Narrative Construction, Social Perceptions, and the Situation Model

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Abstract
The present investigation examined how three salient features of narrative thinking (situation model construction, linguistic concreteness, and perspective-taking) influenced the social inference process. Results of four experiments indicated that compared with those given other objectives, perceivers given narrative objectives were: (a) more likely to make situation rather than trait attributions for observed behaviors (Experiment 1), (b) less likely to make implicit trait inferences (Experiment 2), and (c) less likely to rely on behavior valence when making evaluative judgments (Experiment 4). Linguistic analyses indicated that narrative construction consistently entailed the creation of situation models of events and linguistic concreteness, but only situation model creation mediated the relationship between narrative and inferences. Experiment 3 confirmed the mediating role of situation models: Perceivers with narrative objectives made trait inferences only when behaviors were inconsistent with contextual information. The role of these core narrative features on social perceptions is discussed.

Keywords
narrative, situation model, person perception, social cognition

Received September 28, 2015; revision accepted February 9, 2016

Stories are a fundamental element of human social and cultural life. For millennia, stories have been the primary mode of oral discourse and these tales, in turn, provide the foundation of society and culture (Read & Miller, 1993). Stories appear to be particularly well-suited to the transmission of knowledge: Information organized into a narrative is comprehended more quickly, better remembered, and more persuasive than the same information organized into non-narrative frameworks (Graesser & Ottati, 1995). Some researchers have even argued that stories form the basis of our memories, thoughts, and knowledge (e.g., Schank & Abelson, 1995).

When attempting to make sense of events, perceivers impose a narrative framework onto experiences, observations, and recollections (Bruner, 2002). This narrative construction process appears to be universal and can be triggered spontaneously in the course of comprehension, such as when mock jurors decide a verdict (Pennington & Hastie, 1993) or when toddlers make sense of life experiences (Nelson, 1989).

Given the natural inclination to use narrative structures in the course of comprehension, the present investigation aimed to document the key properties of narrative thinking and trace how these properties influence social perceptions. In so doing, this investigation examined whether the processes used by readers to comprehend written narratives would be similar to those used when perceivers construct narratives of observed events. If the same mental models are central components of narrative thinking and therefore, gain a greater understanding of narrative itself and its role in human cognition. Specifically, the present investigation examined whether perceivers given narrative objectives were more likely to exhibit three salient features of narrative thinking (i.e., creation of a situation model of events, linguistic concreteness, and perspective-taking) and how these features influenced causal inferences. Particular attention was given to the role of the situation model in narrative thinking because situation models are critical to the comprehension of narrative texts (e.g., Zwaan & Radvansky, 1998). Before describing the specific hypotheses, the literature on narrative, social perceptions, and the situation model is reviewed below.

Narratives, Social Perception, and Causal Inferences

The present investigation examined causal inferences that occur when perceivers use diagnostic cues to explain observed behaviors. In this article, trait-based judgments

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refer to explanations that attribute behavior to invariant causes that remain with the observed target indefinitely. By contrast, situation-based judgments refer to context-specific motives or states that are relevant in the target’s present circumstances and thus provide little information as to the target’s chronic, past, or future behaviors (e.g., Krull & Erickson, 1995). Of course, social perception involves both trait and situation inferences, and each type of inference informs the other (Reeder & Traffimow, 2005); however, the present investigation sought to examine the effects of cognitive set (i.e., narrative) on general inferential tendencies toward either situation-based or trait-based inferences.

Research indicates that impression goals (e.g., find out what Donald is like) encourage trait-based inferences (Hamilton, Katz, & Leirer, 1980), whereas situation goals (e.g., find out if Donald is in a stressful situation) encourage situation-based inferences (Krull & Erickson, 1995). Narrative processes are used both when perceivers attempt to uncover a person’s traits (Read & Miller, 1993) as well as when perceivers aim to understand a situation (Wyer, 2004); accordingly, the inference process under a narrative orientation warrants careful investigation. In an initial examination of the effects of narrative construction on social perceptions, Costabile (2011) presented participants with a series of behaviors performed by target individuals. As expected, perceivers given impression objectives were more likely to attribute behaviors to the target’s traits than to his or her current situation. However, perceivers given objectives to construct a narrative were more likely to attribute behaviors to the situation than to the target’s traits.

The present investigation delved into these effects to examine the narrative construction process and its relation to causal inferences. The present experiments sought to highlight the essential features of narrative thought, test the boundaries of Costabile’s (2011) findings, and examine potential mechanisms explaining the effect. The present investigation posits that perceivers with narrative objectives create a mental model, or “situation model,” of the observed event and the construction of this situation model directs inference generation.

**Narrative Inferences and the Situation Model**

Research on discourse processes indicates that readers of narrative texts create mental representations of the events in the story. A reader’s mental representation includes a chronological ordering of causally linked events that occur in the text as well as inferences drawn to flesh out details of the plot, create visual imagery, or ascribe intentions to the characters (van Dijk & Kintsch, 1983).

van Dijk and Kintsch (1983) termed this mental model a “situation model of events” because the mental representation of a text integrates information about the protagonists, their actions, and importantly, the general situation of the events described in the text. As readers progress through a story, they monitor and update four key dimensions of the described events: (a) time, (b) causation, (b) intentionality, and (d) protagonists (Graesser, Singer, & Trabasso, 1994). If the narrative text changes in any of these monitored dimensions (e.g., a jump forward in time), reading time increases as the reader updates his or her situation model to better comprehend the events in the narrative (Zwaan, Magliano, & Graesser, 1995). Readers focus particular attention on the protagonists’ immediate goals. Readers have quicker mental access to the location the protagonist is heading toward compared with the location the protagonist has left (Morrow, Bower, & Greenspan, 1989) and readers maintain increased activation of protagonist goals until the goal has been satisfied (Zwaan & Radvansky, 1998). Readers integrate the various dimensions of their situation model by examining how each narrative event is causally and temporally related to other described events, and how each is related to the protagonists’ intentions and goals. In so doing, readers better comprehend narratives by providing context to the actions and events described in the text.

The present investigation examined whether similar processes are at work when perceivers construct narratives of observed events. If perceivers with narrative objectives create situation models of events for observed targets, these perceivers should make causal attributions in a manner that is consistent with their constructed mental models. For example, if a target performs a behavior that is consistent with expectations given the constructed model, perceivers with narrative goals would likely infer that the behavior was due to the target’s current situation. However, if a target’s behavior is inconsistent with expectations formed by the constructed model, perceivers with narrative goals would likely infer that the behavior was due to the target’s traits (e.g., Trope, 1974). Moreover, an examination of whether individuals constructing a narrative of observed events engage in similar thinking as do readers of narrative texts can elucidate the essential characteristics of narrative thinking, which have been theorized (Bruner, 2002), but never before empirically demonstrated.

**Alternative Potential Mechanisms**

The present investigation also considered two alternative potential mechanisms that might explain the relationship between narrative orientation and social inferences: linguistic concreteness and perspective-taking. Linguistic concreteness refers to the degree to which language has an actual physical referent. Costabile (2011) reported that narrative essays consisted of more concrete language (e.g., specific action verbs) than did impression essays. Similarly, when perceivers thought about others at a concrete construal level rather than an abstract level, trait inferences were reduced (Rim, Uleman, & Trope, 2009). Thus, narrative thinking...
might encourage concrete construal of events that would then lead to situation-based explanations for behaviors.

In addition, readers often identify with narrative protagonists and experience narrative events through the protagonist’s perspective (Cohen, 2001). Similarly, Morrow et al. (1989) found that readers have greater word accessibility for locations related to a character’s mental thoughts than to the character’s physical location. Taking another’s perspective can increase situational attributions for observed events, particularly for negative events (e.g., Vescio, Sechrist, & Paolucci, 2003). Accordingly, narrative construction might encourage perceivers to adopt the perspective of the observed individual and this actor perspective might then guide attributional inferences.

Unlike the situation model mechanism described previously, neither concreteness nor perspective-taking require perceivers to integrate observed behaviors within the larger context of the target’s situation and current motivations. If a perceiver has constructed a situation model of the observed events, changes to the target’s behavioral context could result in changes to the perceiver’s causal inferences such that a perceiver might make situational attributions for behavior performed in one context and make trait attributions for the same behavior performed in a different context. By contrast, current research suggests that concrete construal of events and actor perspective would likely increase situational attributions for all observed behaviors, regardless of the broader context surrounding the behaviors.

Overview of Experiments

To best identify the essential features of narrative and how those features guide the social perception process, the present investigation examined how the narrative construction process operates when perceivers construct narratives based on a single behavior performed by an unfamiliar person. To test the boundaries of the relationship between narrative and situation-based inferences found by Costabile (2011), all target behaviors strongly implied a specific trait. Additionally, a limitation of previous work on narrative is that it too often relied on explicit reporting of inferences (e.g., Costabile, 2011). As such, these inferences might reflect explicit reporting tendencies rather than actual inference generation tendencies. To resolve this issue, the present investigation measured explicit self-report of causal inferences (Experiment 1) as well as implicit cognitive associations that might have been otherwise withheld from experimenters (Experiment 2).

In addition, the present investigation examined whether the observed effects were mediated by the construction of a situation model of events (Experiment 3) and whether narrative objectives influence downstream evaluative judgments of observed targets (Experiment 4). The existing literature does not clearly link the causal inference process with its downstream effects. The fact that perceivers draw different causal inferences from the same observed behaviors becomes more compelling if these inferences in turn influence evaluations of the target as evaluations may have implications for future interactions.

Experiment 1

To examine the features of the narrative construction process and the effects of narrative construction on explicit causal inferences, Experiment 1 presented participants with a single, trait-implying behavioral description for each target individual. This initial study examined whether perceivers with narrative objectives would be more likely provide situation-based explanations than trait-based explanations for observed behaviors when given limited information about an unfamiliar target. By contrast, it was expected that perceivers given impression objectives would be more likely to provide trait-based explanations than situation-based explanations for observed behaviors (Hamilton et al., 1980).

Linguistic Analyses

To identify the essential components of narrative construction, Experiment 1 examined the content of the narrative and impression essays written by participants. Essays were coded on three linguistic indicators of a situation model of events (i.e., temporality, causality, and intentionality; Graesser et al., 1994) to determine whether narrative construction entailed the creation of a situation model of events. In addition, essays were coded on degree of linguistic concreteness to determine whether narrative essays used more concrete language than impression essays. All essays were coded using Coh-Metrix, an online program that examines the linguistic features of text and discourse (Graesser, McNamara, Louwerse, & Cai, 2004). Codings using this software have been found to be consistent with those rated by independent coders (McNamara & Graesser, 2012).

To assess perspective-taking, participants’ causal explanations were coded for evidence of actor–observer asymmetry (Malle, Knobe, & Nelson, 2007). If narrative orientation encourages an actor’s perspective, then perceivers given narrative objectives should provide responses that demonstrate a greater tendency toward actor perspective (rather than observer perspective) as compared with those given impression objectives.

Method

Participants, design, and procedure. Thirty-two undergraduates participated in this experiment in exchange for partial credit in an introductory psychology course. Sample size was determined following a power analysis using values reported in previous research in which design and methodology were similar to the present study (Experiment 2, Costabile, 2011), with power $(1 - \beta) = .95$ (Faul, Erdfelder, Lang, & Buchner,
2007). Results indicated a minimum sample of 24 participants.

Participants were randomly assigned to one of two between-subjects instructional sets: (a) create a story about each person described in the sentences or (b) form an impression of each individual described in the sentences. Participants viewed eight slides, each of which consisted of a behavioral statement and headshot photograph ostensibly of the sentence target. Behaviors found to elicit trait inferences (e.g., carried an elderly woman’s groceries) were adapted from previous research (Todd, Molden, Ham, & Vonk, 2011; Winter & Uleman, 1984). Each photograph–behavior pair was presented on the computer screen for 7 s and then participants were given 2 min to write a narrative or impression of the individual. The next photograph–behavior pair was not presented until the 2-min period elapsed. After viewing all eight slides, participants were asked questions assessing causal inferences.

Causal inference measures. Participants were asked eight free-response questions assessing causal inferences, one question per behavior (e.g., From what you know about Ted, why did he carry the elderly woman’s groceries across the street?). Two independent coders, blind to experimental condition and hypotheses, coded each response for situation-based explanations including temporary goals or cognitive states (1 = presence, 0 = absence) and for trait-based explanations including chronic dispositions or attitudes (1 = presence, 0 = absence). Inter-rater reliability was high (kappas ranged from .90 to 1.00). Discrepancies were resolved through discussion. Responses were summed, providing each participant with score ranging from 0 to 8 on each type of inference.

Results

Causal inference analyses. A two-way Analysis of Variance (ANOVA) of instructional set (between-subjects: impression vs. narrative) and type of inference (within-subjects: trait-based vs. situation-based explanations) on number of inferences generated revealed a significant interaction, $F(1, 30) = 14.93, p = .001$, $\eta_p^2 = .33$, 95% confidence interval (CI) = [.08, .53]. Participants given narrative instructions were more likely to provide situation-based explanations ($M = 5.44, SD = 1.94$ than trait-based explanations ($M = 2.89, SD = 1.64$), $F(1, 30) = 11.44, p = .002$, $\eta_p^2 = .28, 95\% CI = [.04, .49]$. By contrast, those with impression formation goals were more likely to provide trait-based ($M = 5.07, SD = 1.97$) than situation-based explanations ($M = 3.21, SD = 2.15$), $F(1, 30) = 4.70, p = .04$, $\eta_p^2 = .14, 95\% CI = [.000, .35]$, see Figure 1.

Situation model coding. Coh-Metrix software (Graesser et al., 2004) was used to code the narrative and impression essays for evidence of the core dimensions of a situation model: (a) temporal language, (b) causal language, and (c) intentionality. Because each index uses its own numerical system, scores were transformed into z scores to better afford comparisons across indices. A one-way ANOVA of instructional set on each of the three linguistic indices revealed significant effects of instructions on each measure, with narrative essays having higher values than impression essays, all $Fs > 5.59$, $p s < .05$, $\eta_p^2 s > .16$, see Table 1.

Linguistic concreteness coding. Coh-Metrix software was also used to measure the linguistic concreteness of the essays. A one-way ANOVA of instructional set on linguistic concreteness revealed that narrative essays used more concrete language than did impression essays, $F(1, 30) = 43.74, p < .001$, $\eta_p^2 = .59, 95\% CI = [.33, .72]$, see Table 1.

Perspective-taking coding. Causal explanations were coded for evidence of actor–observer asymmetry using the criteria suggested by Malle et al. (2007). First, research assistants coded whether each explanation referenced the target’s reasons (e.g., wanted to achieve) or causal history (e.g., she was brought up to value education). Malle et al. (2007) argued that providing reasons rather than causal histories entails a
perceiver taking the target’s perspective. Within the category of causal history, responses were also coded for traits versus internal states, with internal states being more indicative of an actor perspective (Malle et al., 2007).

Within the category of reason explanations, responses were also coded for belief reasons (e.g., she thought she would be late) versus desire reasons (e.g., she wanted to make more money) because actors are more likely to reference beliefs and observers are more likely to reference desires (Malle et al., 2007). Finally, reasons were also coded for the use of mental state markers (e.g., she thinks that) because actors are more likely to omit the use of mental state markers than are observers (Malle et al., 2007). Thus, explanations that referenced target’s reasons rather than causal history, that referenced internal states rather than traits that referenced beliefs rather than desires, and that omitted the use of mental state markers were indicative of an actor perspective.

Two independent coders separately completed online F. Ex training (Malle, 2010). Training involved learning the elaborate coding classifications and correctly completing practice trials. Coders, blind to experimental condition and hypotheses, independently classified each explanation into the appropriate parameters: (a) reason versus causal history explanations (κ = .88), (b) internal states versus trait explanations (κ = .88), (c) belief versus desire reasons (κ = .76), and (d) marked versus unmarked belief explanations (κ = .80). Disagreements were resolved through discussion.

A series of univariate ANOVAs revealed a significant effect of instructions only on unmarked explanations, $F(1, 30) = 5.19, p = .03, \eta^2_p = .15, 95\% CI = [.00, .37]$, and trait explanations, $F(1, 30) = 5.21, p = .03, \eta^2_p = .15, 95\% CI = [.00, .37]$, see Table 2. To better understand the nature of the relationship between narrative construction and inference generation. Analyses in this study did not indicate an effect of instructional set on actor–observer asymmetry, therefore; perspective-taking was not explored as a potential mediator in subsequent studies.

### Table 2. Explanations of Behaviors Using F. Ex Coding System (Experiment 1).

<table>
<thead>
<tr>
<th></th>
<th>Narrative processing goal</th>
<th>Impression processing goal</th>
<th>Difference test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causal history</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trait</td>
<td>3.22 (1.48)</td>
<td>4.15 (1.56)</td>
<td>$p = .098$</td>
</tr>
<tr>
<td>Internal state</td>
<td>1.28 (0.96)</td>
<td>2.36 (1.69)</td>
<td>$p = .030$</td>
</tr>
<tr>
<td>Reason explanations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire</td>
<td>3.22 (1.40)</td>
<td>2.29 (1.44)</td>
<td>$p = .073$</td>
</tr>
<tr>
<td>Belief</td>
<td>0.22 (0.43)</td>
<td>0.50 (0.94)</td>
<td>$p = .273$</td>
</tr>
<tr>
<td>Marked</td>
<td>1.28 (1.23)</td>
<td>1.93 (1.33)</td>
<td>$p = .161$</td>
</tr>
<tr>
<td>Unmarked</td>
<td>2.56 (1.62)</td>
<td>1.43 (1.02)</td>
<td>$p = .030$</td>
</tr>
</tbody>
</table>

**Note.** Standard deviations are presented in parentheses.

Discussion

Even though participants were provided only with a single behavior performed by each individual—and this behavior strongly implied a trait—individuals given narrative instructions were more likely to attribute behaviors to the target’s current situation than to his or her disposition. The opposite pattern was observed for participants given impression formation instructions. Content analyses revealed that individuals constructing narratives created situation models similar to those used by readers of narrative texts, as evidenced by references to temporality, causality, and intentionality. In addition, narrative essays scored higher on concreteness than did impression essays. Experiments 2 and 3 in this article further explored whether the construction of a situation model of events and the use of concrete language mediated the relationship between narrative construction and inference generation.

**Experiment 2**

Although explicit inferences have been found to be controllable by a perceiver’s current goals, research suggests that implicit inferences are less likely to be influenced by processing goals (e.g., Todd et al., 2011). To explore the effects of narrative construction on implicit inferences, Experiment 2 employed the savings paradigm used by Carlston and Skowronski (1994), which adapted Ebbinghaus’s (1885/1964) savings-in-relearning paradigm to examine implicit trait associations. The basic premise is that it is easier to relearn previous associations than to form new associations. The paradigm entails three key stages: First, participants are exposed to trait-implying behavioral statements with photographs. Next, participants are asked to learn a series of photograph–trait pairs, some of which pair the photograph with the trait implied during Stage 1 (i.e., relearning), and some of which pair a new photograph with a new trait (i.e., control). Finally, participants complete a cued-recall test assessing memory of relearning versus control pairs. Enhanced recall for relearning items suggests that participants had formed trait associations.
during the original exposure phase. Numerous permutations using this procedure indicate that trait inferences were indeed formed by participants who were not aiming to do so (e.g., Carlston, Skowronski, & Sparks, 1995).

The present experiment modified the procedure used by Carlston and Skowronski (1994) to facilitate compliance with task demands: (a) stimuli were reduced to single behavioral actions, (b) elaboration time for each target-behavior pairing was extended, and (c) number of stimuli presented in the exposure phase was reduced. An additional instructional condition was included (i.e., memorization instructions) to ensure that observed effects would not be due to procedural changes. In accordance with previous research, it was hypothesized that individuals given impression instructions would demonstrate enhanced recall on the relearning trials as compared with the control trials. Enhanced recall on relearning trials should also be observed, albeit to a lesser degree, for individuals given memorization instructions (Carlston et al., 1995). However, to the extent that narrative construction disrupts the trait-binding process, it was anticipated that those given narrative instructions should not demonstrate enhanced recall on the relearning trials compared with the control trials.

Experiment 2 included statistical analyses to examine whether situation model creation or linguistic concreteness mediated the relationship between processing objectives and inference generation and a follow-up study was conducted to further examine the activation of trait inferences.

Method

Participants, design, and procedure. Eighty-nine undergraduate students participated in this experiment in exchange for partial course credit in an introductory psychology course. Sample size was determined following a power analysis using the values calculated from Experiment 2 in Carlson and Skowronski (1994) in which similar methodology was used, with power $(1 - \beta) = .95$, which indicated a minimum sample size of 75 participants (Faul et al., 2007).

Participants were randomly assigned to stimulus set (A or B) and instructional set (narrative, impression, or memorization) between-subjects conditions. Participants were instructed to either (a) create a story about the person in each sentence, (b) form an impression of the person in the sentence, or (c) memorize the presented sentences. After viewing each slide for 8 s, participants were given 1 min to write their impression, story, or rewrite the sentence (memorization condition). Participants viewed 12 slides, each of which contained a photograph–behavior pair (nine of the behaviors implied a trait, with Slides 1, 3, and 12 presenting behaviors unrelated to traits). Behaviors were adapted from previous research (Carlston & Skowronski, 1994; Costabile, 2011; Todd et al., 2011; Winter & Uleman, 1984).

Although there are multiple methods of creating the stimuli sets, this experiment followed the procedures outlined by Carlston and Skowronski’s (1994) Experiments 1 to 3 in which two sets of stimuli were created (Sets A and B) with different photograph and behavior statements used in each set. Participants viewed either Set A or Set B in the exposure phase, which provided a within-study control such that relearning trials from Set A serve as control trials for those originally exposed to Set B and vice versa.

Following the procedures of Carlson and Skowronski (1994), after viewing all sentences, participants completed a 15-min filler task where they read 30 pairs of sentences and indicated which person described was more likeable. Eighteen of these had the same trait as implied in the original sentences (nine from each stimuli set). Participants then completed a 4-min anagram distraction task.

Next, participants were given the paired associates learning task. In this task, participants viewed a series of headshot photographs of 30 individuals, each paired with a trait word, and were asked to remember the word paired with each photograph. Participants were given 6 s per photograph–trait pair to learn the trials. This task included nine photographs paired with a trait implied by the behaviors in Set A and nine from Set B. Twelve additional photograph–trait pairs were included to increase difficulty of the task.

After a 4-min word-search distraction task, participants completed a cued-recall task to assess relearning. Participants were shown photographs from the learning task in a scrambled order and were asked to write the trait word that had been paired with the photograph during the learning task. As in Carlson and Skowronski (1994), synonyms were coded as correct.

Results

Trait recall. A mixed repeated-measures ANOVA of instructional set (between-subjects: impression, narrative, or memory) on percent recall of relearning words versus control words indicated a significant interaction, $F(2, 86) = 18.13, p < .001, \eta_p^2 = .30, CI = [.14, .42]$. Planned contrasts revealed that participants given impression instructions had superior recall for relearning trials ($M = 73.95\%$, $SD = 22.47$) than control trials ($M = 35.63\%$, $SD = 17.66$), $F(1, 86) = 70.91, p < .001, \eta_p^2 = .45, CI = [.30, .57]$. Similarly, participants given memorization instructions had superior recall for relearning trials ($M = 58.17\%$, $SD = 26.10$) than control trials ($M = 42.16\%$, $SD = 23.01$), $F(1, 86) = 14.52, p < .001, \eta_p^2 = .14, CI = [.03, .28]$. However, participants given narrative objectives showed no advantage of relearning ($M = 44.44\%$, $SD = 25.14$) over control trials ($M = 45.73\%$, $SD = 23.16$), $F(1, 86) = .07, p = .79 \eta_p^2 = .001, CI = [.00, .03]$, see Figure 2. An ANOVA focused only on memorization versus narrative instructions also indicated a significant interaction, $F(1, 58) = 7.81, p = .01, \eta_p^2 = .12, CI = [.01, .28]$.

Linguistic analyses. A series of univariate ANOVAs of instructional set on linguistic scores coded by Coh-Metrix indicated...
that compared with impression essays, narrative essays were more likely to use concrete language and to reference temporality and intentionality, $F$s $> 27.00$, $p$s $< .01$, $\eta^2$s $> 0.34$; there were no reliable differences with regard to causal language, $F(1, 52) = 0.037$, $p = .89$.

Discussion

Despite some alterations of the relearning paradigm, Experiment 2 replicated the findings of Carlston and Skowronski (1994) for participants who were given impression and memorization goals during initial exposure to the targets. However, narrative construction goals reduced evidence of residual trait inferences, suggesting that narrative goals differentially affected social perceptions even at the implicit level.

Memory for original sentences was not assessed during this experiment; however, previous work found that perceivers given narrative, memorization, or impression instructions demonstrated comparable levels of recall for observed events (Costabile & Klein, 2008). Carlston and Skowronski (1994) reported that savings effects did not differ as a function of memory for the observed behaviors, suggesting that observed differences were not likely to be due to differences in memory for the original behaviors. Todorov and Uleman (2003) found that spontaneous trait inferences occurred equally with short and long exposure duration, as well as with attentive and shallow processing, suggesting that the alterations made to the original paradigm in the present study could not sufficiently account for the observed results. Moreover, the present results suggest that the trait-binding process could be affected even when perceivers were given substantial time and resources to reflect on a person performing trait-implying behaviors. However, this experiment cannot address whether trait inferences were activated during encoding for those given narrative instructions. Experiment 2b was conducted to better assess whether narrative objectives reduced trait activation.

Exploratory Analysis for Potential Mediators of the Inference Process

Following the procedures recommended by Preacher and Hayes (2004), mediational analyses were conducted to explore situation model creation and linguistic concreteness as potential mediators of the relationship between instructional set and causal inferences. To create a single index of causal inference, control-trial recall score was subtracted from relearning-trial recall score and then transformed into a $z$ score, such that higher values indicated a greater tendency to draw trait-based inferences.

Situation model. A situation model index was created by summing participants’ causality, temporality, and intentionality $z$ scores. As expected, narrative instructions led to greater situation model construction ($b = 2.33$, $SE = .44$), $t(54) = 5.32$, $p < .001$. When instruction set and situation model were entered as simultaneous predictors, situation model predicted causal inferences ($b = −.50$, $SE = .18$), $t(54) = −2.77$, $p = .008$. Hayes’s (2012) PROCESS macro was used to examine the relationships among variables using 10,000 bootstrapping iterations to derive the 95% bias-corrected CI. The bootstrapped estimate of the indirect effect ($M = −1.17$, $SE = .53$) was statistically different from zero, 95% CI = [−2.44, −0.34], indicating that construction of a situation model mediated the relationship between instructional set and causal inferences. Experiment 3 examined this relationship more fully using experimental methodology.

A second analysis was conducted in which each element of the situation model was entered as an independent
mediator of the relationship between instructional set and causal inferences. Narrative instructions led to greater temporality scores, $b = 1.22, SE = .22, t(54) = 5.64, p < .001$, and intentionality scores, $b = 1.17, SE = .22, t(54) = 5.14, p < .001$, but there was no effect of instructions on causality scores, $b = .05, SE = .27, t(54) = .19, p = .85$. In this case, none of the bootstrapped estimates of the indirect effects of independent elements of the situation model (causality, temporality, and intentionality) were statistically different from zero, indicating that mediating role of the situation model on causal inferences entailed a consideration of the situation model as a whole and was not driven by one of its singular components.

**Linguistic concreteness.** Narrative instructions led to more concrete language ($b = 1.22, SE = .21, t(54) = 5.67, p < .001$). However, when instruction set and linguistic concreteness were entered as simultaneous predictors of causal inferences, concreteness did not predict causal inferences ($b = -21, SE = .39, t(54) = -0.53, p = .60$). Analyses indicated the bootstrapped estimate of the indirect effect ($M = .26, SE = .46$) was not statistically different from zero, 95% CI = [−0.64, 1.22], indicating that concreteness did not mediate the relationship between instructional set and causal inferences.

**Experiment 2b**

Experiment 2b examined whether narrative objectives reduced trait activation at encoding or whether the act of writing a narrative somehow disrupted the trait-binding process. A word-stem completion paradigm was used to measure the accessibility of trait words following stimulus presentation (e.g., Whitney & Williams-Whitney, 1990). Two-letter stems of trait words were presented either directly after participants viewed the photograph–behavior pair or after participants wrote their impression or narrative essays about the target. If the narrative writing task interfered with the trait inference task, an interaction between instruction and timing should be observed such that those participants who wrote their narratives before the stem-completion task should complete the word stems with fewer trait words than individuals in all other conditions. However, if a narrative mind-set, rather than a narrative writing task, interfered with trait activation, there should be only a main effect of instructions with narrative instructions leading to fewer trait completions than impression instructions.

**Participants, design, and procedure.** One hundred twenty undergraduate students participated in this study in exchange for course credit. Sample size was determined using conservative effect size $f = .35$ and power $(1 - \beta) = .95$, with results indicating a minimum sample of 109 participants (Faul et al., 2007). Participants were randomly assigned to experimental conditions in the 2 (instructional set: narrative vs. impression) × 2 (timing of word stem: essay-first vs. stem-completion-first) between-subjects factorial design. In the essay-first conditions, participants wrote a narrative or impression essay and then were given the relevant two-letter word stem and asked to complete the word stem with the first word that came to mind before viewing the next photograph–behavior pair. In the stem-completion-first conditions, participants were given the stem-completion task before writing the essay about the target. Participants viewed 12 photograph–behavior pairs, nine of these behaviors implied a trait.

**Word-stem stimuli.** Thirty-one additional participants were asked to write personality traits that were implied by each behavior. The most common traits generated for each behavior were used to create the word-stem stimuli.

**Results and conclusion.** A 2 (instructional set) × 2 (timing of word stem) between-subjects ANOVA on trait words completed indicated a main effect of instructions, $F(1, 116) = 10.27, p = .002$, $\eta^2_p = .08, 90\% CI = [.01, .19]$, in which participants given narrative instructions were less likely to generate the designated trait words ($M = 17.54$, $SD = 19.80$) than were those given impression instructions ($M = 33.86$, $SD = 27.32$). The interaction of instructions and timing on trait word completions were not significant, $F(1, 116) = .72, p = .40$, $\eta^2_p = .06, 90\% CI = [.00, .06]$. The main effect of instructions and the lack of statistical interaction suggest that a narrative mind-set reduces trait inference activation. Moreover, this finding suggests that the situation model construction process might operate even more efficiently than expected. It is possible that narrative orientation encourages immediate contextualizing inferences even before the perceiver has begun the deliberate process of writing of one’s story. This intriguing (and perhaps unexpected) finding should be explored more fully in future work to better understand the role of narrative orientation in social perception.

**Experiment 3**

When given adequate background information, readers of narrative texts of course generate dispositional inferences about the depicted protagonists (Rapp, Gerrig, & Prentice, 2001). Thus, it should be expected that under appropriate conditions, perceivers attempting to create narratives of observed events would similarly generate inferences regarding a person’s disposition.

Experiment 3 used experimental methodology to examine whether the construction of a situation model of events mediates the relationship between narrative instructions and causal inferences. If the inference process is guided by constructed situation models of events, then trait-based inferences should vary as a function of the constructed situation for those perceivers with narrative objectives, such that trait inferences should be less likely when a target’s behavior is consistent with the constructed situation and should be more
likely when a target’s behavior is inconsistent with the situation (e.g., Kelley & Michaela, 1980; Trope, 1974). However, perceivers with impression formation or memorization mind-sets should be unlikely to create a situation model of observed events, thus inferential tendencies should not be influenced by situational context of behaviors.

In Experiment 3, participants viewed a series of behaviors performed by two targets to guide the construction of a specific situation model. Some of the observed behaviors were consistent with the situational context implied by the first sentence, and some were inconsistent. It is important to note that although participants were given multiple sentences describing behaviors, the sentences themselves did not collectively constitute a narrative (e.g., Graesser et al., 1994). No causal, temporal, or intention information was provided in the sentences.

**Method**

**Participants, design, and procedure.** One hundred thirty-one undergraduate students participated in this experiment in exchange for partial course credit in an introductory psychology course. Sample size was determined in accordance with the power analysis conducted in Experiment 2. Participants were randomly assigned to stimulus set (A or B) and instructional set (narrative, impression, or memorization) between-subjects conditions.

Participants read a series of sentences describing alternating behaviors of two targets. Sentences were presented one at a time for 7 s each. After viewing all 12 sentences, participants were given 2 min to write either (a) narratives of the targets, (b) their impressions of the two targets, or (c) free recall of the behaviors. Participants then were asked a series of behavior generalization questions, an indirect indication of trait abstraction (Newman, 1996). Generalization questions asked participants to indicate the likelihood that the target would perform an identical behavior 1 month later (e.g., Based on what you know about Brian, how likely is it that he will step in front of someone in line next month?). Scale responses ranged from 1 (not at all) to 7 (extremely likely).

**Stimuli construction.** Thirty-five additional participants rated trait-implying behaviors for consistency with various contexts on a scale ranging from 1 (not at all consistent) to 9 (extremely consistent). Behaviors included as stimuli for Experiment 3 were rated as highly consistent with one context (M = 6.85, SD = 1.15) and highly inconsistent with a second context (M = 2.27, SD = .83), F(1, 34) = 324.98, p < .05, \( \eta^2_p = .90 \), 95% CI = [.83, .93].

Two sets of sentences were constructed. Each set consisted of 12 sentences describing alternating behaviors of two target individuals. The first sentence of each set provided a cue to the context in which one target either smiled warmly at her attractive date (Context A) or lost her dog (Context B). Two of the trait-implying sentences were rated as consistent with Context A and inconsistent with Context B (e.g., Tess sneaks a peek at her reflection), and two were consistent with Context B and inconsistent with Context A (e.g., Brian steps in front of the old man in line). Filler sentences were matched for length and content.

**Results**

**Behavior generalizations.** A 3 (between-subjects: narrative, impression, or memory instructions) × 2 (within-subjects: consistent or inconsistent behaviors) ANOVA on behavior generalizations was conducted. As expected, there was a main effect of instructional set, \( F(2, 125) = 9.10, p < .001, \eta^2_p = .13, 95\% \) CI = [.03, .23]. Tukey post hoc tests indicated that those with narrative objectives made fewer behavioral generalizations (\( M = 4.15, 95\% \) CI = [3.91, 4.38]) than did those with impression objectives (\( M = 4.84, 95\% \) CI = [4.62, 5.05]), \( p < .001 \).

Moreover, the predicted interaction between instructional set and consistency was significant, \( F(2, 125) = 3.78, p = .02, \eta^2_p = .06, CI = [.004, .12] \), see Figure 3. Pairwise comparisons indicated that those given narrative instructions were more likely to generalize inconsistent behaviors than consistent behaviors, \( F(1, 125) = 4.38, p = .04, \eta^2_p = .03, 90\% \) CI = [.00, .10]. However, consistency did not reliably influence generalizations for those given impression or memorization instructions (Fs < 3.20, ps > .07). There was also an unpre-dicted interaction of context and consistency on behavior generalizations, \( F(2, 125) = 248.89, p < .001, \eta^2_p = .67, 90\% \) CI = [.77, .85], in which Context A–consistent behaviors (e.g., sneaking a peek at one’s reflection) led to greater behavior generalizations across both contexts than did Context B–consistent behaviors (e.g., stepping in front of the old man).

**Linguistic analyses.** A series of one-way between-subjects ANOVAs on Coh-Metrix-coded linguistic variables of causality, temporality, intentionality, and concreteness revealed main effects of instructions on temporality, intentionality, and concreteness, Fs > 7.00, ps < .01, \( \eta^2_p s > .08 \), with narrative essays scoring higher on each variable than impression essays. There was not a reliable effect of instructions on causal language \( F(1, 83) = .87, p = .35, \eta^2_p > .01 \).

**Discussion**

Results of Experiment 3 highlight the importance of context to the cognitive representations of perceivers with narrative objectives. When observed behaviors were inconsistent with the constructed context, perceivers were more likely to generalize observed behaviors to occurring again in future situations suggesting that participants made trait-based inferences, a tendency that was reduced when behaviors were consistent with the situational context. These results further suggest
that it is not merely the process of constructing a narrative (nor using concrete language, nor taking the actor’s perspective) that reduces trait-based inferences. Perceivers constructing narratives generated different inferences when the identical behavior was situated in different contexts. Like readers of narrative texts, perceivers appear to situate observed behaviors into the present circumstances and interpret subsequent behaviors with respect to the constructed situation.

**Experiment 4**

Causal inferences made for observed behaviors can guide evaluations of the targets (Reeder, Vonk, Ronk, Ham, & Lawrence, 2004). Trait inferences serve as diagnostic cues to help perceivers form integrative, coherent impressions of target individuals and to make reasonable predictions about future trait-relevant behaviors. By contrast, situation-based attributions isolate the behavior to the immediate context, thereby reducing a perceiver’s ability to make predictions about the target’s future behavior. As such, situation-based attributions for observed behaviors should likewise reduce the perceiver’s ability to render firm evaluative judgments of the target (Kelley, 1967).

Because impression objectives led to trait-based inferences in Experiments 1 to 3, it was hypothesized that participants instructed to form an impression of a target would provide evaluative judgments in accordance with the valence of the target’s behavior. However, because narrative construction generally led to situation-based inferences, it was expected that this effect would be attenuated for participants instructed to construct a narrative. To examine this possibility, two brief studies were conducted. In Experiment 4a, participants were given attribution information for a target’s behavior and were then asked to evaluate the target. In Experiment 4b, participants were instructed to form a narrative or impression about a target and then provide evaluative judgments.

**Experiment 4a**

**Participants, design, and procedure.** One hundred forty-four undergraduates participated in this experiment in exchange for partial course credit in an introductory psychology course. Participants were randomly assigned to conditions in a 2 (attribution information: situation vs. trait information provided) × 2 (behavior valence: positive or negative behavior) between-subjects factorial design. Participants completed the relevant measures as part of a larger experimental session that consisted of tasks to pilot-test materials for future studies unrelated to the present investigation.

**Stimuli presentation.** All participants viewed the same headshot photograph paired with a behavioral statement. Half of the participants viewed the photograph paired with a positive behavior and half viewed the photograph paired with a negative behavior. The behavior was attributed to either the target’s personality (e.g., Brian is a rude person, so he stepped in front of the old man in line) or to the target’s current situation (e.g., Brian is in a terrible hurry, so he stepped in front of the old man in line). Participants were then asked to evaluate the favorability and friendship potential of the target on a scale ranging from 1 (not at all) to 10 (extremely). Scores on the two scales were summed to provide a measure of overall favorability ranging from 2 to 20, Cronbach’s α = .87.

**Results.** A two-way ANOVA of attribution information and behavior valence on the target’s overall favorability revealed a significant interaction, $F(1, 140) = 6.44, p = .01, \eta^2_p = .04, 90\% CI = [.002, .13]$, see Figure 4. This interaction appeared to be driven by the negative behavior conditions in which
Results and discussion. A two-way ANOVA of instructional set and behavior valence on overall favorability revealed a significant interaction, $F(1, 183) = 5.12, p = .03, \eta^2_p = .03, 95\%$ CI $= [0.00, 0.09]$, see Figure 4. For the negative behavior, the target was rated more favorably by participants who were given narrative instructions ($M = 8.24, SD = 3.59$) than by participants given impression instructions ($M = 6.34, SD = 3.27$), $F(1, 183) = 11.15, p = .001, \eta^2_p = .06, 95\%$ CI $= [.01, .13]$. There was no reliable difference of instructional set on evaluations for the positive behavior; the target was rated similarly by participants given impression instructions ($M = 15.20, SD = 2.43$) and those given narrative instructions ($M = 14.67, SD = 3.31$), $F(1, 183) = 0.33, p = .57, \eta^2_p = .002, 95\%$ CI $= [.00, .03]$. In addition, individuals given narrative instructions were less likely to generalize that the observed behaviors would occur again in the future ($M = 6.17, SD = 2.79$) than were those given impression instructions ($M = 7.27, SD = 2.25$), $F(1, 183) = 4.05, p = .05, \eta^2_p = .02, 95\%$ CI $= [.00, .08].$

Previous research indicates that when information about a target was presented in a narrative, readers were less likely to make online judgments than when the same information was presented in list form (Adaval, Isbell, & Wyer, 2007). The present findings suggest that this tendency may be due to differences in the causal inferences made for observed behaviors. The reduced behavioral generalizations indicate that narrative objectives encourage perceivers to associate the observed behavior with temporary, situational factors rather than with chronic, dispositional inferences. As such, the behaviors were less able to provide a strong, diagnostic basis for evaluative judgments of the target.

General Discussion

The present investigation documented three properties of narrative construction (i.e., situation model of events, linguistic concreteness, and perspective-taking) and traced how these properties influenced the social perception process. Results of four experiments demonstrated that compared with other instructional sets, (a) a narrative mind-set encouraged situation-based explicit inferences, (b) a narrative mind-set reduced implicit trait activation at initial encoding of events, (c) for perceivers with a narrative mind-set, trait inferences occurred to the extent that observed behaviors were inconsistent with the target’s current situation, and (d) a narrative mind-set reduced reliance on valence of behavior when rendering evaluative social judgments. Together, results indicate that narrative creators construct situation models of observed events that mimic those created by readers of narrative texts, demonstrating that perceivers with narrative goals rely on the same properties of a situation model (i.e., causality, temporality, and intentionality) as do readers of narrative. The consistency of mental models used both when reading narratives and when producing narratives suggests that these properties are fundamental constituents of narrative thinking.
Moreover, because the current experiments presented perceivers with only a single trait-implying stimulus behavior for each target person (a transformative change from previous research on narrative, for example, Costabile, 2011), the present findings indicate that perceivers with a narrative orientation do not merely attend to situation cues, rather, they create a context for observed behaviors. This finding is rather surprising because a substantial body of evidence suggests that perceivers are often cognitive misers who rely on initial inferences and assumptions (e.g., Fiske & Taylor, 1984). The fact that narrative goals prompted perceivers to elaborate beyond the implied trait inferences highlights the centrality of context to narrative thinking. Moreover, the present investigation suggests that mind-set at encoding might affect the degree to which perceivers use more sophisticated and complex information processing strategies in person perception.

In addition, the present experiments examined potential mechanisms to explain the relationship between narrative goals and social perceptions, and found consistent evidence that the construction of a situation model mediated observed effects. Perceivers given narrative objectives interpreted behaviors differently when behaviors were presented in different contexts, an effect that was not observed for perceivers given other objectives. This finding highlights the strong relationship between narrative and the situation model, and it explains why narrative thinking can elicit both trait judgments (Read & Miller, 1993) and situation attributions (Costabile, 2011) from perceivers.

The present experiments also indicate that a narrative orientation reduces evidence of both explicit and importantly, implicit trait inferences. These results suggest that narrative construction entails a distinct processing strategy, whereby automatic tendencies that occur with other socially adaptive strategies (e.g., impression formation or memorization) were not apparent. Accordingly, narrative construction may inhibit hasty first impressions that might otherwise lead to persistent, faulty trait judgments. Moreover, Experiment 4 demonstrates that there are downstream effects of these inferences: By influencing attributional inferences, narrative construction also affects evaluative judgments of observed targets.

Together, this investigation documents intricate and robust relationships between narrative construction, the situation model of events, and social inferences—relationships that have only been hinted at in previous research. The present investigation is the first empirical examination to document that the root of narrative thinking is contextualizing observed events—thinking about how events are causally related to one another, the temporal sequence of these events, and the intentions of those individuals involved. Narrative goals encourage perceivers to invent situation models for observed events—even when little information is provided on which to base the models. In turn, these constructed situations guide perceivers’ attributions and evaluative judgments. Given the natural inclination of perceivers to use narrative thinking in the course of comprehension, this work has important implications for understanding the social perception process.

Limitations and Future Directions

Whereas impression formation strategies encourage predictions of a target’s general future behavior, narrative goals encourage predictions of a target’s immediate behavior in his or her present circumstances. As such, narrative strategies might be especially adaptive in brief, isolated interactions with unknown others (e.g., Magliano, Skowronski, Britt, Guss, & Forsythe, 2008). As social perceivers, we must monitor others’ current goals as well as develop a coherent representation of them to understand and predict future behaviors. The relative importance of each of these tasks is likely dependent on a variety of factors (e.g., probability of future interactions with the target) and should be explored more fully in future research.

Moreover, narrative construction and impression formation may be inextricably linked. In their social dynamics model, Read and Miller (2005) argued that perceivers construct narratives of observed behaviors that inform dispositional judgments. Similarly, Reeder (2009) posited that perceivers piece together available information into a narrative when attempting to form an impression of a target. As such, it is necessary to better understand the role of narrative construction in impression formation processes.

The present article focused exclusively on narratives constructed on a trait-implying behavior performed by unknown others. It is possible that if participants had been instructed to construct a person’s “life story” or to construct a narrative about familiar others, dispositional inferences might have been more prominent. Similarly, it is possible that narrative construction may encourage perceivers to “fill-in” gaps in social comprehension. Accordingly, stimuli that provide elaborate information about a situation but omit information about individual targets could increase in dispositional inferences made by perceivers.

In addition, the three features of the situation model (causality, intentionality, and temporality) should be studied in isolation to better assess the contribution of each aspect to the overall narrative construction process. For example, the present investigation appeared to suggest that causal content was less important than temporality and intentionality as it relates to narrative construction and causal inferences. Along these lines, the indirect assessment of perspective-taking in Experiment 1 did not adequately account for the complex, multifaceted nature of taking another’s perspective. Not all manners of perspective-taking result in the same inferential tendencies (e.g., imagining oneself in someone else’s position vs. adopting another person’s perspective, Vorauer, 2013). Future work should more fully explore the relationships among narrative, perspective-taking, and casual inferences.

Narrative appears to be a natural package for organizing and making sense of our experiences (Schank & Abelson,
1995). As such, research into the cognitive processes underlying narrative construction will help to understand how social knowledge is developed, maintained, and updated through social interaction and observation.

Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The author(s) received no financial support for the research, authorship, and/or publication of this article.

Supplemental Material
The online supplemental material is available at http://pspb.sagepub.com/supplemental.

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