

How readers experience characters' decisions

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When people read narratives, they have ample opportunities to encode mental preferences about characters' decisions. In our present project, we examined how readers' preferences for characters' decisions structure their experiences of story outcomes. In Experiment 1, participants read brief stories and explicitly rated which of two potential decisions they thought the characters should make. The actual decision that each character made was either preferred or nonpreferred by readers. By the end of each story, readers learned whether there was a positive or negative outcome to these decisions. Decisions and outcomes either matched (e.g., a preferred decision followed by a positive outcome) or did not match (e.g., a nonpreferred decision followed by a negative outcome). Participants took longer to read outcome sentences when there was a mismatch. In Experiment 2, we replicated this finding with a task that allowed more natural reading. These results provide converging evidence that readers encode responses to characters' decisions and that these responses affect the time course with which they assimilate story outcomes.

Narratives frequently introduce decisions that characters must make. Often, the narratives follow through to describe the outcomes of those decisions. In such cases, the ease with which readers assimilate the outcome may be related to their subjective experience of the decision. Consider the following excerpt from Tim O'Brien's (1998, p. 88) short story, "The Streak." The story describes a newly married couple playing blackjack at a casino:

A crowd had gathered, most of them silent or near silent. A man in a plaid sweat suit giggled when Bobby pushed out twelve thousand dollars in orange chips.

"Can't do it," said the dealer. She stared at a spot over Amy's shoulder. "Six thousand—table limit."

"Two hands," said Bobby. "Six each."

At this point in the narrative, Bobby has made the decision to bet \$12,000 on a single round of blackjack. While experiencing Bobby's decision, readers may participate mentally. Some readers might think "Good decision!" whereas others might think "Bad decision!" Now, consider the outcome: "The dealer broke again. They had won fifty-seven thousand dollars since ten o'clock that morning" (p. 88). How easily will readers assimilate this positive outcome? In the present article, we propose that readers will have more difficulty assimilating a positive outcome if they initially thought that Bobby had made a bad decision.

Theories of text processing have not traditionally considered readers' mental responses to characters' decisions. Instead, researchers normally focus on the mental representations of narrative content culminating in situation models (van Dijk & Kintsch, 1983). Situation models are composed of information about "the people, objects, lo-

cations, events, and actions described in a text" (Zwaan, 1999, p. 15). In "The Streak," a reader's situation model might include the information that Bobby and Amy are a couple, that they are located around a blackjack table, that there is a female dealer, that a crowd has begun to gather around them, and so on. The situation model will also likely include a range of inferences (for reviews, see Guéraud & O'Brien, 2005). For example, a reader could infer that if Bobby plays the hand, he can lose, and if he loses, he and his wife will no longer have their winnings.

We suggest, however, that readers do more than encode inferences in response to Bobby's decision. In addition to inferring the potential outcomes of playing, our hypothetical reader is encoding a mental response that favors a particular decision. In fact, we argue that the content of readers' responses to narrative events (e.g., "Good decision!" or "Bad decision!") parallel the responses they would have were they to watch the same events unfold in the real world (Gerrig, 1993; Gerrig & Jacovina, 2009). We call these mental responses *participatory responses*. We suspect that a particular reader would encode much the same mental preferences while physically present while Bobby makes his decision to bet \$12,000 or while reading a story that describes that event.

The participatory responses that readers encode are contingent on their previous life experiences. Readers who are knowledgeable about the game of blackjack, for instance, will likely respond differently to Bobby's situation than readers who are unfamiliar with the game. This prediction follows from past research that has documented the impact of domain knowledge—for example, by contrasting experts and novices—on readers' responses to texts (e.g., Fincher-Kiefer, Post, Greene, & Voss, 1988; Griffin, Jee,

& Wiley, 2009; Spilich, Vesonder, Chiesi, & Voss, 1979). We would expect that readers with considerable blackjack knowledge would encode more definitive responses with respect to Bobby's decision (i.e., they would have stronger opinions about what constitutes a good or bad decision).

Thus, we expect that the particular content of participatory responses will vary from person to person as a product of differences in life experiences. For example, some people may be inclined to offer mental advice to characters (e.g., "Don't do it! Walk away while you're ahead!"), whereas others may have a less elaborate response (e.g., "Yuck!"). In fact, when a reader encounters Bobby's decision to make his bet, there are an unlimited number of instantiations of the "Good decision!" or "Bad decision!" responses we described earlier. Some readers will encode participatory responses through strategic effort: They will take a moment to reflect on the situation. However, other readers may encode their response without conscious reflection. Consider a reader of "The Streak" who works at a casino as a card dealer. Having experienced so many instances similar to the one described in the story, this individual may automatically encode a particular response on the basis of previous experiences.

However, there is more to the situation in "The Streak" than just blackjack knowledge. As the scene unfolds, it becomes increasingly clear that Bobby's new wife (they are on their honeymoon), Amy, wishes him to stop gambling (p. 89):

"Win or lose," Amy said, "we quit this time."

Bobby said nothing.

Some readers will likely be horrified that Bobby is ignoring his new wife's wishes; others might embrace his impulse to play the rush. As they would with blackjack knowledge, readers presumably draw upon their relationship knowledge to reflect on Bobby's decision. However, blackjack knowledge and relationship knowledge differ in two important respects. First, blackjack knowledge often allows answers that are arguably right or wrong (e.g., once the cards have been dealt, "basic strategy" specifies exactly how a player should optimally respond). By contrast, relationship knowledge provides fewer straightforward answers. Second, blackjack is a restricted domain in which different readers will have more or less expertise. By contrast, virtually all readers will have relationship knowledge, making them all experts (or all novices). Thus, we cannot predict readers' individual responses to Bobby's decisions solely by invoking expertise. Rather, we expect that readers' particular histories with respect to relationships—in particular, the set of memory representations evoked by this episode from "The Streak"—will inform their participatory responses along the dimension of "Good decision!" to "Bad decision!"

Previous narrative research has shown that readers encode participatory responses and that those responses can affect story comprehension. For example, Rapp and Gerrig (2006; see also Rapp & Gerrig, 2002) explored the mental preferences that readers encode in favor of particular narrative outcomes. They began with stories for which the context provided a bias toward one of two

outcomes. In one story, Holly will either win or fail to win the tristate marathon. In the success-bias version of the story, Holly was yards ahead of her competitors as she neared the finish line. In the failure-bias version, Holly was several yards behind the lead runner as she neared the finish line. As expected, participants read likely outcomes (e.g., Holly won when she was considerably ahead) more quickly overall than unlikely outcomes (e.g., Holly won when she was yards behind).

However, the stories also provided readers with opportunities to encode participatory responses that expressed their preferences for one outcome over the other. In the success preference condition, Holly had recovered from a terrible accident in which she was hit by a drunk driver. In the failure preference condition, Holly used illegal steroids to prepare for the race. Participants read some stories in which their preferences were consistent with the outcomes and others in which their preferences conflicted with the outcomes. Even when the preferred outcome was otherwise an unlikely outcome, readers were relatively quicker to assimilate that outcome into the story than when it was not the preferred outcome. The results suggested that readers' participatory responses affected the time course with which they assimilated outcomes into their discourse representations.

This earlier research provides the context for our focus on characters' decisions. In narratives, authors use character decisions for many purposes, such as character development and to advance the plot. In "The Streak," Bobby's decision serves both of these purposes. If readers of "The Streak" participate in the story by having mental reactions to Bobby's decision, it is plausible that these reactions will affect the ease with which they assimilate the ultimate outcomes. When readers react negatively to Bobby's decision to make the bet (with some instantiation of "Bad decision!"), a positive outcome will seem incongruous and should be more difficult to assimilate. When readers react positively (with some instantiation of "Good decision!"), a positive outcome will seem congruous and should be easy to assimilate. As we noted earlier, we expect that readers' individual responses to characters' decisions will be informed by the sets of memory representations that the situations evoke. These sets of memory traces will provide the context that determines the congruity of the relationship between the decision and the outcome. We expect that readers will value one decision over another exactly because they have memory representations that encode the relationships between decisions and outcomes.

We focus on readers' responses to characters' decisions because this appears to be a fruitful domain in which to examine readers' individual responses. Past research examining participatory responses has relied on a general "good guy" versus "bad guy" manipulation: The expectation was that readers would come to prefer a particular outcome because, for example, Holly was an accident survivor or a steroid abuser. Rapp and Gerrig (2002, 2006) expected that the majority of readers would respond with the same mental preferences (an expectation that was supported by norming data). However, we expect that readers will demonstrate more variability in their responses to the

decisions that characters need to make. First, many decision situations permit reasonable disagreement (Schwartz et al., 2002; Stanovich & West, 2000). Second, as we suggested earlier, readers bring different life experiences to bear on each decision. For these reasons, we wished to demonstrate that readers' individual responses to characters' decisions affect the time course with which they assimilate stories' outcomes.

To test our hypotheses, we wrote a series of brief stories that involved types of decisions with which we expected every reader to have relevant past experiences—for example, choosing to study or to attend a party, choosing what to serve at dinner, and deciding how early to arrive at the airport. Each story had four versions reflecting two possible decisions and two possible outcomes. In these stories, characters were presented with a decision to make, they made the decision, and an outcome occurred. Each story began with an introduction that established the decision the character would be making:

David was getting dressed for his niece's sweet sixteen party. The invitation didn't mention a dress code, but he knew her parents were dressing up. He rarely dressed formally and knew his suit would be tight and uncomfortable. While he preferred to dress casual, he didn't want to be the only one underdressed.

In this example, we expect readers to recognize that David needed to decide whether to dress either formally or casually. The stories continued with the character making one or the other decision:

- (a) David chose to squeeze into his suit despite the restricted fit.
- (b) David chose to dress casual, with a polo shirt and khakis.

After the decision sentence, we included a transition sentence that provided a context for the story outcome. The transition sentence for David's story was, "Once at the party, he greeted his family members." Finally, each story had two possible outcomes. Each outcome served as a positive and a negative outcome, depending on which decision the character had made. Consider the following two outcomes:

- (c) He saw that with a few exceptions, they were formally dressed.
- (d) He saw that with a few exceptions, they all dressed casual.

In this story, (c) is a positive outcome for decision (a) and a negative outcome for decision (b). The opposite is true for (d), which is a positive outcome for decision (b) and a negative outcome for decision (a).

As is seen in this example, the ultimate outcome of each story was outside the character's control: Whether David dressed formally or casually had no influence on what sort of attire the other party guests would be wearing. We chose to write the stories in this way to prevent readers from attributing an outcome to the skill of a character in carrying out whatever decision is made. For example, imagine a

character named Lucy who decides to paint a picture as a wedding gift rather than purchasing something off of a gift registry. The outcome of whether the newlyweds enjoy the gift would likely be contingent on Lucy's artistic ability. We consider this a potential problem because readers may be unsure how to respond to Lucy's decision without knowing more about her skill as an artist. Note that many real-life outcomes share the quality of being outside the control of the decision maker (e.g., if Jay decides to take a train to an airport, it shouldn't reflect badly on the decision if the train is canceled). We also attempted to make each potential decision seem somewhat reasonable, so that different participants would prefer different decisions.

In our present experiments, we referred to certain combinations of decisions and outcomes as either matching or mismatching. For each story, we suggest that individual readers will deem particular decisions to be preferred or nonpreferred. On some occasions in our experiments, participants read stories in which preferred decisions were followed by positive outcomes or in which nonpreferred decisions were followed by negative outcomes; we call these *matching* occasions. On other occasions, preferred decisions preceded negative outcomes, or nonpreferred decisions preceded positive outcomes; we call these *mismatching* occasions. Our hypothesis, in these terms, is that readers will find matching outcomes easier to assimilate into their discourse representations than mismatching outcomes, which should yield faster reading times for matching outcomes. In Experiment 1, because of our interest in readers' individual responses to each decision, we explicitly asked participants which decision they preferred. For Experiment 2, we used the data from Experiment 1 to predict how the majority of participants would assess each decision.

EXPERIMENT 1

From our perspective, we expect different readers to respond to the same decisions in different ways. Ideally, we would know which decision each individual reader preferred for characters on the basis of the readers' participatory responses. Because there is no natural way to record these internal responses, we stopped readers before they encountered each decision sentence (i.e., the sentence in which the story revealed the character's decision). At that moment, we presented them with both potential decisions and asked them to indicate the decision that they preferred. We used this design because we wished to demonstrate that readers' individual responses affect the ease with which they assimilated particular outcomes.

Method

Participants. We recruited 24 Stony Brook University undergraduates. Each was a native speaker of English. Participants received either course credit or \$8.

Materials and Design. To develop our stimuli, we wrote the introductions to 30 stories, each of which projected two possible character decisions. In a norming study, 16 Stony Brook University undergraduates read these introductions and indicated which of the two decisions they thought each character should make. This was a forced choice decision, so participants could not indicate that they felt neutral about the pair of decisions. On the basis of the norm-

ing data, we selected 24 stories with two goals in mind. Our first goal was to eliminate any stories for which no participant selected one of the decisions, perhaps indicating that it was a truly bad decision. We eliminated one story for that reason. Our second goal was to select stories that provided a relatively wide range of agreement with respect to the wisdom of each decision. That is, we wished to include some stories for which most norming participants chose one decision option (high agreement) and other stories for which participants' responses were closer to an even split (low agreement). For the purposes of our story selection, we refer to the decision that the majority of norming participants chose as the popular decision (whereas the other is the unpopular decision). Having a suitably wide range of agreement would allow us to create lists of stories for which we could be reasonably certain that all readers would face some decisions that they thought were reasonably easy and others that they thought were reasonably difficult.

We defined high-agreement stories as those in which norming participants' agreement on the popular decision ranged from 75% to 93.8%. We defined low-agreement stories as those in which norming participants' agreement on the popular decision ranged from 56.3% to 68.8%. To create these groups, we eliminated one story with a 50%–50% split. Nine stories had a 68.8%–31.3% split; we selected five of these stories and eliminated the other four. Overall, in the final set of 24 stories, one option was preferred to the other between 56.3% and 93.8% of the time, with a mean of 73.4%. We used the six eliminated stories as practice stories.

The complete versions of the 24 stories each consisted of seven sentences. As is shown in Table 1, each story began with a four-sentence introduction that established a decision that a character had to make. The next sentence presented one of the two alternative character decisions. The sixth sentence provided a transition to the story's outcome. The final sentence presented one of two alternative outcomes. The two versions of the outcome sentence were either positive or negative, depending on which decision the character had made. All decision and outcome sentences were 9 to 11 words long and had 14 to 16 syllables. Within stories, the two versions of the decision and outcome sentences were matched exactly for the number of words and syllables.

We also wrote a comprehension sentence for each story. As is shown in Table 1, each sentence consisted of either a true or false statement about the story and pertained to the factual content of the story. We wrote an equal number of true and false statements. All sentences referred to elements of the story outside of the sentences we manipulated, so they remained the same across versions of the stories. Half of the questions referred to information from the introduction, and the other half referred to information from the transition sentence.

We ultimately created four lists of stories, in which story version was counterbalanced across lists. Decision type (popular and unpopular) and agreement (high or low) were counterbalanced on the basis of data from the norming study. (Note that we did not use these two variables in any analyses; we used them to promote balance among the story lists.) Outcome type (positive or negative) was based on whether something good or bad happened from the character's perspective. Thus, we created the lists so that half of all decisions made by the characters were popular according to the norming data, and half of those decisions had positive outcomes (whereas the other half had negative outcomes). Furthermore, we counterbalanced for the degree of agreement among norming participants. Thus, each participant saw three stories from each condition in a 2 (agreement: high or low) \times 2 (decision: popular or unpopular) \times 2 (outcome: positive or negative) design. For our analyses, we were interested in how participants' individual decision preferences affected their responses to the outcomes of characters' decisions. Thus, our counterbalancing notwithstanding, each participant ultimately experienced unequal numbers of stories in each cell.

Apparatus and Procedure. Participants sat in individual rooms in which they worked on a Dell desktop computer with a color monitor. DirectRT software presented the text on the monitor and recorded participants' responses and reading times.

Participants read a set of printed instructions followed by additional computer-based instructions. Stories appeared on the screen one line at a time. Pressing the space bar advanced the story to the next sentence. We asked participants to read the stories carefully because they would be answering comprehension questions. After the introductory portion of each story, participants encountered a question that asked them to indicate which of two decisions they

Table 1
Sample Stories Used in Experiments 1 and 2

| Sample Story 1 | |
|----------------|---|
| Introduction | Sandy received a \$5000 holiday bonus and wanted to invest the money. She read a tip on an internet blog about a brand-new company with great growth potential. The stock sounded risky but the blog had been right about many things in the past. Sandy called up the investment firm she used. |
| Decision | <i>She asked her advisor to suggest a safer stock to buy.</i> She asked to purchase stock in the company she read about. |
| Transition | A few weeks later, she saw an article on the company on the blog. |
| Outcome | <i>The article told how the company was a huge failure.</i> The article told how the company was a huge success. |
| Comprehension | Sandy saw an article about the company in the Wall Street Journal. (False) |
| Sample Story 2 | |
| Introduction | Jess was getting ready to give a PowerPoint presentation in class. Her professor e-mailed her to say that he had loaded the presentation onto his computer. She was still concerned about compatibility issues and considered bringing her laptop. The classroom was a 15 minute walk from her dorm, however, and her laptop was heavy. |
| Decision | <i>Jess chose to lug her laptop with her to the presentation.</i> Jess chose to walk to the classroom without taking her laptop. |
| Transition | When she arrived, she checked her PowerPoint on the professor's computer. |
| Outcome | <i>It did open, but some pictures refused to load correctly.</i> It opened right away and seemed to be working perfectly. |
| Comprehension | Jess used PowerPoint for her presentation. (True) |

thought a character should make and how strongly they felt about their preference. For example:

- Which of the following choices should David make?
 A. David should wear his suit.
 B. David should dress casually.

A beeping sound played whenever participants needed to enter a response. Participants responded using a scale ranging from 1 (*definitely Choice A*) to 5 (*no preference*) to 9 (*definitely Choice B*). After participants entered their responses, the next sentence of the story appeared. The completion of the story was the same, irrespective of the participants' responses to the decisions. Participants continued to use the space bar to advance through the story.

Each comprehension sentence was preceded by the question, "Is the following statement true?" Participants pressed one of two keys that were labeled "Yes" or "No" on the keyboard to respond. We gave participants an example and explained that they needed to read the statement about the story and indicate whether it was true (by responding "Yes") or false (by responding "No"). After reading the instructions, participants went through six practice stories, each of which appeared in the same format as the experimental stories.

Results and Discussion

We eliminated one comprehension question from this analysis because of an experimenter error. Overall, participants answered 95.1% of the comprehension questions correctly. Individually, each participant answered over 80% correct. We did not eliminate any participants.

We analyzed reading times for the outcome sentences, in which the story revealed the outcome (e.g., "[David] saw that with a few exceptions, they were formally dressed"). Recall that participants provided responses on a 9-point scale to indicate which decision they thought characters should make. We used participants' individual responses to define whether a character's decision was preferred or nonpreferred for each story they read. We eliminated 34 neutral responses (i.e., circumstances in which participants indicated no preference between the two decisions) from this and subsequent analyses. We removed all reaction times (RTs) that were less than 500 msec or more than 3 SDs from each cell mean, resulting in a loss of 2.77% of the data. We conducted repeated measures ANOVAs with decision type (preferred or nonpreferred) and outcome type (positive or negative) as the within-participants or within-items factors. For this and all subsequent tests, we conducted analyses with both participants (F_1) and items (F_2) as the random variable.

We predicted that there would be an interaction between decision type and outcome type, driven by slower reading times when there was a mismatch between the two (e.g., a preferred decision followed by a negative outcome). Table 2 shows data conforming to this pattern [$F_1(1,20) = 12.84, MS_e = 145,710, p < .01; F_2(1,20) = 5.51, MS_e = 311,967, p < .05$]. Simple effects tests provided partial confirmation that positive outcomes were read more quickly than negative outcomes after a preferred decision [$F_1(1,20) = 8.26, MS_e = 145,710, p < .01; F_2(1,20) = 1.70, MS_e = 311,967, p > .10$] and that negative outcomes were read more quickly than positive outcomes after a nonpreferred decision [$F_1(1,20) = 4.81, MS_e = 145,710, p < .05; F_2(1,20) = 4.07, MS_e = 311,967, p = .057$]. The two main effects were not significant ($F_s < 1$).

Table 2
Mean Reading Times (in Milliseconds) and Standard Deviations for Experiment 1 Outcome Sentences

| Outcome | Preferred Decision | | Nonpreferred Decision | | Overall <i>M</i> |
|------------------|--------------------|-----------|-----------------------|-----------|------------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | |
| Positive | 2,344 | 575 | 2,653 | 667 | 2,499 |
| Negative | 2,660 | 666 | 2,411 | 487 | 2,536 |
| Overall <i>M</i> | 2,502 | | 2,532 | | |

Note—Decision preference indicates whether the characters' decisions paralleled readers' preferences. Outcomes were positive or negative from the characters' perspectives.

Our data suggest that mismatches led to longer reading times. We predicted, in addition, that stronger preferences for particular decisions should lead to larger reading time differences between matching and mismatching outcomes. To define strong and weak preference strengths, we used participants' responses to the 9-point scale. Specifically, we defined strong preference strength as responses at the extremes of the scale (i.e., 1–2 and 8–9) and weak preference strength as responses toward the middle of the scale (3–4 and 6–7). Although we planned to conduct another set of analyses using preference strength as a factor, we found that sorting the stories in this way for each participant created an abundance of empty cells (19 out of 192). For this reason, we did not conduct inferential statistics. Table 3, however, shows the means for each cell. We predicted that for stories with strong preference strength, the relative difference in reading times between matching and mismatching outcomes would be greater. The data showed a trend in the expected direction. When there was a strong preference strength, the mean difference between matching and mismatching outcome reading times was 333 msec; when there was a weak preference strength, the mean difference was 202 msec.

These results provide evidence that readers' decision preferences affect the time course with which they assimilate story outcomes. Note that the stories that we counted as matching or mismatching were word-for-word the same.

Table 3
Mean Reading Times (in Milliseconds) and Standard Deviations for Experiment 1 Outcome Sentences

| Outcome | Preferred Decision | | Nonpreferred Decision | | Overall <i>M</i> |
|----------------------------|--------------------|-----------|-----------------------|-----------|------------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | |
| Strong Preference Strength | | | | | |
| Positive | 2,263 | 602 | 2,652 | 817 | 2,458 |
| Negative | 2,547 | 764 | 2,271 | 651 | 2,409 |
| Overall <i>M</i> | 2,405 | | 2,462 | | |
| Weak Preference Strength | | | | | |
| Positive | 2,499 | 762 | 2,599 | 723 | 2,549 |
| Negative | 2,637 | 806 | 2,333 | 544 | 2,485 |
| Overall <i>M</i> | 2,568 | | 2,466 | | |

Note—We defined strong preference strength as responses at the extremes of the scale and weak preference strength as responses toward the middle of the scale. Decision preference indicates whether the characters' decisions paralleled readers' preferences. Outcomes were positive or negative from the characters' perspectives.

For example, some participants read a story in which David wore a suit but everyone else dressed casually. The only thing that differed among readers was their responses to the decision David faced. That is, before reading that David chose to wear a suit, some readers had stated a preference in favor of a suit, whereas others had stated a preference against the suit. Whatever the readers' preferences, the story continued in the same way. If we did not consider those preferences, we would have no reason to predict that one participant would read the same outcome sentence more quickly than another. Everything about the prior context was the same.

By explicitly asking participants to provide their preferences, we captured differences among readers that structured their experiences. In fact, all of the participants agreed on the same decision in only 1 of the 24 stories. Our results, therefore, emerged after we classified stories appropriately for individual readers. We believe that this is a positive feature of our experiment for two main reasons. First, the design places an emphasis on readers' individual responses to each story, which we have suggested will vary with their own prior life experiences. Second, the design decreases the likelihood that the results are due to some quality of the stories for which we did not control. We did, however, need to stop participants midstory to ask for their preferences. Because this is an unnatural way to read stories, we conducted a second experiment in which participants read without interruption.

EXPERIMENT 2

The results of Experiment 1 supported the hypothesis that readers will have more difficulty assimilating outcomes when there is a mismatch between the decision they favor and the ultimate outcome. Of course, readers do not usually stop during a story and overtly encode a response to the question, "What should the character do?" In Experiment 2, therefore, we wished to replicate the result with more natural reading: We did not stop participants to ask them to assess potential decisions. For this experiment, we selected a subset of stories from Experiment 1 that had yielded relatively high agreement among participants regarding which decision the character should make. In this subset of stories, we could count some decisions as "preferred" and some as "nonpreferred," on the basis of how previous data suggested the majority of readers would respond.

Recall, however, that we wrote our stories so that both decisions would seem plausible. For that reason, it is likely that, by defining a particular decision as preferred (or nonpreferred) for all participants, we will be incorrectly categorizing some stories (with particular decisions) for most participants. For example, about 81% of participants in Experiment 1 thought that David should wear his ill-fitting suit. Thus, in Experiment 2, that decision would be considered the preferred one. However, 19% of participants felt the opposite way about David's decision. In Experiment 2, we would be misclassifying this story for those participants (without, of course, knowing which participants those are for any story).¹ Still, we need to assume this risk so that we can have participants read the stories without interruption.

Method

Participants. We recruited 24 Stony Brook University undergraduates for this study. Each was a native speaker of English. Participants received course credit.

Materials and Design. We wanted the stories we selected for Experiment 2 to be those for which participants would be most likely, a priori, to prefer one character decision over the other. We thus calculated the percentage of participants in Experiment 1 who reported a preference for one decision over the other (omitting 34 neutral responses). This calculation enabled us to define a preferred choice for each story. The percentage of participants who selected the preferred choice ranged from 100% to 52.2%, with a mean of 73%. We selected the 16 stories with the highest agreement for the preferred choice. This produced a range from 100% to 66.7%, with a mean of 80.6%. We used the same four versions of each story as in Experiment 1. We created four lists of stories, in which story version was counterbalanced across lists, using a 2 (decision type: preferred or nonpreferred) \times 2 (outcome type: positive or negative) design.

Procedure. The procedure was identical to that in Experiment 1, with two exceptions. First, we did not interrupt participants to ask which of two potential decisions they thought characters should make. Second, we reduced the number of practice stories from six to four, to parallel the reduced total number of stories.

Results and Discussion

Overall, participants answered 93.5% of the comprehension questions correctly. Individually, each participant answered over 80% correct. We did not eliminate any participants.

We analyzed reading times for the outcome sentences. Recall that we determined decision preferences for each story using data from Experiment 1. We removed all RTs that were less than 500 msec or more than 3 *SDs* from each cell mean, resulting in a loss of 1.82% of the data. We conducted repeated measures ANOVAs with decision type (preferred or nonpreferred) and outcome type (positive or negative) as within-participants or within-items factors.

As in Experiment 1, we predicted that readers would take longer to read mismatching outcomes (e.g., a preferred decision followed by a negative outcome) than to read matching outcomes (e.g., a preferred decision followed by a positive outcome). This prediction would lead to a significant interaction between decision type and outcome type. Table 4 shows mean reading times matching this pattern. The interaction was significant by participants, although it was marginal only by items [$F_1(1,20) = 13.14, MS_e = 151,236, p = .002; F_2(1,12) = 3.60, MS_e = 366,085, p = .08$].² Simple effects tests provided partial confirmation that positive outcomes were read more quickly than negative outcomes after

Table 4
Mean Reading Times (in Milliseconds) and Standard Deviations for Experiment 2 Outcome Sentences

| Outcome | Preferred Decision | | Nonpreferred Decision | | Overall <i>M</i> |
|------------------|--------------------|-----------|-----------------------|-----------|------------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | |
| Positive | 2,253 | 728 | 2,614 | 815 | 2,434 |
| Negative | 2,590 | 791 | 2,376 | 758 | 2,483 |
| Overall <i>M</i> | 2,422 | | 2,495 | | |

Note—Decision preference indicates whether the characters' decisions were predicted to parallel readers' preferences, on the basis of the data from Experiment 1. Outcomes were positive or negative from the characters' perspectives.

a preferred decision [$F_1(1,20) = 9.00$, $MS_e = 151,236$, $p < .01$; $F_2(1,12) = 2.24$, $MS_e = 366,085$, $p > .10$] and that negative outcomes were read more quickly than positive outcomes after a nonpreferred decision [$F_1(1,20) = 4.52$, $MS_e = 151,236$, $p < .05$; $F_2(1,12) = 1.40$, $MS_e = 366,085$, $p > .10$]. The two main effects were not significant [decision type, $F_1(1,20) = 1.07$, $MS_e = 120,388$, $p > .10$; $F_2 < 1$; outcome type, $F_s < 1$]. As in Experiment 1, we interpret these results as evidence that readers' preferences about the decisions that characters made affected the time course with which they assimilated outcomes into their discourse representations.

One undesirable effect of the way in which we classified decisions in Experiment 2 (as preferred or nonpreferred for all participants) is that one outcome is always the matching outcome and the other is always the mismatching outcome. Consider the example of David attending his niece's sweet 16 party. The preferred decision is for David to wear his suit, whereas the nonpreferred decision is for him to dress casually. When David sees that his family has dressed formally, using our predefined classifications, this will always be the matching outcome: When David wears his suit, it is a positive outcome that his family is also dressed formally (i.e., a good decision goes with a happy outcome); when David wears casual clothes, it is a negative outcome that his family is dressed formally (i.e., a bad decision goes with an unhappy outcome). Similarly, the other outcome (that David sees that most of his family is dressed casually) will always be the mismatching outcome. This is an issue for our interpretation of the interaction between popularity and outcome type. It is possible that, in actuality, what we interpret as an interaction is due to a main effect of the outcome sentence.

To address this concern, we conducted a post hoc study in which we asked 18 Stony Brook University undergraduates to read our stories. We included only the first two sentences of the introduction, the transition sentence (i.e., the sentence that framed the outcome), and the outcome sentence. For example, for David's story, participants read:

David was getting dressed for his niece's sweet sixteen party. The invitation didn't mention a dress code, but he knew her parents were dressing up. Once at the party, he greeted his family members. He saw that with a few exceptions, they were formally dressed.

By using these four sentences, we removed the context for readers to participate in characters' decisions. After these four sentences, participants read either the matching outcome (i.e., "He saw that with a few exceptions, they were formally dressed") or mismatching outcome (i.e., "He saw that with a few exceptions, they all dressed casual"). We expected to find similar reading times between the matching and mismatching outcomes. Overall, the mean reading times for matching and mismatching outcomes were 2,458 and 2,507 msec, respectively. This difference was not statistically significant [$F_1(1,16) = 1.07$, $MS_e = 68,092$, $p > .10$; $F_2 < 1$]. Thus, we suggest that the results of Experiment 2 cannot be attributed to a main effect between the matching and mismatching sentences. In addition, the results of this control study argue against the

possibility that readers were encoding simple predictions about the likely outcome of each story. Rather, the data suggest that particular outcomes matched or mismatched readers' expectations as a function of characters' decisions (i.e., how the characters chose to behave). We suggest that those expectations arise from more complex circumstances residing in readers' memory representations.

As we previously noted, Experiment 2 is inherently imperfect because of the way in which we classified the stories. For each story, there was almost certainly some subset of participants for whom our decision preference classification was incorrect. Despite this issue, the critical interaction between decision type and outcome type was significant by participants and marginally significant by items. These results support our claim that, when reading relatively normally, readers will encode responses about characters' decisions and that those responses will affect processing of story outcomes.

GENERAL DISCUSSION

In the present studies, we explored how readers participate in characters' decisions. In Experiment 1, we asked participants to provide ratings for characters' decisions. We found that participants read story outcomes more quickly when there was a match between the decisions they endorsed and the type of outcome (e.g., a preferred decision followed by a positive outcome) than when there was a mismatch (e.g., a preferred decision followed by a negative outcome). In Experiment 2, we replicated this finding using a more natural reading task. Participants in Experiment 2 did not have to stop during each story to indicate which of two potential decisions they preferred each character make. Instead, we used data from Experiment 1 to predict, for each story, participants' likely preferences. These two experiments provide converging evidence that readers encode responses to characters' decisions and that these responses affect the time course with which readers assimilate story outcomes.

We suggested earlier that readers will favor particular decisions as a function of the memory representations that each situation evokes. In particular, we suggested that readers are likely to have memory traces that encode the relationships between decisions and outcomes. Note that this account does not specify a particular time course for the impact of the match or the mismatch between decisions and outcomes. For some stories, readers may have generated predictive inferences about likely outcomes (see, e.g., Casteel, 2007; Fincher-Kiefer, 1993; Lassonde & O'Brien, 2009; McKoon & Ratcliff, 1986; Peracchi & O'Brien, 2004). That is, the readers might have thought "Bad decision!" and therefore have expected a negative outcome. For other stories, readers may have read an outcome and then judged it to be consistent or inconsistent with their normative expectations "on the fly in a backward process" (Kahneman & Miller, 1986, p. 150).

We chose to use decision situations that were ambiguous because we explicitly wanted our project to demonstrate an impact of readers' individual responses to the same narrative situations. Our participants frequently devel-

oped different preferences for each character's decision. In Experiment 1, on average, 73% of participants preferred one decision, and 27% preferred the other. We also suspect that, even when participants agreed about a particular decision, there was variability in how each arrived at their preference. For example, a preference for whether David should wear a suit to his niece's sweet 16 party is likely to arise from very different life experiences among individuals: Some people may recall feeling uncomfortable in their formal attire at a recent party, whereas others may recall feeling disappointed in a friend for dressing too casually at a recent wedding. Those life experiences should help determine readers' individual responses to stories.

Canonical models of text processing have primarily focused on aspects of narrative experiences that are likely to be uniform across readers (for a review, see McNamara & Magliano, 2009).³ Those theories often attempt to specify the representation at which competent readers will encode as they experience a particular text. Consider the event indexing model, which suggests that readers encode and retrieve indices to represent changes over the course of a narrative in time, space, causality, motivation, and agents (Zwaan, Langston, & Graesser, 1995; Zwaan, Magliano, & Graesser, 1995). Our perspective suggests that models of this sort need to include components that make reference to readers' individual responses. For example, as readers contemplate Bobby's decisions, their individual perspectives may lead them to encode his initial motivations and how those motivations change over time quite differently. Even if readers encode characters' motivations in the same way, their evaluations of those motives might very well differ (e.g., readers may agree that Bobby is trying to make money, but their thinking may differ as to whether that is an appropriate primary goal on his honeymoon). Thus, readers may represent the same textual situation quite differently; the situation model that readers ultimately encode may show a broad impact of the particular life experiences they bring to bear on the text.

Our experiments used brief texts to demonstrate how readers' individual responses may affect the ease with which they assimilate narrative outcomes to their discourse representations. With longer texts, we suggest that these types of individual differences will accumulate to have an even greater impact. As we noted in the introduction, prior research has acknowledged the role of expertise in generating divergent narrative experiences (Fincher-Kiefer et al., 1988; Griffin et al., 2009; Spilich et al., 1979). However, our present experiments suggest that virtually every aspect of a narrative provides a context for individual responses that are not related to domain expertise. We suspect that every reader will have had experience choosing between work and play, picking a meal to serve to guests with unknown tastes, and deciding how early to arrive to the airport. Those ordinary life experiences determine how readers evaluate characters' motives, decisions, and behaviors. Experiments with longer texts should be able to demonstrate extensive differences among readers' ultimate representations.

Our results provide evidence that readers' responses to characters' decisions affect their narrative experiences.

However, our experiments do not exhaust the range of circumstances in which readers' life experiences might affect how they respond to characters' decisions within a narrative. One of our analyses hints at potentially fertile ground for future research: In Experiment 1, we presented a qualitative analysis that included decision preference strength as a variable. That analysis showed a pattern in which strong preferences yielded larger reading time differences between matching and mismatching outcomes. If preference strength starts to show an effect even with the everyday sort of decisions in our stories, it seems likely that more controversial or high-risk decisions would show even larger differences. A story about a mother making a difficult medical decision for her child, for example, may cause a larger difference between matching and mismatching preferences and outcomes. This type of decision may additionally carry a strong emotional component that might also amplify the effect of readers' individual responses.

We might also address differences between the decisions that readers would make for themselves versus those they think are appropriate for particular characters. In many of our stories, characters had to choose between a relatively conservative action (e.g., David wearing his suit and being uncomfortable) and a relatively risky, though potentially rewarding, action (e.g., David wearing casual clothes, risking being underdressed, but being rewarded with comfort). Knowing little about these characters, readers presumably used their own decision-making preferences. In fact, research on advice giving suggests that, although people recognize that others have different risk preferences than themselves, people still tend to give advice using their own risk preferences (Hadar & Fischer, 2008). However, narrative texts provide abundant opportunities to define characters who are more or less similar to readers. Those narrative opportunities make it possible to explore circumstances in which readers might forgo their own risk preferences as they contemplate characters' decisions. Other research has suggested that individual differences in empathy may affect how well people can predict the risky decisions of others (Faro & Rottenstreich, 2006). Once again, narrative texts provide an opportunity to explore further the impact of such individual differences.

Although our main focus was readers' narrative experiences, we also suggest that our results may have applications in the context of real-world experiences. In everyday life, whenever someone makes a decision about what to buy at the deli, where to go on vacation, or even when to switch lanes on the highway, people around them have the opportunity to respond to their decisions. People may mentally consider the decision and encode a mental response about the decision's quality. For example, imagine that, while waiting at a deli, Audrey sees a customer order a chicken parmesan sandwich. If Audrey had previously noted that the chicken parmesan looked delectable, it is likely that she would mentally be in agreement with this decision. If the customer then bites into the sandwich and grimaces, Audrey will likely find it somewhat difficult to accept the outcome. We suggest that Audrey's experience is a real-life analogue to the narrative circumstances that we intended to capture in our experiment.

In the introduction, we proposed that the participatory perspective adds an important component to accounts of narrative experiences. As we noted for Experiment 1, exactly the same story sometimes counted as matching and other times counted as mismatching (i.e., the same outcome followed the same decision sentence): We categorized the decisions as preferred or nonpreferred as a function of each reader's response. If we had only attended to those textual elements (such as propositions and inferences) that figure in modal text processing theories, we would not have been able to predict the different reading times for the outcome sentences. Our results suggest that readers' participatory responses should be added to the repertory of mental contents that contribute to situation models (see also Zwaan & Rapp, 2006).

Recall our opening excerpt from "The Streak." Our experiments provide evidence that people might very likely participate in Bobby's decision. For those readers who mentally supported his decision to gamble \$12,000, the positive outcome should be easy to assimilate. However, for everyone who felt that his decision was irresponsible, Bobby's winning will likely prove to be more difficult to accept. Thus, the very same outcome—Bobby's streak of good fortune—will not have the same implications for all readers. Without considering readers' participatory responses, we cannot accurately foretell the discourse representations at which they ultimately arrive.

AUTHOR NOTE

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NOTES

1. In pilot data, we asked participants to respond to characters' decisions at the end of each story. We learned, however, that readers' judgments were highly influenced by whether characters experienced positive or negative outcomes. Therefore, we do not believe that this would be a reasonable method for classifying decisions when we examined natural reading.

2. Note that we used only 16 stories in Experiment 2 versus 24 in Experiment 1. We had fewer items so that we could be reasonably sure that the majority of readers would experience each decision as "preferred" and "nonpreferred" for the appropriate stories.

3. An important exception is theories that take into account differences in reader skill or processing resources (for a review, see McManara & Magliano, 2009). However, our focus is on differences with respect to readers' life experiences.