NARRATIVE-BASED REPRESENTATIONS OF SOCIAL KNOWLEDGE: THEIR CONSTRUCTION AND USE IN COMPREHENSION, MEMORY, AND JUDGMENT

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For thousands, maybe millions of years, people have been telling stories to each other. They have told stories around the campfire; they have travelled from town to town telling stories to relate the news of the day; they have told stories by electronic means to passive audiences incapable of doing anything but listening (and watching). Whatever the means, and whatever the venue, storytelling seems to play a major role in social interaction.

(Schank & Abelson)

As Schank and Abelson (1995, p. 2) eloquently suggest, much of the information that we transmit and receive about the world in which we live is conveyed to us in the form of a narrative. That is, it consists of a series of temporally related events involving oneself or other persons, along with the states of affairs that either cause or result from these events. This information can be acquired either through direct experience or from written and oral descriptions. In the course of comprehending it, a mental representation may be formed of the sequence of events as a whole, and this representation may be stored in memory. Later, the representation may be recalled and used to describe the events to others, to interpret new experiences that are similar, and to make judgments or behavioral decisions.

The importance of understanding the comprehension and use of narrative forms of information is reflected in Schank and Abelson's (1995) claim that virtually all of the important social knowledge is composed of "stories" that people either construct from their own life experiences or learn from other sources (movies, television, or other individuals). The way in which narratives are represented in memory has in fact been investigated extensively in research on text comprehension (e.g., Bower & Clark, 1969; Graesser, 1981; Graesser, Singer, & Trabasso,
1994; Stein & Glenn, 1979). The use of these representations in comprehension and judgment is also recognized in many other areas of psychology, ranging from developmental (Miller, 1994) to personality (McAdams, 1988) and clinical (Pennebaker, 2000)(see Wyer, 1995, for numerous examples). In social psychology, their influence is most apparent in analyses of the impact of implicit causal theories on the explanation of observed behavior (Dweck, Hong, & Chiu, 1993; Hong, Morris, Chiu, & Benet-Martinez, 2000), reconstruction of the past (Ross, 1989), the perception of close relationships (Harvey, Orbuch, & Weber, 1992; Holmes & Murray, 1995), and decision making (Pennington & Hastie, 1986, 1992).

Despite this widespread concern with narrative forms of knowledge, social cognition researchers have given relatively little attention to the way that this knowledge is represented in memory and the processes that underlie its use in making judgments and decisions. More generally, they have focused on how people organize information about an individual's traits and behaviors in the course of forming an impression of the person (for reviews, see Srull & Wyer, 1989; Carlston & Smith, 1996). This information is typically conveyed in a randomly ordered list, and the behaviors are unrelated to one another except by virtue of the common traits they exemplify. The mental representations that are formed from this type of information have implications for an understanding of how people respond to letters of reference and personnel appraisals. However, they may bear little resemblance to the representations that people form from social experiences of the sort they encounter in daily life.

The lack of attention given to the mental representations of social experiences is perhaps understandable. The content and structure of such representations, and when these representations are used, are difficult to conceptualize. Different representations can often be formed of the same sequence of events, and these representations can be coded in different sense modalities. Furthermore, information that is transmitted in one modality may be represented in memory in another. For example, the information we acquire through direct experience is often conveyed both visually and acoustically and may initially be encoded into memory in ways that correspond to these modalities. In the course of describing an experience to another, however, we may recode the events that occurred linguistically and may construct a new mental representation that is composed of these new codings. Moreover, the content and structure of this additional representation may depend on the communication goals that exist at the time it is formed.

By the same token, verbal descriptions of an experience may be coded linguistically. However, these verbal descriptions can elicit mental images, and these images, as well as the linguistic codings of the experience, can become part of the representation of it (Wyer & Radvansky, 1999). Thus, for example, the statement "When John woke up, he found a king cobra lying beside him in his sleeping bag" is likely to be coded into memory both linguistically and in terms of a visual image of John, the snake, and John's reactions. The role of mental imagery in information
processing is widely recognized both in research on text comprehension (Glenberg, Meyer, & Lindem, 1987; Reyes, Thompson, & Bower, 1980) and more generally (Kosslyn, 1990; Shepard & Chipman, 1970). Nevertheless, neither this nor other research provides insight into the interface between linguistic and nonverbal representations of social and personal experiences. Nor does it articulate the conditions in which these different types of representations come into play in making inferences and judgments. Moreover, these questions have seldom even been raised in social cognition research and theorizing (for an exception, see Carlston, 1995; Wyer & Carlston, 1979).

We hope to remedy some of these deficiencies. In the first half of this chapter, we describe the way in which narrative-based representations of knowledge are formed in the course of comprehending social events of the sort one encounters in daily life. In doing so, we consider the representation of situation-specific experiences that are coded in a number of sense modalities and are constructed at the time information about the experiences is comprehended. In this context, we discuss both when and how many of these representations are likely to be constructed from a given experience. We also explore the conditions in which abstract representations of events (e.g., scripts; see Schank & Abelson, 1977) are constructed and examine the conditions in which these generalized representations are used to comprehend events that involve oneself or a personal acquaintance. Finally, we consider the way in which abstract representations of a sequence of events can affect the later recall of these events.

After discussing how narrative forms of knowledge are represented in memory, we turn to the way in which these representations can influence a variety of phenomena of concern in social psychological research and theory, including (a) perceptions of validity; (b) judgments and decision making; (c) the role of implicit theories in memory, attribution, and person perception; (d) affect and cognition; (e) stereotyping; (f) perceptions of social reality; and (g) humor elicitation.

I. Narrative-Based Representations of Knowledge: General Considerations

We assume that a narrative representation of knowledge is composed of two or more temporally ordered and thematically related segments that are stored in memory as a unit. Each segment refers to a different event or, alternatively, to a state of affairs that either causes or is caused by this event. For example, the sequence "Professor Smith told Mary she got an A on the exam; Mary was ecstatic; she drank a glass of champagne" describes a sequence in which the first event produces a state of affairs that, in turn, stimulates a second one. As this example indicates, the segments of a narrative are linked causally and thematically as well as temporally.
This constraint distinguishes a narrative from a temporal sequence of events or states that have no clear relation to one another. For example, the sequence of events “Professor Smith told Mary she got an A; Mary visited her grandmother; John called Mary for a date” all pertain to the same individual and might occur in the order indicated. Nevertheless, the events are thematically unrelated and, therefore, would not be stored in memory in the form of a narrative. Rather, they are likely to be stored independently as separate units of knowledge (Wyer & Srull, 1989).

Narrative-based representations vary in generality. As indicated in our previous examples, the events described in some narratives pertain to a particular person and occur at a specific (although unspecified) time and place. (In the discussion to follow, we refer to these representations as episode models.) Other narrative representations are not temporally specific. For example, they could refer to a particular person, but the events they describe might not be specific to a particular time and place (e.g., “John got an education. Then, he got a job. Later, he served as a state senator.”). Alternatively, they could refer to events that occur in a particular type of situation but generalize over persons and times (e.g., “People enter a restaurant, look at the menu, order a meal, eat, and pay the bill.”). These generalized representations, which are often formed in the course of conscious goal-directed activity, differ from situationally and temporally specific narrative-based representations both in content and in the conditions in which they are constructed and used. Because these differences are central to the issues of concern in this chapter, they warrant detailed consideration.

A. EVENT AND EPISODE MODELS

Our conceptualization of situation-specific representations of events is based on a theory of social comprehension proposed by Wyer and Radvansky (1999). They postulate that in order to comprehend information about an event that occurs in a specific situational and temporal context (i.e., an event that involves a particular individual at a particular time and place), people spontaneously construct a mental simulation of the event. This simulation is called an event model. Moreover, when people experience a sequence of such events that are thematically related, they are likely to combine the models they have formed of the events into a single multiple-segment episode model.1 These models, which are a subset of mental models (cf. Johnson-Laird, 1980, 1983; Kintsch, 1998; Zwaan & Radvansky, 1998), can have both metalinguistic and nonverbal components. The metalinguistic component of an event model is analogous to a proposition that describes verbally the

1This assumes that a personal experience is not represented by a continuous stream of events, but rather as a series of discrete “frames” that are extracted from this stream. For alternative theoretical accounts of the nature of these frames, see Ebbesen, 1980; Newtson, 1976; Wyer & Srull, 1989.
event to which it refers (e.g., “Mary bought a car”). The nonverbal component, which can be viewed metaphorically as a mental image, consists of a configural representation of both the entities (persons and objects) involved in the event and the relations among them.

In addition, an episode model (and the event models that compose it) has a spatial-temporal framework. (That is, the event it depicts occurs in a particular time and location.) The existence of this framework, which is a necessary condition for the construction of the model, can be either explicit or implicit. For example, “Mary bought a car” occurred at a particular (albeit unspecified) time and place. In contrast, “Mary owns a car” is not temporally and spatially localized. Therefore, comprehension of the latter statement would normally not lead to the construction of an event or episode model. Rather, it might be stored in a generalized representation of Mary of the sort that is assumed to underlie person impressions (cf. Srull & Wyer, 1989).

The “image” component of an event model is somewhat analogous to a “picture,” and the linguistic component to a “caption.” Thus, the sequence of segments that compose an episode model as a whole might be likened to a comic strip (see Abelson, 1976; Wyer & Carlston, 1979, for similar analogies). However, the analogy between the image component of an event model and a picture is loose. For one thing, the image may omit specific features of its referents that would necessarily exist in a photograph. (Thus, the image of Mary in our example would be likely to identify her as a woman but might not specify the color of her eyes or the clothes she is wearing.) At the same time, the image can be coded not only visually but in other sense modalities as well. For example, the representation of a man who shouts, “Watch out for that car!” might contain acoustic features as well as visual ones. Finally, the social experiences to which an episode model refers can often include oneself as either a participant or an observer. Under these circumstances, the model’s features could include a representation of one’s cognitive or affective responses to the experience (i.e., thoughts or feelings) as well as the events that compose it.

One assumption made by Wyer and Radvansky (1999) is particularly important in the present context. That is, the image components of an episode model are obligatory, as they are necessary in order to comprehend the events they depict. In contrast, the propositional components are optional. These latter components may be included only if the events to be represented are described verbally. If the events are directly experienced or observed, the nonverbally coded features of the events may be sufficient to comprehend them, and so the representation that is formed of them may not include a metalinguistic description. Thus, as an intuitive example, people who watch a movie are unlikely to assign verbal labels to their observations. On the other hand, people who read a book may spontaneously form mental pictures of the events described and the characters involved in them and, in doing so, may elaborate features of the events that were not specified in the
verbal description that was provided (see Graesser, Singer, & Trabasso, 1994, for a detailed discussion of such spontaneous inferences and when they occur).

Once an episode model has been formed, it may often be assigned a header or "title." The header (which may be coded propositionally) constitutes a generalization of the event sequence as a whole. It normally describes what the model is about and serves to index the model in memory. Consequently, it can function as a retrieval cue for the sequence of events it denotes. Thus, for example, "Los Angeles police harass racial minorities" could be the header of an episode model that was formed while watching a telecast of the Rodney King beating. In this regard, the assignment of a header to an episode model is assumed to be the result of conscious goal-directed activity that occurs in the course of thinking about the implications of the events described or communicating about the events to others. Thus, if the model is thought about with reference to more than one objective, it might have several headers. If it never becomes involved in goal-directed activity, on the other hand, it might not have a header at all.

The major implications of the preceding discussion can be summarized in two postulates as follows:

Postulate 1: People construct event and episode models spontaneously in the course of comprehending events that occur in a spatial-temporal framework.

Postulate 2: Episode models can have both metalinguistic and nonverbal ("image") components. However, although the image component of an episode model is obligatory, the metalinguistic component is optional.

Empirical support for these postulates is provided later.

B. GENERALIZED NARRATIVE-BASED REPRESENTATIONS

Episode models are theoretically formed spontaneously in the course of comprehending a temporally and situationally specific sequence of events. Other, generalized event representations can be constructed in the course of pursuing specific goals to which they are relevant. These latter representations, which are usually coded linguistically, can be of several types. First, people might construct an abstract representation of a movie they have seen, or of their activities during a vacation, in the course of describing it to a friend. Similar communication objectives might lead people to construct a more general narrative of the events that have occurred to them or another over an extended period of time (e.g., graduating
from engineering school, working at Bell Laboratories, deciding to get a Ph.D. in psychology, and getting married).

These representations could sometimes be formed by combining the headers of episode models that already exist in memory. In other cases, the "image" components of a previously formed episode model might be coded linguistically in the course of describing the episode to others. Once formed, however, these abstract, goal-specific representations might be stored in memory independently of the more specific episode models on which they were based (Wyer & Srull, 1989). Thus, for example, suppose a person who has seen Schindler's List later describes the movie to another in abstract terms (e.g., "Although Schindler was a Nazi, he gradually became upset by the treatment of Jews and saved many of their lives by keeping them employed in munitions factories until the end of the war"). The individual might later recall this abstract coding of the movie without recalling mental images of the events that gave rise to its construction. The implications of this possibility are considered later in this chapter.

A second type of narrative-based representation may constitute a generalization of several related sequences of events that one has personally experienced, observed, or heard about. Familiar examples of these representations include cultural scripts (Bower, Black, & Turner, 1997; Schank & Abelson, 1977), schema abstractions (Hintzman, 1986), and prototypic event sequences (Wyer & Srull, 1989), which refer to events that are common to many different situations and points in time (e.g., the events that occur when visiting a restaurant). Thus, these representations (unlike episode models) are typically not specific as to time and place.

Another distinction between these narrative representations and episode models should be noted. That is, the abstract representations that are formed in the process of communicating verbally to someone may be coded linguistically but are unlikely to contain mental images of the events to which they refer. Generalized representations, which are abstractions of a number of specific instances, are also unlikely to have an image component. This factor becomes very important in understanding the different roles that narrative representations can play in memory and judgment, as is shown.

Not all generalized representations of social knowledge are in the form of a narrative, of course. For example, one might construct a representation of a person that consists of general traits and behaviors that are not specific as to time and place. These representations are not formed spontaneously in the course of comprehension, but rather, are constructed in the course of goal-directed cognitive activity (e.g., forming an impression of the individual) (Hamilton, Katz, & Leirer, 1980; Hastie & Kumar, 1979; Srull & Wyer, 1989). The construction and use of representations of this type have been studied extensively in social cognition research (cf. Carlston, 1995; Wyer & Carlston, 1994; Wyer & Srull, 1989). As we have noted earlier, however, these representations are generally
metalinguistic coding of them. A direct test of this hypothesis is described later. However, more indirect evidence of the role of visual imagery in prose comprehension is worth noting briefly.

1. The Role of Imagery in Prose Comprehension

Numerous studies are consistent with the assumption that people form visual images spontaneously in the course of comprehending verbal descriptions of events. Bransford, Barclay, and Franks (1972), for example, showed that memory for apparently anomalous sentences (e.g., “The haystack was important because the cloth would rip”) was substantially improved by preceding the sentences with single words (e.g., “parachute”) that permitted a scenario to be constructed of an event in which the statements were meaningful. Garnham (1981) found that people were more likely to confuse “The hostess bought a mink coat from the furrier” with “The hostess bought a mink coat at the furrier’s” than to confuse “The hostess received a telegram from the furrier” and “The hostess received a telegram at the furrier’s.” This difference apparently occurred because, although the pairs of sentences are structurally similar, the sentences in first pair elicit the same mental image, whereas the sentences in the second pair do not.

In a study by Glenberg, Meyer, and Linden (1987), participants read a story in which a sweatshirt was either associated with the protagonist at the outset (e.g., “John put on his sweatshirt before going jogging”) or was separated from him (e.g., “John took off his sweatshirt before going jogging”). Their recognition of specific features mentioned in the passage (including “sweatshirt”) was then assessed. The actual time interval between the mention of the sweatshirt in the story and its occurrence in the recognition list was the same in all cases. Nevertheless, participants recognized the target object more quickly in the first condition than in the second. People in the first condition apparently formed a mental image of John wearing the sweatshirt that persisted throughout the mental representation they formed of the events that occurred later, and this image was salient at the time of recognition. In the second condition, however, this was not the case.

A study by Black, Turner, and Bower (1979) suggests that the mental images people form from text are constructed from a particular visual perspective. For example, people take less time to comprehend sentences such as “While Mary was reading a book in her room, John came in to talk to her” than sentences such as “While Mary was reading a book in her room, John went in to talk to her.” This is presumably because people who read the beginning of the first sentence construct an image of Mary from someone inside the room, and this perspective is maintained when they comprehend the last part of the sentence. In contrast, the last part of the second sentence elicits an image of John from someone outside the room, and this shift in visual perspective increases the time required to comprehend it.
2. A Direct Test

Although the aforementioned studies are consistent with Postulate 2, they do provide not direct evidence that mental images are constructed spontaneously in the course of comprehending verbal descriptions of events. Nor do they confirm the second component of the postulate that linguistic codings of events are not spontaneously added to representations formed from events that are encountered visually. A study by Colcombe and Wyer provides this confirmation.

We constructed two scenarios of about 14 events each. One scenario, which concerned a day at school, described a male student getting up in the morning, getting dressed, eating breakfast, leaving his apartment, finding that his bicycle has a flat tire, walking to school, getting to class late, leaving, meeting a friend, going to the library, and falling asleep at a table. The other, dating scenario portrayed the student getting ready for a date, meeting the date, buying ticket for a movie; buying some popcorn, eating it while watching the show, leaving, going to a pub, observing his date flirt with a friend, sulking while walking home, but kissing his date good night at the door. Four sets of stimuli were constructed for each scenario, two composed of “pictures” and two composed of “captions.” Specifically, two different sets of photographs were prepared of the events, each of which was taken from a different perspective. Two different sets of verbal descriptions were also prepared that were similar in meaning but differed in wording (e.g., “discovered his bicycle tire was flat” vs “saw that his bike had a flat tire”).

Participants (106 introductory psychology students) were instructed that we were interested in how people comprehend everyday life events and that they would be shown a series of events on a computer screen. With this preamble, some participants received a sequence of pictures of the events composing one of the two scenarios (either the school scenario or the date scenario). Other participants read verbal descriptions of the events (captions), and a third group of participants received both pictures and captions in combination. In narrative-order conditions, the events were conveyed in the order they occurred. In scrambled-order conditions, however, they were presented in unsystematic order rather than in their natural sequence.

Participants saw the entire stimulus sequence twice. Then, after a short delay, they were told that they would be shown a number of events would be presented on the computer screen, that some of which were be described verbally and others of which were conveyed in pictures, and they should indicate in each case whether the event described was one that had occurred in the scenario they had seen. Participants were then exposed to events from both the scenario they had considered earlier and the one they had not. In each case, they pressed a button on the keyboard to indicate whether the event was one they had encountered in the information they had received earlier. The time they took to make this determination was recorded.

a. Narrative Order Conditions. We hypothesized that participants who had read verbal descriptions of the events in narrative order would spontaneously form
NARRATIVE-BASED REPRESENTATIONS OF KNOWLEDGE

TABLE I
MEAN TIME TO VERIFY PICTURES AND CAPTIONS AS A FUNCTION OF PRESENTATION ORDER
AND THE TYPE OF INFORMATION INITIALLY PRESENTED

<table>
<thead>
<tr>
<th>Initial information</th>
<th>Picture</th>
<th>Verbal description</th>
<th>Picture plus verbal description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative order</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time to pictures</td>
<td>1.97 (19)</td>
<td>1.90 (14)</td>
<td>2.05 (20)</td>
</tr>
<tr>
<td>Response time to verbal descriptions</td>
<td>2.53</td>
<td>1.71</td>
<td>1.96</td>
</tr>
<tr>
<td>Scrambled order</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time to pictures</td>
<td>2.16 (19)</td>
<td>2.50 (18)</td>
<td>1.91 (16)</td>
</tr>
<tr>
<td>Response time to verbal descriptions</td>
<td>2.26</td>
<td>2.23</td>
<td>2.09</td>
</tr>
</tbody>
</table>

mental images of these events and would consequently have these images in memory at the time they performed the judgment task. Therefore, they should later be able to verify pictures of the events very quickly. Data shown in the top half of Table I confirm this hypothesis. That is, participants who had read verbal descriptions of events were able to verify a picture of the event just as quickly as another verbal description of it (1.90 s vs 1.71 s, respectively).

In contrast, we expected that participants who saw only pictures of the events would encode them into memory in terms of mental images but would not spontaneously encode them linguistically. Consequently, if these participants were later asked to verify a verbal description of the events, they would have to translate the image into linguistic terms in order to make this determination, and this translation would take additional time. This hypothesis was also confirmed. That is, participants who had seen pictures of the events took longer to identify verbal descriptions of the events than to identify similar pictures of them. Put another way, participants verified an events described in a picture just as quickly when they had previously been exposed to a verbal description of the event as when they had seen a similar picture of it (1.97 s vs 1.90 s, respectively). However, they took longer to verify a verbal description of an event when they had seen a picture of it than when they had read another verbal description of it (2.53 s vs 1.71 s).

b. Scrambled Order Conditions. The data obtained under narrative-order conditions confirm the hypothesis that participants spontaneously form mental images of events that are described verbally but do not spontaneously make linguistic codings of events that are conveyed in pictures. This conclusion, however, may only be valid when participants construct multiple-segment episode models of the sequence of events they encounter. When event information is conveyed in
scrambled order, these models may not be formed. Results shown in the bottom half of Table I indicate that in this condition, participants verified verbal descriptions of events as easily when they had previously been exposed to pictures of the events \( (M = 2.26 \text{ s}) \) as when they had read other verbal descriptions of them \( (M = 2.23 \text{ s}) \). However, they took longer to verify events described in pictures when they had previously read verbal descriptions of the events \( (M = 2.50 \text{ s}) \) than when they had been seen another picture of them \( (M = 2.16 \text{ s}) \).

Although this pattern of response times was unexpected, it has a plausible explanation. It may be easier to manipulate verbal symbols mentally than to manipulate visual images. Consequently, participants who had received pictures of the events in scrambled order may have translated them into linguistic terms at the time they first encountered them in order to understand the sequence of events as a whole. As a result, they could later verify a verbal description of an event just as easily as participants who had been given a verbal description in the first place. However, when participants received verbal descriptions of the events in scrambled order, they did not spontaneously form mental images of the events but relied on linguistic codings alone to infer the order in which the events occurred. Therefore, when they were later asked to verify a picture, they were required to recode it in order to compare it with the linguistic representation they had formed earlier, and this took an additional amount of time. Therefore, they took more time to make this comparison than participants who had received a picture at the outset.

B. WHEN ARE EPISODE MODELS FORMED?

The data obtained under scrambled-order conditions of the preceding study place constraints on the conditions in which episode models are formed spontaneously from event descriptions. That is, this may only occur when events are described in an order that makes their temporal and thematic relatedness salient. However, other contingencies in the spontaneous construction of episode models are implied by Postulate 1 (see also Radvansky & Wyer, 1999). For an episode model to be formed spontaneously in the course of comprehending events, for example, these events must occur in a spatial-temporal framework. That is, they must be localized in time and place. When this is not the case, the events may be coded linguistically but mental images may not be formed of them.

A procedure for determining whether an episode model is constructed from a given set of information was developed by Radvansky and Zacks (1991). They reasoned that if a single mental representation is formed from a set of information and is represented in memory as a unified whole, individuals should be able to retrieve the representation and verify its contents quite easily. In contrast, suppose individuals form a separate representation of each piece of information and store these representations independently in memory. Then, the presence of one representation
is likely to interfere with the retrieval of others. Moreover, the amount of this interference and, therefore, the time required to identify the information in memory, should increase with the total number of representations that exist. In other words, set size effects should occur (J. Anderson, 1974; Rundus, 1971).

Radvansky and Zacks (1991) used this criterion successfully to identify contingencies in the construction of spatial mental models. In one study, for example, participants learned sets of one, two, or three statements. In some cases, the statements described objects in a particular location (e.g., “The book is on the table,” “The cup is on the table,” and “The pen is on the table”). In this case, it is easy to form an image of several different objects in a given location. Consequently, participants who learn these sentences are likely to form a single mental model including all of the objects regardless of the number that were described. In other cases, however, sentences described a given object in one, two, or three different locations (“The book is on the table,” “The book is on the chair,” and “The book is on the floor”). However, the same object cannot occupy more than one location simultaneously. Therefore, participants who were exposed to these statements should form a separate representation of each one. Results confirmed implications of this reasoning. That is, the time required to verify statements describing objects in a given location was the same, regardless of the number of objects involved. In contrast, the time required to verify statements describing a given object in different locations increased with the number of locations that were mentioned.

Radvansky, Wyer, Curiel, and Lutz (1997) used a similar paradigm to examine the likelihood of forming multiple-segment episode models. Participants first learned sets of sentences about people (e.g., “the lawyer” and “the doctor”) and objects (“e.g., “razor blades”). However, the sentences varied in several ways. In some sets of sentences, a particular person was associated with one, two, or three objects, whereas in other sets, one, two, or three persons were associated with the same object. In addition, the sentences in each set either described a concrete act (e.g., “the lawyer is buying razor blades”) or a more abstract relationship that was not specific as to time and place (“the lawyer owns razor blades”). Finally, the objects described in some sets of statements (e.g., razor blades, toothpaste, and aspirin) could often be purchased in a single location (e.g., a drugstore), whereas the objects described in other sets (e.g., toothpaste, a necktie, and a bicycle) could not. Sentences were presented in random order. Participants after learning the different sets of sentences to criteria were given a recognition memory task containing both presented statements and distracters.

Although the design of the study was complex, the predictions were straightforward. We expected that participants would form a single episode model from a set of statements only if the statements described behaviors that occurred in a specifiable spatial-temporal framework. Thus, a single multiple-segment model should be formed from statements that referred to a single person buying objects in a single location. In contrast, different models should be formed from statements
that referred either to different persons' behavior in a given location or to a given individual's behavior in different locations. Moreover, when the statements referred to ownership, participants should not form episode models under any condition. These predictions were confirmed on the basis of criteria established by Radvansky and Zacks (1991). Mean response times to statements describing the purchase of objects are shown in Fig. 1 as a function of the number of statements presented in each experimental condition. The top left panel shows that when the statements described the purchases that a single person was likely to make in a single location, response times did not vary with the number of statements presented. In all other cases, however (when the statements pertained to owning rather than buying, when the objects were found in different locations rather than a single one, or when several persons were associated with the same object rather than a single person being associated with different objects), set size effects were apparent.

C. HOW MANY EPISODE MODELS ARE FORMED?

People obviously do not construct a single narrative representation of their entire life or the lives of other persons they know or read about. Rather, they form separate representations, each composed of events that are thematically as well as temporally related. On the other hand, even thematically related events can occur in different situations or at several different points in time. A question therefore arises as to how many episode models are likely to be formed from a given sequence of temporally related events. And, if several different models are formed, how are they organized in memory so that the entire sequence of experiences can later be reconstructed? Several studies in our laboratory over the past several years bear on various aspects of these questions.

1. Effects of Thematic Relatedness

An early study by Wyer and Bodenhausen (1985) confirmed the assumption that separate narrative representations are formed from different sets of thematically related events even when these events are encountered in the same situation. Participants read a story about a person's experiences at a cocktail party. The experiences pertained to several different thematically unrelated episodes. In one episode,

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Fig. 1. Mean time to verify a statement as a function of (a) the number of persons associated with a given object or (b) the number of objects associated with a given person. The two top panels show responses to items pertaining to buying objects that could be found in either a single locations (a drugstore) or different locations. The two bottom panels show responses to items pertaining to owning these objects. (Based on data reported by Radvansky, Wyer, Curiel, & Lutz, 1997.) RT = response time; ■ = multiple people/single object; ● = single person/multiple objects.
for example, the protagonist saw someone bump a man’s arm as he reached for an hors d’oeuvre, causing him to spill his drink on a woman’s dress; the woman then called him a name and stalked off to the bathroom. In a second, the protagonist hears about a person’s trip to San Francisco. However, the order in which the two episodes ostensibly occurred in the course of the cocktail party was varied. Moreover, the events composing each episode were described either in chronological order or in the reverse order (e.g., “He heard Ann call John a clumsy oaf and stalk off to the bathroom. John had spilled his drink on Ann’s new dress. Someone had apparently bumped John’s arm as he was reaching for an hors d’oeuvre . . .”). Participants after reading the story and a short delay were asked to recall what they had read. Participants typically recalled the events that composed each episode in chronological order regardless of the order in which the events had been mentioned in the story. However, they typically recalled the episode that occurred later in the cocktail party before the episode that occurred earlier. Thus, participants appeared to construct a multiple-segment episode model of the events composing each thematically related sequence that conveyed the order in which the events occurred. However, they stored these two thematically unrelated episode models in memory independently of one another. Consequently, the more recently formed model, which was presumably more accessible in memory (Higgins, 1996; Srull & Wyer, 1979; Wyer & Srull, 1989), was recalled first. This was true even though the events composing the models were encountered in the same situational context.

2. Temporal Coding of Thematically Related Episode Models

Wyer and Bodenhausen’s (1985) findings suggest that people form separate episode models of events that occur in a given situation. If this is so, however, how is the order of these episodes reconstructed? Wyer, Shoben, Fuhrman, and Bodenhausen (1985) attempted to answer this question. Briefly, participants in some conditions read a story about Willa:

Willa was awakened by a telephone call. She learned that her father was dying. She packed her bags and left for the airport. When she got on the plane, she had three drinks to calm her nerves. She felt dizzy and was glad when the plane landed in San Francisco. When she got to the city, however, she found she had forgotten the name of the hospital where her father was staying. Willa broke down and cried on the streets of San Francisco.

After learning the story to criterion, participants were presented pairs of events that occurred in the story and were asked to indicate which event occurred sooner. The time they required to make their judgment was recorded.

Wyer et al. (1985) hypothesized that participants in comprehending the story would construct a separate episode model of the events that occurred in each
situation (pertaining to Willa’s getting up in the morning, her plane ride, and her experience in San Francisco) and would store these models in memory independently of one another. Before doing so, however, they would assign a temporal “tag” to each model to denote its position in relation to others. In contrast, participants were not expected to assign temporal tags to the individual events that composed these models. Therefore, suppose participants are later given two of these events and asked to indicate the order in which they occurred. Wyer et al. (1985) assumed that to do this, participants would first identify the model in which each event was contained and compare the temporal tags assigned to these models. If the tags differed, they could make a quick decision. If the two tags were the same, however, participants would be forced to compute the order of the events on the basis of the position of these events within the episode model that contained them. This latter computation, however, would require additional time.

Results confirmed implications of these assumptions. Participants took less time to compare two events when one or both of them occurred in the middle of an episode than when the events occurred near the boundary between one episode and another. This suggested that the events in the middle of an episode were more typical of the episode as a whole, and so the model in which they were contained was easier to identify. More important, participants took less time to compare events that occurred in different situations than events that occurred in the same situation, and this was true independently of the position of the events in the story as a whole or the number of other events that occurred in between. These data, therefore, are consistent with the assumption that episode models are usually situation specific and are often stored independently in memory even though they may be thematically related. Thus, the order of the events to which they refer must be reconstructed at the time this order becomes relevant to attain a goal one is pursuing. There is one qualification on this conclusion, however, as we discuss in the next section.

3. Effects of Prior Knowledge on Model Construction

Although the situations described in Wyer et al.’s study were thematically related, their occurrence could not be predicted a priori. The likelihood of forming a single episode model from a given sequence of events may be greater

2Responses to events were generally faster when the events were far apart, suggesting a “symbolic temporal distance” effect similar to that identified by Nottenburg and Shoben (1980) in a study of script-based information processing. However, the effects in the present study were due solely to the fact that temporally distal events were relatively more likely to be in different models than were temporally proximal ones and, therefore, were more often distinguishable on the basis of the temporal tags assigned to the models. When this factor was controlled, response times did not depend on the temporal distance between the events being compared.
when a single preexisting mental representation can be brought to bear on its comprehension. Thus, suppose a thematically related sequence of events has occurred frequently in the past and a generalized event representation (e.g., a script; see Schank & Abelson, 1977) has been formed of the sequence as a whole. Then, this representation may be used as a basis for comprehending a newly encountered sequence that exemplifies it, and so a single episode model might be formed. Moreover, this might be true regardless of the number of different situations in which the events occur.

To investigate these possibilities, we used a procedure similar to that employed by Radvansky and his colleagues (Radvansky et al., 1997; Radvansky & Zacks, 1993) and described earlier. To reiterate, if people have formed different episode models of the events that occur in a given sequence, the time they later take to identify these events should increase with the number of models they have formed. If they have represented the sequence of events in a single model, however, this should not be the case.

Based on this assumption, we constructed four stories, each of which was composed of events that occurred in three situations. Two stories described relatively novel events (e.g., Willa’s ill-fated trip to visit her father mentioned earlier). Two others described more mundane activities of the sort that composed a script. For example, one concerned eating at a restaurant (with scenes pertaining to entering, eating, and paying) and another described going to a movie (with scenes pertaining to buying a ticket, eating some popcorn, and watching the show). Each story was composed of six events, and the number of events pertaining to each scene (one, two, or three) was varied in a Latin square design. (Thus, one version of the restaurant story described one event that occurred while entering the restaurant, two events that occurred while eating, and three events that were involved in paying the bill. A second version described three events that occurred while entering, one that occurred when eating, and two that occurred when paying, etc.).

An additional variable was also manipulated for heuristic purposes. That is, some participants were instructed to imagine that they were personally experiencing the events described, and the protagonist in the stories was referred to as “you.” Other participants were told that the events occurred to a hypothetical person (“Joe”). In all cases, participants studied the stories until they could recall all of the events described, and then were given a recognition memory task containing both the items that were mentioned in the story and distracters. The time to verify the presented items was recorded and analyzed as a function of scenario type (typical vs novel), the imagined protagonist (self vs other), and within-scene set size (one, two, or three events).

This analysis revealed significant interactions of set size with both scenario type, $F(2, 163) = 2.96, p < .08$, and protagonist, $F(2, 163) = 3.69, p < .05$. As expected, response times increased with set size when the event sequence was novel
(1.23 s vs 1.35 s when 1 vs 3 events were described in the sequence, respectively). This suggests that participants formed a different model of each event. When the events were prototypic, however, response times did not depend on the number of events presented (1.48 vs 1.40, respectively). This confirms the hypothesis that verbally described events are more likely to be integrated into a single episode model when they can be interpreted with reference to a preexisting event representation than when such a representation does not exist.

In addition, however, set size effects were more evident when participants imagined themselves in the situation described (1.32 s vs 1.41 s when one vs three events were described, respectively) than when they imagined that others were involved (1.43 s vs 1.33 s, respectively). These data suggest that individuals were less inclined to construct a single multiple-segment episode model of themselves than to construct a model of unknown others. Thus, for example, people who imagine someone else ordering a meal, eating it, and paying the bill may form a single-episode model of these events. When people imagine themselves performing these activities, however, they may not consider them to be part of a single experience and may store them independently in memory, perhaps assigning temporal tags to denote their order as suggested by Wyer et al. (1985).

D. SUMMARY

The research and theory reviewed in this section confirm several assumptions. First, the representation that people construct in the course of comprehending a situation-specific, temporally related sequence of events is composed in part of a nonverbal (e.g., visual) mental image. However, a linguistic coding of the events may not be made spontaneously unless the events are described verbally rather than directly experienced.

Second, people who read about a thematically related sequence of events may often store the sequence as a multiple-segment episode model of the sort assumed by Wyer and Radvansky (1999). However, there are qualifications on this conclusion. For example, if the events occur in different situations, and if the sequence as a whole (although thematically related) composes a relatively novel experience, people may form independent representations of the events in each situation and store them separately in memory along with temporal tags that denote their order of occurrence (Wyer et al., 1985).

Finally, people may not form multiple-segment event representations of activities in which they imagine themselves participating, even if the activities are routine and occur in a single situation. Rather, they may encode the description of each activity separately. This possibility suggests that people comprehend information quite differently when they imagine that it pertains to themselves than when they
NARRATIVE-BASED REPRESENTATIONS OF SOCIAL KNOWLEDGE: THEIR CONSTRUCTION AND USE IN COMPREHENSION, MEMORY, AND JUDGMENT

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For thousands, maybe millions of years, people have been telling stories to each other. They have told stories around the campfire; they have travelled from town to town telling stories to relate the news of the day; they have told stories by electronic means to passive audiences incapable of doing anything but listening (and watching). Whatever the means, and whatever the venue, storytelling seems to play a major role in social interaction.

(Schank & Abelson)

As Schank and Abelson (1995, p. 2) eloquently suggest, much of the information that we transmit and receive about the world in which we live is conveyed to us in the form of a narrative. That is, it consists of a series of temporally related events involving oneself or other persons, along with the states of affairs that either cause or result from these events. This information can be acquired either through direct experience or from written and oral descriptions. In the course of comprehending it, a mental representation may be formed of the sequence of events as a whole, and this representation may be stored in memory. Later, the representation may be recalled and used to describe the events to others, to interpret new experiences that are similar, and to make judgments or behavioral decisions.

The importance of understanding the comprehension and use of narrative forms of information is reflected in Schank and Abelson's (1995) claim that virtually all of the important social knowledge is composed of “stories” that people either construct from their own life experiences or learn from other sources (movies, television, or other individuals). The way in which narratives are represented in memory has in fact been investigated extensively in research on text comprehension (e.g., Bower & Clark, 1969; Graesser, 1981; Graesser, Singer, & Trabasso,
The use of these representations in comprehension and judgment is also recognized in many other areas of psychology, ranging from developmental (Miller, 1994) to personality (McAdams, 1988) and clinical (Pennebaker, 2000)(see Wyer, 1995, for numerous examples). In social psychology, their influence is most apparent in analyses of the impact of implicit causal theories on the explanation of observed behavior (Dweck, Hong, & Chiu, 1993; Hong, Morris, Chiu, & Benet-Martinez, 2000), reconstruction of the past (Ross, 1989), the perception of close relationships (Harvey, Orbuch, & Weber, 1992; Holmes & Murray, 1995), and decision making (Pennington & Hastie, 1986, 1992).

Despite this widespread concern with narrative forms of knowledge, social cognition researchers have given relatively little attention to the way that this knowledge is represented in memory and the processes that underlie its use in making judgments and decisions. More generally, they have focused on how people organize information about an individual’s traits and behaviors in the course of forming an impression of the person (for reviews, see Srull & Wyer, 1989; Carlston & Smith, 1996). This information is typically conveyed in a randomly ordered list, and the behaviors are unrelated to one another except by virtue of the common traits they exemplify. The mental representations that are formed from this type of information have implications for an understanding of how people respond to letters of reference and personnel appraisals. However, they may bear little resemblance to the representations that people form from social experiences of the sort they encounter in daily life.

The lack of attention given to the mental representations of social experiences is perhaps understandable. The content and structure of such representations, and when these representations are used, are difficult to conceptualize. Different representations can often be formed of the same sequence of events, and these representations can be coded in different sense modalities. Furthermore, information that is transmitted in one modality may be represented in memory in another. For example, the information we acquire through direct experience is often conveyed both visually and acoustically and may initially be encoded into memory in ways that correspond to these modalities. In the course of describing an experience to another, however, we may recode the events that occurred linguistically and may construct a new mental representation that is composed of these new codings. Moreover, the content and structure of this additional representation may depend on the communication goals that exist at the time it is formed.

By the same token, verbal descriptions of an experience may be coded linguistically. However, these verbal descriptions can elicit mental images, and these images, as well as the linguistic codings of the experience, can become part of the representation of it (Wyer & Radvansky, 1999). Thus, for example, the statement “When John woke up, he found a king cobra lying beside him in his sleeping bag” is likely to be coded into memory both linguistically and in terms of a visual image of John, the snake, and John’s reactions. The role of mental imagery in information
processing is widely recognized both in research on text comprehension (Glenberg, Meyer, & Lindem, 1987; Reyes, Thompson, & Bower, 1980) and more generally (Kosslyn, 1990; Shepard & Chipman, 1970). Nevertheless, neither this nor other research provides insight into the interface between linguistic and nonverbal representations of social and personal experiences. Nor does it articulate the conditions in which these different types of representations come into play in making inferences and judgments. Moreover, these questions have seldom even been raised in social cognition research and theorizing (for an exception, see Carlson, 1995; Wyer & Carlson, 1979).

We hope to remedy some of these deficiencies. In the first half of this chapter, we describe the way in which narrative-based representations of knowledge are formed in the course of comprehending social events of the sort one encounters in daily life. In doing so, we consider the representation of situation-specific experiences that are coded in a number of sense modalities and are constructed at the time information about the experiences is comprehended. In this context, we discuss both when and how many of these representations are likely to be constructed from a given experience. We also explore the conditions in which abstract representations of events (e.g., scripts; see Schank & Abelson, 1977) are constructed and examine the conditions in which these generalized representations are used to comprehend events that involve oneself or a personal acquaintance. Finally, we consider the way in which abstract representations of a sequence of events can affect the later recall of these events.

After discussing how narrative forms of knowledge are represented in memory, we turn to the way in which these representations can influence a variety of phenomena of concern in social psychological research and theory, including (a) perceptions of validity; (b) judgments and decision making; (c) the role of implicit theories in memory, attribution, and person perception; (d) affect and cognition; (e) stereotyping; (f) perceptions of social reality; and (g) humor elicitiation.

I. Narrative-Based Representations of Knowledge:
General Considerations

We assume that a narrative representation of knowledge is composed of two or more temporally ordered and thematically related segments that are stored in memory as a unit. Each segment refers to a different event or, alternatively, to a state of affairs that either causes or is caused by this event. For example, the sequence "Professor Smith told Mary she got an A on the exam; Mary was ecstatic; she drank a glass of champagne" describes a sequence in which the first event produces a state of affairs that, in turn, stimulates a second one. As this example indicates, the segments of a narrative are linked causally and thematically as well as temporally.
This constraint distinguishes a narrative from a temporal sequence of events or states that have no clear relation to one another. For example, the sequence of events “Professor Smith told Mary she got an A; Mary visited her grandmother; John called Mary for a date” all pertain to the same individual and might occur in the order indicated. Nevertheless, the events are thematically unrelated and, therefore, would not be stored in memory in the form of a narrative. Rather, they are likely to be stored independently as separate units of knowledge (Wyer & Srull, 1989).

Narrative-based representations vary in generality. As indicated in our previous examples, the events described in some narratives pertain to a particular person and occur at a specific (although unspecified) time and place. (In the discussion to follow, we refer to these representations as episode models.) Other narrative representations are not temporally specific. For example, they could refer to a particular person, but the events they describe might not be specific to a particular time and place (e.g., “John got an education. Then, he got a job. Later, he served as a state senator.”). Alternatively, they could refer to events that occur in a particular type of situation but generalize over persons and times (e.g., “People enter a restaurant, look at the menu, order a meal, eat, and pay the bill.”). These generalized representations, which are often formed in the course of conscious goal-directed activity, differ from situationally and temporally specific narrative-based representations both in content and in the conditions in which they are constructed and used. Because these differences are central to the issues of concern in this chapter, they warrant detailed consideration.

### A. EVENT AND EPISODE MODELS

Our conceptualization of situation-specific representations of events is based on a theory of social comprehension proposed by Wyer and Radvansky (1999). They postulate that in order to comprehend information about an event that occurs in a specific situational and temporal context (i.e., an event that involves a particular individual at a particular time and place), people spontaneously construct a mental simulation of the event. This simulation is called an *event model*. Moreover, when people experience a sequence of such events that are thematically related, they are likely to combine the models they have formed of the events into a single multiple-segment *episode model*.¹ These models, which are a subset of mental models (cf. Johnson-Laird, 1980, 1983; Kintsch, 1998; Zwaan & Radvansky, 1998), can have both metalinguistic and nonverbal components. The metalinguistic component of an event model is analogous to a proposition that describes verbally the

¹This assumes that a personal experience is not represented by a continuous stream of events, but rather as a series of discrete “frames” that are extracted from this stream. For alternative theoretical accounts of the nature of these frames, see Ebbesen, 1980; Newtson, 1976; Wyer & Srull, 1989.
event to which it refers (e.g., "Mary bought a car"). The nonverbal component, which can be viewed metaphorically as a mental image, consists of a configural representation of both the entities (persons and objects) involved in the event and the relations among them.

In addition, an episode model (and the event models that compose it) has a spatial-temporal framework. (That is, the event it depicts occurs in a particular time and location.) The existence of this framework, which is a necessary condition for the construction of the model, can be either explicit or implicit. For example, "Mary bought a car" occurred at a particular (albeit unspecified) time and place. In contrast, "Mary owns a car" is not temporally and spatially localized. Therefore, comprehension of the latter statement would normally not lead to the construction of an event or episode model. Rather, it might be stored in a generalized representation of Mary of the sort that is assumed to underlie person impressions (cf. Srull & Wyer, 1989).

The "image" component of an event model is somewhat analogous to a "picture," and the linguistic component to a "caption." Thus, the sequence of segments that compose an episode model as a whole might be likened to a comic strip (see Abelson, 1976; Wyer & Carlston, 1979, for similar analogies). However, the analogy between the image component of an event model and a picture is loose. For one thing, the image may omit specific features of its referents that would necessarily exist in a photograph. (Thus, the image of Mary in our example would be likely to identify her as a woman but might not specify the color of her eyes or the clothes she is wearing.) At the same time, the image can be coded not only visually but in other sense modalities as well. For example, the representation of a man who shouts, "Watch out for that car!" might contain acoustic features as well as visual ones. Finally, the social experiences to which an episode model refers can often include oneself as either a participant or an observer. Under these circumstances, the model's features could include a representation of one's cognitive or affective responses to the experience (i.e., thoughts or feelings) as well as the events that compose it.

One assumption made by Wyer and Radvansky (1999) is particularly important in the present context. That is, the image components of an episode model are obligatory, as they are necessary in order to comprehend the events they depict. In contrast, the propositional components are optional. These latter components may be included only if the events to be represented are described verbally. If the events are directly experienced or observed, the nonverbally coded features of the events may be sufficient to comprehend them, and so the representation that is formed of them may not include a metalinguistic description. Thus, as an intuitive example, people who watch a movie are unlikely to assign verbal labels to their observations. On the other hand, people who read a book may spontaneously form mental pictures of the events described and the characters involved in them and, in doing so, may elaborate features of the events that were not specified in the
verbal description that was provided (see Graesser, Singer, & Trabasso, 1994, for a detailed discussion of such spontaneous inferences and when they occur).

Once an episode model has been formed, it may often be assigned a header or "title." The header (which may be coded propositionally) constitutes a generalization of the event sequence as a whole. It normally describes what the model is about and serves to index the model in memory. Consequently, it can function as a retrieval cue for the sequence of events it denotes. Thus, for example, "Los Angeles police harass racial minorities" could be the header of an episode model that was formed while watching a telecast of the Rodney King beating. In this regard, the assignment of a header to an episode model is assumed to be the result of conscious goal-directed activity that occurs in the course of thinking about the implications of the events described or communicating about the events to others. Thus, if the model is thought about with reference to more than one objective, it might have several headers. If it never becomes involved in goal-directed activity, on the other hand, it might not have a header at all.

The major implications of the preceding discussion can be summarized in two postulates as follows:

Postulate 1: People construct event and episode models spontaneously in the course of comprehending events that occur in a spatial-temporal framework.

Postulate 2: Episode models can have both metalinguistic and nonverbal ("image") components. However, although the image component of an episode model is obligatory, the metalinguistic component is optional.

Empirical support for these postulates is provided later.

B. GENERALIZED NARRATIVE-BASED REPRESENTATIONS

Episode models are theoretically formed spontaneously in the course of comprehending a temporally and situationally specific sequence of events. Other, generalized event representations can be constructed in the course of pursuing specific goals to which they are relevant. These latter representations, which are usually coded linguistically, can be of several types. First, people might construct an abstract representation of a movie they have seen, or of their activities during a vacation, in the course of describing it to a friend. Similar communication objectives might lead people to construct a more general narrative of the events that have occurred to them or another over an extended period of time (e.g., graduating
from engineering school, working at Bell Laboratories, deciding to get a Ph.D. in psychology, and getting married).

These representations could sometimes be formed by combining the headers of episode models that already exist in memory. In other cases, the "image" components of a previously formed episode model might be coded linguistically in the course of describing the episode to others. Once formed, however, these abstract, goal-specific representations might be stored in memory independently of the more specific episode models on which they were based (Wyer & Srull, 1989). Thus, for example, suppose a person who has seen Schindler's List later describes the movie to another in abstract terms (e.g., "Although Schindler was a Nazi, he gradually became upset by the treatment of Jews and saved many of their lives by keeping them employed in munitions factories until the end of the war"). The individual might later recall this abstract coding of the movie without recalling mental images of the events that gave rise to its construction. The implications of this possibility are considered later in this chapter.

A second type of narrative-based representation may constitute a generalization of several related sequences of events that one has personally experienced, observed, or heard about. Familiar examples of these representations include cultural scripts (Bower, Black, & Turner, 1997; Schank & Abelson, 1977), schema abstractions (Hintzman, 1986), and prototypic event sequences (Wyer & Srull, 1989), which refer to events that are common to many different situations and points in time (e.g., the events that occur when visiting a restaurant). Thus, these representations (unlike episode models) are typically not specific as to time and place.

Another distinction between these narrative representations and episode models should be noted. That is, the abstract representations that are formed in the process of communicating verbally to someone may be coded linguistically but are unlikely to contain mental images of the events to which they refer. Generalized representations, which are abstractions of a number of specific instances, are also unlikely to have an image component. This factor becomes very important in understanding the different roles that narrative representations can play in memory and judgment, as is shown.

Not all generalized representations of social knowledge are in the form of a narrative, of course. For example, one might construct a representation of a person that consists of general traits and behaviors that are not specific as to time and place. These representations are not formed spontaneously in the course of comprehension, but rather, are constructed in the course of goal-directed cognitive activity (e.g., forming an impression of the individual) (Hamilton, Katz, & Leirer, 1980; Hastie & Kumar, 1979; Srull & Wyer, 1989). The construction and use of representations of this type have been studied extensively in social cognition research (cf. Carlston, 1995; Wyer & Carlston, 1994; Wyer & Srull, 1989). As we have noted earlier, however, these representations are generally
irrelevant to the issues of concern in this chapter, and so they are not discussed in detail.

The implications of this discussion can be summarized in a third postulate as follows:

**Postulate 3:** Abstract narrative representations of social information are typically formed in the course of attaining specific objectives to which they are relevant. These representations, which are likely to be coded linguistically, may be constructed from episode models of the events they depict. Once constructed, they are stored in memory independently of other representations of the events to which they pertain.

II. The Content and Structure of Episode Models of Social Experiences

In the preceding section, we described two general types of narrative representations: event and episode models of situation-specific experiences (which are formed spontaneously in the course of comprehending events and are coded nonverbally as well as linguistically) and more abstract, generalized event representations (which are formed in the course of specific goal-directed activity). It is obviously important to understand when each type of narrative representation is activated and used as a basis for judgments and decisions. We discuss these matters in detail in later sections of this chapter. Because the construction and use of episode models is central to the conceptualization we propose, however, it is desirable to address a number of fundamental questions concerning (a) the role of mental imagery in the formation of these models, (b) the conditions in which episode models are actually formed, and (c) the number of different models that are likely to be constructed from a given experience.

A. THE ROLE OF MENTAL IMAGES IN THE REPRESENTATION OF SOCIAL KNOWLEDGE

The central features of our conceptualization are embodied in Postulates 1 and 2. That is, the episode models that people construct in the course of comprehending a sequence of situation-specific events necessarily have a nonverbal (image) component, whereas the metalinguistic (propositional) component of these models is optional. This implies that descriptions of events that are conveyed verbally will spontaneously elicit a mental image of these events in the course of comprehending them. In contrast, a picture of the events might *not* spontaneously elicit a
metalinguistic coding of them. A direct test of this hypothesis is described later. However, more indirect evidence of the role of visual imagery in prose comprehension is worth noting briefly.

1. The Role of Imagery in Prose Comprehension

Numerous studies are consistent with the assumption that people form visual images spontaneously in the course of comprehending verbal descriptions of events. Bransford, Barclay, and Franks (1972), for example, showed that memory for apparently anomalous sentences (e.g., “The haystack was important because the cloth would rip”) was substantially improved by preceding the sentences with single words (e.g., “parachute”) that permitted a scenario to be constructed of an event in which the statements were meaningful. Garnham (1981) found that people were more likely to confuse “The hostess bought a mink coat from the furrier” with “The hostess bought a mink coat at the furrier’s” than to confuse “The hostess received a telegram from the furrier” and “The hostess received a telegram at the furrier’s.” This difference apparently occurred because, although the pairs of sentences are structurally similar, the sentences in first pair elicit the same mental image, whereas the sentences in the second pair do not.

In a study by Glenberg, Meyer, and Lindem (1987), participants read a story in which a sweatshirt was either associated with the protagonist at the outset (e.g., “John put on his sweatshirt before going jogging”) or was separated from him (e.g., “John took off his sweatshirt before going jogging”). Their recognition of specific features mentioned in the passage (including “sweatshirt”) was then assessed. The actual time interval between the mention of the sweatshirt in the story and its occurrence in the recognition list was the same in all cases. Nevertheless, participants recognized the target object more quickly in the first condition than in the second. People in the first condition apparently formed a mental image of John wearing the sweatshirt that persisted throughout the mental representation they formed of the events that occurred later, and this image was salient at the time of recognition. In the second condition, however, this was not the case.

A study by Black, Turner, and Bower (1979) suggests that the mental images people form from text are constructed from a particular visual perspective. For example, people take less time to comprehend sentences such as “While Mary was reading a book in her room, John came in to talk to her” than sentences such as “While Mary was reading a book in her room, John went in to talk to her.” This is presumably because people who read the beginning of the first sentence construct an image of Mary from someone inside the room, and this perspective is maintained when they comprehend the last part of the sentence. In contrast, the last part of the second sentence elicits an image of John from someone outside the room, and this shift in visual perspective increases the time required to comprehend it.
2. A Direct Test

Although the aforementioned studies are consistent with Postulate 2, they do provide not direct evidence that mental images are constructed spontaneously in the course of comprehending verbal descriptions of events. Nor do they confirm the second component of the postulate that linguistic codings of events are not spontaneously added to representations formed from events that are encountered visually. A study by Colcombe and Wyer provides this confirmation.

We constructed two scenarios of about 14 events each. One scenario, which concerned a day at school, described a male student getting up in the morning, getting dressed, eating breakfast, leaving his apartment, finding that his bicycle has a flat tire, walking to school, getting to class late, leaving, meeting a friend, going to the library, and falling asleep at a table. The other, dating scenario portrayed the student getting ready for a date, meeting the date, buying ticket for a movie, buying some popcorn, eating it while watching the show, leaving, going to a pub, observing his date flirt with a friend, sulking while walking home, but kissing his date good night at the door. Four sets of stimuli were constructed for each scenario, two composed of "pictures" and two composed of "captions." Specifically, two different sets of photographs were prepared of the events, each of which was taken from a different perspective. Two different sets of verbal descriptions were also prepared that were similar in meaning but differed in wording (e.g., "discovered his bicycle tire was flat" vs "saw that his bike had a flat tire").

Participants (106 introductory psychology students) were instructed that we were interested in how people comprehend everyday life events and that they would be shown a series of events on a computer screen. With this preamble, some participants received a sequence of pictures of the events composing one of the two scenarios (either the school scenario or the date scenario). Other participants read verbal descriptions of the events (captions), and a third group of participants received both pictures and captions in combination. In narrative-order conditions, the events were conveyed in the order they occurred. In scrambled-order conditions, however, they were presented in unsystematic order rather than in their natural sequence.

Participants saw the entire stimulus sequence twice. Then, after a short delay, they were told that they would be shown a number of events would be presented on the computer screen, that some of which were be described verbally and others of which were conveyed in pictures, and they should indicate in each case whether the event described was one that had occurred in the scenario they had seen. Participants were then exposed to events from both the scenario they had considered earlier and the one they had not. In each case, they pressed a button on the keyboard to indicate whether the event was one they had encountered in the information they had received earlier. The time they took to make this determination was recorded.

a. Narrative Order Conditions. We hypothesized that participants who had read verbal descriptions of the events in narrative order would spontaneously form
TABLE I
MEAN TIME TO VERIFY PICTURES AND CAPTIONS AS A FUNCTION OF PRESENTATION ORDER
AND THE TYPE OF INFORMATION INITIALLY PRESENTED

<table>
<thead>
<tr>
<th>Initial information</th>
<th>Picture</th>
<th>Verbal description</th>
<th>Picture plus verbal description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Narrative order</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time to pictures</td>
<td>1.97 (19)</td>
<td>1.90 (14)</td>
<td>2.05 (20)</td>
</tr>
<tr>
<td>Response time to verbal descriptions</td>
<td>2.53</td>
<td>1.71</td>
<td>1.96</td>
</tr>
<tr>
<td><strong>Scrambled order</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time to pictures</td>
<td>2.16 (19)</td>
<td>2.50 (18)</td>
<td>1.91 (16)</td>
</tr>
<tr>
<td>Response time to verbal descriptions</td>
<td>2.26</td>
<td>2.23</td>
<td>2.09</td>
</tr>
</tbody>
</table>

mental images of these events and would consequently have these images in memory at the time they performed the judgment task. Therefore, they should later be able to verify pictures of the events very quickly. Data shown in the top half of Table I confirm this hypothesis. That is, participants who had read verbal descriptions of events were able to verify a picture of the event just as quickly as another verbal description of it (1.90 s vs 1.71 s, respectively).

In contrast, we expected that participants who saw only pictures of the events would encode them into memory in terms of mental images but would not spontaneously encode them linguistically. Consequently, if these participants were later asked to verify a verbal description of the events, they would have to translate the image into linguistic terms in order to make this determination, and this translation would take additional time. This hypothesis was also confirmed. That is, participants who had seen pictures of the events took longer to identify verbal descriptions of the events than to identify similar pictures of them. Put another way, participants verified an events described in a picture just as quickly when they had previously been exposed to a verbal description of the event as when they had seen a similar picture of it (1.97 s vs 1.90 s, respectively). However, they took longer to verify a verbal description of an event when they had seen a picture of it than when they had read another verbal description of it (2.53 s vs 1.71 s).

b. Scrambled Order Conditions. The data obtained under narrative-order conditions confirm the hypothesis that participants spontaneously form mental images of events that are described verbally but do not spontaneously make linguistic codings of events that are conveyed in pictures. This conclusion, however, may only be valid when participants construct multiple-segment episode models of the sequence of events they encounter. When event information is conveyed in
scrambled order, these models may not be formed. Results shown in the bottom half of Table I indicate that in this condition, participants verified verbal descriptions of events as easily when they had previously been exposed to pictures of the events ($M = 2.26$ s) as when they had read other verbal descriptions of them ($M = 2.23$ s). However, they took longer to verify events described in pictures when they had previously read verbal descriptions of the events ($M = 2.50$ s) than when they had been seen another picture of them ($M = 2.16$ s).

Although this pattern of response times was unexpected, it has a plausible explanation. It may be easier to manipulate verbal symbols mentally than to manipulate visual images. Consequently, participants who had received pictures of the events in scrambled order may have translated them into linguistic terms at the time they first encountered them in order to understand the sequence of events as a whole. As a result, they could later verify a verbal description of an event just as easily as participants who had been given a verbal description in the first place. However, when participants received verbal descriptions of the events in scrambled order, they did not spontaneously form mental images of the events but relied on linguistic codings alone to infer the order in which the events occurred. Therefore, when they were later asked to verify a picture, they were required to recode it in order to compare it with the linguistic representation they had formed earlier, and this took an additional amount of time. Therefore, they took more time to make this comparison than participants who had received a picture at the outset.

**B. WHEN ARE EPISODE MODELS FORMED?**

The data obtained under scrambled-order conditions of the preceding study place constraints on the conditions in which episode models are formed spontaneously from event descriptions. That is, this may only occur when events are described in an order that makes their temporal and thematic relatedness salient. However, other contingencies in the spontaneous construction of episode models are implied by Postulate 1 (see also Radvansky & Wyer, 1999). For an episode model to be formed spontaneously in the course of comprehending events, for example, these events must occur in a spatial-temporal framework. That is, they must be localized in time and place. When this is not the case, the events may be coded linguistically but mental images may not be formed of them.

A procedure for determining whether an episode model is constructed from a given set of information was developed by Radvansky and Zacks (1991). They reasoned that if a single mental representation is formed from a set of information and is represented in memory as a unified whole, individuals should be able to retrieve the representation and verify its contents quite easily. In contrast, suppose individuals form a separate representation of each piece of information and store these representations independently in memory. Then, the presence of one representation
is likely to interfere with the retrieval of others. Moreover, the amount of this interference and, therefore, the time required to identify the information in memory, should increase with the total number of representations that exist. In other words, set size effects should occur (J. Anderson, 1974; Rundus, 1971).

Radvansky and Zacks (1991) used this criterion successfully to identify contingencies in the construction of spatial mental models. In one study, for example, participants learned sets of one, two, or three statements. In some cases, the statements described objects in a particular location (e.g., “The book is on the table,” “The cup is on the table,” and “The pen is on the table”). In this case, it is easy to form an image of several different objects in a given location. Consequently, participants who learn these sentences are likely to form a single mental model including all of the objects regardless of the number that were described. In other cases, however, sentences described a given object in one, two, or three different locations (“The book is on the table,” “The book is on the chair,” and “The book is on the floor”). However, the same object cannot occupy more than one location simultaneously. Therefore, participants who were exposed to these statements should form a separate representation of each one. Results confirmed implications of this reasoning. That is, the time required to verify statements describing objects in a given location was the same, regardless of the number of objects involved. In contrast, the time required to verify statements describing a given object in different locations increased with the number of locations that were mentioned.

Radvansky, Wyer, Curiel, and Lutz (1997) used a similar paradigm to examine the likelihood of forming multiple-segment episode models. Participants first learned sets of sentences about people (e.g., “the lawyer” and “the doctor”) and objects (“e.g., “razor blades”). However, the sentences varied in several ways. In some sets of sentences, a particular person was associated with one, two, or three objects, whereas in other sets, one, two, or three persons were associated with the same object. In addition, the sentences in each set either described a concrete act (e.g., “the lawyer is buying razor blades”) or a more abstract relationship that was not specific as to time and place (“the lawyer owns razor blades”). Finally, the objects described in some sets of statements (e.g., razor blades, toothpaste, and aspirin) could often be purchased in a single location (e.g., a drugstore), whereas the objects described in other sets (e.g., toothpaste, a necktie, and a bicycle) could not. Sentences were presented in random order. Participants after learning the different sets of sentences to criteria were given a recognition memory task containing both presented statements and distracters.

Although the design of the study was complex, the predictions were straightforward. We expected that participants would form a single episode model from a set of statements only if the statements described behaviors that occurred in a specifiable spatial-temporal framework. Thus, a single multiple-segment model should be formed from statements that referred to a single person buying objects in a single location. In contrast, different models should be formed from statements
that referred either to different persons’ behavior in a given location or to a given individual’s behavior in different locations. Moreover, when the statements referred to ownership, participants should not form episode models under any condition.

These predictions were confirmed on the basis of criteria established by Radvansky and Zacks (1991). Mean response times to statements describing the purchase of objects are shown in Fig. 1 as a function of the number of statements presented in each experimental condition. The top left panel shows that when the statements described the purchases that a single person was likely to make in a single location, response times did not vary with the number of statements presented. In all other cases, however (when the statements pertained to owning rather than buying, when the objects were found in different locations rather than a single one, or when several persons were associated with the same object rather than a single person being associated with different objects), set size effects were apparent.

C. HOW MANY EPISODE MODELS ARE FORMED?

People obviously do not construct a single narrative representation of their entire life or the lives of other persons they know or read about. Rather, they form separate representations, each composed of events that are thematically as well as temporally related. On the other hand, even thematically related events can occur in different situations or at several different points in time. A question therefore arises as to how many episode models are likely to be formed from a given sequence of temporally related events. And, if several different models are formed, how are they organized in memory so that the entire sequence of experiences can later be reconstructed? Several studies in our laboratory over the past several years bear on various aspects of these questions.

1. Effects of Thematic Relatedness

An early study by Wyer and Bodenhausen (1985) confirmed the assumption that separate narrative representations are formed from different sets of thematically related events even when these events are encountered in the same situation. Participants read a story about a person’s experiences at a cocktail party. The experiences pertained to several different thematically unrelated episodes. In one episode,

Fig. 1. Mean time to verify a statement as a function of (a) the number of persons associated with a given object or (b) the number of objects associated with a given person. The two top panels show responses to items pertaining to buying objects that could be found in either a single locations (a drugstore) or different locations. The two bottom panels show responses to items pertaining to owning these objects. (Based on data reported by Radvansky, Wyer, Curiel, & Lutz, 1997.) RT = response time; ■ = multiple people/single object; ○ = single person/multiple objects.
for example, the protagonist saw someone bump a man's arm as he reached for an hors d'oeuvre, causing him to spill his drink on a woman's dress; the woman then called him a name and stalked off to the bathroom. In a second, the protagonist hears about a person's trip to San Francisco. However, the order in which the two episodes ostensibly occurred in the course of the cocktail party was varied. Moreover, the events composing each episode were described either in chronological order or in the reverse order (e.g., "He heard Ann call John a clumsy oaf and stalk off to the bathroom. John had spilled his drink on Ann's new dress. Someone had apparently bumped John's arm as he was reaching for an hors d'oeuvre . . .").

Participants after reading the story and a short delay were asked to recall what they had read. Participants typically recalled the events that composed each episode in chronological order regardless of the order in which the events had been mentioned in the story. However, they typically recalled the episode that occurred later in the cocktail party before the episode that occurred earlier. Thus, participants appeared to construct a multiple-segment episode model of the events composing each thematically related sequence that conveyed the order in which the events occurred. However, they stored these two thematically unrelated episode models in memory independently of one another. Consequently, the more recently formed model, which was presumably more accessible in memory (Higgins, 1996; Srull & Wyer, 1979; Wyer & Srull, 1989), was recalled first. This was true even though the events composing the models were encountered in the same situational context.

2. Temporal Coding of Thematically Related Episode Models

Wyer and Bodenhausen's (1985) findings suggest that people form separate episode models of events that occur in a given situation. If this is so, however, how is the order of these episodes reconstructed? Wyer, Shoben, Fuhrman, and Bodenhausen (1985) attempted to answer this question. Briefly, participants in some conditions read a story about Willa:

Willa was awakened by a telephone call. She learned that her father was dying. She packed her bags and left for the airport. When she got on the plane, she had three drinks to calm her nerves. She felt dizzy and was glad when the plane landed in San Francisco. When she got to the city, however, she found she had forgotten the name of the hospital where her father was staying. Willa broke down and cried on the streets of San Francisco.

After learning the story to criterion, participants were presented pairs of events that occurred in the story and were asked to indicate which event occurred sooner. The time they required to make their judgment was recorded.

Wyer et al. (1985) hypothesized that participants in comprehending the story would construct a separate episode model of the events that occurred in each
situation (pertaining to Willa’s getting up in the morning, her plane ride, and her experience in San Francisco) and would store these models in memory independently of one another. Before doing so, however, they would assign a temporal “tag” to each model to denote its position in relation to others. In contrast, participants were not expected to assign temporal tags to the individual events that composed these models. Therefore, suppose participants are later given two of these events and asked to indicate the order in which they occurred. Wyer et al. (1985) assumed that to do this, participants would first identify the model in which each event was contained and compare the temporal tags assigned to these models. If the tags differed, they could make a quick decision. If the two tags were the same, however, participants would be forced to compute the order of the events on the basis of the position of these events within the episode model that contained them. This latter computation, however, would require additional time.

Results confirmed implications of these assumptions. Participants took less time to compare two events when one or both of them occurred in the middle of an episode than when the events occurred near the boundary between one episode and another. This suggested that the events in the middle of an episode were more typical of the episode as a whole, and so the model in which they were contained was easier to identify. More important, participants took less time to compare events that occurred in different situations than events that occurred in the same situation, and this was true independently of the position of the events in the story as a whole or the number of other events that occurred in between. These data, therefore, are consistent with the assumption that episode models are usually situation specific and are often stored independently in memory even though they may be thematically related. Thus, the order of the events to which they refer must be reconstructed at the time they become relevant to attain a goal one is pursuing. There is one qualification on this conclusion, however, as we discuss in the next section.

3. Effects of Prior Knowledge on Model Construction

Although the situations described in Wyer et al.’s study were thematically related, their occurrence could not be predicted a priori. The likelihood of forming a single episode model from a given sequence of events may be greater

2Responses to events were generally faster when the events were far apart, suggesting a “symbolic temporal distance” effect similar to that identified by Nottenburg and Shoben (1980) in a study of script-based information processing. However, the effects in the present study were due solely to the fact that temporally distal events were relatively more likely to be in different models than were temporally proximal ones and, therefore, were more often distinguishable on the basis of the temporal tags assigned to the models. When this factor was controlled, response times did not depend on the temporal distance between the events being compared.
when a single preexisting mental representation can be brought to bear on its comprehension. Thus, suppose a thematically related sequence of events has occurred frequently in the past and a generalized event representation (e.g., a script; see Schank & Abelson, 1977) has been formed of the sequence as a whole. Then, this representation may be used as a basis for comprehending a newly encountered sequence that exemplifies it, and so a single episode model might be formed. Moreover, this might be true regardless of the number of different situations in which the events occur.

To investigate these possibilities, we used a procedure similar to that employed by Radvansky and his colleagues (Radvansky et al., 1997; Radvansky & Zacks, 1993) and described earlier. To reiterate, if people have formed different episode models of the events that occur in a given sequence, the time they later take to identify these events should increase with the number of models they have formed. If they have represented the sequence of events in a single model, however, this should not be the case.

Based on this assumption, we constructed four stories, each of which was composed of events that occurred in three situations. Two stories described relatively novel events (e.g., Willa’s ill-fated trip to visit her father mentioned earlier). Two others described more mundane activities of the sort that composed a script. For example, one concerned eating at a restaurant (with scenes pertaining to entering, eating, and paying) and another described going to a movie (with scenes pertaining to buying a ticket, eating some popcorn, and watching the show). Each story was composed of six events, and the number of events pertaining to each scene (one, two, or three) was varied in a Latin square design. (Thus, one version of the restaurant story described one event that occurred while entering the restaurant, two events that occurred while eating, and three events that were involved in paying the bill. A second version described three events that occurred while entering, one that occurred when eating, and two that occurred when paying, etc.).

An additional variable was also manipulated for heuristic purposes. That is, some participants were instructed to imagine that they were personally experiencing the events described, and the protagonist in the stories was referred to as “you.” Other participants were told that the events occurred to a hypothetical person (“Joe”). In all cases, participants studied the stories until they could recall all of the events described, and then were given a recognition memory task containing both the items that were mentioned in the story and distracters. The time to verify the presented items was recorded and analyzed as a function of scenario type (prototypic vs novel), the imagined protagonist (self vs other), and within-scene set size (one, two, or three events).

This analysis revealed significant interactions of set size with both scenario type, $F(2, 163) = 2.96, p < .08$, and protagonist, $F(2, 163) = 3.69, p < .05$. As expected, response times increased with set size when the event sequence was novel.
(1.23 s vs 1.35 s when 1 vs 3 events were described in the sequence, respectively). This suggests that participants formed a different model of each event. When the events were prototypic, however, response times did not depend on the number of events presented (1.48 vs 1.40, respectively). This confirms the hypothesis that verbally described events are more likely to be integrated into a single episode model when they can be interpreted with reference to a preexisting event representation than when such a representation does not exist.

In addition, however, set size effects were more evident when participants imagined themselves in the situation described (1.32 s vs 1.41 s when one vs three events were described, respectively) than when they imagined that others were involved (1.43 s vs 1.33 s, respectively). These data suggest that individuals were less inclined to construct a single multiple-segment episode model of themselves than to construct a model of unknown others. Thus, for example, people who imagine someone else ordering a meal, eating it, and paying the bill may form a single-episode model of these events. When people imagine themselves performing these activities, however, they may not consider them to be part of a single experience and may store them independently in memory, perhaps assigning temporal tags to denote their order as suggested by Wyer et al. (1985).

D. SUMMARY

The research and theory reviewed in this section confirm several assumptions. First, the representation that people construct in the course of comprehending a situation-specific, temporally related sequence of events is composed in part of a nonverbal (e.g., visual) mental image. However, a linguistic coding of the events may not be made spontaneously unless the events are described verbally rather than directly experienced.

Second, people who read about a thematically related sequence of events may often store the sequence as a multiple-segment episode model of the sort assumed by Wyer and Radvansky (1999). However, there are qualifications on this conclusion. For example, if the events occur in different situations, and if the sequence as a whole (although thematically related) composes a relatively novel experience, people may form independent representations of the events in each situation and store them separately in memory along with temporal tags that denote their order of occurrence (Wyer et al., 1985).

Finally, people may not form multiple-segment event representations of activities in which they imagine themselves participating, even if the activities are routine and occur in a single situation. Rather, they may encode the description of each activity separately. This possibility suggests that people comprehend information quite differently when they imagine that it pertains to themselves than when they...
believe it pertains to an unknown person. The series of studies reported in the next section provide further insight into the nature of this difference.

III. The Use of Generalized Representations to Comprehend Situation-Specific Events

The preceding discussion has focused primarily on the representations that people form of situation-specific sequences of behavioral events or episode models as Wyer and Radvansky conceptualize them. However, more general representations of events also exist in memory that do not pertain to a particular time and location. These latter representations, which have been alternatively referred to as cultural scripts (Schunk & Abelson, 1977), event schemas (Frazer, 1981; Wyer & Carlston, 1979), or event prototypes (Colcombe & Wyer, 2001; Wyer & Srull, 1989), often characterize routinized sequences of events that occur repeatedly in a given type of situation (e.g., eating at a restaurant). They might also describe sequences of behaviors that are unique to an individual, but that the person routinely performs in a particular situation (e.g., getting up in the morning).

It might seem reasonable to suppose that once these prototypic representations are constructed, they are used as a basis for comprehending new sequences of events that resemble them. However, this is not necessarily the case. When specific exemplars of a routinized event sequences also exist in memory, new instances of the sequence could be interpreted with reference to one of these specific exemplars as well as a prototypic one. These considerations raise two questions. First, when are prototypic sequences likely to be formed? Second, which type of representation (e.g., an episode model or a generalized representation) is likely to be used to comprehend a given sequence of new experiences?

To answer these questions, it is necessary to develop a methodology that will permit the use of different mental representations to be distinguished. This distinction is sometimes difficult. As Barsalou (1990) has pointed out, many phenomena that might potentially be explained on the basis of exemplar representations of knowledge could alternatively be interpreted in terms of prototype representations as well. However, a series of studies by Trafimow and Wyer (1993) suggest a criterion for distinguishing between the conditions in which prototypic event representations are used to comprehend new information and conditions in which they are not. In addition, their conceptualization has theoretical implications for the mental representation of event sequences more generally. We first describe this conceptualization and its implications for the representation of event information. Then, we use it to evaluate the manner in which personal experiences are comprehended. As is shown, our results suggest that although individuals often interpret information about fictitious
persons' behavior in terms of prototypic event sequences, they do not use these representations to comprehend information that pertains to themselves or familiar others.

A. GENERAL CONSIDERATIONS

Some events occur frequently in a particular type of situation, whereas others are fairly unique. One's experiences at a restaurant, for example, usually include ordering the meal, eating, and paying. In addition, however, one might overhear a couple at the next table discuss their impending divorce or might notice a portrait of Bill Clinton on the wall. Although these latter events are not inconsistent with things that usually occur at restaurants, they are unexpected and are unrelated to the routine events that take place. How are these different types of events integrated into a mental representation of the experience as a whole?

Graesser, Gordon, and Sawyer (1979) postulated that when people receive descriptions of events that exemplify a prototypic event representation (e.g., a "script"; see Schank & Abelson, 1977), they do not store these events in memory. Rather, they construct a "pointer" to the prototypic representation they have formed along with a series of translation rules that specify how elements of the prototype should be instantiated. (Thus, for example, information that John went to Dom's Patio Villa for dinner, ordered lasagna and a bottle of Chianti, and paid $22.65 might be represented by a pointer to a "restaurant visit" prototype along with the rules "customer = John," "restaurant = Dom's," "meal = lasagna," etc.) According to Graesser et al.'s (1979) conceptualization, however, any unrelated events that occur in the course of the visit are simply appended to the pointer as "tags." If this were the case, however, there would be no way to reconstruct the point at which these unrelated events occurred in the overall sequence. Nevertheless, this reconstruction is often possible.

The conceptualization proposed by Trafimow and Wyer (1993) remedies this deficiency. Like Graesser et al. (1979), they assume that routinized events are typically not retained in the representation of a new experience. An exception occurs, however, when an unrelated event is encountered. In this case, people retain a prototypic event that occurred in temporal proximity to it that permits its position in the overall sequence to be localized.

1. An Empirical Test

To demonstrate the validity of this assumption, Trafimow and Wyer (1993) selected several situations with which college students were likely to be very familiar (e.g., cashing a check, photocopying a piece of paper, and making tea) and constructed six events that typically occur in each. In the photocopying situation,
for example, the events included "found the article," "got some change," "found a machine," "aligned the original," "put in the coins," and "pressed the button." Note that although these events occur routinely in the type of situation of concern, some of the events could be part of other routines as well. Consequently, the situation might not be recognized spontaneously on the basis of the first few event descriptions alone.

In addition to the prototypic events, six unrelated events were identified that could plausibly occur in the situation of concern (e.g., "realized he had to return a call," "took out a piece of candy from his pocket," and "saw a person he knew"). These events, along with the prototypic ones, were then used to construct several stories. In one experiment (Trafimow & Wyer, 1993, Experiment 2), the stories consisted of four prototypic events and either two or six unrelated ones. Moreover, in some cases, the story was introduced by a statement that identified the situation (e.g., "John needed to photocopy a paper") and, in other cases, this identifier was not provided. Participants read the stories and then, after an interpolated task, were asked to recall the events they had read.

Trafimow and Wyer (1993) assumed that if participants did not immediately recognize the situation in which the events occurred, they would not activate and use a prototype to comprehend the events. Consequently, their mental representation of the events would be likely to include the events described. To this extent, set size effects should occur; that is, the likelihood of recalling a prototypic event should decrease as the number of unrelated events (and, therefore, the total number of events presented) increases (cf. Anderson & Bower, 1973; Srull & Brand, 1983). However, participants who could identify the situation being described at the outset were expected to apply a prototype of the situation in interpreting it. In this case, therefore, they should not retain the prototypic events in the representation they form unless these events are necessary in order to localize the unrelated ones. In this case, the likelihood of retrieving the prototypic events should increase with the number of unrelated events that need to be localized.

This prediction was confirmed. That is, when the situation was not identified at the outset, participants recalled a slightly lower proportion of prototypic events when six unrelated ones had been mentioned in the story ($M = .195$) than when two had been mentioned ($M = .218$). When the situation was identified, however, participants were more likely to recall prototypic events in the former condition ($M = .279$) than in the latter ($M = .179$).³

Note that when people read a description of a prototypic sequence that contains no unrelated events, they should theoretically include not prototypic events at all in

³Other implications of this conceptualization were also confirmed by Trafimow and Wyer (1993). For example, when a prototype was used to interpret the event information, participants who recalled a prototypic event were more likely to recall the nonprototypic event that immediately preceded it in the sequence than would be expected by chance. When a prototype had not been activated, however, this was not the case.
the representation they form. Consequently, if these participants are later asked to recall the events described in the story, they must rely completely on the prototypic representation they constructed earlier. To this extent, however, they should not be able to distinguish the prototypic events that were actually presented from those that were not. This means that not only the likelihood of recalling the presented events would be relatively low, but intrusion errors should be fairly common as well. When unrelated events are present, however, the prototypic ones are retained in the representation and, therefore, can be distinguished from those that were not mentioned. Consequently, intrusion errors should be less frequent. An additional study by Trafimow and Wyer (1993, Experiment 3) confirmed this hypothesis as well.

2. Methodological Implications

Trafimow and Wyer's (1993) findings provide insight into the content of event representations that people form from sequences of events that they comprehend in terms of a more general, prototypic narrative representation. However, these findings have methodological implications as well. As we noted earlier, it is sometimes unclear whether thematically related event information is likely to be interpreted in terms of a more abstract prototype. Which is the case can be inferred from the effect of introducing theme-unrelated events on the recall of the theme-related ones. If the addition of unrelated events decreases the likelihood of recalling related events (as Trafimow and Wyer found when a prototypic was not made salient at the outset), it would suggest that a more abstract representation was not applied. However, suppose the introduction of theme-unrelated events increases the likelihood of recalling related ones. This would indicate that a generalized representation was in fact used.

These criteria were applied in investigating two questions. First, when are generalized event representations formed? Second, to what extent are generalized event representations used to comprehend information about one's own experiences or those of a familiar other? The remainder of this section addresses these questions.

B. WHEN ARE PROTOTYPES CONSTRUCTED AND APPLIED?

The prototypic representations that Trafimow and Wyer (1993) considered were cultural scripts. These representations may conceivably be formed by spontaneously abstracting features that are common to a number of more specific experiences one has had in the type of situation at hand. On the other hand, these abstract representations could also be acquired through social learning, independently of any specific experiences that exemplify them.

In fact, the conditions in which people spontaneously construct generalized event representations by abstracting the common features of specific experiences
are surprisingly unclear. Moreover, even if these abstract representations exist, they may not always be used. That is, individuals may often interpret a new experience with reference to a similar experience they have had in the past rather than a more abstract representation of the type of events involved. (For example, I might comprehend the events that occur while eating at McDonald's in terms of the events that occurred the last time I visited the restaurant rather than a prototypic representation of what goes on in fast-food restaurants more generally.) This possibility, which is recognized by Schank and Abelson (1995), is indirectly suggested by anecdotal and empirical evidence that people's judgments and decisions are often more strongly influenced by specific experiences than by more general knowledge that is objectively more reliable (Abelson, 1976; Nisbett & Ross, 1980).

Even when a prototypic representation is applicable for comprehending a sequence of events, it may not always be used. Several exemplars of an event prototype may need to be encountered in temporal proximity in order for it to be activated and its applicability to be identified (Gick & Holyoak, 1983; Holyoak & Koh, 1987). Moreover, people may not always be motivated to search for such a representation. In the absence of this motivation, individuals may construct an episode model of a new experience on the basis of other, previously formed models that contain similar features, and a more generalized event representation may not be considered.\(^4\)

Colcombe and Wyer (2001, Experiment 2) examined this possibility using the criteria suggested by Trafimow and Wyer's (1993) findings. The stimulus materials we employed were patterned after those developed by Gick and Holyoak (1983). Specifically, we constructed a number of different stories that exemplified a "convergence schema." The implications of this schema are embodied in the general principle that many small entities can do the work of one large entity if they converge simultaneously on the task at hand. One story, for example, described a problem of fixing a piece of laboratory equipment as follows:

A woman walked into her physics lab to find that a very rare and expensive type of light bulb had been left overnight, fusing the filaments inside the bulb together. The woman knew that a sufficiently intense blast from an ultrasonic wave generator would be able to separate the filaments and thus render the bulb useful again. Several of these wave generators were available in her lab. Unfortunately, a blast from the generator at an intensity high enough to separate the filaments would shatter the glass bulb surrounding the filaments. However, the

\(^4\)Research in other domains (Klein & Loftus, 1993; Klein, Loftus, Trafton, & Fuhrman, 1992; Sherman & Klein, 1994) suggests that the likelihood of using trait concepts rather than specific behaviors to describe individuals in a particular life domain increases with the amount of experience one has had in the domain in question. In only one study (Sherman & Klein, 1994), however, was the amount of experience actually manipulated experimentally and in this study, participants were given an implicit impression formation objective before receiving information about the individuals to be described. Therefore, this research does not bear on the extent to which individuals form new prototypic event representations spontaneously on the basis of experiences that they simply wish to comprehend.
physicist took several of these generators and set them to a relatively low intensity. After carefully positioning the wave generators in a circle around the bulb, she simultaneously discharged all of the generators for a brief interval. This short blast from many different sources at low intensity separated the filaments and preserved the glass bulb. Thus, the light bulb was spared, and the woman’s physics experiments went on successfully.

A second story described the disabling of a terrorist bomb:

Security police discovered that a terrorist had planted a bomb at a major metropolitan U.S. airport. A bomb squad was called in to deal with the problem. Unfortunately, the type of bomb that the terrorists had planted was so sensitive that it was almost impossible to defuse it. The bomb squad knew that if they could cool the bomb down to a very low temperature using liquid nitrogen, it may be possible to defuse. However, if they cooled the bomb down unevenly, or too quickly, it would definitely explode. The only cooling device that they had at the airport used a single large hose. It would deliver too much liquid nitrogen at a single point, and thus set off the bomb. However, the bomb squad used an attachment to split the single hose into several smaller tubes. They positioned these tubes in a circle around the bomb. They then slowly released the liquid nitrogen through the many different tubes. Focusing all of the small tubes on the bomb simultaneously cooled the bomb down slowly and evenly. Thus, the bomb squad was able to safely defuse the terrorist bomb.

Three other stories concerned (a) putting out the fire in a burning woodshed, (b) taking over a corporation, and (c) extinguishing an oil well fire.

Participants were exposed to either one or five of these context stories followed by a target story. The latter story, which concerned an attack on the stronghold of an evil dictator, had four versions. Two versions contained four theme-related events and either two or six unrelated events. Two other versions contained four theme-unrelated events and either two or six related ones. For example, a story containing six theme-related events and four theme-unrelated ones was:

A small country was under the rule of an evil dictator who was despised by his people. The dictator lived in a fortress with many roads leading to it like spokes on a wheel. The dictator was cruel. Rebels realized that they had enough forces to overrun the fortress if they could attack all at once. The rebel general noted that the weather had been turning colder lately. A rebel spy reported back that the dictator had planted mines that would allow only a few men to pass at once along the many roads leading to the fortress. Given that all of the rebel forces must attack the fortress at once, it seemed as though the rebel’s plans were foiled. Birds flocked in a nearby tree. However, the rebel general was very smart and instructed his men to split up into several groups, each taking a different road to the fortress. A dog howled in the distance. In these small groups, the men could pass over the mines without setting them off and then meet up again at the fortress. Thus, the rebels overthrew the evil dictator, and the people in the kingdom lived happily ever after.

To introduce the study, we told participants that we were concerned with how people understand the sorts of information they encounter in stories and novels. On this pretense, participants were given the stories they were assigned and told
to read them as if they encountered them in a book or magazine. After reading the stories and performing a 5-min filler task, they were asked to recall the target story.

Based on the criteria suggested by Trafimow and Wyer's (1993) findings, we assumed that if participants had not identified a generalized event sequence to use in interpreting the target story, their recall of the theme-related events described in the story would decrease as the number of theme-unrelated events in the story increased. This was the case when participants had read only one exemplar of the prototype before being exposed to the target story. These participants recalled a smaller proportion of theme-related events when six unrelated ones were contained in the story ($M = .50$) than when only two unrelated events were presented ($M = .80$). When participants had been exposed to five exemplars before reading the target story, however, they recalled a greater proportion of theme-related events when six unrelated events had accompanied them ($M = .83$) than when only two had accompanied them ($M = .60$). Thus, exposure to a number of exemplars of the sequence apparently led a generalized event representation to be abstracted and subsequently used as a basis for comprehending the target.

Although the conclusions to be drawn from this experiment are clear, there are undoubtedly constraints on their generality. Participants encountered the exemplars we presented within a short period of time. Moreover, they had an implicit objective of comprehending the information. These factors in combination may have stimulated participants to think about the exemplars in relation to one another and, therefore, to abstract a common theme from the stories. When people are exposed to exemplars at different points of time, they may not spontaneously think about them in relation to one another, and so a generalized event representation might not be formed. Moreover, even if such a representation exists, it may not be used to interpret a new experience if a relevant exemplar happens to be more salient at the time a new experience occurs. The latter situation is particularly likely to occur when the experience pertains to oneself or a familiar other. The next two studies confirm this conjecture.

C. THE ROLE OF EPISODE MODELS AND EVENT PROTOTYPES IN COMPREHENDING SELF-RELEVANT KNOWLEDGE

People routinely perform many behaviors on a daily basis. When I get up in the morning, for example, I typically brush my teeth, put on the coffee, do 25 sit-ups, and then have coffee while reading the paper. Then, I walk the dog, come back and take a shower, and dress for work. Although this particular sequence of behaviors may be unique to me, it is nevertheless fairly invariant. Similarly, I might observe my spouse or roommate perform sequences of activities on an equally regular basis. If people form generalized narrative representations spontaneously
as a result of being exposed to a number of exemplars, they might draw on these representations when interpreting new experiences to which they are relevant. For example, a man might use a generalized representation of his wife's activities when preparing for a party to explain her behavior in a new situation or to predict her behavior in the future. Moreover, he might use a prototypic representation of his own behavior in a certain type of situation as a basis for inferring what others would be likely to do under similar conditions (e.g., L. Ross, Greene, & House, 1977).

Although these speculations are plausible, however, they are not necessarily valid. Indeed, inferences about familiar others' behaviors could just as easily be made on the basis of an exemplar (i.e., an episode model). Thus, for example, although my wife typically watches television while I do the dinner dishes, I may predict her behavior in future situations on the basis of a particular instance of this routine that happens to be accessible in memory rather than an abstract representation of her activities in general.

The construction of generalized event representations of one's own and familiar others' behavioral routines may actually be quite uncommon. For one thing, individual instances of these routines are usually not experienced in temporal proximity. For example, one's activities in the course of getting ready for work each day are very similar. However, the activities occur 24 h apart. Moreover, there is little reason to think of the different activities that compose the routine in relation to one another. Rather, the sequence of activities could often reflect procedural knowledge or a series of "productions" (Anderson, 1983; see also Smith, 1984, 1990) that are activated and applied with a minimal of cognitive mediation. The comprehension of familiar others' routinized behavior also does not require the construction and use of a generalized event representation; a previously acquired exemplar representation would usually be sufficient. If people are asked to recount the activities that compose their own or another's behavior routine, they can usually do so. However, this could be done on the basis of an exemplar as well as a prototype. In short, people may only form a generalized event representation of their own or a familiar other's behavior if they have a particular reason to do so, and the conditions in which this occurs may be rather rare.

The hypothesis that people do not use generalized event representations to comprehend their own or familiar others' behavior was confirmed in two additional studies by Colcombe and Wyer (2001). Moreover, the hypothesis appears to hold even when a relevant representation exists in memory. In one study (Colcombe & Wyer, 2001, Experiment 3), participants in an initial experimental session were asked to list both (a) sequences of activities that they performed on a daily basis and (b) sequences that they observed their mother and their father perform regularly. Then, in a second session 1 week later, we asked them to read four stories. One story was based on a routinized sequence of behaviors they had personally reported
in session 1, and a second was based on the routinized activities that a different participant had reported. Analogously, a third story described activities that one of their own parents routinely performed, and the fourth was based on activities of another participant’s parent. Each story consisted of four routinized events and either two or six events that were not part of the routine. Participants in reading the stories were told to imagine that they or one of their parents was performing the activities. After doing so and a short delay, they were asked to recall the stories they had read.

The results were very clear. Participants consistently recalled fewer routinized behaviors when six novel behaviors were contained in the story (M = .49) than when only two were contained in it (M = .60). Moreover, this was true regardless of whether the stories pertained to themselves (.47 vs .57) or to a parent (.51 vs .62) and regardless of whether the stories were based on routines that participants themselves had reported (.53 vs .67) or those that another had reported (.45 vs .53). Based on the criteria suggested by Trafimow and Wyer’s (1993) research, these data suggest that participants did not use a generalized representation to interpret either stories about themselves or stories about their parent.

This could be true for two reasons. First, participants might not construct generalized representations of their own or their parent’s behavior. Second, these generalized representations might exist in memory, but participants might not consult them when they think about themselves or someone they know well. This latter possibility was confirmed in two additional studies (Colcombe & Wyer, 2001, Experiments 1 and 4). In these experiments, participants read stories similar to those employed by Trafimow and Wyer (1993) describing prototypic sequences of events of the sort that compose cultural scripts. Each story consisted of four prototypic events and either two or six unrelated ones and was introduced by a statement that identified the situation it described (cashing a check, making tea, etc.). However, some participants were told to imagine that the stories pertained to a hypothetical person who was referred to as “Joe,” whereas others were told to imagine that the stories were about their roommate. As in other studies, participants after reading the stories recalled the events described.

The proportion of prototype-related events recalled in each condition is shown in Table II. When the stories pertained to a fictitious individual, participants recalled a greater proportion of prototype-related behaviors when they were accompanied by six unrelated events accompanied them than when they were accompanied by only two, replicating Trafimow and Wyer’s (1993) findings and suggesting that participants interpreted the stories on the basis of a generalized event sequence. When the same stories pertained to participants’ roommate, however, participants recalled fewer prototypic behaviors when they were accompanied by six unrelated events than when they were accompanied by two.

These results, therefore, indicate that when people imagine events that involve themselves or a familiar other, they do not comprehend these events with reference
TABLE II
THE MEAN PROPORTION OF PROTOTYPE-RELATED AND
PROTOTYPE-UNRELATED EVENTS RECALLED AS A FUNCTION
OF THE NUMBER OF UNRELATED EVENTS PRESENTED AND TYPE
OF PROTAGONIST (BASED ON COLCOMBE & WYER, 2001)

<table>
<thead>
<tr>
<th>Number of prototype-unrelated events mentioned</th>
<th>Protagonist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unfamiliar other</td>
</tr>
<tr>
<td>Two events</td>
<td>.30</td>
</tr>
<tr>
<td>Six events</td>
<td>.42</td>
</tr>
<tr>
<td></td>
<td>Roommate</td>
</tr>
<tr>
<td></td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>.39</td>
</tr>
</tbody>
</table>

to a generalized event representation, and this is true even when such a representation exists in memory. Although the event sequences that participants considered in this research were described verbally, it seems intuitively likely that similar conclusions would be drawn under conditions in which they were directly experienced or observed.

D. SUMMARY AND IMPLICATIONS

The research we have summarized in this section provides insight into both the way in which abstract event representations are used to comprehend specific experiences and the conditions in which these representations are actually employed. In the first regard, people who comprehend a situation-specific sequence of events in terms of a previously formed prototypic event representation usually include not events in the new representation they form if these events can be inferred from the prototype. This is done only if the prototypic events are necessary in order to localize the point at which other, prototype-unrelated events occurred. Otherwise, people may simply store a "pointer" to the relevant prototype along with a set of "translation" rules that allow aspects of the prototype to be instantiated in terms of features of the new experience.

However, the conditions in which a prototype is actually used to interpret a situation-specific sequence of events are rather limited. For one thing, a prototype may not be formed spontaneously unless people are exposed to several instances of the prototype in temporal contiguity and are stimulated to think of them in relation to one another. Moreover, even if a prototypic event sequence exists in memory, it may be applied only to specific experiences when the individuals involved in these experiences are unfamiliar. When people imagine themselves or a familiar other engaged in a routinized series of behaviors, they may comprehend these behaviors with reference to a specific experience they have recently had or observed. In these instances, a prototype is not applied.
There are several reasons why this might be true. First, one’s own or a familiar other’s behavior is typically experienced or observed directly rather than read about. Therefore, previously formed representations of these behaviors are likely to be coded nonverbally rather than linguistically. Second, even if generalized event representations of the behaviors exist in memory, situation-specific representations of these routinized behaviors are likely to have been formed more recently and, therefore, may be relatively more accessible in memory. Perhaps if participants in Colcombe and Wyer’s (2001) experiments had been stimulated to use a relevant prototypic representation before being exposed to information about their roommate, they might have used it to interpret this information as well as the activities of a fictitious person.

Although people may not use a generalized event representation to comprehend their own or a familiar other’s behavior, this does not mean that they retrieve and use a situation-specific episode model instead. This may not be the case. Results reported earlier in this chapter suggest that when people comprehend information about themselves, they may construct a model of each event separately rather than forming a single multiple-segment episode model of the event sequence as a whole. Be that as it may, however, our findings indicate that the representations that people form of themselves, and that they draw upon to comprehend self-relevant experiences, can differ in several ways from the representations they construct and use to comprehend events that involve unfamiliar persons.

More generally, the research summarized in this section provides an example of how the use of an abstract narrative-based representation to interpret new event information can decrease memory for this information. In this research, the decrease theoretically occurred because events that could be reconstructed from the abstract representation were not encoded into memory at the time they were first encountered. However, there are other, quite different conditions in which an abstract representation of events can interfere with memory for these events. We elaborate on this possibility in the next section.

IV. The Influence of Abstract Narrative Representations on Memory for Observed Experiences

To reiterate, people who observe or directly experience a sequence of events may not encode these events linguistically unless they have some reason to do so. That is, the episode model they form of the events may consist primarily of mental images. On the other hand, suppose people who have constructed an episode model of a sequence of events are later asked to describe the events to someone else or, alternatively, to report their impressions of the individuals involved. To
attain these postinformation communication objectives, therefore, they must retrieve the nonverbally coded episode model they had formed of the events at the time they first encountered them and recode its features linguistically in a manner that permits their goal to be attained. In doing so, however, they presumably form a new representation that is more abstract than the episode models on which it is based. Moreover, they may store this representation in memory independently of the models on which it was based as a separate unit of knowledge (see Wyer & Srull, 1989, for a theory and research supporting this assumption).

This possibility becomes of interest when individuals are later called upon to remember specific aspects of the events they experienced. Because the abstract representation they have formed is more accessible in memory than their episode models of the experience, they may often use it as a basis for reconstructing what occurred and, therefore, as a basis for their recall. To this extent, however, memory errors may occur.

The interference effects of verbal codings of social stimuli on later memory for them was identified by Schooler and Engstler-Schooler (1990). They found that individuals' ability to recognize pictures of a human face was less if they had described the face verbally after being exposed to it than if they had not. Similar effects of verbally coding physical stimuli were observed by Chiu, Lee, Pang, and Tong (1999). A further demonstration of these effects under conditions more relevant to the concerns of this article was provided in a series of studies by Adaval and Wyer (2001). These studies, which examined the influence of abstract representations on memory for social interactions, indicate that the nature of the interference depends on the particular goals that lead these representations to be constructed and, therefore, the content of the goal-specific representations that are formed.

A. INTERFERENCE EFFECTS OF GOAL-SPECIFIC REPRESENTATIONS ON RECOGNITION MEMORY

Participants in two studies were asked to watch the first 12 min of Edward Albee's Who's Afraid of Virginia Woolf? The segment portrays an animated conversation between a husband and wife after returning home from a late-night party. Participants were told to watch the movie as they would if they were seeing it in a theatre. After doing so, however, participants under impression conditions were told to spend 5 min writing down their impressions of the protagonists, whereas participants in description conditions were told to write down a description of what went on as if they were telling it to another person. For purposes of comparison, two other groups of participants were told they would be asked to perform these tasks at the outset, before they watched the movie. Finally, participants in a fifth, control condition were given not specific objectives either before or after seeing the movie.
We expected that participants whose only objective in watching the movie was to comprehend it would construct episode models that contain both visually coded images of the protagonists' behaviors and acoustically coded representations of their statements to one another. Then, when these participants were later given a more specific objective, they should retrieve these models, identify features that are relevant to their objective, and code these features linguistically in a way that would permit them to be described in writing. In doing so, however, participants should concentrate on those features that are particularly relevant to the goals they are pursuing.

The content of the movie we selected was particularly useful for distinguishing the effects of the two task objectives we investigated. Specifically, the protagonists' statements to one another were particularly relevant to impression of their personalities, but their nonverbal behaviors (e.g., taking off a coat, eating a chicken leg, mixing a drink, and walking up the stairs) were much less so. In contrast, both protagonists' statements and their nonverbal behaviors were important in describing the temporal sequence of the events that took place. We therefore expected that the abstract representation that participants constructed in the course of communicating an impression would consist primarily of things that protagonists said, whereas the representation they formed in the course of describing the events that occurred would include encodings of protagonists' nonverbal behaviors as well.

Thus, suppose participants after forming one or the other of these representations are given a recognition memory test containing descriptions of both protagonists' statements and their nonverbal behaviors. We assumed that to verify a recognition item, participants who had formed an abstract goal-specific representation of the movie would first retrieve this representation (which was most accessible in memory) and, if they considered its content to be relevant, would consider it to be a sufficient basis for evaluating the item without searching for additional criteria. If they consider the representation to be irrelevant, however, they should retrieve and use the relatively less accessible episode models they had formed at the time they watched the movie.

Based on these assumptions, we predicted that if participants had been given a postinformation objective of describing the events that occurred in the movie, they would use the goal-specific representation they had formed to verify both things that protagonists said and things they did. Consequently, because this representation was less detailed than the episode models they had formed earlier, these participants should be relatively inaccurate in verifying both statements and nonverbal behaviors. In contrast, participants with an impression objective should use the goal-specific representation they had formed to verify protagonists' statements, but should default to their episode models of the movie to verify participants' nonverbal behaviors. Consequently, their recognition memory for protagonists' statements should be poor relative to control conditions, whereas their memory for protagonists' behaviors should be unaffected. These predictions were evaluated in
two studies that differed primarily in the nature of the recognition memory task. Results of these studies are described in turn.

1. Experiment 1

In two studies, participants after a short delay were administered a recognition memory test containing verbal descriptions of both things that participants had said and things they had done, along with an equal number of distracters (i.e., descriptions of behaviors and statements that were not conveyed in the movie). To minimize the effects of guessing, we computed a measure of recognition accuracy for each participant based on the following equation:

\[ P(\text{Acc}) = \frac{P(\text{hit}) - P(\text{false alarm})}{P(\text{false alarm})}, \]

where \( P(\text{hit}) \) and \( P(\text{false alarm}) \) are the likelihood of identifying an item as present when it was and was not, respectively (Hilgard, 1951).\(^5\)

Participants' accuracy was computed separately for both protagonists' statements and their nonverbal behaviors. The scores obtained under each task-objective condition were then compared to scores under control conditions in which no task objective was induced. These differences are shown in the top left quadrant of Table III under conditions in which task objectives were induced after participants

\(^5\)Assume that the probability of reporting an item as present given that a memory trace of it is identified is 1 and that the probability of identifying a memory trace of a nonpresented item is 0. This equation then provides an estimate of the likelihood of identifying a trace in memory of an item that was actually presented; see Adaval and Wyer (2001).
had watched the movie. As these data show, inducing a postinformation communication objective decreased the accuracy of recognizing both statements and behaviors relative to control conditions. In contrast, inducing a postinformation impression formation objective decreased participants' recognition of protagonists' statements ($M = -.108$) but had little effect on their recognition of behaviors ($M = .021$).

It is interesting to compare these effects with the effects of inducing task objectives before watching the movie. These effects are shown in the bottom left quadrant of Table III. Telling participants they would be asked to describe the movie before they watched it decreased the accuracy of recognizing both statements and behaviors, just as it did when these objectives were induced afterward. In contrast, telling participants they would be asked to report their impressions increased their recognition of protagonists' statements. Participants who were told to form an impression of protagonists at the outset may have become sensitive to statements that were relevant to an understanding of protagonists' personalities but were not critical for comprehending what was going on. Thus, they may have included statements in the goal-specific representation they formed that were not retained in the episode models that participants formed under control conditions. Consequently, their later recognition of the statements was relatively greater.

2. **Experiment 2**

The results of Experiment 1 suggest that communicating about an observed experience after it has occurred can interfere with the later memory for details of this experience. An interpretation of these results is somewhat compromised, however, by the fact the recognition memory test we employed consisted of verbal descriptions of the things that protagonists said and did in the movie rather than the events themselves. That is, the recognition items were themselves abstractions of the episode models that participants had formed. To eliminate this ambiguity, we conducted a follow-up study. This study was identical to the first except that recognition items consisted of (a) visual frames that were taken either from the segment that participants watched or from other parts of the movie and (b) auditory recordings of statements the protagonists made in either the segment that participants witnessed or elsewhere. These items were presented unsystematically on a computer, with visual frames displayed on the screen and auditory stimuli played through earphones.

Recognition accuracy relative to control conditions is summarized in the right half of Table III. Because only a small number of distracters were presented in this experiment, we did not correct for guessing. However, the pattern of data is virtually identical to that observed in the first study. That is, describing what went on in the movie decreased recognition of both statements and pictures, and this
was true regardless of when this objective was induced. In contrast, inducing an impression objective after watching the movie had a detrimental effect on recognition of protagonists' statements but not pictures. Moreover, when this objective was induced at the outset, it had not a detrimental effect on recognition of either statements or behaviors.

B. SUMMARY AND IMPLICATIONS

The results of Experiments 1 and 2 converge on the conclusion that although episode models of a social experience are formed and stored in memory in the course of comprehending it, processing objectives that are imposed later can stimulate the construction of a new generalized representation of the experience, and this more abstract, goal-specific representation can interfere with memory for the details of the experience. Moreover, this is particularly true when the events to be remembered are relevant to the objectives that led the representation to be formed and, therefore, are likely to be depicted in this representation. Although the original episode models that were formed of the experience are retained in memory, these models are unlikely to be consulted if a generalized representation is more accessible and is relevant to verifying the event being evaluated.6

Postinformation processing objectives may not only decrease memory for details of the original experience. In some cases, they could lead people to make inferences about unmentioned events that are added to the representation that is formed. As a result, these added events may later be remembered as actually having occurred. A study by Spiro (1977) provides an example. Participants read a story about a couple who were engaged to be married. In one version of the story, the woman expressed her desire to have children, the man was unwilling to do so, and a heated argument ensued. After participants had read the story, however, the experimenter incidentally mentioned that the couple had actually gotten married and were still happily together. Several weeks later, participants returned and were asked to recall the story they had read earlier. Participants tended to intrude events into the story that were not actually mentioned but permitted the story content to be reconciled with the experimenter's incidental remark. (For example, one participant recalled that the woman found she could not have children and others recalled that the

6The assumption that goal-specific representations are stored in memory independently of the episode models on which they are based is consistent with the “bin” conceptualization of social memory proposed by Wyer and Snell (1989) as well as other, exemplar-based conceptions of memory (e.g., Hintsman, 1986). In contrast, Loftus and Palmer (1974) argued that postinformation processing objectives can change the representation that had been formed at the time the information was received and that this altered representation can replace the original in memory. If this were the case, however, the different effect of postinformation impression objectives on memory for statements and behaviors would be difficult to explain.
man changed his mind.) Apparently, participants upon hearing the experimenter's remark made spontaneous inferences about what must have happened to bring the couple back together, and these inferences became part of a postinformation representation they formed of the couple's interaction that they used as a basis for their later recall.

It is interesting to speculate that the consequences of constructing a postinformation representation of an experience on memory are not always undesirable. Suppose people have experienced an emotionally traumatic event (e.g., the death of a loved one). If they are called upon to discuss the experience a short time after it occurred, they are likely to base this discussion on their episode models of the experience and might have considerable difficulty talking about it without reexperiencing the emotions that are associated with the events represented in these models. However, the more abstract, linguistically coded representation that the individuals form in the course of communicating about the experience is presumably stored in memory. Therefore, these individuals are likely to draw on this representation when discussing the experience a second time without accessing the nonverbally coded episode models with which their emotional reactions are associated. Thus, the individuals become able to discuss the events with much less emotion as time goes on. (Nevertheless, if conditions arise in which the original episode model is reactivated, the emotions may spontaneously reemerge, even if a long period of time has elapsed.)

V. The Impact of Narrative Representations on Information Processing

Our preceding discussion has focused on the content and structure of the representations that people form of social events and the factors that underlie their construction. Much of this discussion is predicated on the assumption that narrative-based representations of knowledge are central to the comprehension of specific experiences of the sort we encounter in daily life. To the extent this is true, these representations are likely to be an equally fundamental basis for judgments and behavioral decisions concerning persons, objects, and events to which the representations refer.

In the final section of this chapter, we provide several examples of this influence. Three examples are discussed in detail, concerning (a) the relation between the comprehension of statements about social events and perceptions of validity, (b) the role of narrative representations in social judgment and decision making, and (c) the impact of narrative-based implicit theories of social behavior on explanation and prediction. In addition, we note a number of other areas in which narrative-based representations of social knowledge are likely to play a role in judgments and behavior. In some cases, these representations may have the form
of event and episode models. In other cases, more abstract representations may be involved.

A. PERCEPTIONS OF VALIDITY

People often use their prior knowledge both to comprehend new information about people and events and to evaluate the validity of this information. In fact, Wyer and Radvansky (1999) contend that people often automatically identify assertions about known individuals as true or false in the course of comprehending them. Wyer and Radvansky’s conceptualization requires several assumptions about the specific memory retrieval processes that are involved in comprehension as well as verification, and a detailed explication of it is beyond the scope of this chapter. However, several implications of the conceptualization can be conveyed through a simplified example.

Wyer and Radvansky assume that when people encounter an assertion about a social event, features of the assertion spontaneously activate all of the preexisting event and episode models in memory that contain these features (see Hintzman, 1986, for a similar assumption). Thus, consider the statement “Jane Fonda did aerobics.” The predicate of this statement, “did aerobics,” presumably activates all preexisting event and episode models that depict this behavior. Because the actors in these models are likely to have different features, a composite of these features is extracted, with the more frequently occurring features being weighted more heavily. Similarly, preexisting representations of the subject (“Jane Fonda”) are activated, and a weighted composite of the features contained in these representations is formed as well. If the features that are weighted most heavily in the two sets are very similar, the statement is not only comprehended but also spontaneously recognized as redundant with prior knowledge (i.e., as “true”). If no features are common to the two sets, the statement is not spontaneously comprehended and is regarded as false. At intermediate levels of similarity, the statement may be comprehended but not spontaneously recognized as either true or false. In this case, the statement’s validity would not be assessed unless this assessment is required to attain some higher order processing objective.

Thus, in our example “Jane Fonda did aerobics” is likely to be both comprehended and spontaneously regarded as true, as a preexisting event model of the event is likely to have been formed as a result of watching the event on television. The statements “A woman did aerobics” or “Jane Fonda rode a motorcycle” might also be comprehended, as the subset of features that are activated by the subject are likely to be included in the composite set that are activated by models of the predicate. However, the two sets of features are unlikely to be sufficiently similar for the statements’ validity to be spontaneously recognized. In contrast, “A gorilla did aerobics” is likely to be spontaneously recognized as false because the features
of previously formed models of "did aerobics" include very few features that are common to previously formed representations of gorillas.

1. Empirical Evidence

Wyer and Radvansky (1999) reported data consistent with these assumptions. Participants in one experiment were exposed to statements of the following types: (1) true exemplar-referent statements ("e.g., Jane Fonda did aerobics"), (2) false exemplar-referent statements ("Jane Fonda played pro hockey"), and (3) exemplar-referent statements of unknown validity (e.g., "Jane Fonda rode a motorcycle").

Participants were exposed to these statements on a computer screen along with some anomalous ones (e.g., "A show played poker"). Some participants were asked simply to indicate whether each statement was or was not meaningful by pressing a designated button on the computer keyboard. Others, however, were told to indicate whether the statements were true or false. The time to make these judgments was recorded. We expected that participants would spontaneously verify true and false exemplar-referent statements in the course of comprehending them. When the statements were of unknown validity, however, participants were expected to comprehend them spontaneously but not to verify them. Thus, they would require additional time to make the latter determination if they are later asked to do so.

These predictions were confirmed. The mean time required both to comprehend and to verify each type of statement is shown in Table IV. True exemplar-referent statements were comprehended more quickly than statements of other types. However, the time to judge the validity of true and false statements was only slightly greater than the time required to comprehend them, suggesting that these statements were verified spontaneously in the course of comprehension. In contrast,

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Comprehension time</th>
<th>Verification time</th>
<th>Difference</th>
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<tbody>
<tr>
<td>1</td>
<td>True exemplar-referent statements</td>
<td>1.35</td>
<td>1.55</td>
</tr>
<tr>
<td></td>
<td>False exemplar-referent statements</td>
<td>1.64</td>
<td>1.86</td>
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<tr>
<td></td>
<td>Exemplar-referent statements of unknown validity</td>
<td>1.55</td>
<td>2.07</td>
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<tr>
<td>2</td>
<td>True exemplar-referent statements</td>
<td>1.84</td>
<td>1.99</td>
</tr>
<tr>
<td></td>
<td>Category-referent statements with known exemplar</td>
<td>2.00</td>
<td>2.06</td>
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participants took a relatively long time to verify exemplar-referent statements of unknown validity. This suggests that the validity of these statements was not spontaneously assessed in the course of comprehension, and so additional processing was required to establish their validity.

Similar conclusions were drawn from a second experiment in which participants were exposed to both true exemplar-referent statements ("e.g., ‘Jane Fonda did aerobics’) and statements that referred to a more general category to which a known exemplar belonged (e.g., ‘an actress did aerobics’). As indicated in the bottom section of Table IV, the time to verify these statements was virtually identical to the time to comprehend them.

In summary, therefore, the verification of statements about a known referent is often an inherent byproduct of the processes involved in comprehending them in terms of a previously formed event or episode model. This fact has important implications. For example, statements that are obviously true or false are likely to violate communication norms to be informative and truthful, respectively (Grice, 1975; Higgins, 1981; Schwarz, 1994; Strack, 1994). Therefore, they may stimulate recipients to question why the statements were made. As a result, people are likely to think more extensively about the statements than they would otherwise and, in some cases, may interpret the statements’ literal implications. (For more detailed discussions of these possibilities and empirical evidence bearing on them, see Gruenfield & Wyer, 1992; Wyer & Gruenfield, 1995.)

2. Effects of Constructing Narratives on Perceptions of Validity

Wyer and Radvansky’s (1999) findings indicate that when people use a pre-existing event or episode model to comprehend information, they are often likely to judge the information to be valid. This suggests that if individuals construct a new episode model of a sequence of events and store this representation in memory, they may later consider descriptions of events that they comprehend in terms of this model to be plausible and, therefore, may believe the events to be more likely to occur. This could occur even if the original event sequence was hypothetical.

Green and Brock (2000) found support for this possibility. In some conditions of their research, participants read a story about a violent crime. Participants were clearly aware that the story was fictional. Nevertheless, they later estimated the incidence of story-related events in the real world to be higher than participants who had not read the story. Thus, participants’ construction of an episode model of the events in the course of comprehending the story increased their beliefs that similar events might actually occur in the real world.

Two earlier studies also suggest that the construction of a narrative representation of hypothetical events increases beliefs that the events might actually occur. In a study by Ross, Lepper, Strack, and Steinmetz (1977), participants read a story about
a target person and then were asked to explain why the person might either have committed suicide or, alternatively, why he might donate a large sum of money to the Peace Corps. They were told at the outset that there was no evidence that the events had actually occurred. Despite this fact, participants were later more likely to believe that the event they explained had occurred than the event they had not explained. A conceptually similar effect was reported by Sherman, Skov, Hervitz, and Stock (1981). That is, participants were more likely to predict that they would fail on an anagrams task if they had arbitrarily been asked to explain why they might fail at an earlier point in time than if they had been asked to explain why they might succeed. It seems reasonable to suppose that in this and Ross et al.’s study, participants who were asked to generate an explanation of an event constructed a narrative representation of other events that might lead up to it, and then, having done so, considered the implications of the narrative to be valid.

These studies are far removed from the conditions investigated by Wyer and Radvansky (1999). However, they are consistent with the general conclusion that if an event or episode model has been constructed and stored in memory, subsequent experiences that are comprehended, or otherwise considered with reference to the model may seem more likely to be true than they otherwise would.

B. SOCIAL JUDGMENT AND DECISION MAKING

To reiterate, episode models are theoretically constructed spontaneously in the course of comprehending temporally and situation-specific sequences of events. This suggests that information is easier to understand if it is conveyed in the form of a narrative and, therefore, an episode model can easily be formed of it, than if the information is conveyed in other ways. To this extent, people may be relatively more confident of their interpretation of information that is conveyed in narrative form, and so this information may have greater impact on their judgments. In addition, they may be more inclined to elaborate the implications of the events described in a narrative, perhaps speculating about unmentioned events that occurred in addition to those mentioned. Theory and research in several different areas support this hypothesis.

1. Jury Decision Making

Compelling evidence that information has more impact when it is conveyed in the form of a narrative was obtained by Pennington and Hastie (1986, 1988, 1992) in a series of studies of jury decision making. In one study (Pennington & Hastie, 1986), the researchers asked participants to read the transcript of a court trial that included testimonies by both prosecution witnesses and defense witnesses. However, they varied the order in which each set of testimony was
conveyed. Specifically, the prosecution testimony either was ordered according to the witness who provided it (witness-order conditions) or was conveyed in the order it became relevant in the sequence of events leading up to the crime, the crime itself, and its aftermath (story-order conditions). The order of the defense testimony varied likewise. After reading the testimonies for both sides, participants gave their verdict and indicated their confidence that it was correct.

When the prosecution and defense testimonies were conveyed in different orders, 73% of the participants found in favor of the side whose testimony was conveyed in story order. When the two sets of testimony were both conveyed in the same order, participants’ verdict did not depend on the order it occurred. However, participants were more confident of their verdict when the testimonies were both in story order than when they were both in witness order. Thus, participants were more influenced by the testimony, and were more confident of their judgments, when the testimony was conveyed in a form that permitted a narrative representation to be constructed than when it did not.

A second set of findings was also provocative (Pennington & Hastie, 1992). In some conditions, a piece of evidence was inserted into the testimony that (a) was attributed to either a credible or a noncredible witness and (b) was either consistent or inconsistent with implications of the remaining testimony. When the testimony was conveyed in witness order, the witness’s credibility was the primary determinant of its impact. When the testimony was conveyed in story order, however, the consistency of the evidence with other testimony had the predominant influence, independently of the credibility of its source.

2. Consumer Judgment

Analogous effects to those identified by Pennington and Hastie are likely to occur in other domains in which individuals are required to make a decision. The attributes of a consumer product, for example, could either be presented in a list or be conveyed in the context of a temporally ordered sequence of events in which the attributes become relevant. It seems reasonable to suppose that this information might be more influential in the second case than in the first.

a. Effects of Visual Imagery. Adaval and Wyer (1998) examined this possibility and, in doing so, investigated several other implications of the general conceptualization outlined in this chapter. Specifically, the episode models that participants construct from verbal descriptions of events presumably consist of mental images as well as linguistically coded features (Postulate 2). To this extent, presenting pictures along with the descriptions should facilitate the construction of these models and, therefore, should lead the information to have greater impact than it otherwise would. Pictures may also increase the tendency to engage in cognitive elaboration of the events described and to infer additional, unmentioned events that might have occurred as well. In contrast, suppose the same information is
conveyed in an unordered list of features. In this case, participants may not construct an episode model but rather may engage in “piecemeal” processing (Fiske & Pavelchak, 1986). That is, they may assess the evaluative implications of each feature independently and then integrate these implications mechanistically in a manner similar to that proposed by Fishbein and Hunter (1964) or Anderson (1971, 1981). Pictures may be largely irrelevant to these computations. Consequently, they might actually decrease the impact of the information.

In an initial exploration of these effects, we (Adaaval & Wyer, 1998, Experiment 1) asked participants to read travel brochures describing two vacations, one in India and the other in Thailand. Each brochure began with a general overview of the vacation followed by descriptions of 12 places or situations to be encountered. In one brochure, however, the information was in the form of a narrative describing the sequence of events that would take place. For example, the narrative version of the India brochure began with the following synopsis: “On your vacation, you will start out from the capital of India, Delhi, and move on to see the Taj Mahal. Later, you will go west, and see the palaces and temples in . . . Rajasthan . . . before heading south. Further south, you will visit the beaches of Goa . . . and . . . complete your trip at the southernmost tip of India”. This was followed by written descriptions of the places to be visited such as the following: “Only a short trip from Delhi is Agra, home of the Taj Mahal . . . . Remarkable at all times of the day, you can visit as the sun rises above the early morning mists and return on a moon-lit night . . . ”.

In contrast, the material in other conditions was conveyed in a list format. Thus, the description began as follows:

Some features of your vacation experience are:
- a visit to the capital, Delhi;
- the Taj Mahal at Agra;
- palaces and temples of Rajasthan, etc.

The individual places were then described in bullet form as follows:

- Agra, home of the Taj Mahal
- A beautiful spectacle both when the sun rises above the early morning mists and on moon-lit nights . . . .

The description of each place or situation was accompanied by a picture. However, the relative dominance of the picture and the verbal description was varied. In picture-dominant conditions, the pictures were 15 × 15 cm and the text was in 10-point font. In text-dominant conditions, however, the pictures were 8 × 8 cm and the text was in an 18-point font. The dominance of the pictures was the same in both of the brochures read by a given participant. However, one brochure was in narrative format and the other was in list format. Participants after reading the brochures were asked to estimate their liking for each vacation on a scale from 0 to 10.
The effects of format and picture dominance were particularly evident in the first brochure that participants encountered. When the text was conveyed in narrative format, increasing the dominance of the pictures increased evaluations of the vacation (from 6.5 to 7.3 when the text vs pictures were dominant, respectively). When the vacation was described in a list format, however, making the pictures dominant decreased evaluations of it (from 7.9 to 4.1), suggesting that in this case, the pictures interfered with a computation of these evaluations. As a result of these opposing effects, the effect of format on evaluations was substantially greater when pictures were dominant (7.3 vs 4.1, under narrative format vs list format conditions, respectively) than when they were not (6.5 vs 7.9, respectively).

A second study (Adaval & Wyer, 1998, Experiment 2) provided a clearer indication of the impact of pictures on evaluations under the two format conditions and, in addition, confirmed the role of mental imagery. In this study, pictures either accompanied the text (as in picture-dominant conditions of Experiment 1) or were not conveyed at all. In addition, some participants in each condition were explicitly told to imagine themselves actually having the experiences described and how it would feel to be there, whereas others were not given this instruction. We reasoned that if the different effects of pictures in Experiment 1 resulted from the different roles of mental imagery in the representations that participants formed in the two format conditions, asking participants explicitly to construct their own visual images of the situations would augment these effects. That is, it would increase the facilitating effect of pictures under narrative-format conditions but would increase the interfering effect of pictures under list-format conditions.

These expectations were confirmed. Presenting a picture of the events described in narrative format and asking participants to imagine the experience increased their liking for the vacation relative to other conditions (from 6.4 to 8.1). In contrast, presenting pictures and asking them to imagine the vacation described in a list format nonsignificantly decreased their liking for the vacation relative to other conditions (from 6.1 to 5.8). Thus, when participants were presented pictures and asked to imagine the experiencing the vacation, they evaluated the vacations more favorably when the text was in narrative format ($M = 8.1$) than when it was in list format ($M = 5.8$). In other conditions, however, the effect of format was negligible (6.4 vs 6.1).

b. Effects of Evaluatively Inconsistent Information. A second question we investigated in this research was stimulated by Pennington and Hastie’s (1992) finding that when individuals construct a narrative-based representation to use as a basis for judgment, information that is inconsistent with the implications of this representation tends to be ignored. Thus, suppose information about a vacation

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7Participants who had developed an information-processing strategy in the course of evaluating the first brochure they read appeared to employ a similar strategy in evaluating the second as well. Therefore, the effects of format and picture dominance in judgments of the first vacation generalized to the second even though the second brochure’s format differed.
is generally favorable but contains descriptions of a few undesirable features as well. These features are likely to have less effect if people have formed a narrative representation of the vacation than if they have not. Supplementary data reported by Adaval and Wyer (1998, Experiment 1) confirmed this hypothesis. In additional conditions of the study, descriptions of two negative features (e.g., an indication that travel would be difficult, that accommodations were of low quality) were inserted into the brochure. When the information was conveyed in a list format, adding these negative features appreciably decreased evaluations of the vacation (from 6.0 to 4.7). When the information was conveyed in narrative form, however, the addition of these features had significantly less effect (6.9 vs 6.4).

3. Political Information Processing

Narrative representations are also likely to have an impact on judgments in the political arena. Political campaigns provide the American public with a barrage of information about candidates. This information is of two types. On one hand, it may consist of a candidate’s positions on specific issues. However, a more pervasive type of information bears on the candidate’s “image” as conveyed through his or her personality and general demeanor. This image, which is often conveyed visually (in pictures or on television), can not only influence candidate evaluations in its own right but also affect the processing of other information. Wyer et al. (1991), for example, found that when participants had viewed a candidate make a nonpolitical speech 24 h before receiving information about his positions on specific issues, they based their evaluations of the candidate on their agreement with these issue positions. When participants viewed the speech immediately before exposure to the candidate’s issue positions, however, they based their evaluations on the ideological implications of these positions (conservative vs liberal) independently of their agreement with any specific stand the candidate espoused. Thus, making salient the candidate’s image stimulated participants to think more globally about his attributes as a whole and, therefore, to evaluate his issue positions on the basis of different criteria than they would otherwise have done.

Candidates’ images can also be influenced by events in their past that allegedly have implications for their honesty, integrity, and strength of character. These events are often conveyed by the candidates’ opponents as well as the individuals themselves. Thus, for example, information about Bob Dole’s war record, or Bill Clinton’s use of marijuana in the 1970s, is given as evidence for or against the candidate’s fitness for public office 20 years later. However, this information could have an impact for two reasons. On one hand, information about past events in a candidate’s life might be evaluated out of context and used as a basis for inferring the candidate’s attributes without taking into account the time at which the events occurred. Alternatively, the events might be used to construct a narrative of the candidate’s life as a whole that is used as a basis for inferring his or her future
behavior from his or her past actions. These alternative constructions may depend in part on how the information about the candidate is presented. Moreover, Adaval and Wyer’s (1998) findings suggest that visual imagery may play a role as well.

\textit{a. Empirical Evidence.} Adaval, Isbell, and Wyer (2001) investigated these possibilities using a paradigm similar to that employed in our earlier studies. That is, participants in two experiments read campaign brochures containing moderately favorable descriptions of events in the lives of two candidates for the U.S. Senate. In some conditions, the descriptions were accompanied by pictures of the candidates or the situations described. In other conditions, pictures were not presented. Furthermore, the descriptions in one brochure were ostensibly in chronological order and were presented in the form of a narrative of the candidate’s political life. For example, one description read as follows: “During his last year in the State Legislature, he headed a special committee to investigate how to decrease violent crime in the cities. As a result of his help, the State budget was revised to provide support to cities for crime prevention . . . .” In other conditions, the events were conveyed in the same sequence, but were described in the form of “bullets” that did not refer to the point in the politician’s life at which they occurred as follows:

- He headed a special committee to investigate how to decrease violent crime in the cities.
- He helped revise the State budget in order to provide support to cities for crime prevention . . . .

Each participant received one brochure in each format with instructions to form impressions of the candidates described. After doing so, they evaluated each candidate along a scale from $-5$ (dislike very much) to $+5$ (like very much). Finally, they recalled the information they had read.

The results of both experiments were virtually identical were consistent with Adaval and Wyer’s (1998) earlier findings. In the first experiment, for example, pictures increased the extremity of evaluations of candidates whose lives were described in a narrative (from 3.58 to 3.98), but decreased evaluations of candidates whose life events were simply listed (from 3.95 to 3.63). Although the interactive effects of pictures and formation in this experiment were only marginally significant, $F(1, 55) = 3.43$, $p < .07$, their effects in the second experiment were nearly identical and quite reliable ($p < .01$). Thus, both sets of findings confirm

\textsuperscript{8}\textit{Pictures were taken from books and magazine articles. Pictures of Robert McNamara were used in the brochure describing one candidate, and pictures of Henry Kissinger were used in the brochure describing the other. (Neither individual was recognized by the college-age participants employed in the study.)}

\textsuperscript{9}\textit{In the second experiment, we explicitly told participants to base their judgments on either the politicians’ lives as a whole or specific events that occurred. However, these instructions had no impact whatsoever on the effects reported. This suggests that the effects of presentation format occur spontaneously and are relatively immune to specific instructions concerning the criteria to be used in making judgments.}
our conclusion that pictures facilitate the construction of a narrative representation to use as a basis for judgment but interfere with a piecemeal computation of evaluations on the basis of information that is conveyed in a list.

b. Memory Data. Supplementary recall data are consistent with these conclusions. In the first experiment, for example, information describing the candidates was better recalled when it was conveyed in a narrative than when it was listed (5.48 vs 4.94), $F(1, 52) = 3.46$, $p < .07$. Moreover, pictures increased the recall of verbal material when the information was in narrative format (from 5.18 to 5.79) but not when it was conveyed in list format (4.98 vs 4.92). Results of the second experiment were similar. These results are consistent with our interpretation that pictures facilitated the processing of information in a narrative format but not in a list format.

This conclusion was bolstered by results of a third experiment in which recognition memory for both pictures and statements was assessed. In this study, participants read the campaign brochures containing pictures along with statements that were conveyed in either a narrative format or a list. Then, they were given a recognition memory task on the computer in which both statements and pictures contained in the brochures, along with a number of items that were not presented, were judged. Both the proportion of correct responses to the presented items and the time required to judge them were recorded. Participants were more likely to identify items correctly when they were conveyed in a narrative than when they were conveyed in a list, and this was true regardless of whether the items were pictures (.972 vs .883), $F(1, 83) = 6.89$, $p < .05$, or statements (.910 vs .811), $F(1, 83) = 4.69$, $p < .05$. However, although participants verified pictures nonsignificantly more quickly when the information accompanying them was conveyed in a narrative ($M = 1.26$ s) than when it was conveyed in a list ($M = 1.39$ s), $F(1, 83) = 2.42$, $p > .10$, they were slower to verify statements in the former condition than the latter ($1.84$ s vs $1.64$ s), $F(1, 83) = 3.88$, $p < .05$. (This latter difference could conceivably be the result of participants’ tendency to elaborate the verbal material when it is conveyed in a narrative. Their cognitive elaborations, which may be stored in memory along with their representations of the events that were actually described in the information, may make these events difficult to identify later.)

These latter data are consistent with the assumption that the mental representations formed under narrative format conditions contain both visual and linguistic features, whereas the representations formed under list-format conditions are primarily linguistic. Therefore, both pictures and the verbal statements associated with them were better remembered in the former condition than the latter. Moreover, the presence of visual features in the narrative-based representation led pictures to be verified quickly. At the same time, these features appeared to decrease the ease of identifying linguistic features of the representation that was formed.
4. Summary and Implications

Research in three different domains indicates that information can often have greater impact on judgments if it is conveyed in a way that makes it easy to construct a narrative representation than if its format makes the construction of such a representation difficult. Moreover, pictures facilitate the construction of a narrative representation of information and, therefore, increase the impact of this information under conditions in which such a representation is formed.

It would nevertheless be incorrect to assume that narrative forms of information are always more effective than other forms. Their relative effectiveness may depend in part on the relevance of the temporal relatedness of the events to the type of judgment being made. In Pennington and Hastie’s (1986, 1992) research, the decision that participants were asked to make (whether a defendant was guilty or innocent) implicitly required an assessment of the causal relatedness of the events described. In these conditions, presenting information in a narrative facilitated the assessment of this relatedness and increased participants’ confidence in their judgments. In the studies by Adaual and her colleagues, however, the events described were not causally related, and judgments could be computed on the basis of a piecemeal computation of the events’ individual implications as well as a more holistic evaluation of the sequence of events as a whole. In these conditions, the relative extremity of judgments based on the two computational strategies is not clear a priori. In fact, in the absence of pictures, judgments based on a narrative were not appreciably more favorable than those based on listed information and in some cases were less favorable.

Note also that the effect of pictures on evaluations was not due to their information value per se. In fact, pictures interfered with the processing of information that was not in narrative form to begin with. The impact of pictures lies primarily in the role they play in computing evaluations on the basis of verbal information. When verbal descriptions of events are in narrative form, people are likely to form episode models of the event sequence that contain mental images, and pictures facilitate the construction of these images. When verbal descriptions of events are not conveyed in the form of a narrative, however, people do not form episode models of the events they depict. Rather, they engage in a piecemeal processing and evaluation of the information’s semantic implications. In this case, pictures interfere with the computation of this evaluation and consequently decrease its extremity.

C. IMPLICIT THEORIES OF SOCIAL BEHAVIOR

The explanations that people give to social events, and predictions of their consequences, are often based on implicit theories they have developed about their
social environment. These theories may be represented in memory in the form of narratives that specify the sequence of events that occur in both specific and general situations. If an event that one experiences exemplifies a segment of a preexisting narrative representation, it may activate this representation. Then, segments of the narrative that precede the event may be used to infer its causes, whereas segments that follow the event may be used to infer its consequences. A recognition of this possibility is not new. (For an elaboration of these possibilities in the context of social attribution theory, see Wyer, 1981; for evidence that individuals spontaneously think of antecedents and consequences when contemplating a social event, see McGuire & McGuire, 1991.) The verdicts that participants proposed under story-order conditions of Pennington and Hastie’s (1986, 1992) jury studies may reflect the use of implicit narrative-based theories in generating explanations. Three other areas in which these theories have been hypothesized to play an important role are also worth noting. These areas concern (a) reconstruction of the past, (b) causal attributions, and (c) expectations for others’ behavior in social interaction.

1. Reconstruction of the Past

A theoretical statement of the role of implicit theories in social perception was proposed by Michael Ross (1989) in conceptualizing the processes that underlie reconstructive memory for one’s own past behavior. In a number of intriguing studies, he demonstrated that individuals’ recall of their personal experiences is influenced not so much by actual memory traces of these experiences as by more general theories they have developed concerning their typical reactions to life events. Two particularly interesting studies are worth noting briefly.

In one study, female participants who had previously reported their typical emotional reactions during their menstrual cycle were asked to keep a daily diary of their moods over the course of a month. After doing so, they were asked to recall their moods during this period. Participants’ recall was more influenced by their implicit theories of their emotional reactions than by the actual feelings they had reported experiencing at the time.

In a second study, students participated in a program that they believed would increase their study skills. After participating, they were asked to recall their preprogram estimates of their skills. These recalled estimates were governed primarily by implicit theories that the program would be effective. (Thus, participants tended to recall their skills before taking part to be lower than they actually were, consistent with their theory that they had improved.) This finding is conceptually similar to that obtained by Bern and McConnell (1970) in a quite different context. In this study, some participants who had been asked to write a counterattitudinal essay were asked to report their attitude toward the position advocated; whereas others were asked to recall the attitude they had reported in an earlier experimental
session. Participants in the first condition typically changed their postbehavior attitudes to be consistent with the implications of their behavior. More important, participants in the second group recalled their prebehavior attitudes as similar to those implied by their counterattitudinal behavior and as similar to the postbehavior attitudes reported by the first group of participants. These participants, like those in Ross’s studies, may have invoked an implicit theory concerning the attitudinal antecedents of their behavior and used this theory to infer what their attitudes must have been in order to engage in this behavior rather than recall the attitude they had actually reported.

2. Causal Attribution

Once people interpret a social event in terms of one segment of a preexisting narrative representation, they may use segments that precede or follow it in the narrative to infer both antecedents of the event and its consequences. In many instances, however, a particular event could exemplify a segment of more than one narrative. To this extent, the representation that is retrieved and used to interpret the event, and the inferences that are made, could depend on which of several applicable representations is most accessible in memory at the time (Higgins, 1996; Wyer & Srull, 1989). The relative accessibility of these representations, in turn, may depend on both the frequency and the recency with which they have been used in the past (Higgins, Bargh, & Lombardi, 1985; Srull & Wyer, 1979). Thus, both chronic and transitory situational factors can influence the likelihood that the representation is applied. (For evidence that these factors can have independent effects on judgments in other domains, see Bargh, Bond, Lombardi, & Tota, 1986.)

The role of implicit theories in a number of situations has been confirmed in several studies by Dweck, Chiu, and Hong (1995a, 1995b; Dweck et al., 1993; Hong, Chiu, Dweck, & Sacks, 1997). They focus on theories of two general types. Incremental theories imply that people’s attributes (e.g., ability) are malleable and can be modified, whereas entity theories imply that attributes are relatively unchangeable. Thus, an incremental theory of achievement behavior might resemble a narrative composed of the following segments:

[P performs task; P fails; P tries harder; P succeeds].

A corresponding entity theory might be as follows:

[P has low ability; P performs task; P fails; P tries harder; P fails again].

Thus, suppose people perform a task and fail. This event exemplifies a frame in each of the aforementioned theories (“P fails”). If individuals activate and use the first theory to interpret the event, they may infer that they did not work hard enough and that if they exert more effort they may ultimately succeed. This might motivate them to try the task again. In contrast, suppose individuals activate the
second narrative. Then, they are likely to infer that their failure reflects low ability and that repeating the task will lead to the same result. Therefore, they may be disinclined to try a second time. Individual differences in the chronic accessibility of these theories, and their effects on responses to failure, have been elaborated by Dweck and Leggett (1988).

The effects of these theories are not restricted to the achievement domain, however. Chiu, Dweck, Tong, and Fu (1997) found evidence that individuals with implicit theories that their social world is unchangeable tend to base their judgments of morality on the extent to which people fulfill their social role responsibilities. In contrast, people with incremental theories are more disposed to emphasize the importance of individual freedom and rights. In a quite different domain, Hong et al. (1997) found that entity theorists were more willing than incremental theorists to attribute general traits to a person on the basis of the person's scores on an achievement test.

As Dweck et al. (1995a, 1995b) point out, the implicit theories that individuals apply may often be domain specific. Moreover, to the extent that these theories reflect different narrative-based representations that individuals draw on for use as a basis for judgment, several alternative theories may coexist, the implications of which can differ. Thus, in our previous example, individuals might have more than one narrative pertaining to task performance in memory, and the one they happen to draw on might depend on its accessibility in memory at the time a decision is made.

In this regard, individual differences in the chronic accessibility of implicit theories can result from differences in cultural background (Chiu, Morris, Hong, & Menon, 2000). As Hong et al. (2000) demonstrated, however, these chronic cultural differences can be either increased or decreased by situational factors that activate one theory rather than another. These authors found, for example, that exposing Hong Kong Chinese participants to Chinese cultural symbols led them to make situational attributions for behavior in an ambiguous situation, whereas exposing them to American cultural symbols increased their tendency to make internal attributions. Apparently, these participants had different implicit theories of causality that were activated by exposing them to symbols of either their own or another culture.

In a quite different paradigm, Oishi, Wyer, and Colcombe (2000) found that cultural differences in the tendency to use current life satisfaction as a basis for predicting the likelihood of future life experiences were attributable to differences in the culture-related implicit theories that participants had formed about themselves as causal agents in their environment. However, subliminally priming concepts with which other theories were associated had effects that overrode the impact of more general cultural dispositions. Thus, both these studies and Hong et al.'s (2000) show that the implicit theories that individuals bring to bear on the interpretation of information, and the inferences they make on the basis of their knowledge about themselves and others, can be influenced by situational
factors that make the narrative representations underlying these theories more or less accessible.

3. Effects of Implicit Theories on Marital Satisfaction

People often have narrative-based theories about close relationships. However, substantial differences exist in the nature of these theories. Some people, for example, may believe that marriage partners typically fall in love quickly but that these feelings inevitably deteriorate over time, ultimately leading to separation or divorce. Others may believe that love takes a long time to develop but that once established, it is maintained over time. Still others may believe that people’s feelings change nonmonotonically. For example, partners’ affection for one another decreases over the early years of a relationship as romantic love dissipates but then begins to increase in later years as the relationship matures.

Several theorists have conceptualized the role that narrative representations can play in the dynamics of close relationships (Forgas, 1991; Holmes & Murray, 1995; Miller & Read, 1991; Schank & Abelson, 1995). Murray and Holmes (1993), for example, found that marriage partners often reconstruct stories about their personal relationships in order to make them consistent with the implications of their narrative-based theories about relationships in general (see also Holmberg & Holmes, 1994). However, it seems likely that if partners have different theory-based expectations for the typical progress of close relationships, they may differ in how they evaluate their own relationship. These differences could create marital conflict and dissatisfaction.

Research by Gohm and Wyer (1998) bears indirectly on this possibility. They assumed that individuals’ theories about the prognosis of relationships over time could be inferred from their perceptions of change in the feelings that characterize these relationships and that differences in marital satisfaction might be related to these theories. To this end, they identified 32 married couples who had been in the relationship for an average of 9 years and whose marital satisfaction (based on the Locke-Wallace, 1959, scale of marital adjustment) had been determined in an earlier study. In 16 of these couples, both partners expressed satisfaction with their relationship, and in the other 16, both partners reported being dissatisfied. Participants were told that the study’s purpose was to understand people’s perceptions of how interpersonal relationships were likely to change over time. On this pretense, participants plotted six graphs showing the changes that typically occurred in marriage partners’ feelings during the first 10 years of a relationship. Three graphs described the typical man’s feelings of romantic love, commitment to the marriage, and affection for his partner. Three others described the typical woman’s feelings along the same dimensions. To aid them in constructing their graphs, participants were given axes in which the x coordinate pertained to the year of the relationship and the y coordinate referred to the attribute being rated along
Fig. 2. Satisfied partners’ perceptions of the typical husband’s and typical wife’s feelings over the first 10 years of a relationship.

a scale from 0 (none) to 20 (very much). Partners were told to place an “x” above the number denoting each year of the relationship to indicate their perception of the partner’s feelings during that year.

Satisfied partners’ theories about the prognosis of marital relationships were expected to be more similar to one another than dissatisfied partners’ theories. Data pertaining to this hypothesis are conveyed in Figs. 2 and 3, which show the
composite graphs drawn by satisfied and dissatisfied partners along each dimension. Analyses of these data revealed an interaction of relationship satisfaction, the partner being rated, and attribute dimension, $F(2, 60) = 4.29$, $p < .05$ and an higher order interaction involving these variables, participant sex and time, $F(18, 540) = 1.88$, $p < .01$. These interactions are most clearly interpretable by considering data for satisfied and dissatisfied couples separately.
As expected, satisfied husbands and wives had generally similar perceptions for how a typical marriage partner’s feelings were likely to change. For example, they agreed that the typical partner’s feelings of romantic love decreased to a much greater extent over time than his or her feelings of affection. Moreover, they agreed that the typical man’s feelings of love would tend to increase during the later years of the relationship without a corresponding increase in affection, whereas the typical woman’s feelings of affection were likely to increase in later years without a corresponding increase in feelings of romantic love.

In contrast, dissatisfied partners’ perceptions of the typical marriage differed much more dramatically. These differences are reflected in an interaction of respondent sex, the sex of the partner being rated, attribute dimension, and time, $F(18, 270) = 2.80, p < .01$, in an analysis of judgments by dissatisfied partners alone. Three aspects of these data are noteworthy. (1) Dissatisfied husbands and wives both perceived the typical marriage partner’s feelings of romantic love to decrease substantially over the first 8 years of the relationship. However, whereas dissatisfied wives expected these feelings to increase in later years, dissatisfied husbands did not. (2) Dissatisfied husbands perceived the typical man’s commitment during early years of the relationship to correspond more closely to his feelings of romantic love than to his feelings of affection. In contrast, dissatisfied wives perceived the typical man’s feelings of commitment to parallel his feelings of affection and to be maintained despite decreases in feelings of romantic love. (3) Dissatisfied husbands also perceived the typical woman’s commitment to correspond more closely to her feelings of romantic love than to her feelings of affection. However, dissatisfied wives perceived the typical woman’s commitment to be almost identical to her feelings of affection and to differ markedly from her feelings of romantic love.

A detailed discussion of the implications of these findings for an understanding of marital relationships is beyond the scope of this chapter. (It is unclear, for example, whether the differences in dissatisfied partners’ perceptions are a cause or an effect of their feelings about their own relationship.) Be that as it may, however, the results demonstrate the utility of comparing the implicit theories that are likely to characterize happy and unhappy couples. Differences in these theories may be worth more careful attention in future research.

D. THE ROLE OF EVENT-BASED KNOWLEDGE REPRESENTATIONS IN OTHER SOCIAL PHENOMENA

The three bodies of research we have summarized testify to the diversity of social phenomena in which narrative-based representations of knowledge play a role. However, the influence of these representations in social information processing is even more pervasive than this research suggests. Several other domains
in which narrative representations are assumed to have a major impact are worth noting briefly.

1. Affect and Information Processing

Episode models contain mental images of the events they depict, and details of these images can elicit emotional reactions similar to those that were experienced at the time the events occurred. This assumption is implicit in much research on the influence of affect on information processing (for reviews, see Clore, Schwarz, & Conway; Schwarz & Clore, 1996; Wyer, Clore, & Isbell, 1999). In this research, affective reactions are often induced experimentally by asking participants to recall and elaborate a past experience with which similar experiences occurred.

It is important to note, however, the elicitation of affect does not result from the recall of a past experience per se. Rather, it depends on whether the experience is thought about in a way that activates an episode model. Strack, Schwarz, and Gschneidinger (1987, Experiment 3) provide a clear demonstration of this contingency. Participants recalled and wrote about either a happy or an unhappy past experience. In some conditions, however, they were asked to imagine how the experience occurred and to describe the sequence of events that took place in detail. To perform this task, participants presumably retrieved and used a previously formed episode model of the experience that elicited visual images of what happened (Postulate 2). Other participants were told to write a detailed explanation of why the experience occurred. To attain this objective, they were more likely to generate a linguistically coded representation of alternative reasons for the experience that was not necessarily in narrative form. Consistent with these assumptions, participants who described how the events occurred experienced affect and later used this affect as a basis for judging their satisfaction with life as a whole. (That is, they reported being more satisfied if they were feeling happy than if they were not.) However, participants who explained why the events occurred did not experience affect, and the favorableness of the past experience they recalled had a contrast effect on their reported satisfaction with life in the present.

Strack et al.’s (1987) study has more general implications for the conditions in which people are likely to experience emotion in daily life. That is, affect may typically be associated with the mental image component of one’s episode model of a social experience. Thus, this affect is likely to be elicited spontaneously under conditions in which the model is recalled and used. As we speculated earlier in this chapter, however, the linguistic coding of this experience in the course of communicating about it to others may decrease the likelihood of retrieving the episode model later and, therefore, may decrease the feelings that are elicited as a result of thinking about the experience.
2. Stereotyping

In his initial conception of social stereotypes, Walter Lippman (1922) described them as “pictures in the head.” Nevertheless, most research on the role of stereotypes in social judgment (for reviews, see Bodenhausen & Macrae, 1998; Hamilton & Sherman, 1994; Fiske, 1998) does not take this “picture” into account. Rather, stereotypes are typically assumed to consist of a set of traits and prototypic behaviors that are characteristic of members of a social category (Bodenhausen & Macrae, 1998). These trait-based stereotypes, once activated, are assumed to mediate judgments and decisions concerning individual persons who belong to the category.

Nevertheless, trait-based stereotypes seem unlikely to mediate behavioral decisions when category exemplars are encountered in actual social situations. As Reid and Wyer (1998) point out, behavioral decisions in a social context are more likely to be guided by event stereotypes that describe the sequence of events that typically transpire in the particular situation at hand. Thus, for example, a woman who encounters an African American man late at night on a lonely street in Chicago is likely to cross the street in order to avoid a confrontation. However, this decision is less likely to be mediated by her stereotype-based perception of the man as “hostile” or “aggressive” than by an event stereotype that a black man who is wandering around late at night in an unpopulated area is likely to ask people for their wallet, and to assault them if they refuse. However, the same African American would be likely to elicit a quite different event stereotype if he were seen walking through a university library and would stimulate a quite different behavioral decision. This behavioral difference could occur despite the fact that if the woman were asked to describe African American males, she might generate a similar list of traits in each case.

Colcombe and Wyer (1999) obtained empirical evidence that the effects of exposure to a stereotyped group member on overt behavior are not always mediated by a trait-based stereotype. Participants were subliminally exposed to faces of African American males in the context of a perceptual judgment task similar to that employed by Bargh, Chen, and Burrows (1996, Experiment 3). Then, some participants performed a lexical decision task in which some of the words to be identified were normatively stereotypic of African Americans. Other participants were asked to perform a mathematics achievement test. Subliminally priming African American faces had no effect on the speed of responding to stereotype-based trait words, suggesting that they had no influence on the accessibility of a trait-based stereotype. Nevertheless, it significantly decreased participants’ performance on the mathematics test relative to control (no priming) conditions.

Although there are several possible interpretations of these findings, one possibility is that the priming stimuli activated an event stereotype of individuals who attach little value to performing well in academic achievement situations and,
therefore, do not try hard to succeed. This event stereotype, once activated, may have guided participants’ own behavior in the particular type of situation at hand. Note that Bargh et al. (1997, Experiment 3) found that priming African American faces had substantially different effects on behavior in a different type of social situation. These situational differences are consistent with the interpretation we have offered. In any event, it seems clear that the effect of priming African American faces on participants’ behavior is not necessarily mediated by its effect on the accessibility of a trait-based stereotype.10

3. Perceptions of Social Reality

As Wyer and Radvansky (1999) note, television is a major source of the episode models that people construct of social experiences. Americans watch an average of 4 h of television daily (Nielsen, 1993). On the other hand, people often dissociate the source of the knowledge they acquire from the knowledge themselves (Hasher, Goldstein, & Toppin, 1977; Jacoby, Kelly, Brown, & Jasechko, 1989; Johnson, Hashtroudi, & Lindsay, 1993). This means that people may often use episode models they have formed from watching television as a basis for judgments without considering the context in which the models had been constructed.

This possibility has implications for the “cultivation effect” (Gerbner, Gross, Morgan, & Signorielli, 1994), that is, the tendency for people to overestimate the occurrence in the real world of events that are disproportionately represented on television. Moreover, the amount of this overestimation increases with the amount of television they watch. Shrum and his colleagues (Shrum & O’Guinn, 1993; Shrum, O’Guinn, Semenik, & Faber, 1993; Shrum, Wyer, & O’Guinn, 1998) have conceptualized this effect in terms of a more general tendency for people to base their estimates of the frequency of an event’s occurrence on the ease with which instances of the event come to mind (Tversky & Kahneman, 1973; Schwarz et al., 1991). Thus, for example, people are likely to estimate the incidence of violent crime to be higher if episode models of criminal activity come to mind easily. Therefore, because violent crimes are shown frequently on television, heavy television users typically have episode models of these activities more accessible in memory than do light users, and so they estimate the occurrence of violent crime in the real world to be correspondingly more frequent. For similar reasons, heavy television viewers may overestimate the number of doctors, lawyers, millionaires, and policemen in the real world. Shrum et al. (1998) provide support for both this hypothesis and the interpretation underlying it.

10In other conditions of Colcombe’s research, participants were overly exposed to African American faces. In this condition, they responded more quickly to stereotype-related words on the lexical decision task, indicating that a trait-based stereotype was activated. In these conditions, however, participants performed better on the achievement task than they did under control conditions, contrary to implications of a trait-based stereotype of Blacks as unintelligent or unmotivated.
4. Humor Elicitation

Much of the humor we encounter is transmitted in stories. People who encounter the stories presumably form an episode model of the events they describe in the course of comprehending them. The question is when and under what conditions the mental representations that are formed of these stories elicit amusement.

One answer to this question is suggested in a theory of humor elicitation proposed by Wyer and Collins (1992). They contend that people who read a story spontaneously form an episode model on the basis of the first events that are described and that features of this model establish expectations for the content and implications of events that occur subsequently. In some cases, however, the later events violate these expectations, and so the model that was formed initially must be reconstructed in order to form a representation of the sequence of events as a whole. In some cases, this reconstruction can lead certain elements of the story (e.g., the protagonists, the events, or the story itself) to be diminished in importance or value relative to that implied by the original model. Wyer and Collins (1992; see also Apter, 1982) postulate that when this diminishment occurs, humor is elicited.

Thus, to borrow an example from Wyer and Collins (1992), consider the following story:

A Texas Aggie and two friends are marooned on a desert island without food or water. Suddenly, the sky opens and a voice says, "Each of you may have one wish." One friend says, "I wish I were in the arms of my loved one." Immediately, he disappears. The second friend says, "I wish I were in the bosom of my family." Immediately, he also disappears. The Texas Aggie thinks for a moment and says, "Gee, I wish my friends were with me now."

The initial events in this story stimulate the construction of an episode model in which people are saved from an impending disaster by a generic or fairy godmother and live happily ever after, and this representation gives rise to the expectation that this will transpire in the situation at hand. However, although the Aggie's wish is presumably motivated by desires similar to those of his friends (i.e., a wish to be off the island and with people he likes), its literal implications negate the wishes of the first two individuals and reinstate the same abysmal situation that existed at the outset. The reconstruction of this situation to accommodate this realization diminishes the importance of the first two wishes and trivializes the situation in general. Therefore, it elicits humor.

Other aspects of Wyer and Collins's conceptualization are worth noting in this context. They assert that although a diminishing reinterpretation of a situation is a necessary condition for humor elicitation, the magnitude of the amusement one experiences depends on the type of cognitive elaboration that occurs subsequently. If the implications of the humor-eliciting reinterpretation are imageable and an episode model of it is easy to construct, cognitive elaboration is likely to increase amusement. In the preceding example, this elaboration might involve
the construction of a mental image of both the friends and the Aggie when the friends find themselves back on the island, and the scenario that is likely to result. Moreover, a somewhat different mental image of the situation might occur each time the story is thought about, and so the story may continue to elicit humor even when repeated.

Other jokes, however, may be humorous when they are first encountered but have little elaboration potential. For example:

Q: What is George W. Bush’s opinion of the Roe v. Wade decision?
A: He thinks there should be an even better way to cross the Potomac.

This joke may stimulate humor in an individual who has not heard it before. However, it elicits little mental imagery and has little elaboration potential. Therefore, it is less likely to elicit much humor when repeated.

Finally, not all jokes stimulate cognitive elaboration of their humor-eliciting implications. If a joke is considered to be personally or morally offensive, or if it denigrates a social group that one holds in high regard, its nonhumorous implications may be elaborated and the humor it elicits may be correspondingly diminished. (Thus, for example, the “desert island” joke described earlier might be less amusing to students from Texas A & M than to others; similarly, the Bush joke may be less amusing to Republicans than to Democrats.) The role of humor-irrelevant cognitive elaboration of offensive or disparaging humor on the amusement that people experience has been demonstrated in several studies by Isbell, Wyer, and Collins (2001).

VI. Concluding Remarks

As Schank and Abelson (1995) contend, a very large proportion of the social knowledge we acquire is in the form of a narrative. The mental representations that we form in the course of acquiring this knowledge, and that we retrieve for use in transmitting it, are likewise in narrative form. These representations can refer to specific experiences that we observe or read about, or to sequences of events that occur routinely in a given type of situation and are not specific to any particular individual or point in time. The representations can describe a single experience in some detail or can refer to a number of more general experiences of the sort that compose a person’s life history (going to college, getting a job, getting married, etc.). Finally, some representations are coded linguistically, but others consist of nonverbal mental images that are coded in several sense modalities. A conceptualization of the cognitive antecedents of judgments and decisions obviously requires an understanding of how these knowledge representations are constructed, stored in memory, and later retrieved and used.
This chapter represents an initial attempt to provide this understanding. We first discussed the spontaneous construction of narrative representations of social events (e.g., episode models) in the course of comprehending them, emphasizing the role that mental imagery plays in this process. We then considered the role of more abstract narrative representations that people form in the pursuit of specific goals to which they are relevant and the way in which these representations combine with episode models to influence memory for the events to which they refer. Of particular importance in these considerations is the evidence that people's mental representations of their own behavior or that of familiar others can differ substantially from the representations of fictional persons or individuals they do not know.

Finally, we turned to a discussion of the role of narrative representations in inference and social judgment. Although this latter discussion covered a number of different areas of research, it did not scratch the surface of the vast number of situations, both in and outside the laboratory, in which narrative representations are likely to underlie social judgments and decisions. It nevertheless makes salient the fact that narrative representations of knowledge can have quite different effects on both memory and judgment than the types of representations that result from piecemeal analyses of information of the sort that are often investigated in social psychological research. It seems important for future research and theory on the cognitive mediators of social judgments to take the role of these representations into account. The work we have reviewed in this chapter hopefully establishes directions that future research and theorizing might pursue.

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References


