Cognitive Psychological Foundations of Narrative Experiences

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1 Introduction

Consider the opening paragraphs of Eudora Welty’s short story, ‘No Place for You, My Love’ (1955: 3):

They were strangers to each other, both fairly well strangers to the place, now seated side by side at luncheon—a party combined in a free-and-easy way when the friends he and she were with recognized each other across Galatoire’s. The time was a Sunday in summer—those hours of afternoon that seem Time Out in New Orleans.

The moment he saw her little blunt, fair face, he thought that here was a woman who was having an affair. It was one of those odd meetings when such an impact is felt that it has to be translated at once into some sort of speculation.

To create a mental representation of this scene, readers must engage in a number of activities that have, as a rule, been the province of cognitive psychology and cognitive science. Consider, for example, the role that memory processes must play for readers to perceive the full richness of Welty’s words. Readers may retrieve from memory their own past knowledge of restaurants to make sense of the general framing of the scene. They may retrieve their knowledge of marital infidelity to understand how it might be
marked on a woman’s face. They may retrieve memories of social interactions to create a context for what might constitute an ‘odd meeting’ when a great ‘impact is felt’.

Cognitive scientists study memory processes, as well as other processes and representations, that provide the backbone of literary experiences. We would surely judge readers’ experiences to be incomplete if all they did was construct a minimal instantiation of the situation. In that sense, many nuances of literary appreciation are beyond the scope of extant cognitive science theories. Still, researchers in cognitive science have made important strides in specifying the types of processes and representations that provide the point of departure for those more nuanced literary experiences. In this chapter, we review some fundamental advances in the cognitive psychology of narrative experiences. We begin with a brief account of the goals of theories in this domain. We then devote the bulk of the chapter to an exploration of the relationship between literary experiences and cognitive processes.

2 The Goals of Cognitive Psychological Research

We have already alluded to the constructs that play major roles in cognitive psychological theories: Processes and representations. Processes are the mental operations that enable readers to make the leap from symbols on a page to elaborate models of narrative worlds. Some of those processes are devoted to decoding letters and words and attaching meanings to those words. In this chapter, however, we will focus on those processes beyond the word that enable readers to experience narrative worlds. Representations are the products of those mental processes that get stored, for some duration, in memory. Researchers have suggested that readers create representations at a number of levels (e.g., Johnson-Laird 1983; van Dijk and Kintsch 1983; Zwaan and Radvansky 1998). Some representations remain fairly close to the details of a text. Others are more elaborate, based on incorporations from sources of information beyond the text.

We can characterize the goals of cognitive psychological theories with respect to processes and representations1:

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1 It is important to note that we are defining what we take to be the goals of theories that have emerged specifically from the cognitive psychology of narrative rather than from other areas of cognitive science or psychology itself. Researchers in other traditions, such as social psychology and artificial intelligence, have devoted effort to topics that remain outside the province of cognitive psychological theories. For example, as we shall describe later in the chapter, cognitive psychological theories focus on how readers update their representations. However, those theories have not generally considered the relationship between representation and action or representation and belief. That is, most theories within cognitive
1. A comprehensive theory should give an exhaustive account of the processes that function at each moment while a reader experiences a narrative.

2. A comprehensive theory should give an exhaustive account of the different representations that evolve during moment-by-moment reading.

3. A comprehensive theory should give an account of the final representation of a narrative that resides in long-term memory once the experience has ended.

For many researchers, the first goal has a somewhat more restricted form. Rather than trying to provide an exhaustive account of all processes, the theories focus only on those processes that are *automatic*. Automatic processes are those processes that, given appropriate starting conditions, operate in all circumstances. Thus, an exhaustive account of that set of processes provides the true backbone of narrative experiences. As two prominent researchers put it, ‘Automatic inferences are those that are encoded in the absence of special goals or strategies on the part of the reader, and they are constructed in the first few hundred milliseconds of processing. They therefore merit attention because they form the basic representation of a text from which other, more purposeful inferences are constructed’ (McKoon and Ratcliff 1992: 441). As we shall discuss shortly, theories of the boundaries on automatic properties have been controversial. However, we wish to fill out this section on the goals of cognitive psychological theories by providing a case study of research that addresses all three goals.


The house phone rang and Conchita came to tell me it was Von Slyke.

‘I was about to call you,’ I told him. ‘I just finished the cataloguing. I want to photocopy everything.’

Several pages later, without being mentioned in the interim, Conchita returns (Picano 1998: 286):

I was just biting down on that good-news/bad-news when Conchita appeared in the library doorway.

‘Did he say when they’re coming back?’ she asked.

That surprised me a little. I thought she already knew.

‘Not for a while. They’re going to Majorca today. Was there something you wanted to tell Mr Von Slyke?’

*psychology treat narrative representations as being compartmentalized with respect to real-world beliefs.*
In the second excerpt, Conchita uses a ‘he’ that ought to be difficult for readers to understand. Its referent resides five pages earlier in the novel. Those five pages range over a diversity of topics so that Mr Von Slyke (the referent of ‘he’) is ultimately quite backgrounded. Still, when Conchita utters ‘he’, it seems that Mr Von Slyke comes effortlessly to mind.

These excerpts from The Book of Lies exemplify one structure that is common in contemporary works of literature: the narrative unfolds in an episodic fashion with different characters and themes disappearing and reappearing over time. Some texts interweave lengthy episodes; others include brief flashbacks within on-going action. For instance, the narration can present a continuous stream of detailed action in a scene, in which the fictional time of the action can also be the time it takes the average reader to read the passage. However, the action can also be summarized in few pages in which days, months, or years are reported without details; or it can be omitted altogether, resulting in a speed-up. The flow of narration can also be interrupted by descriptive pauses in which no action is reported and the story time stops (Genette 1980 [1972]; Herman 2002). No matter how detailed a description is, it cannot represent every single detail of the place where the action unfolds. Rather, narratives refer to a small selection of details and let readers complete their work by imagining the rest (Iser 1978). The resulting discontinuity that characterizes narratives requires an active role on part of the reader.

As cognitive psychologists, we wish to understand how it is that readers are able to make coherent sense of the variety of narratives authors provide. In particular, we can ask whether readers must generally expend effort to disentangle narratives. That is, must readers use explicit memory searches to reconstruct a narrative that is fully coherent in time and place? Or, is it instead the case that readers possess cognitive processes that allow narratives to be disentangled automatically? We review a program of research that supports an automatic route by which readers achieve continuity across the span of narratives. That program of research also traces the relationship between the moment-by-moment experience of a narrative and the long-term memory representations that result.

Consider once more the excerpt from The Book of Lies. If readers are to disentangle this text without conscious intervention, we need it to be the case that the first interaction with Conchita becomes accessible again as they are reading the second conversation. Cognitive psychologists designate the type of memory in which the immediate products of processing reside as working memory. With respect to that construct, the claim is that we wish for the first Conchita interaction to become accessible once more in working memory at the same time readers experience the second. Research
suggests that a particular memory process, resonance, produces exactly such an effect (Gerrig and McKoon 1998, 2001; Lea, Mason, Albrecht, Birch, and Myers 1998; McKoon, Gerrig, and Greene 1996; Myers and O’Brien 1998; O’Brien, Rizzella, Albrecht, and Halleran 1998). Resonance is a fast, passive, and easy process by which cues in working memory interact in parallel with, and allow access to, information in long-term memory (Gil-lund and Shiffrin 1984; Hintzman 1988; Murdock 1982; Myers and O’Brien 1998; Ratcliff 1978; McKoon and Ratcliff 1992; Tulving 1974). In this case, the reader’s conceptual representations of Conchita should serve as cues that resonate through the representation of the text to heighten the accessibility in working memory of representations of concepts associated with her. Thus, resonance ought to produce the type of disentangling we seek.

Experimental evidence supports the role of resonance in on-going experiences of texts. Consider the story given in Table 1. Although this story pales by comparison to the literary example, it shares the same conceptual structure. The first few lines of the story introduce two characters. In the middle portion, those characters are parted and then, in the reunion portion, they regain one another’s company. The prediction, based on the assumption that resonance is at work, is that the accessibility of information from the introductory portion of the story will wax and wane as a function of the cues provided by other portions of the story.

**Introduction:** Jane was dreading her dinner with her cousin, Marilyn. She complained loudly to her roommate Gloria. ‘Every time I go to dinner at my cousin’s I get sick.’ Gloria asked, ‘Why did you agree to go?’ Jane said, ‘Because I’m too wimpy to say no.’ Jane went off to have dinner.

(Participants read either the Outsider present or Outsider absent middle portions of the text.)

**Outsider present:** When she arrived, Marilyn was just finishing the cooking. ‘You’re in luck,’ she said, ‘we’re having fried squid.’ Jane knew she was in for a wonderful evening. The two of them sat down to dinner. After dinner, they talked for a while, and then Jane left.

**Outsider absent:** Gloria decided to cook something nice for herself for dinner. ‘As long as I’m home alone,’ she thought, ‘I’ll eat well.’ Gloria searched her refrigerator for ingredients. She found enough eggs to make a quiche. After dinner, she put the dishes in the dishwasher.

**Conclusion:** Gloria was still up when Jane arrived home about midnight. (Reunion sentence.) Gloria asked Jane, ‘Did she make the eve-
ning unbearable?’ (Pronoun sentence.) Jane chuckled and said, ‘I just want to get some sleep.’

**Table 1: An Example Story from McKoon et al. (1996)**

Consider the *outsider present* version of the story (i.e., imagine one read the story with that middle portion) with respect to the concept cousin. The cousin is introduced in the discourse between Gloria and Marilyn. In the outsider present version, the action stays with the cousin. Thus, we would expect the concept cousin to be relatively accessible throughout this version of the story. By comparison, we would expect that cousin would, relatively speaking, fade away in the *outsider absent* version of the story. However, if resonance is at work, we would expect cousin to achieve comparable accessibility in both versions as soon as readers begin to experience the reunion portion of the story.

To test this prediction, McKoon, Gerrig, and Greene (1996) asked readers to perform a relatively straightforward task. Participants in the experiments read a series of stories (comparable in structure to the example given in Table 1) one sentence at a time on a computer screen. At the end of some sentence, a single test word appeared on the screen. The participants were required to indicate, as quickly and as accurately as possible, whether that test word had appeared in the story. This task provides an index of the accessibility of particular concepts from the story. We would expect, for example, that readers’ ability to say that ‘cousin’ had appeared in the story would vary as a function of whether that concept was present or absent in the middle portions of the stories. In fact, at the end of those middle portions ‘cousin’ was consistently less accessible for the outsider absent than for the outsider present versions. However, by the end of the reunion sentence, the accessibility of ‘cousin’ was equivalent across the two versions. The same pattern was obtained for other concepts from the introductory portions of the stories, such as ‘dreading’ for the Table 1 example. This latter result is important because it reinforces the hypothesis that this is an automatic, rather than a goal-driven process. These results support the contention that resonance provides automatic disentangling of these temporally discontinuous episodes.

The experiments and task we have just described focus on the moment-by-moment processing of the texts. McKoon et al. (1996) conducted another set of studies that examined the consequences of resonance for more long-term representations. The experiments used the same stories, but participants were asked to carry out a different mix of tasks. As before, they read the stories one sentence at a time on a computer screen. After every four stories, participants were asked to perform a second task. They were
presented with word lists and asked to indicate for each word whether the word appeared in one of the stories they had just read. In some cases, words from the same story (e.g., 'dreading' and 'squid') were adjacent to each other in the lists. In this task, performance is facilitated—or primed—when words that have a prior association come one after the other. To the extent that an association had formed between the two words during the moment-by-moment processing of the story, we would expect participants’ performance to be primed by the preceding word.

Consider once again the contrast between the outsider present and outsider absent versions of the stories. For the outsider present versions of the stories, concepts from the end of the story should be closely associated with concepts from the beginning of the story: Concepts from the beginning of the story are sustained through the middle all the way to the end. For the outsider absent versions of the story, the middle portion fails to sustain the main thread of the story. Therefore, to the extent that concepts from the beginning of the story are associated with concepts from the end, it must be because resonance has functioned to bring those concepts together in the context of the reunion and pronoun sentences. If this model is correct, we would expect to see a priming relationship between beginning and end concepts for both types of stories (i.e., outsider present and outsider absent). However, we would expect to find a priming relationship between middle and end concepts only for the outsider present stories. McKoon et al.’s (1996) data showed exactly that pattern of associations. The results confirm that resonance gives rise both to short-term disentangling of the stories’ episodes during moment-by-moment processing as well as long-term disentangling in the stories’ ultimate representations in memory.

One must always exercise caution generalizing from the modest texts of psychology experiments to the immodest texts of literary craftspeople. Still, the accumulation of evidence from the research on this topic suggests rather strongly that resonance provides an automatic means through which the various components of texts are pieced together into a coherent whole. This does not, of course, mean that authors’ inventions might not create circumstances in which readers have to expend purposeful effort to piece together the elements of narrative worlds. In fact, the resonance model specifies the circumstances in which that might be necessary: any time cues are insufficient for a passive search of memory to ‘find’ the appropriate prior stretches of text. Within broad limits, however, authors can interweave their themes with the knowledge that readers’ cognitive processes prepare them to sort matters out with no conscious awareness.

One final observation, to which we will return in various guises throughout this chapter, is that this useful outcome—a disentangled repre-
sensation—is an emergent property of a process that has no special relationship to text processing. That is, resonance is not, in any sense, directed to the goal of facilitating narrative experiences. Rather, it is a general cognitive process the existence of which has, presumably, allowed authors to expand the range of texts they can produce while having benefits to the readers outweigh costs.

In the next section, we provide examples of questions that are easily motivated on the basis of literary analyses. We then review the theories and experiments researchers in cognitive science have generated to shed light on those topics. In each case, we describe an individual program of research in some detail. We wish readers to see for themselves the basis of cognitive psychological generalizations.

3 Theories of Narrative Experience

Let us return to Welty’s story ‘No Place for You, My Love’. As we noted, the story begins at a luncheon in a New Orleans restaurant. Later in the story, the main characters visit a very different sort of restaurant, ‘Baba’s Place’, well south of New Orleans. The woman—the one with the ‘little blunt, fair face’—declines to order (Welty 1955: 18): ‘Nothing for me, thank you,’ she said. ‘I’m not sure I could eat, after all.’ She changes her mind and requests ‘some water’, but that request is not honored (19-20):

Baba was smiling. He had set an opened, frosted brown bottle before her on the counter, and a thick sandwich, and stood looking at her. Baba made her eat some supper, for what she was.

To understand both restaurant scenes, readers retrieve information from memory. There’s no need for Welty to explain the rituals surrounding restaurant visits. She can provide the fragments that are critical to her story, with the strong expectation that readers will fill in the rest.

One of the earliest areas of cognitive psychological research was concerned with the ways in which readers use memory structures to enhance their narrative experiences. The restaurant script is, in fact, is the prototypical example of the type of structure readers possess. A script is a memory structure that specifies the list of actions people perform in repeated situations such as visits to restaurants, lectures, and grocery stores (Abelson 1981; Schank and Abelson 1977). When reading stories that take place in scripted situations, people evoke this type of memory structure to guide their comprehension (Bower, Black, and Turner 1979). Scripts are a special case of a more general type of memory structure called schemas. Schemas gather together experiences—of people, places, things, and so on—into units that function during narrative experiences (and also, of course, in other
domains of life) (Bartlett 1932; Brewer and Nakamura 1984; Whitney, Budd, Bramucci, and Crane 1995). For even the brief sentences from Welty, we can enumerate a large number of schemas that might come into play: Schemas about human emotions, about beer, about sandwiches, and so on.

Readers’ use of schemas provides at least two benefits to authors. First, as we have noted, schemas allow them to delineate a scene with quick gestures. Once, for example, a restaurant scene has been minimally set, waiters, clattering trays, and wandering violinists can be addressed with little cognitive cost. Second, schemas allow authors to call quiet attention to departures from the norm. It is not, for example, an ordinary event to be served food in a restaurant that one has not ordered. Readers’ use of the restaurant script enables them to notice this departure from the ordinary.

There are some respects, however, in which the construct of the schema is insufficiently limited, with respect to moment-by-moment text processing: It cannot be the case—nor would it be adaptive were it the case—that all the information a reader possesses about a particular topic becomes part of an ongoing representation of the text. For example, although it would presumably be true that each human character mentioned in a narrative would have a brain, a heart, two lungs, and so on, we would be surprised to learn that that information becomes part of the text representation each time someone read a sentence like ‘Baba was smiling.’ Text representations reflect a mixture of the actual words of a text and inferences that readers encode based on those words. As we’ve just illustrated, schemas allow readers to draw more inferences than would be functional. As such, a major topic of cognitive psychological research has been to establish the range of inferences that readers automatically encode. In fact, for many years, this was the most prominent goal of much text processing research.

Even so, much of the early research wasn’t guided by any particularly strong theoretical perspective. That is, researchers often made individual claims about the automaticity of different classes of inferences without relating them to an overarching theory. Finally, in the 1990’s, two theories emerged that provided contrasting views of the set of automatic inferences: the minimalist theory (which has evolved into memory-based text processing) and the constructionist theory (which has evolved into explanation-based processing). As the name implies, the minimalist hypothesis suggested that a rather minimal set of inferences are encoded by all readers at all times. Specifically, McKoon and Ratcliff (1992: 441) argued that only ‘two classes of inferences, those based on easily available information and those required for local coherence, are encoded during reading, unless a reader adopts special goals or strategies.’ As an example of an inference
required for local coherence recall the pair of sentences, 'Baba was smiling. He had set an opened, frosted brown bottle before her on the counter, and a thick sandwich, and stood looking at her.' To understand this pair of sentences, readers must draw the inference that 'He' refers to 'Baba'. The class of inferences 'based on easily available information' has proved more elusive because, in the original formulation, the phrase 'easily available' was underspecified. The memory-based approach to text processing (e.g., McKoon et al. 1996; O'Brien, Lorch, and Myers 1998) addresses this concern by identifying the memory processes that make information 'easily available'. In our discussion of the way readers disentangle texts, we already gave an example of a memory-based approach to a particular text process. As we noted then, an important component of the philosophy that guides the memory-based approach is that it encompasses general cognitive processes: At least with respect to automatic inferences, it does not promulgate a particular model of what readers must or should do.

The constructionist theory, by contrast, imparts specific goals to the reader (Graesser, Singer, and Trabasso 1994; Singer, Graesser, and Trabasso 1994; cf. Emmott 1997). That is, the constructionist theory suggests that the cognitive processes that underlie narrative experiences operate to provide people with a particular type of reading experience. 'The constructionist theory is guided by the principle of 'search (or effort) after meaning' (Graesser et al. 1994: 371) which generates three assumptions (371-72):

1. *The reader goal assumption*. The reader constructs a meaning representation that addresses the reader's goals [...]

2. *The coherence assumption*. The reader attempts to construct a meaning representation that is coherent at both local and global levels [...]

3. *The explanation assumption*. The reader attempts to explain why actions, events, and states are mentioned in the text.

Because of the emphasis on explanation, researchers in this tradition also use the label *explanation-based theory* (the term we prefer). Proponents of memory-based processing would no doubt agree that readers often attempt to explain why actions are mentioned in a text. The issue that separates the two theories is whether readers carry out such activities as a *necessary* part of text processing.

As with the memory-based approach, the explanation-based approach has given rise to specific applications. We noted that researchers have characterized different levels at which readers represent texts. One type of representation that has gained empirical support is the *situation model*—a representation of 'the state of affairs described in a text' (Zwaan and Radvansky 1998: 162). Within the explanation-based tradition, Zwaan, Langston, and
Graesser (1995; see also Zwaan, Magliano, and Graesser 1995) have articulated the event-indexing model which provides an account of the dimensions of situation models (292): ‘When processing the first story event, the reader constructs five indices. Each story event is indexed on the time frame in which it occurs, the spatial region in which it occurs, the protagonist (or protagonists) it involves, its causal status with regard to the prior event (or events), and its relatedness to a protagonist’s goals. Then the reader monitors whether incoming story events require updating an index on any of these situational dimensions’. Although the event-indexing model may be accurate, it clearly commits readers’ cognitive resources to a very specific range of activities. This, again, is the most important contrast with the memory-based processing approach to narrative experiences which envisions a much narrower range of processes that readers must perform.

Because the explanation-based account and its corollaries make broader claims than does memory-based processing, it has proven easier to find exceptions to its predictions (e.g., Albrecht and O’Brien 1993; O’Brien et al. 1998; Rapp and Gerrig 2002). However, rather than focusing on limitations of either theory, we wish to describe topics that illustrate ways in which research in cognitive psychology can reveal the ‘backbone’ of narrative experiences. Even so, our goal with respect to our choices of topics is to give some sense of the extent to which a particular type of reader or of reading is institutionalized in our cognitive processes.

3.1 Readers’ Monitoring of Goals

Early in ‘No Place for You, My Love’, the protagonist establishes the explicit goal that will provide structure for the rest of the story (Welty 1955: 5):

‘I have a car here, just down the street,’ he said to her as the lunch-con party was rising to leave, all the others wanting to get back to their houses and sleep. ‘If it’s all right with— Have you ever driven down south of here?’

Out on Bourbon Street, in the bath of July, she asked at his shoulder, ‘South of New Orleans? I didn’t know there was any south to here. Does it just go on and on?’ She laughed, and adjusted the exasperating hat to her head in a different way. It was more than frivolous, it was conspicuous, with some sort of glitter or flitter tied in a band around the straw and hanging down.

‘That’s what I’m going to show you.’

‘Oh—you’ve been there?’

‘No!’
As the story unfolds, small goals arise that are nested within this larger goal: The man and woman wish to avoid insects (‘There were thousands, millions of mosquitoes and gnats—a universe of them, and on the increase’; Welty 1955: 8), they wish to make a ferry (‘Now skidding down the levee’s flank, they were the last-minute car, the last possible car that would squeeze on’; Welty, 1955: 8-9), and so on. To experience ‘No Place for You, My Love’, readers must be cognizant of the relationship between these local circumstances and the more general goal of reaching the southernmost point of the road.

Readers’ experiences of goals have been a major focus of cognitive psychological research on text processing. For example, as we noted earlier, the explanation-based theory suggests that much of readers’ effort is devoted to recovering explanations for why actions and events occur; goals provide much of the impetus for actions and events. Trabasso and his colleagues (e.g., Trabasso and Sperry 1985; Trabasso and van den Broek 1985; Trabasso, van den Broek, and Suh 1989) provided evidence that one product of readers’ narrative experiences are causal networks that represent the relationships between the causes and consequences of events in a story. Some story events form the main causal chain of the story whereas others, with respect to causality, are dead ends. When asked to recall stories, readers find it relatively more difficult to produce details that are not along that main causal chain. We would, for example, expect that readers of Welty’s story would be unlikely to recall the lovely details about the woman’s hat.

In our brief goal analysis of ‘No Place for You, My Love’, we suggested that local goals are nested within the overarching imperative to ‘go south’. This structure represents one of the many complex interweavings of goals provided by literary works. Researchers in the explanation-based tradition have examined the consequences of goal hierarchies for moment-by-moment processing. The most important claim is that readers keep goal information activated in working memory as they proceed in reading, until all the actions toward the achievement of that goal have been performed and the goal is fulfilled (Lutz and Radvansky 1997). On this theory, readers devote greatest attention to the most recent unfulfilled goal. Magliano and Radvansky (2001) sought to demonstrate the way in which the accessibility of goals changes in readers’ text representations as a function of the status of other goals.

Consider the story presented in Table 2. This story, which is representative of the stories used in Magliano and Radvansky’s (2001) experiment, presents an initial goal (i.e., ‘Betty wanted to move to the same city as her mother’) that remains unfulfilled at the end of the first episode. According to the explanation-based theory, that goal should retain some prominence in
working memory. However, the story's second episode introduces a second goal (i.e., 'She really wanted to give her mother a present') that should divert some of the reader's attention. By the end of the second episode, the status of that second goal differed as a function of versions of the story. In the failed goal version, the character had not been able to discharge the Episode 2 goal. In the completed goal and dead-end goal versions, the Episode 2 goal has been discharged.

**Episode 1:** Once there was a woman named Betty. Betty's mother had been sick lately. Betty wanted to move to the same city as her mother (goal 1). She went to the personnel office at her company. The office manager said he could not authorize her request. He told her that she needed to discuss the matter with the regional vice president.

**Episode 2:** The next day Betty realized that her mother's birthday was coming soon.

*(Participants read the Failed Goal, Completed goal, or Dead-end goal middle portions of the text.)*

**Failed goal:** She really wanted to give her mother a present (goal 2). She went to the department store. She found that everything was too expensive. She could not buy anything for her mother. She was very sad.

**Completed goal:** She really wanted to give her mother a present (goal 2). She went to the department store. She found a pretty purse. She was very happy.

**Dead-end goal:** She bought the present she wanted to give her mother (goal 2). Then, she went to the department store. She found a pretty purse. She was very happy.

**Episode 3:** Several days later, Betty saw her friend knitting. Betty was also good at knitting. She decided to knit a sweater. She selected a pattern from a magazine. She followed the instructions in the article. Finally, Betty finished a beautiful sweater.

**Episode 4:** She pressed the sweater. She folded it carefully.

**Probe Question:** Did Betty want to move close to her mother?

She sent it to her mother (failed goal version). (or)

She put it in the closet for the next time she went out. (completed and dead-end version)

She was very happy.

*(Note that the Probe Question interrupted Episode 4.)*

**Table 2:** An Example Story from Magliano and Radvansky (2001)
Recall that, according to the explanation-based theory, the more recent Episode 2 goal should be relatively more prominent in readers’ representations until it is satisfied. Once that is the case, Episode 1 goal should regain accessibility. To provide evidence for these predictions, Magliano and Radvansky (2001) asked the participants in their experiment to respond ‘yes’ or ‘no’ to questions about the content of the text. As indicated in Table 2, those probe questions appeared toward the end of the stories.

There were two probe questions for each experimental story. The first probe always tested participants’ ability to confirm the first goal (e.g., Did Betty want to move close to her mother?). Because of its renewed accessibility, participants should find it easier to confirm the Episode 1 goal when the Episode 2 goal has been satisfied. The data supported that prediction: Participants took reliably less time to confirm the Episode 1 goal when the Episode 2 goal was completed or was a dead end than when the character had failed to complete it.

Based on this experiment, we cannot know whether these adjustments with respect to the accessibility of goals are automatic or require reader effort: the probe sentence occurs too far downstream from the proposed locus of the effect (i.e., right after the Episode 2 goal is satisfied) to conclude that the reemergence of the Episode 1 goal is effortless. However, even if the monitoring of goals requires readers’ strategic intervention, this experiment still informs us that readers are ready and willing to undertake that intervention. Although readers no doubt extract more from ‘No Place for You, My Love’ than a causal network, it seems likely that they maintain some awareness of the overarching goal to ‘go South’. The results of Magliano and Radvansky’s (2001) experiment suggest, however, that readers’ awareness of that goal evolves in a predictable fashion as they read the story.

3.2 Readers’ Assessment of the Future and the Past

When the male protagonist of ‘No Place for You, My Love’ proposes ‘Have you ever driven down south of here?’, this is a good moment for readers to pause and reflect on the likely consequences: Readers, that is, might allow themselves to make predictions about what the story’s future will bring. Meanwhile, as the story unfolds, readers must construct a coherent representation that reflects both the current situation and what they have learned earlier. In various ways, researchers in cognitive psychology have explored how readers meld past, present, and future as they undergo narrative experiences (Gerrig 1993).

As we just noted, readers always have the privilege of taking a moment’s pause to imagine what might come next. For that reason, cognitive
psychological research has focused on the circumstances in which readers are likely to make predictive inferences without strategic intervention. For example, in 'No Place for You, My Love', readers learn that, as the protagonists follow their road south, 'More and more crayfish and other shell creatures littered their path, scuttling or dragging' (Welty 1955: 8). Do readers automatically encode the inference that some of those crayfish and their peers will not survive the car’s passage? (If they do, the next sentence confirms the inference: ‘These little samples, little jokes of creation, persisted and sometimes perished, the more of them the deeper down the road went.’)

The study of predictive inferences was inaugurated by McKoon and Ratcliff (1986) with brief and sometimes dramatic texts: ‘The director and the cameraman were ready to shoot closeups when suddenly the actress fell from the 14th story.’ McKoon and Ratcliff’s research led to the conclusion that readers were encoding predictive inferences, but that the inferences were not highly specific. That is, rather than encoding specifically that the actress would die, readers appeared to be encoding the more general prediction that ‘something bad will happen.’ Other researchers have extended McKoon and Ratcliff’s agenda by using less truncated texts, in which the inference arises more generally from the circumstances.

Consider, for example, the story in Table 3. Here, Cook, Limber, and O’Brien (2001) have provided a text that varies the overall contextual support for a predictive inference.

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**Introduction:** Jimmy was the new kid on the block. Although his parents urged him to go meet the other kids in the neighborhood, he was shy and hadn’t made any new friends. One Saturday morning, his mom asked him to go to the store for her. While he was walking back home, Jimmy ran into some of the kids from the neighborhood. They asked him if he wanted to play with them.

*(Participants read either the Low Context or High Context middle portions of the text.)*

**Low Context:** Jimmy was delighted and ran across the street to play with them. They taught him a fun game that involved throwing Nerf balls at a target to get points.

**High Context:** Jimmy was delighted and ran across the street to play with them. They taught him a fun game that involved throwing rocks at a target to get points.

**Continuation Section:** Jimmy and his friends were having a great time. Jimmy even won the game once or twice. He stepped up to take
his turn and aimed at the target. He missed, though, and he accidentally hit the door of a new car.

**Table 3: An example story from Cook et al. (2001)**

In the *high context* version, the mention that the game was played with rocks supports the inference, downstream, that Jimmy's accident would cause a dent. This inference would not, presumably, occur when the object hitting the door was a Nerf ball, as in the *low context* version. The extent to which readers, in fact, made the inference was assessed using a word naming procedure. In this procedure participants are asked to name a word as quickly as they can. The amount of time it takes them to name a word is an index of the word's accessibility in memory. In Cook et al.'s experiment, words that encoded the appropriate inference (such as 'dent') were presented after the end of each passage. Participants named the inference words consistently faster in the presence of high contextual constraints. What makes this result interesting is that the inference is not carried by one sentence of the stories. Rather, readers must piece together a model of the situation to encode the inference.

In subsequent experiments, Cook et al. (2001) examined the extent to which readers' predictive inferences become a part of their long-term memory. To address this topic, Cook et al. contrasted circumstances in which an outcome was implied (as in the earlier study) with those in which it was explicitly stated. Now, in the *explicit* version of Jimmy's story, a sentence read 'He missed, though, and he accidentally hit the car door of a new car and dented it' whereas the *implicit* version retained 'He missed, though, and he accidentally hit the car door of a new car.' Next, participants read a paragraph of text that created distance from the moment at which they would have encoded the inference:

Jimmy was late for dinner so he said goodbye to his new friends and ran home. He couldn't wait to go play with them again the next day. He happily told his mom that he had finally met some of the other kids in the neighborhood and had a great time. He told her about the game they played.

Finally, participants encountered a critical sentence:

He told her about denting the car door.

If the representations at which readers arrived were identical when the inference was either explicit or implicit, we would expect participants to have equal difficulty understanding 'He told her about denting the car door'. In fact, participants found the sentence harder to integrate when the inference had only been implicit. From this series of experiments we learn about some of the transient states that underlie readers' narrative experiences. We
cannot know, just by generating intuitions from texts, what the cognitive psychological reality will be.

Let us now turn to the ways in which readers’ understanding of the current moment in a text is informed by what has come before. Picano’s novel *The Book of Lies* provides a dramatic example of a revelation—toward the book’s very end—that colors enormously everything that preceded it. (Spoiler alert: Do not read the remainder of this paragraph, should you wish to preserve the secret.) The novel concerns, in large part, the efforts of Ross Ohrenstedt to produce new knowledge about a group of writers known as the ‘Purple Circle’. (The Purple Circle is a fictionalization of the real-world ‘Violet Quill’, a group of prominent gay male writers, of which Picano was a member.) At the end, when Ross believes he has succeeded, he has an awkward moment with his patron, Damon Von Slyke (Picano 1998: 399):

‘Good! Now if you’ll answer one more question. You’re not gay either, are you? Not gay. Not even bisexual, are you?’

‘You have to understand, Mr Von Slyke... I knew if I was going to write about the Purple Circle and be taken seriously by anyone, including yourselves, that I’d be totally suspect unless I fit in, unless I...’

‘Thank you!’ he interrupted. ‘I’ve heard enough. I see now that you aren’t at all gay.’

Throughout the novel, the reader has been led to believe that Ross is gay. With this revelation, it seems impossible not to do a mental review of the ‘evidence’ in the book—to see the ways in which readers allowed themselves to be misled.

When we discussed the ways in which readers disentangle narratives, we illustrated how the first impetus for such a mental review will be provided by automatic processes. These are exactly the type of circumstances in which we would expect cues to resonate through memory to provide heightened accessibility to previous episodes in which the evidence for Ross’s sexuality figured prominently. This is one automatic way in which present and past merge in the experience of narratives. However, another topic of research interest has been the extent to which the present—as it is revealed—overwrites the past. In Ross’s case, does the reader’s knowledge of his true sexuality forever overshadow past misdirection?

This question of updating provides an interesting contrast between the explanation-based and memory-based approaches to text processing. According to the explanation-based approach, readers should fully update their models of characters (recall the event-indexing model we described earlier) when they acquire new information. Once the character model has been
updated, old information should be left in the background never (automatically) to be consulted again. Thus, if the explanation-based model is correct, once readers have updated their Ross model with respect to his sexuality, they should never again consider the possibility that it could be otherwise. By contrast, the memory-based model suggests that cues resonating through long-term memory representations should continue to evoke the earlier information no matter what the current state of knowledge.

Research by O’Brien et al. (1998; see also Albrecht and O’Brien 1993) supports the predictions of the memory-based approach. Consider the story given in Table 4.

Introduction: Today, Mary was meeting a friend for lunch. She arrived early at the restaurant and decided to get a table. After she sat down, she started looking at the menu.

(Participants read the Consistent Elaboration, Inconsistent Elaboration, or Qualified Elaboration middle portions of the text.)

Consistent Elaboration: This was Mary’s favorite restaurant because it had fantastic junk food. Mary enjoyed eating anything that was quick and easy to fix. In fact, she ate at McDonald’s at least three times a week. Mary never worried about her diet and saw no reason to eat nutritious foods.

Inconsistent Elaboration: This was Mary’s favorite restaurant because it had fantastic health food. Mary, a health nut, had been a strict vegetarian for ten years. Her favorite food was cauliflower. Mary was so serious about her diet that she refused to eat anything which was fried or cooked in grease.

Qualified Elaboration: As she was waiting, Mary recalled that this had been her favorite restaurant because it had fantastic health food. Mary recalled that she had been a health nut and a strict vegetarian for about ten years but she wasn’t anymore. Back then, her favorite food had been cauliflower. At that time, Mary had been so serious about her diet that she refused to eat anything which was fried or cooked in grease.

Filler: After about ten minutes, Mary’s friend arrived. It had been a few months since they had seen each other. Because of this they had a lot to talk about and chatted for over a half hour. Finally, Mary signaled the waiter to come take their orders. Mary checked the menu one more time. She had a hard time deciding what to have for lunch.

Target sentences: Mary ordered a cheeseburger and fries.

She handed the menu back to the waiter.
**Closing:** Her friend didn’t have as much trouble deciding what she wanted. She ordered, and they began to chat again. They didn’t realize there was so much for them to catch up on.

**Table 4: An example story from O’Brien et al. (1998)**

Let’s begin with the target sentence toward the end, ‘Mary ordered a cheeseburger and fries’. The earlier material in the story makes this act of Mary’s easier or harder to assimilate. Suppose, for example, participants read the version of the story that includes the consistent elaboration. In that case, they are told that Mary is a great fan of McDonald’s. Mary’s eating habits remain consistent throughout the story; readers should find it relatively easy to integrate the notion that she ordered a cheeseburger and fries. By contrast, the inconsistent elaboration presents a problem. In the version of the story that includes that portion of the text, Mary is identified as a strict vegetarian. We would expect that readers would be bewildered when they learn that she has ordered a cheeseburger and fries. In fact, as indexed by the increased time it takes them to indicate that they’d understood the sentence, readers are somewhat bewildered by that version.

The critical case, however, is what O’Brien et al. (1998) called the qualified elaboration. In this version, Mary’s history is completely spelled out. She was a vegetarian, but she has fallen away from the faith. According to explanation-based theories, readers should only carry forward a model of Mary in which she is an omnivore. That knowledge should make it relatively easy for readers to integrate Mary’s lunch order into their overall text representation. By contrast, the memory-based view asserts that resonance will make Mary’s whole history accessible once again. As such, her past vegetarianism should function during integration—with the effect of slowing assimilation of the cheeseburger and fries. In fact, participants who read stories with the qualified elaboration still took more time to indicate their understanding of the target sentence than did those who read the versions with consistent elaborations.

As with the other research we have described, we believe these results have interesting implications for the way that authors might conceptualize how readers experience narratives. O’Brien et al.’s experiments suggest that, as readers update their models, they are still—automatically—compelled to revisit the past. As such, the past and the present crowd together to give a nuanced sense of how a character has developed. With respect to Ross Ohrenstedt, this means that readers will continue to confront the issue of his sexuality despite the concluding revelation of the novel. In addition, we see from these experiments that ordinary memory processes—processes that do not incorporate any model of what readers should or must do—provide this integration of present and past.
4 Conclusions

In this chapter, we have reviewed cognitive psychological research on narrative experiences with an eye toward demonstrating the immediate relevance of that research for the study of literary and other texts. We have used examples from Welty’s story ‘No Place for You, My Love’ and Picano’s novel The Book of Lies because they aspired to a certain level of literariness but were otherwise quite ordinary. That is, we intend our examples to have been representative of the sorts of experiences many readers are likely to have. Similarly, we hope that the applications we have illustrated have relevance beyond the brief invented stories that, for methodological reasons, dominate research on text processing.

Even so, every time we experience a work of literature we are reminded how much more progress cognitive psychological research must make to meet the goals we identified in our opening section. We will offer one example here. When we discussed the structure of ‘No Place for You, My Love’, we noted an official goal that brings overarching unity to the story: ‘Have you ever driven down south of [New Orleans]?’ In light of the ‘go south’ goal, we were able to make some suggestions about what readers are likely to be thinking (i.e., what will be most accessible in their representations) at various points in the story. Still, there’s clearly more going on in this story than the official imperative to ‘go south’. The man and the woman, after all, were ‘strangers to each other’. Why would the man propose the trip and why would the woman accept the proposal? (Midway through the story, the woman says, ‘I believe there must be something wrong with me, that I came on this excursion to begin with’; Welty 1955: 17.) Cognitive psychological research on goals has only focused on the explicit goals that are, almost always, stated directly in the texts. At present, the relevant theories have no way of conceptualizing how it is that readers find their way to a retrospective understanding of the implicit reasons why characters make the choices that they make. Thus, although cognitive scientists have developed some genuine insights about how people read, engagement with literary texts helps underscore the cognitive complexity of narrative comprehension, suggesting the need for perpetually broadening the research agenda.²

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