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Cognitive Representation of Mundane Social Events

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Many aspects of an everyday experience can be predicted on the basis of a prototypic schema concerning the events that typically occur in the type of situation at hand. Others are unrelated to any previously formed schema and therefore cannot be predicted. How are schema-related and schema-unrelated events integrated into mental representations of new experiences? Three experiments supported the hypothesis that when people encounter events that exemplify a prototypic schema, they usually do not copy instantiations of schema-defining events into the representation they form. This happens only when a schema-unrelated event is encountered that requires knowledge of an instantiating event to reconstruct the point in the overall sequence at which it occurred. Predictions that distinguished the model from alternative formulations of event memory were confirmed.

Much of the information that people encounter in the course of their daily lives consists of sequences of temporally related events. Memories of these events often provide the basis for judgments of the persons involved in them, causal attributions, and, in some cases, behavioral decisions. These memories are also used in informal conversation when communicating to others about the events to which they refer. Event sequences of the sort conveyed in stories or narratives compose a major portion of the knowledge one has acquired and serve as a basis for understanding oneself (Bruner, 1986; Gergen & Gergen, 1988; Harvey, Weber, & Orbuch, 1990; Ross, 1989) as well as one's society (Howard, 1991).

However, the representations one constructs of temporally or causally related sequences of events are not always veridical. Ross (1989) noted, for example, that individuals have implicit theories about the causal and temporal relations among social events in general that they apply in reconstructing their personal experiences. As a result of the intrusion of this general knowledge into the mental representations formed of specific experiences, people's memories for these experiences and why they occurred do not always correspond to what actually happened. The influence of previously acquired concepts and knowledge on the interpretation of social events, and on the memory for these events, has long been recognized (Bartlett, 1932; Brewer & Nakamura, 1984). However, a clear understanding of the role of narratives in the construction of social reality will ultimately require a conceptualization of how sequences of social events are organized in memory and the way that previously acquired knowledge affects their organization.

The importance of attaining this objective is reflected in cognitive psychology by research on prose comprehension (Bower, Black, & Turner, 1979; Graesser, 1981; Schank & Abelson, 1977) and story understanding (Black, Galambos, & Read, 1984; Mandler, 1979; Rumelhart, 1975, 1977). In addition, social psychologists have typically focused on the impact of different goals and motives on the cognitive representation of event information (cf. Cohen & Ebbsen, 1979; Newton, 1973; Wyer & Bodenhausen, 1985), on the way sequences of novel experiences are coded and organized (Fuhrman & Wyer, 1987, cited in Wyer & Srull, 1989; Wyer, Shoben, Fuhrman, & Bodenhausen, 1985), and on the use of event representations as bases for judgments and decisions (Abelson, 1976, 1981; Pennington & Hastie, 1986). The influence of prior knowledge is implicitly, if not explicitly, assumed in this research. Nevertheless, precisely how this knowledge affects the way new event information becomes represented in memory remains a mystery.

The research reported in this article investigated this matter. To provide a rigorous test of our conceptualization of how event sequences are represented in memory, we restricted our consideration to events that are more mundane than those that pervade much of our social knowledge. That is, we investigated the manner in which common everyday life events are represented in memory and the role of general world knowledge in constructing these representations. However, similar theoretical and empirical issues surround the representation of both mundane life experiences and more novel ones. For example, experiences of both types are likely to involve some events that are redundant, with expectations based on prior knowledge about the causal and temporal relations among events in general. Other aspects of these experiences, however, cannot be predicted on the basis of general knowledge. How are these different aspects of a social experience integrated into the representation of the experience that is stored in memory?

General Considerations

Like many theories of prose comprehension (cf. Bower et al., 1979; Graesser, 1981; Schank & Abelson, 1977), we postulate
the existence in memory of prototypic event schemata. These schemata are conceptualized as series of temporally ordered event concepts. Each schema is denoted by a **header**, or schema-identifying concept that refers to the event sequence as a whole. The individual concepts that compose the sequence define the schema that is denoted by this header. Thus, **entering**, **ordering**, **eating**, and **paying** are concepts that might, in combination, define a schema whose header is “having dinner at a restaurant” (for more elaborate conceptualizations of the structure of event schemata, see Wyer & Srull, 1989).

A schema is presumably constructed through social learning as a result of repeated exposure to the types of events that compose it. Some schemata are idiosyncratic. Thus, for example, one might have a schema of the routine one’s spouse goes through in preparing to go to a party, many components of which are unlikely to generalize to other persons. Other event schemata (e.g., going to dinner at a restaurant) are widely shared by members of a given culture or subculture. Regardless of their universality, the schemata are assumed to function similarly in interpreting new experiences to which they are relevant. In this article, we focus our discussion on culturally shared schemata. However, the theoretical issues of concern, and the results to be reported, are likely to apply to idiosyncratic event schemata as well.

Event schemata permit many aspects of a past experience to be reconstructed without having to remember the original experience in detail. For example, if one recalls that John ate dinner at a restaurant last night, one can infer from the concepts that define one’s “having dinner at a restaurant” schema that John ordered, ate, paid, and ultimately left the restaurant without retaining the original information that described these events. Many events that occur, however, are unrelated to the concepts that compose a schema’s definition and, therefore, cannot be reconstructed. Suppose, for example, that John looked at a picture on the wall after ordering his meal. Although looking at a picture is certainly an uncommon event in restaurants, it is not definitional. Therefore, its occurrence cannot be inferred. Nor can one infer the point at which John looked at the picture without considering elements of the schema that permit the event to be localized.

These considerations raise two questions. First, what determines whether instantiations of schema-defining concepts are retained in the memorial representation of a specific experience? Second, how are schema-unrelated events encoded into the representation that is formed? The experiments reported in this article provide answers to these questions.

### Alternative Conceptions of Event Memory

In the conditions we investigated, subjects read a story describing four different sequences of events that occurred during a week in a person’s life. These events were of three types. A **schema-identifying** event was presented either before or after the other events in the sequence. Other, **schema-instantiating** events exemplified concepts that defined the schema. In addition, the sequence included several events that were unrelated to any schema-defining concept.

When subjects are aware of the relevant schema at the time they read about a sequence of events, they should interpret the schema-instantiating events in terms of concepts that define it. Thus, for example, if subjects know that Joe is in a restaurant when they are told that Joe ordered the meal, they should interpret this information in terms of a preexisting schema-defining concept that pertains to ordering.

However, subjects’ interpretation of a particular event in terms of a schema-defining concept does not guarantee they will retain this event in the mental representation they form of the event sequence as a whole. In considering the way in which events that exemplify a prototypic schema are represented in memory, Wyer and Srull (1989) noted three logical possibilities. They are discussed in turn.

#### Complete-Representation Model

One possibility raised by Wyer & Srull (1989) was also considered (although not necessarily advocated) by Bower et al. (1979) and Graesser and Nakamura (1982). That is, when people encounter events that instantiate concepts defining a prototypic schema, they encode the events in terms of these concepts. In addition, they spontaneously infer the occurrence of other, unmentioned events that exemplify schema-defining concepts and add these inferred events to the representation they form.

#### Partial-Representation Model

A second model is similar in many respects to the schema copy + tag formulation proposed by Graesser and his colleagues (Graesser & Nakamura, 1982; see also Bower et al., 1979). Specifically, people include only those schema-instantiating events that are specifically mentioned in the representation they form, along with a “pointer” to the prototypic schema they used to comprehend it. In other words, schema-instantiating events that are not described in the information presented are not contained in the representation.

#### No-Representation Model

A third hypothesis is based on the assumption that subjects do not retain new information in memory at all if its implications can be reconstructed on the basis of prior knowledge. In the present context, this implies that subjects are unlikely to store instantiations of events that can be inferred from the schema that was used to interpret them. Rather, they store only a pointer to the schema along with a set of equivalence statements indicating the relation of schema variables to specific features of the situation being described (e.g., “John = customer”). According to this hypothesis, then, none of the presented schema-instantiating events is retained in the representation subjects form, only an indication of the schema to which these events pertain. Some support for this hypothesis was obtained by Fuhrman and Wyer (1977, reported in Wyer & Srull, 1989).

Despite the empirical support obtained for the alternative models just described and their variants (cf. Bower et al., 1979; Graesser, 1981; Graesser, Gordon, & Sawyer, 1979; Wyer &
they have one deficiency in common. That is, none of the formulations specify the way in which schema-unrelated events are incorporated into the representation that is formed. In fact, these theories typically assume that unrelated events are not integrated into the representation at all but rather are appended as “tags.” One implication of this assumption is that the temporal positions of the unrelated events cannot later be reconstructed, provided they are remembered at all.

**Selective-Representation Model**

The conceptualization to be evaluated in this article attempts to specify the manner in which both schema-instantiating and schema-unrelated events are incorporated into the representation that is formed. This conceptualization, like the no-representation model, assumes that schema-instantiating events are usually not retained in the representation. An exception occurs, however, when it is necessary to localize a schema-unrelated event in the sequence. To do this, one must position the event in relation to others that occurred. In some cases, the other events might also be schema unrelated. More generally, however, subjects associate a schema-unrelated event with an instantiating event that occurred in temporal contiguity with it. (For example, a subject who is told that after John ordered his meal, he looked at a picture on the wall, might associate “looked at the picture” with “ordered his meal.”) As a result of this association, the schema-instantiating event as well as the unrelated event becomes part of the representation that is retained in memory. Other instantiating events, however, do not have this localizing function, and so they are not included.

In some instances, of course, people might consider it sufficient to remember the general context in which a schema-unrelated event takes place (e.g., to know that Joe looked at the picture in a restaurant rather than somewhere else). This is particularly true when the events described occur in several different situations. In this case, a schema-unrelated event might become associated with the more general schema-identifying event rather than with specific events that occurred in the situation.

In summary, the selective-representation model predicts that the retention of a schema-instantiating event in the mental representation one forms of a new experience depends on whether an unrelated event requires knowledge of it to be temporally localized. To this extent, the model contrasts with previously proposed conceptualizations of the way event sequences are represented in memory. The experiments reported in this article evaluate the implications of the model for this recall of both schema-instantiating events and unrelated ones.

**Experiment I**

Subjects in this experiment read four stimulus paragraphs, each describing a different sequence of events. Some of the events in each sequence instantiated concepts that defined a prototypic schema, whereas other events were unrelated to the schema. However, the sequences differed in terms of (a) whether the schema-identifying event was mentioned at the beginning of the sequence or at the end and (b) the number of instantiating events presented (two vs. six). (Four schema-unrelated events were presented in all cases). The schema-instantiating events were selected so that the schema to which they pertained was difficult to identify unless the schema-identifying event was explicitly stated at the outset. After reading all four stimulus passages, subjects were asked to recall as much of the information as possible. The number and order of events that subjects recalled were used to evaluate implications of the selective-representation model as well as the three alternative models outlined by Wyer and Srull (1989). Two sets of comparisons were expected to be particularly diagnostic.

**Set-Size Effects**

As the number of events that exemplify a concept or category increases, the proportion of items recalled theoretically decreases (Anderson & Bower, 1973; Lewis & Anderson, 1976; Rundus, 1973; Srull & Brand, 1983; Thorndyke & Bower, 1974). Therefore, suppose the schema-instantiating events described in the information are retained in the representation that is formed, but unmentioned schema-instantiating events are not. Then, the likelihood of recalling one of these events should decrease as the number of events mentioned (and therefore retained in the representation) increases. This set-size effect, if it occurs, would be consistent with the partial-representation model.

In contrast, the selective-representation model does not predict such an effect. According to this model, schema-instantiating events are only retained in the representation if they are needed to localize a schema-unrelated event. Because the number of unrelated events presented was always the same in this experiment, the number of instantiating events that are retained, and the number of associations between these events and schema-unrelated ones, should be fairly similar regardless of the number of instantiating events that are mentioned. Thus, this model does not predict an effect of set size on the proportion of instantiating events recalled.

These predictions, of course, assume that subjects are aware of the relevant schema at the time they first receive the information. If this is not the case, all of the events presented should be treated similarly. Then, the recall of both schema-instantiating events and schema-unrelated events should decrease as the number of schema-instantiating events presented increases.

**Conditional Recall Probabilities**

The selective-representation model assumes that associations are formed between schema-unrelated events and schema-instantiating events that permit the unrelated events to be temporally located. However, associations are not usually formed between schema-instantiating events and other instantiating events. Therefore, the probability of recalling a schema-instantiating event immediately after recalling another instantiating event would be lower than that expected if the events were related.

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1 Several of these formulations have been applied to schematic representations other than event sequences and, therefore, have broader implications than those described here. In contrast, the model we propose and evaluate in this article is restricted to the representation of temporally related event sequences and does not purport to apply to other types of schematic representations.
event should typically be less than the probability of recalling an instantiating event following an unrelated event.

Note that this prediction distinguishes the implications of the selective-representation model from other conceptualizations. The partial-representation model, for example, assumes that the schema-instantiating events presented are stored in temporal order in the manner implied by the schema (Barsalou & Sewell, 1985), whereas the unrelated events are stored separately as tags. If this is so, the probability of recalling a schema-instantiating event should be greater following the recall of an instantiating event that temporally precedes or follows it in the schema than following the recall of an unrelated event. The complete-representation and no-representation models have similar implications.

Method

Overview and subjects. Subjects were exposed to four stimulus paragraphs. Each paragraph concerned a different situation for which a prototypic schema was assumed to exist. Each paragraph described four schema-unrelated events but varied in terms of the number of schema-instantiating events that were mentioned (two vs. six). In addition, the schema-identifying event was explicitly identified either at the beginning of the paragraph or at the end. After reading all four paragraphs, subjects were asked to recall the information they had read. Some subjects were requested to report items only if they were certain the events had been mentioned (no-guessing condition), whereas others were encouraged to guess if they were uncertain whether an item was mentioned (guessing conditions).

Eighty introductory psychology students participated in the study to fulfill a course requirement, 40 of whom were randomly assigned to each recall condition.

Stimulus materials. To select stimulus materials for the study, a large number of event sequences were initially constructed based on materials used in earlier studies of schema-based processing (Nottenburg & Shoben, 1980). The event concepts in each sequence defined a prototypic event schema. However, the particular concepts we selected, considered out of context, were unlikely to activate the schema. (This was established on the basis of pretesting in which naive subjects were given each set of events in sequence, and the point at which they could correctly identify the schema they exemplified was determined. In many cases, the schema could not be identified at all) On the basis of this pretesting, four sequences of six defining-event concepts each were selected. These sequences, which pertained to casual eating, making tea, taking the subway, and photocopying a piece of paper, are shown in Table 1. (Note that the event descriptions composing these sequences were nonspecific. The effects of adding situation-specific features to the description are discussed later in this article)

For each set of prototypic events, four additional events were then selected that might plausibly occur in the situation but were unrelated to the schema that applied to the situation as a whole. These events are also shown in Table 1.

The aforementioned materials were then used to construct four sets of four stimulus paragraphs, each describing the activities of a particular person, Joe. The paragraphs in each set varied systematically along two dimensions. First, the paragraph contained either two or six schema-instantiating events. Second, a schema-identifying event was presented either at the beginning of the paragraph (schema-identification-first conditions) or at the end of the paragraph (schema-identification-last conditions). For example, a paragraph containing two schema-instantiating events with the schema-identifying event at the beginning was

Joe then decided to take the subway to his next destination. He went through the entrance. As he walked, he stepped in a pothole and swore viciously. After a while, he dropped the sandwich he had been eating. Then he looked at all of the advertisements. Finally, Joe found a seat.

A paragraph describing six schema-instantiating events with the schema-identifying event at the end was

After doing this, he found the article. He then walked through the doorway and took a piece of candy out of his pocket. Next he got some change and saw a person he knew. Subsequently, Joe found a machine. He realized he had developed a slight headache. After he aligned the original, Joe put in the coin and pushed the button. Thus, Joe had copied the piece of paper.

The particular situations that exemplified each of the four combinations of manipulated variables, and the ordinal position of these situations in the story subjects read, were varied in a Greco-Latin square design. Thus, averaged over subjects, (a) each of the four situations was represented with equal frequency at each combination of variables and (b) a situation representing each combination of variables was presented an equal number of times in each serial position (first, second, third, or last).

Procedure. All subjects were given a booklet, the first page of which contained the following instructions:

We are interested in how people comprehend stories about events of the sort they encounter in daily life. Below, you will find a passage about a person, Joe, describing things he did during the course of a week. Read the passage as you might if you encountered it in the context of a book or short story and decide how much you like it.

After reading the passage at their own pace, subjects were given a 5-min filler task (specifically, to write down as many states of America, and their capitals, as they could). Then, they were given a surprise recall task, in which they were asked to write down as many of the events as possible in the order they came to mind. Subjects under no-guessing conditions were told to write down "only those events that you are confident actually occurred." Subjects under guessing conditions were strongly encouraged to guess and were told to "write down any event you can think of even if you are not confident that it actually occurred." This manipulation was expected to help us evaluate the extent to which the reporting of instantiating items was attributable to the actual retention of these events in memory or to the reconstruction of these events at the time the recall task was performed. Subjects were given 8 min to recall as many events as possible.

Results

All of the recall protocols were scored according to a "general meaning" criterion (Srull, 1984) by an assistant who was unaware of the hypotheses and experimental conditions. Subjects recalled an average of 30% (10.8 out of 36) of the stimulus items presented. To establish that subjects conceptualized the four scenarios as separate events and formed separate representations of each, we determined the extent to which the recalled items were clustered according to scenario. A clustering index was computed for each subject separately using the Adjusted Ratio of Clustering (ARC) Index developed by Roenker, Thompson, and Brown (1971). This index, which ranges from 0
Table 1
Schema-Defining Concepts and Schema-Unrelated Events Used in Experiment 1

<table>
<thead>
<tr>
<th>Schema</th>
<th>Defining concepts</th>
<th>Unrelated events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashing a check</td>
<td>Wrote down the amount</td>
<td>Mumbled about how old he was getting</td>
</tr>
<tr>
<td></td>
<td>Wrote down the date</td>
<td>Rubbed his chin thoughtfully</td>
</tr>
<tr>
<td></td>
<td>Stood in line</td>
<td>Accidentally dropped a pen</td>
</tr>
<tr>
<td></td>
<td>Showed his identification</td>
<td>Looked at an attractive woman</td>
</tr>
<tr>
<td></td>
<td>Received the money</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Counted it</td>
<td></td>
</tr>
<tr>
<td>Photocopying a piece</td>
<td>Found the article</td>
<td>Walked through the doorway</td>
</tr>
<tr>
<td>of paper</td>
<td>Got some change</td>
<td>Took a piece of candy out of his pocket</td>
</tr>
<tr>
<td></td>
<td>Found a machine</td>
<td>Saw a person he knew</td>
</tr>
<tr>
<td></td>
<td>Aligned the original</td>
<td>Realized he had a slight headache</td>
</tr>
<tr>
<td></td>
<td>Put in the coin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pushed the button</td>
<td></td>
</tr>
<tr>
<td>Making tea</td>
<td>Determined how much to make</td>
<td>Remembered that he had to return a call</td>
</tr>
<tr>
<td></td>
<td>Boiled some water</td>
<td>Paced around the room</td>
</tr>
<tr>
<td></td>
<td>Got some bags</td>
<td>Suddenly realized that he had a cold</td>
</tr>
<tr>
<td></td>
<td>Covered the pot</td>
<td>Complained to his wife about the high cost of living</td>
</tr>
<tr>
<td></td>
<td>Let it sit for a while</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poured it into cups</td>
<td></td>
</tr>
<tr>
<td>Taking the subway</td>
<td>Went through the entrance</td>
<td>Stepped in a pothole</td>
</tr>
<tr>
<td></td>
<td>Swore viciously</td>
<td>Dropped the sandwich he had been eating</td>
</tr>
<tr>
<td></td>
<td>Went down stairs</td>
<td>Looked at all of the advertisements</td>
</tr>
<tr>
<td></td>
<td>Waited on the platform</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Found a seat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Got to the door</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Climbed the exit stairs</td>
<td></td>
</tr>
</tbody>
</table>

(chance clustering) to 1 (perfect clustering), averaged .49, which was significantly greater than 0, t(59) = 9.00, p < .001.2

Preliminary analyses were performed of the proportions of schema-instantiating and schema-unrelated events recalled as a function of recall instructions, schema identification (first or last), and the number of instantiating events presented. Not surprisingly, subjects reported more instantiating events when they were told to guess than when they were told not to guess (34 vs. 21), F(1, 78) = 7.24, p < .01. Moreover, this difference was greater when only two instantiating events were actually presented (50 vs. 27) than when six were presented (18 vs. 15), F(1, 78) = 7.08, p < .01. No other effects of recall instructions were significant, however. Thus, none of the comparisons of theoretical importance (noted later) was significantly contingent on whether subjects were told to guess or not to guess.

We also analyzed intrusions. The average number of intrusions per subject was 0.8. These intrusions, which were typically schema instantiating, were significantly more frequent in guessing than in no-guessing conditions (1.18 vs. 0.43), p < .05. However, the number of intrusions was not contingent on other manipulated variables (p > .10). Thus, intrusions had no discernible impact on the effects of theoretical interest.

Two sets of analyses were performed to evaluate the four alternative hypotheses concerning the way the event information was represented in memory. We present data pertaining to each set of analyses in turn.

Recall of instantiating and unrelated events. When the schema-identifying event is conveyed last, subjects are unlikely to recognize the schema until after the event sequence is presented. In this case, subjects should include all of the items mentioned in their representation of the event sequence, and so a set-size effect should occur. That is, the proportion of items recalled should decrease as the number of schema-instantiating items presented increases. According to the selective-representation model, however, this set-size effect should not occur when the schema is identified at the outset. In contrast, the partial-representation model predicts a set-size effect under these conditions as well as when the schema is not identified until later.

Data bearing on these possibilities, shown in Table 2, confirm our expectations. First consider the proportion of instantiating events recalled. Under schema-identification-first conditions, subjects recalled a much greater proportion of instantiating events when only two such events were presented than when six were presented. Under schema-identification-last conditions, however, this difference was negligible. This conclusion was confirmed by an interaction between the number of instantiating events presented and the point at which the schema was identified, F(1, 78) = 30.38, p < .01. These results are consistent with the selective-representation model but appear to discredit the partial-representation model.

A qualification on this conclusion, however, results from the fact that the effects of set size on the recall of schema-unrelated items did not parallel its effects on the recall of instantiating items. As shown in the middle section of Table 2, the propor-
Table 2
Recall of Schema-Instantiating, Schema-Unrelated, and Schema-Identifying Events as a Function of the Position of the Schema-Identifying Event and the Number of Instantiating Events Presented (Experiment 1)

<table>
<thead>
<tr>
<th>Event type recalled</th>
<th>Schema identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First</td>
</tr>
<tr>
<td>Proportion of instantiating events recalled</td>
<td></td>
</tr>
<tr>
<td>Two instantiating events</td>
<td>.244</td>
</tr>
<tr>
<td>Six instantiating events</td>
<td>.231</td>
</tr>
<tr>
<td>Proportion of unrelated events recalled</td>
<td></td>
</tr>
<tr>
<td>Two instantiating events</td>
<td>.247</td>
</tr>
<tr>
<td>Six instantiating events</td>
<td>.291</td>
</tr>
<tr>
<td>Probability of recalling schema-identifying event</td>
<td></td>
</tr>
<tr>
<td>Two instantiating events</td>
<td>.650</td>
</tr>
<tr>
<td>Six instantiating events</td>
<td>.650</td>
</tr>
</tbody>
</table>

The recall of schema-unrelated events recalled was not significantly affected by the number of schema-instantiating events presented, and this was true regardless of whether the schema was identified. A possible explanation of this null finding is provided presently.

Recall of the schema-identifying event. The effects of set size described earlier cannot be attributed to differences in the salience of the schema at the time of retrieval. As shown on the bottom of Table 2, the likelihood of recalling the schema-identifying event was high (M = 0.667) and was independent of whether the events were mentioned first or last and whether two or six instantiating events were presented. Thus, the schema to which each sequence of events was relevant was equally salient to subjects at the time of retrieval, regardless of whether it was mentioned at the beginning or at the end of the scenario and regardless of the number of defining events presented.

Conditional recall probabilities. The effects of set size we observed could be accounted for by the complete-representation and no-representation models as well as by the selective-representation model. The second set of predictions we considered, however, distinguishes the selective-representation model from all three alternatives. When the schema is identified at the outset, the selective-representation model predicts that the probability of recalling an instantiating event should be greater following the recall of a schema-unrelated event than following the recall of another schema-instantiating event. In contrast, the three models considered by Wyer and Srull (1989) all make the opposite prediction.

Table 3 presents the probability of recalling each type of event (instantiating, unrelated, or schema-identifying) as a function of the type of event that was recalled immediately preceding it. (In computing these probabilities, conditions in which the preceding item was from a different scenario were not considered.) Of particular relevance to predictions is the difference between the probability of recalling an instantiating event following the recall of another instantiating event and the probability of recalling such an event after the recall of an unrelated event. Under schema-identification-first conditions, these probabilities were .00 and .27, respectively, when two instantiating items were presented, and .43 and .54, respectively, when six instantiating items were presented. Therefore, these differences support the selective-representation theory and are opposite in direction to the predictions made by the other theories. Note that when the schema was not identified until last, these differences were not apparent (17 vs. 19 and .34 vs. .39 when two and six instantiating items were presented, respectively).

A statistical evaluation of these differences was compromised by the fact that only 35 subjects recalled at least one event of all three types (instantiating, identifying, and unrelated). Consequently, a within-subject analysis in which individual conditional probabilities were computed for each subject prevented the data from many subjects from being considered. Despite this attrition, such an analysis confirms the conclusions drawn herein. That is, under schema-identification-first conditions, the mean probability of recalling an instantiating event was significantly greater following an unrelated event than following another instantiating one. This was true both when only two instantiating events were described (00 vs. .422), t(6) = 2.49, p < .05, and when six such events were described (.36 vs. .63), t(25) = 2.49, p < .05. These differences were not apparent under schema-identification-last conditions (p > .10).

Given the general support for the selective-representation model described earlier, a more stringent test of its implications was justified. According to the model, schema-instantiating events are only retained in the representation if they help to localize the occurrence of unrelated events. This means that the recall of an instantiating event should typically be preceded by the recall of an unrelated event that occurred either immediately before or immediately after it in the presentation sequence rather than an unrelated event that was not adjacent to it. In other words, only unrelated events that are temporally adjacent to the instantiating event should cue the retrieval of this event.

To evaluate this hypothesis, we computed the probability that an instantiating event was recalled following an unrelated one, the unrelated item was one that had been presented adjacent to it in the original sequence. This probability, averaged over subjects, was then compared with the probability that the unrelated event recalled would be an adjacent one by chance alone. Under schema-identification-first conditions,

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3 For example, the probability of recalling an instantiating item given that another instantiating item preceded it was inferred from the ratio of (a) the number of times subjects recalled two instantiating items in sequence to (b) the total number of times an instantiating event was preceded by another event from the same passage (excluding instances in which such an item was preceded by an item from a different passage).

4 The ordinal positions of unrelated and instantiating items were the same in each scenario in which a given number of each item type occurred. Therefore, assuming that the probability of recalling each instantiating item is the same, these chance probabilities can be easily computed. When six unrelated items were presented, for example, the instantiating (I) and unrelated (U) events occurred in the order IUIUIUIU. Therefore, if either the first or fourth instantiating event in the sequence is recalled and is preceded by the recall of an unrelated event, the chance probability that the latter event is an adjacent one is .25. If either the second or third instantiating event is recalled, the
Table 3

Conditional Probabilities of Recalling Each Type of Event as a Function of the Type of Event Recalled Immediately Preceding It (Experiment 1)

<table>
<thead>
<tr>
<th>Event order</th>
<th>Two instantiating events presented</th>
<th>Six instantiating events presented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Instantiating</td>
<td>Unrelated</td>
</tr>
<tr>
<td>Schema identification first</td>
<td>.00</td>
<td>.27</td>
</tr>
<tr>
<td>Instantiating</td>
<td>.43</td>
<td>.54</td>
</tr>
<tr>
<td>Unrelated</td>
<td>.57</td>
<td>.19</td>
</tr>
<tr>
<td>Schema identifying</td>
<td>.34</td>
<td>.39</td>
</tr>
<tr>
<td>Instantiating</td>
<td>.49</td>
<td>.41</td>
</tr>
<tr>
<td>Unrelated</td>
<td>.17</td>
<td>.20</td>
</tr>
<tr>
<td>Schema identifying</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: Dashes indicate no information available.

The actual probability was greater than chance both when two instantiating events were presented (.83 vs. .25) and when six instantiating events were presented (64 vs. .375). The overall difference between these probabilities (72 vs. .33) was significant, t(30) = 4.43. Under schema-identification-last conditions, however, the corresponding differences between actual and chance probabilities were not reliable (.25 vs. .25 and .59 vs. .375 when two and six instantiating events were presented, respectively, or .50 vs. .33 overall; t(12) < 1). Therefore, these results provide further support for the selective-representation model.

Discussion

Four models were considered regarding the content and organization of the representations subjects formed under the conditions under investigation. Our data disconfirm three of these models. That is, the set-size effect implied by the partial-representation model was not evident. Moreover, the difference in probabilities of recalling instantiating events following unrelated or other instantiating events was incompatible with not only this model but also the no-representation and complete-representation models. Therefore, only the selective-representation model provides a viable account of our data.

An ambiguity in interpreting our results arises from the fact that set-size effects on the recall of schema-unrelated events were not evident, regardless of when the schema was identified. This finding appears inconsistent with all four models we considered. That is, if the instantiating and unrelated events are not distinguished from one another under schema-identification-last conditions, an increase in the number of items presented should have decreased the probability of recalling both types of items. This was not the case.

Any explanation of this null finding must remain speculative. One reasonable possibility, however, assumes that once subjects under schema-identification-last conditions became aware of the type of situation being described, they review some of the instantiating events they have read to verify that the schema-identifying event is, in fact, relevant. In contrast, the unrelated events cannot be used for this purpose, and so they are not reviewed. Thus, the likelihood of recalling an instantiating event decreases as set size increases, whereas the recall of unrelated events is unaffected by the number of instantiating events presented. Note that if this explanation is correct, varying the number of unrelated events under schema-identification-last conditions should have no effect on the recall of either instantiating or unrelated events. The next experiment confirmed this prediction.

Experiment 2

A second test of the selective-representation model was conducted under conditions very similar to those used in Experiment 1. In this case, however, the number of instantiating events presented in each sequence was held constant, and the number of schema-unrelated events was varied. Two sets of hypotheses were particularly central in evaluating the selective-representation model.

1. According to the selective-representation model, schema-unrelated events become associated with instantiating ones, and these associations lead the instantiating events to become part of the representation. Consequently, increasing the number of unrelated events should increase the number of retrieval routes to instantiating events, thereby increasing the likelihood of recalling the latter events.

The other models we considered would not make this prediction. That is, if schema-unrelated events are not integrated into the representation that is formed, there is no reason to expect the recall of these events to facilitate the recall of schema-instantiating ones. In fact, the addition of unrelated events could create interference. That is, as the number of schema-unrelated events presented increases, more attentional capacity must be devoted to processing them. Consequently, less attentional capacity is likely to be devoted to processing the instantiating events, and so the likelihood of recalling them later is decreased.

2. The selective-representation model assumes that schema-
unrelated events can become associatively linked to the schema-identifying event as well as to schema-instantiating events. If this is so, increasing the number of unrelated events presented should also increase the probability of recalling the schema-identifying event. In contrast, other conceptualizations of event memory (e.g., Bower et al., 1979; Graesser, 1981) are not explicit as to whether schema-unrelated events become associated with the schema-identifying event. Thus, only the selective-representation model makes a clear prediction concerning the effects of presenting unrelated events on the recall of the schema-identifying event.

The predictions mentioned herein all assume that the relevant schema is identified at the outset. Under schema-identification-first conditions, increasing the number of unrelated events presented should either decrease the proportion of events recalled or, for reasons noted earlier, have no effect on the recall of these events.

Method

This experiment was conducted under conditions virtually identical to those used in Experiment 1. The only difference was that in this study, the number of schema-unrelated events presented was varied over the four stimulus situations that subjects read about, whereas the number of instantiating events described in each situation was held constant. The stimulus sequences were constructed from the same materials used in the first experiment (see Table 1), with the addition of two more schema-unrelated events, which were added when six such events were conveyed. Four of the instantiating events were selected to represent each situation. These events were the same in all conditions. Thus, subjects were exposed to a story describing four sequences of events, one representing each combination of (a) the point at which the schema was identified (first or last) and (b) the number of schema-unrelated events described (two vs. six). As in Experiment 1, counterbalancing was used so that each combination of these variables was constructed with equal frequency from each set of stimulus items and was presented an equal number of times at each serial position in the stimulus passage (first, second, third, or last).

Subjects were 96 introductory psychology students who participated to fulfill a course requirement. Of these, 48 were assigned randomly to each recall instruction condition (guessing vs. no guessing).

Results

Subjects recalled an average of 31% (1.12 out of 36) of the stimulus items presented. To confirm that subjects conceptualized the four scenarios as separate events, a clustering index, computed for each subject separately as in Experiment 1, averaged 0.63, indicating that recalled items were clustered according to the situation in which they occurred with greater-than-chance probability, t(34) = 9.73, p < .001 (see footnote 2).

Preliminary analyses were performed of the proportions of defining and irrelevant events recalled as a function of recall instructions, schema-identification order, and the number of defining events presented. In contrast to Experiment 1, subjects did not report significantly more instantiating events when they were told to guess than when they were told not to guess (22 vs. 21), F(1, 94) < 1. In fact, no effects of recall instructions were significant in any of the analyses. Thus, as in Experiment 1, no comparison of theoretical importance was significantly contingent on whether subjects were told to guess or to be certain before reporting items.

The average number of intrusions per subject was 0.6. There were significantly more intrusions in the guessing than in the no-guessing conditions (0.67 vs. 0.24, p < .05). However, no other effects were reliable.

Recall of instantiating events. The selective-representation model predicts that under schema-identification-first conditions, increasing the number of unrelated events presented should increase the proportion of instantiating events recalled. Results shown in Table 4 confirm this hypothesis. When the schema was identified at the outset, the proportion of instantiating events recalled was greater when six unrelated events were presented than when two were presented (28 vs. .18), one-tailed t(95) = 2.46, p < .01. Under schema-identification-first conditions, however, the difference was nonsignificantly in opposite direction (19 vs. .22), t(95) > 1. The interaction implied by these opposing effects was significant, F(1, 94) = 6.56, p < .02.

Recall of the unrelated events. The mean proportion of unrelated events recalled in each cell of the design is also reported in Table 4. Neither the selective-representation model nor any of the alternative conceptualizations we considered makes a clear prediction concerning the effects of experimental variables on the recall of these events. In fact, no effects of these variables were significant (p > .10 in all cases).

Recall of the schema-identifying event. According to the selective-representation model, increasing the number of unrelated events under schema-identification-first conditions should also increase the likelihood of recalling the schema-identifying event. As shown in Table 4, this was indeed the case. That is, the probability of recalling the schema-identifying event was greater when six unrelated events were presented (M = 0.66) than when only two such events were presented (M = 0.48), t(95) = 1.85, p < .05. Under schema-identification-last conditions, this difference was nonsignificantly in opposite direction (56 vs. .62). t(95) < 1. The interaction implied by these differences was reliable, F(1, 94) = 4.40, p < .05.

Conditional probabilities. In Experiment 1, when the schema was identified at the outset, the probability of recalling an instantiating event was greater following the recall of an unrelated event than following the recall of an instantiating event. Furthermore, this finding obtained regardless of the number of instantiating events presented. These findings were replicated in Experiment 2.

Data bearing on these effects are shown in Table 5. When two unrelated events were presented, the probability of recalling an instantiating event under schema-identification-first conditions was greater following the recall of an unrelated event (M = 0.74) than following the recall of another instantiating event (M = 0.34). When there were six irrelevant events,

1 For example, Graesser’s (1981) schema pointer + tag model (see also Graesser et al., 1979) assumes that the unrelated events presented are represented by tags. However, it is unclear whether these tags represent retrieval routes between schema-unrelated event nodes and the schema-identifying event node or whether they simply mark the unrelated events as being distinctive (i.e., not expected on the basis of the schema).
Table 4
Recall of Schema-Instantiating, Schema-Unrelated, and Schema-Identifying Events as a Function of the Position of the Schema-Identifying Event and the Number of Unrelated Events Presented (Experiment 2)

<table>
<thead>
<tr>
<th>Event type recalled</th>
<th>First</th>
<th>Last</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of instantiating events recalled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two unrelated events</td>
<td>.179</td>
<td>.218</td>
</tr>
<tr>
<td>Six unrelated events</td>
<td>.279</td>
<td>.195</td>
</tr>
<tr>
<td>Proportion of unrelated events recalled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two unrelated events</td>
<td>.289</td>
<td>.358</td>
</tr>
<tr>
<td>Six unrelated events</td>
<td>.325</td>
<td>.326</td>
</tr>
<tr>
<td>Probability of recalling schema-identifying event</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two unrelated events</td>
<td>.484</td>
<td>.621</td>
</tr>
<tr>
<td>Six unrelated events</td>
<td>.663</td>
<td>.558</td>
</tr>
</tbody>
</table>

These probabilities were .54 and .21. Statistical analyses involving only those subjects for whom both conditional probabilities could be computed supported these differences (in the first case,.84 vs. .32, t[15] = 4.16, p < .01; in the second,.43 vs. .20, t[31] = 2.72, p < .02). Moreover, analyses comparable with those performed in Experiment 1 indicated that unrelated events that were recalled immediately before an instantiating one were more likely to be adjacent to it in the presentation sequence than would be expected by chance (averaged over set-size conditions,.57 vs. .29; p < .01). Thus, these data provide further support for the selective-representation model.

Two differences between the results of this experiment and those of Experiment 1 should be noted, however. First, Table 5 shows that not only was the recall of an instantiating event greater following an unrelated event than following another instantiating one, but also the recall of an unrelated event was greater following the recall of an instantiating one than following the recall of an unrelated one. This latter contingency (again based on a subsample of subjects for whom complete data were available) was significant when two unrelated events were presented, t(23) = 5.43, p < .001, and approached significance when six unrelated events were presented, t(31) = 1.89, p < .07. Although this difference is quite consistent with the selective-representation model, it was not apparent in Experiment 1 (see Table 3). The reason for this is not clear.

Second, the pattern of conditional probabilities under schema-identification-last conditions was very similar to the pattern we observed when the schema was identified at the outset. This was not the case in Experiment 1, in which the probability of recalling events under schema-identification-last conditions was not appreciably influenced by the type of event that was recalled immediately before them (see Table 3). The similar effects obtained in the two order conditions of the present experiment suggest that subjects in this study (unlike Experiment 1) spontaneously recognized the relevant schema at the outset even though it was not explicitly identified until later. This possibility is called into question, however, by the fact that set-size effects on the overall proportion of events recalled were significantly contingent on the position of the schema-identifying item (Table 4), consistent with the model proposed. No good explanation for this anomaly is available.

Experiment 3

Encouraged by the general support for the selective-representation model provided by Experiments 1 and 2, we conducted a third experiment to evaluate an additional, rather subtle implication of this model. As noted earlier, the number of intrusions in Experiments 1 and 2 was very low. That is, subjects were very unlikely to report schema-instantiating events that were not mentioned in the information they read. In contrast, Graesser and his colleagues (Graesser et al., 1979; Graesser, Woll, Kowalski, & Smith, 1980) found that subjects' ability to discriminate between presented and nonpresented schema-instantiating events on a recognition memory task was no better than chance. On the surface, these sets of data seem inconsistent.

The selective-representation model can potentially account for this difference, however. That is, when no schema-unrelated events are presented, no schema-instantiating events are theoretically retained in the representation that subjects form from the information. Consequently, there is no way to distinguish between presented and unmentioned schema-instantiating

Table 5
Conditional Probabilities of Recalling Each Type of Event as a Function of the Type of Event Recalled Immediately Preceding It (Experiment 2)

<table>
<thead>
<tr>
<th>Event order</th>
<th>Two unrelated events presented</th>
<th>Six unrelated events presented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Instantiating</td>
<td>Unrelated</td>
</tr>
<tr>
<td>Schema identification first</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instantiating</td>
<td>.34</td>
<td>.71</td>
</tr>
<tr>
<td>Unrelated</td>
<td>.51</td>
<td>.21</td>
</tr>
<tr>
<td>Schema identifying</td>
<td>.15</td>
<td>.08</td>
</tr>
<tr>
<td>Schema identification last</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instantiating</td>
<td>.21</td>
<td>.54</td>
</tr>
<tr>
<td>Unrelated</td>
<td>.40</td>
<td>.16</td>
</tr>
<tr>
<td>Schema identifying</td>
<td>.39</td>
<td>.30</td>
</tr>
</tbody>
</table>

Note. Dashes indicate no information available.
events, and so both intrusions (in free recall) and false recognition errors should occur. In contrast, suppose schema-unrelated events are described in the information. Then, presented schema-instantiating items will be retained in the representation that is formed, and these items, by virtue of their inclusion in the representation, should be distinguishable from other, unmentioned items. This leads to a clear prediction: Intrusion errors in the recall of instantiating items should be less frequent when schema-unrelated events are included in the information than when they are not. Experiment 3 examined this possibility.

Method

Subjects were 24 introductory psychology students who had not participated in either Experiment 1 or Experiment 2. Each subject read six scenarios of the sort used under schema-identification-first conditions of the first two studies. Each scenario described four instantiating events. In three of the scenarios, however, descriptions of four unrelated events were also included, whereas in the remaining three scenarios, no unrelated events were mentioned. The specific scenarios used in each condition were counterbalanced across subjects so that each scenario was used in each condition an equal number of times. After reading the scenarios, and performing a delay task for 10 min, subjects were asked to recall the information under instructions that encouraged guessing.

Results

According to the selective-representation model, the addition of unrelated events into the scenarios subjects read should decrease the number of intrusions of unmentioned, schema-instantiating events in subjects’ free recall protocols. This was the case. That is, the number of such intrusions was significantly less when unrelated events were presented ($M = 0.25$) than when they were not ($M = 0.96$), $t(23) = 2.81$, $p > .02$.

In contrast, presenting unrelated events increased the likelihood of recalling the instantiating events that were actually presented ($21$ vs. $13$), $t(23) = 1.76$, $p < .05$, and also the likelihood of recalling schema-identifying events ($72$ vs. $51$), $t(23) = 2.79$, $p < .01$. These latter results are also consistent with the selective-representation model and confirm conclusions drawn on the basis of Experiment 2.

General Discussion

Despite some anomalies, the results of the three experiments we performed provide good support for the selective-representation model we proposed to account for the effects of prototypic knowledge on memory for situation-specific events. That is, when subjects identify a prototypic event schema that can be used to comprehend a sequence of events that they read about, they typically do not encode events that instantiate the schema into memory. Rather, they store only a pointer denoting the schema that is applicable, along with a series of translation rules that specify the relation between specific features of the information and more general features of the schema. Instantiating events are represented in memory only if schema-unrelated events are mentioned that occur in the context of the instantiating ones and require knowledge of an instantiating event to localize the point at which they occurred. In this case, subjects are likely to retain instantiating events that occur either immediately before or immediately after the unrelated ones, thus permitting the temporal position of the latter events to be reconstructed. Noncontiguous instantiating events, which cannot be used for this purpose, are not retained, however.

Three sets of findings confirmed implications of this conceptualization. First, increasing the number of schema-unrelated events in the description of a situation increased the likelihood of recalling the schema-instantiating events that were mentioned (Experiment 2). However, increasing the number of instantiating events that were described had little effect on the recall of schema-unrelated events (Experiment 1).

Second, the probability of recalling an instantiating event was much greater following the recall of an unrelated event than following the recall of an instantiating event. Moreover, the unrelated event that preceded the recall of an instantiating event was likely to be one that was adjacent to the instantiating event in the original presentation sequence. This confirms our assumption that the facilitating effect of unrelated events on the recall of instantiating ones results from the associations that are formed between these events in an attempt to locate the unrelated events in the temporal sequence.

Third, increasing the number of unrelated events presented decreased the probability of intruding unmentioned instantiating events into the set of those recalled. However, it increased the number of presented instantiating events that were recalled correctly.

With one exception, the pattern of results described earlier was evident only when the schema that was relevant to comprehension of the event sequence was made salient at the outset, before any specific events in the sequence were mentioned. In other words, the processes implied by our formulation occur only when subjects have prior knowledge of the schema that can be used to understand the information. Otherwise, subjects process the event information in much the same way they would if none of the events presented were related to a schema. As the results we obtained in schema-identification-last conditions testify, the mention of events that instantiate a schema is not always sufficient to activate the schema. Bower et al. (1979), for example, found that several versions of a "professional office visit" schema (e.g., visiting a doctor, visiting a dentist, etc.) were sometimes necessary to activate the schema and thus to produce the sort of errors in recall and recognition memory that might be expected if the instantiating events presented were not retained.

The other formulations we considered have difficulty in accounting for the pattern of results we obtained. The complete-representation and no-representation models assume that either all instantiating events or no such events get encoded into the new representation (regardless of whether they were actually presented). Both of these models imply that varying the number of unrelated events presented should not affect either the recall of instantiating events (contrary to the results of Experiments 2 and 3), the recall of the schema-identifying event (contrary to results of Experiments 2 and 3), or intrusions of unmentioned instantiating events (contrary to the results of Experiment 3). The partial-representation model, which is most similar to that proposed by Gnesser and Nakamura (1982), also predicts that increasing the number of instantiating events
presented should decrease the proportion of these events that were recalled. This prediction is contradicted by the results of Experiment 1.

Finally, the evidence that instantiating events are more likely to be recalled following an unrelated event than following other schema-instantiating ones cannot be explained on the basis of any of the three alternative models. Therefore, of the formulations we considered, the selective-representation model is the most viable.

Certain aspects of our results are nevertheless inconsistent with the model. Particularly embarrassing to the model is the fact that the pattern of conditional recall probabilities observed in Experiment 2, which theoretically should be restricted to schema-identification-first conditions, also occurred when the schema was not identified until last. This was not the case in Experiment 1. As noted earlier, the set-size effects we predicted in Experiment 2 were restricted to schema-identification-first conditions. This argues against the possibility that our manipulation of schema salience in this experiment was ineffective. Because none of the other models we considered can account for this result either, and because this is the only aspect of our findings that creates serious problems for the selective-representation model, we are inclined to treat it as anomalous. Pending replication, however, the finding should be kept in mind when evaluating the model’s validity.

One conceptual ambiguity remains to be resolved. That is, the instantiating event descriptions we presented corresponded closely to the schema-defining concepts themselves, and so their meaning was completely captured by these concepts. Thus, the instantiating event “received the money” added no information at all given that the “cashing a check” schema had been identified. In many cases, however, features of an instantiating event description are situation specific. For example, if the instantiating event we used had been “received $1,000,” the specification of $1,000 would constitute new knowledge that could not be reconstructed on the basis of the schema-defining concept that is used to comprehend it. The question arises as to how such situation-specific features are retained. One possibility is that subjects construct and store a set of equivalence statements similar to those implied by the no-representation theory (“money = $1,000”) that permit specific features to be instantiated in terms of schema variables. (These equivalence statements could be stored in the pointer.) The equivalence statements could later be used to reconstruct the sequence of events that occurred even though representations of the events themselves were not stored. Note that if this is true, the situation-specific features contained in the pointer might later intrude on the reconstruction of other schema-instantiating events to which they are relevant as well as retained in the event descriptions in which they were originally mentioned.

A related consideration is that the event concepts described in the present research are themselves defined in terms of sequences at a more specific level. The event “paid the bill,” for example, comprises several more specific behaviors that are often described in more concrete terms (e.g., “took out a Visa card”). Events of the latter type do not instantiate schema-defining concepts but nevertheless clearly occur in the course of an event that, at a higher level of generality, is schema defining.

Some insight into how this type of information is represented in memory was obtained by Fuhrman and Wyer (1977, reported in Wyer & Srull, 1989). Subjects read a passage describing either (a) a schema-identifying event but no other schema-relevant information, (b) only schema-instantiating events, or (c) only schema-relevant events that did not instantiate schema-defining concepts but were unambiguously associated with these concepts. (In a restaurant, for example, “took out his Visa card” does not instantiate a schema-defining concept but clearly occurs in the course of “paying the bill.”) On the basis of response time data obtained in a temporal order judgment task (for an elaboration of this task and its diagnostic value, see Galambos & Rips, 1982; Notenboom & Shoben, 1980; Wyer et al., 1985), Fuhrman and Wyer concluded that when only schema-related events were presented, the schema-defining concepts to which they pertained were retrieved and used to interpret them. However, instantiations of these concepts did not themselves become part of the representation that was formed. This conclusion is consistent with the selective-representation model. That is, the schema-related events could be temporally located on the basis of concepts in the schema alone without actually adding instantiations of these concepts to the representation. Consequently, these instantiations were not included.

The converging implications of Fuhrman and Wyer’s (1977, cited in Wyer & Srull, 1989) findings and those reported here are particularly encouraging because they suggest that the conclusions drawn from the present research are not paradigm bound but can be confirmed using a variety of research methodologies. At the same time, the situations we investigated are admittedly somewhat removed from those that ultimately need to be explored to understand the way in which people represent in memory the sorts of nonmundane experiences that they often learn about or personally encounter in their daily lives. Nonetheless, we believe that the selective-representation model provides a first step in conceptualizing the cognitive representation of social event sequences in more natural situations.

References


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