for personal and situational attributions, respectively, whereas high versus
TABLE 3
CONFIDENCE THAT CONSENSUS AND DISTINCTIVENESS WERE GIVEN IN THE SCENARIO AS FUNCTIONS OF WHETHER OR NOT ATTRIBUTIONS WERE ELICITED 1 WEEK EARLIER AND THE TYPE OF INFORMATION ACTUALLY GIVEN

<table>
<thead>
<tr>
<th>Attributions not elicited</th>
<th>Mean confidence</th>
<th>Attributions elicited</th>
<th>Mean confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given high consensus information only</td>
<td>4.33&lt;sub&gt;a&lt;/sub&gt; 3.89&lt;sub&gt;a&lt;/sub&gt;</td>
<td>Given high distinctiveness information only</td>
<td>3.77&lt;sub&gt;a&lt;/sub&gt; 4.00&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Given high distinctiveness information only</td>
<td>3.89&lt;sub&gt;a&lt;/sub&gt; 3.67&lt;sub&gt;a&lt;/sub&gt;</td>
<td>Given low consensus information only</td>
<td>3.89&lt;sub&gt;a&lt;/sub&gt; 4.44&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Given low distinctiveness information only</td>
<td>4.80&lt;sub&gt;b&lt;/sub&gt; 5.40&lt;sub&gt;b&lt;/sub&gt;</td>
<td>Given low consensus information only</td>
<td>5.00&lt;sub&gt;b&lt;/sub&gt; 5.60&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

Note. Means within columns not sharing a common subscript differ at p < .05 using the Newman-Keuls procedure. Higher numbers indicate more confidence from 1 (not at all) to 7 (very much).

low consensus produced differences of 1.8 and 1.7. Also consistent with this explanation is the fact that the elicitation of an attribution tended to more strongly increase confidence (compared with nonelicited conditions) that consensus information was given in the distinctiveness-only condition than in the consensus-only condition. Thus, it seems reasonable to argue that the elicitation of an attribution produced easier reconstruction when the original scenario involved distinctiveness rather than consensus information.

Confidence on the questions about how much Tom made as a computer programmer and how long Tom has lived on campus were unaffected by the manipulations (highest F = 1.97).

The confidence measures are generally in line with the reconstructive memory process. In general, confidence that distinctiveness and consensus information were contained in the scenario depended primarily on whether attributions were elicited rather than whether consensus and distinctiveness information was actually in the scenario.

Estimated Levels Measure (Session 2)

A reconstructive memory conceptualization predicts that subjects’ estimates of the levels of consensus and distinctiveness should align with their attributions. For example, if the scenario only included high-con-
sensus information, thereby leading to a situational attribution, subjects should estimate distinctiveness information to have also been high. Thus, there should be a main effect of high versus low on the estimated levels of consensus and distinctiveness measures regardless of which of the two (i.e., consensus or distinctiveness) was contained in the event information. This main effect should be modified only by the elicitation of attributions manipulation.

Separate 2 (elicitation of attributions) \(\times\) 2 (high vs low levels of information) \(\times\) 2 (consensus vs distinctiveness information) between-subjects analyses of variance were conducted for the estimated levels of consensus and distinctiveness measures. Two significant effects were obtained. There was a main effect for the high versus low manipulation, \(F(1, 70) = 5.2, p < .05\), which was modified by an interaction between the high versus low manipulation and the elicitation of attributions manipulation, \(F(1, 70) = 5.33, p < .05\). This interaction is presented in the first column of Table 4. As indicated by the Newman–Keuls analysis, the interaction appears to be due to the fact that the subjects gave higher estimates of consensus in the high versus low conditions only when attributions were elicited. This was true even for subjects who were not provided with consensus information (i.e., the distinctiveness-only conditions).

A similar pattern of results was obtained for the estimated levels of distinctiveness. There was a significant main effect for the high versus low manipulation, \(F(1, 70) = 4.36, p < .05\), and a significant Elicitation

<table>
<thead>
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<th>TABLE 4</th>
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<td>ESTIMATED LEVELS OF CONSENSUS AND DISTINCTIVENESS AS FUNCTIONS OF THE ACTUAL LEVELS AND WHETHER OR NOT ATTRIBUTIONS WERE ELICITED 1 WEEK EARLIER</td>
</tr>
<tr>
<td>Mean estimate for</td>
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<tr>
<td>Consensus</td>
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</tr>
<tr>
<td>Attributions not elicited</td>
</tr>
<tr>
<td>Given high consensus information only</td>
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<td>Given high distinctiveness information only</td>
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<td>Given low consensus information only</td>
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<td>Given low distinctiveness information only</td>
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<td>Attributions elicited</td>
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<td>Given low consensus information only</td>
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<td>Given low distinctiveness information only</td>
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*Note.* Means within columns not sharing a common subscript differ at \(p < .05\) using the Newman–Keuls procedure. Scales were labeled with endpoints of "not at all" (1) and "totally" (7).
of attributions × high versus low interaction, $F(1, 70) = 5.96, p < .05$. The pattern of this data can be seen in column 2 of Table 4. As indicated by the Newman-Keuls analysis, the interactions appear to be due to the high versus low manipulation having an effect only for subjects in whom attributions were elicited.

Estimates of how much money Tom made as a computer programmer and how long Tom had lived on campus were unaffected by the manipulated variables (highest $F = 1.48$).

The estimated levels results are consistent with the reconstructive memory view. The reported levels of consensus and distinctiveness information follow a pattern wherein they are generally consistent with the attribution.

**GENERAL DISCUSSION**

The results indicate that attributions do exert an influence on memorial reports. Presumably, attributions can serve as retrieval cues in a manner similar to attitudes (e.g., Ross, McFarland, & Fletcher, 1981) wherein recall of behavior can be affected by an attitude change manipulation. The current work also has similarities to studies showing that one's memory for characteristics of hypothetical target people is influenced by one's impressions of the target people (e.g., Lingle, Geva, Ostrom, Leippe, & Baumgardner, 1979; Ostrom et al., 1980; Snyder & Uranowitz, 1978).

Although the reconstructive model may serve as a reasonable representation of the cognitive processes emanating from the explicit elicitation of an attribution, other models could also be applied to the data. Foremost among the possibilities is an immediate-inference model in which the observer infers that consensus (distinctiveness) is high (low) immediately upon learning that distinctiveness (consensus) is high (low). Such a view is represented in the work of Thorndyke (1976) in the area of discourse processing which has shown that inferences can distort memory at the point of *input*. Such a model would be depicted as having separate cognitive stores for consensus and distinctiveness and when one is known the other is immediately inferred to have certain characteristics; the retrieval phase is then characterized as a combined process of retrieving inferences as well as direct memories.

Whether the inference process occurs immediately or later (i.e., when the recall test is given) is an open question. In either case, the explicit making of an attribution seems to change subjects' reported memories for causally relevant information only if the causal information leads to an unambiguous implication of causal locus (i.e., the person or the stimulus situation). Furthermore, the reported memories are not necessarily more veridical as a function of making an attribution, but instead seem to include plausible inferences based on one's attributions.
It has been argued that the processes of recall and impression formation are distinct (Dreben, Fiske, & Hastie, 1979) and, similarly, that social judgments are not closely related to information retention (Taylor, Crocker, Fiske, Sprinzen, & Winkler, 1979). The current analysis does not directly contradict those conclusions. It does suggest, however, that even if memory has little or no effect on attributions, attributions can affect memory. Nevertheless, strong conclusions about the relationship between memory and attribution should be avoided since the current measures of memory could be construed as measures of inference. Converging data from measures of free recall (cf. the current method) would seem desirable.

One of the implications of the current research for attribution theorists is that the person/situation schema does not seem to be differentiated in terms of the modality of information eliciting it. For example, a person attribution emanating from low-consensus information seems indistinguishable from a person attribution emanating from low-distinctiveness information. This failure to directly retrieve the information on which an attribution was based may help explain why attributions often persevere after the information is discredited (e.g., see Ross, Lepper, & Hubbard, 1975).

Recalling one's inferences and then reconstructing the information on which those inferences must have been based is probably most likely to occur when the inferences are of greater import than the information that gave rise to the inferences. For example, this author is on a search committee for hiring a social psychologist. In examining applications the important task is one of making a judgment as to whether the candidate is suitable for the position. After making 60-70 such judgments one is able to recall the judgment (e.g., that a given candidate was unsatisfactory) but, the information that led to that judgment is largely lost (i.e., was it the lack of research productivity, lack of teaching experience, poor letters of recommendation, mismatch to the area?). Nevertheless, there is a tendency to make a reconstructed account if one is put on the spot (e.g., there must have been a lack of research productivity as the other three factors would not have automatically ruled out a strong research person). It is important to keep in mind that the reconstruction of the information that led to the judgment can vary in the extent to which one is aware of the fact that it is a reconstruction versus one's belief that it is a direct memory. In the case of recalling vitae, I am largely aware that when put on the spot my reconstructions are, in fact, just reconstructions. In the current experiments, however, subjects seem relatively confident that their reconstructions are direct memories. Theoretical and empirical work is needed to assess the conditions under which reconstructions are genuinely confused with direct memory versus the conditions under which the person knows she or he is reconstructing.
REFERENCES


