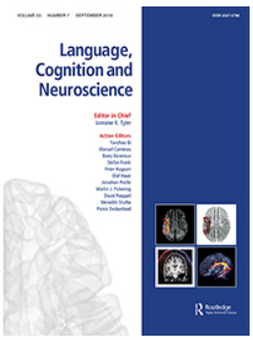

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You're the emotional one: the role of perspective for emotion processing in reading comprehension

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ABSTRACT

Two experiments were conducted to explore whether perspective influences the way readers engage with and process emotional information while reading. Texts presenting characters in an emotional situation from either a personal or an onlooker perspective were presented and reading times were measured for each sentence. Participants also provided emotional self-ratings after reading. In the first experiment, positive texts were processed with greater ease, especially when readers experienced the texts from a personal perspective. In Experiment 2, an emotional match/mismatch was inserted so that a final explicit emotion word either matched or mismatched the emotional valence of the text. Mismatch effects were stronger and more consistent for the personal perspective. The two experiments provide evidence that the perspective of the reader can influence emotion processing. Processing of emotional information was easier for the personal perspective, and readers were more sensitive to inconsistent emotional information from that perspective.

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reading; comprehension; emotion; perspective; pronouns

> *In the shop window you have promptly identified the cover with the title you were looking for. Following this visual trail, you have forced your way through the shop past the thick barricade of Books You Haven't Read, which were frowning at you from the tables and shelves, trying to cow you*. (Calvino, 1981, p. 10)

When reading a text, we are invited to imagine and to simulate an often fictional situation, and to experience this situation "with our own eyes". Some texts, such as the example by Calvino (1981) taken from "*If on A Winter's Night a Traveller*" make '*you*' experience the story world from your own perspective, including the reader as an addressee and/or as the protagonist within the story. Research has examined some theoretical implications and definitions of the personal (second person) perspective (e.g. Fludernik, 1994; Schofield, 1998) and has been interested in whether there are effects on the reader's mental simulation of actions within text or other media. Our study furthers this research, as we investigate whether text processing and reading comprehension are affected by the use of the "you" perspective. Especially for texts including a character that experiences emotional situations, we assume that the reader's engagement with the text can be intensified through use of this perspective. Therefore, the question is whether our perspective as the reader affects our emotional responses and how we process "*books frown at you*" as opposed to "*books frown at her*".

The second person perspective "*is used to identify and directly or indirectly address a protagonist*" (Schofield, 1998, p. 13) by the use of the personal pronoun "*you*". With *you* as the narrator, the author might intend to directly address the reader and/or to present them as the main protagonist. According to Schofield (1998) and McHale (1985), the involvement of the pronoun *you* "*is a sign of dialogue*" (McHale, 1985, p. 112) and it evokes a response in the reader such that readers are prompted to identify the relationship between the addresser and the addressee within the text. It can also serve as a tool to assign a certain position to the reader within the text and to give instructions about how to interpret or feel about the text. Without more detailed information about the narrator or protagonist, the reader's only chance to make sense of the text's content is to "put him/herself in the shoes of the protagonist" and to imagine the story world from her own perspective (Silverman, 1983). Therefore, the *you* perspective differs from the third person perspective (*he/she*) for instance, as it functions as an instruction to the reader to fill the position as the main character of the story (Schofield, 1998) and therefore, to simulate the actions in the text from their own viewpoint.

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However, the degree to which the *you* perspective actually leads to the identification of the reader with the character is debated (Phelan, 1994; Schofield, 1998). Some literary theorists argue that even though readers are personally addressed by the *you* pronoun, they take a rather distant onlooker position to the situation in text, in particular as the characteristic profile of the narrator becomes more detailed (so the reader is less able to identify with it). In addition, as highlighted by Kacandes (1991; in Schofield, 1998), the second person perspective "*accomplishes* […] *both a seduction to feel addressed and a realisation that the call is not quite accurate* … ". Even though the reader is addressed and invited to experience the situation in the text from their own personal perspective, there is a realisation that the situations and actions within the text are not actually (or very unlikely to be) performed by the reader him/herself. This conflict might be a unique and engaging characteristic of the second person perspective; however it might also hinder the identification process of the reader with the protagonist. Moreover, it can be assumed that when situations about and characteristics of the character become more generic, readers might be more likely and more open to adopt the perspective of the *you,* i.e. the main character.

The special role of the personal perspective outlined in the literary context is also interesting for research investigating the mental processes that are involved during reading and text comprehension. For the current experiment, we assume that the perspective is an important element that influences how readers access the text, and that it affects the information that is stored in their mental representations of the text (Zwaan, 2004; Zwaan & Radvansky, 1998). For instance, we suggest that when readers are presented with a text including a character experiencing an emotional situation, their resulting mental representation will differ based on whether the emotion concerns *you* or *him/her*. This difference might be a result of the readers' position in relation to the text i.e. the degree to which they mentally simulate the situation described in the narrative.

Studies by Brunyé, Ditman, Mahoney, Augustyn, and Taylor (2009) investigated how different pronouns in sentences (manipulating the perspective) change the way the reader engages with an action in the text. The authors found that the pronoun *you* caused readers to take an agent perspective ("*internal perspective*", Brunyé et al., 2009, p. 31). Participants were asked to decide whether an action presented in a sentence (e.g. *I am/ You are/ He/She is slicing the tomato,* Brunyé et al., 2009, p. 31) matched or mismatched an action displayed in a picture. Pictures were taken from an *internal* perspective (e.g. showing arms slicing a tomato as though one is looking down on them) or from an *external* perspective (e.g. showing someone else's arms, from a different angle, slicing a tomato). In addition, pictures either showed the action being performed (*performing*) or about to be performed (*nonperforming*) (Brunyé et al., 2009). Response times were found to be affected by the pronoun used in the sentence and by the perspective displayed in the picture. For the *I* and *you* sentences, response times were faster for the internal perspective pictures than for the external perspective, whereas for the *he/she* sentences this result was reversed. Brunyé et al. (2009) interpreted their results as showing that the *I* and *you* perspective provoke an *internal* (more personal) perspective from which the reader simulates the action from an agent perspective. In a second similar experiment, two sentences were added to give more information about the actor. This time, readers preferred (reacted more quickly to) the external perspective when sentences contained the pronoun *I*. Results were similar (to the first experiment) for the *you* and *he/she* conditions. As argued by Brunyé et al. (2009), that additional information makes readers realise that *I* does not address them personally (i.e. that the text is experienced by an external main character). Therefore, it can be assumed that in order to take the perspective of narrator (i.e. to simulate the situation in text), readers need to be addressed directly and, as suggested by Silverman (1983), they need to be "instructed" to assume the agent role with the pronoun *you*.

In more recent studies, Brunyé, Ditman, Mahoney, and Taylor (2011) explored the role of the pronoun *you* for text comprehension in more detail with a study investigating recall of text. They found evidence that readers are better at recalling spatial information specifically, when they experience the text from a personal (*you)* perspective. Moreover, it was found that, when tracking and forming representations of the characters' emotional states, readers were more likely to simulate a similar emotional state (as measured by self-ratings of emotions) when they accessed the text through the pronoun *you*. Similar to the notion of McHale (1985), suggesting that the *you*-perspective calls for a dialogue between the addressee (the reader) and the character, Brunyé et al. (2011) argue that the pronoun *you* promotes a sense of self-relevance in the reader, strengthening their "*interest and attention to described situations*" (p. 14). In addition, the authors highlight that the second person perspective invites readers to imagine themselves as agent, facilitating a simulation of the situation in the text. Due to a stronger simulation of the narrative in the *you* perspective, readers are prompted to vividly imagine spatial and emotional information

specifically (because of their importance for text comprehension) and therefore their recall accuracy and their perceptual skills (enabling them to mirror the emotions in text) are improved.

Research findings reported so far have highlighted the special role of the pronoun *you* for text comprehension and recall. Building up on the findings of Brunyé et al. (2009), Brunyé, Ditman, Giles, Holmes, and Taylor (2016) extended the research on the use of pronouns for perspective manipulations and examined individual differences in self-reported text engagement. They found that the results reported in 2009 i.e. the perspective effects between different pronouns on reaction times, were moderated by readers' empathic engagement during comprehension. Readers who reported being more engaged with the text were more likely to be affected by the perspective manipulation (achieved by the use of pronouns). Again, the effects of perspective were measured through reaction times in decision tasks. Brunyé et al. (2016) therefore conclude that readers' engagement with texts predicts their sensitivity to perspective cues. In contrast, in our study it is explored how perspective affects readers' engagement with the text (rather than vice versa). Therefore, measures assessing comprehension processes *during* reading, rather than post-comprehension performance, will be of primary interest.

A recent study by Hartung, Hagoort, and Willems (2017) assessed brain activation *during* reading. They found that readers' personal preference for a perspective affects their response to perspective as manipulated through pronouns. In their study, they compared brain activations during auditory text comprehension for texts in which the protagonist was referred to as either *I* or *he/she*. Similar to Brunyé et al. (2009), Hartung et al. (2017) found no clear comprehension differences (as monitored by brain activation) between first and third person perspectives. However, the authors report activation differences between readers who self-identified as *enactors* of the situation (*seeing through the eyes of the protagonist*) and those who reported experiencing the situation as an *observer* (*as an eyewitness*) (Hartung et al., 2017). The results of Hartung et al. (2017) indicate again that the first-person perspective does not necessarily lead to a stronger and more personal engagement with the text, but that processing is affected by the degree to which readers are personally engaged with the text. For our study, we assume that the personal pronoun *you,* not studied by Hartung et al. (2017), functions as a more reliable tool for the reader to adopt the protagonist's perspective and, hence, to promote a stronger engagement with emotions experienced by the character in the text.

The main aim of our study is to show that a stronger mental simulation will not only affect the readers' responses or memory after reading (as shown by Brunyé et al., 2009), but also the reading process itself. In order to investigate the effects of perspective on comprehension processes *during* reading, our experiment will employ a self-paced reading design. Readers will be presented with texts that describe characters in emotional situations, as emotions in text are easily tracked and included in the mental representation. Also, texts including emotional information might lead to the relatively strong engagement of the reader (due to readers being more likely to empathise with the situation and sharing similar emotional experiences Dijkstra, Zwaan, Graesser, & Magliano, 1995), which might then facilitate the perspective taking process. In our texts, situations first convey a certain emotion in an implicit manner (and do not state the emotion directly). We assume that, when readers take the agent perspective (through the pronoun *you*), they will simulate the situation more strongly than in the onlooker (*he/she*) perspective, and that they will, therefore, be better at simulating or adopting the emotion implied by the text. In the onlooker perspective, however, in addition to mental processes that help comprehension of the text, readers need to build up a new mental representation that includes information about another character. This process requires more complex mental processes (Ruby & Decety, 2001) such as empathy (theory-of-mind) skills that help to make sense of the implicit emotional information, and to understand the actions of the (external) character. As these processes or skills are not subservient to the reading process, when readers experience the text as the agent themselves (as they take the position of the character), reading times should be faster for the personal perspective (*you*) as compared to the onlooker perspective (*he/she)*.

Previous research has emphasised that readers tend to show stronger empathic responses to negatively valenced scenarios (Altmann, Bohrn, Lubrich, Menninghaus, & Jacobs, 2012; Keen, 2006; Kidd & Castano, 2013). This finding is also evident in Brunyé et al.'s (2011) study, which showed that affective responses (i.e. self-ratings of emotions) were particularly strong for the *you* perspective and negative texts. We will extend previous research by investigating whether valence effects are also evident *during* comprehension as reflected by reading times. For our study, we will present positive as well as negative texts to readers and compare perspective effects between the two emotional valences. We predict that readers prefer positive emotional information about *yourself,* and that they will therefore be faster at integrating information about

positive situations. Also, we expect that stronger empathic responses to negative information will lead to faster reading times in both perspectives. Therefore, similar to Brunyé et al. (2011), we will also ask readers to rate their emotional response to the text in order to explore whether the patterns found for reading times are also evident in readers' affective responses.

Our study will comprise two experiments. In the first experiment, we will test whether reading is affected by the perspective readers are read from, and whether the texts' valence influences their engagement and their perspective taking. To our knowledge, research so far has investigated perspective effects on measures taken after processing, our study will be the first to concentrate on perspective effects (in combination with valence) during processing. The aim is to investigate how readers map emotional information onto their mental representation (Rapp & van den Broek, 2005) and whether this process is affected by the perspective. In the second experiment, we extend the findings of the first by employing a match/mismatch paradigm, similar to that used in previous studies (e.g. Gernsbacher, Goldsmith, & Robertson, 1992; Gygax, Oakhill, & Garnham, 2003). We do this to learn more about the strength of the mental representation that is build up during reading about *yourself* or *him/her*. We assume that a stronger simulation of the text through perspective taking (through the agent perspective) leads to stronger mental representations of even implicit emotional information encountered in the text.

In both experiments, the last sentence contains an explicit emotion word. In the first experiment this emotion word is always in line with the implicit emotion that is described in the text. In the second experiment, however, this emotional match is only evident for half of the trials. For the other half, the explicit emotion mismatches the overall context (or the implicit emotion). This emotional mismatch is predicted to result in longer reading times. Previous research has shown that readers can make context-based predictions on how sentences or texts might continue (Traxler, Foss, Seely, Kaup, & Morris, 2000; Van Berkum, Brown, Zwitserlood, Kooijman, & Hagoort, 2005), based on their situation models. For instance, Van Berkum et al. (2005) presented a reading time experiment, in which they measured reading times for sentence continuations i.e. specific words, that were either less predictable (low cloze probability) or highly predictable (high cloze probability) given the overall context. They found that reading times for low cloze probability continuations (less predictable words) were longer compared to continuations that were in line with reader's predictions. For our experiment (Experiment 2), we assume that readers can infer the emotional content of the text, and therefore are able to predict text continuations containing an explicit emotion word that is in line with the emotional valence of the text (i.e. a negative word for a negative text). Continuations that are not in line with the emotional context (positive emotion words) should therefore lead to mismatch effects. If our prediction holds true, the mismatch effect should be particularly strong for the personal perspective including the pronoun *you*, due to stronger mental representations of the emotional valence that were build up during reading.

Experiment 1

Method

Participants

Thirty-six native speakers of English were recruited using the subject pool of the University of Sussex. Due to technical problems, the data of one participant could not be used for further analyses. Their age ranged from 18 to 33 years ($M = 22.31$, $SD = 3.27$). Participants were blind to the purpose of the study and did not have any reading disorders. The research was approved by the Sciences & Technology Cross-Schools Research Ethics Committee C-REC, University of Sussex.

Items

Twenty-four text passages were generated consisting of 5–9 sentences. In each passage characters experienced an event, giving the reader an impression of their feelings and emotions. The last sentence of each passage contained the explicit emotion word, which matched the implicit emotion of the associate character in the preceding text.

Twelve items described a character experiencing a positive situation, the other half described a negative situation in view of the character. There were two versions of each passage, one written in the second person singular (*you*) perspective (ex. 1a) and the other written in the third person (ex. 1b), containing a proper name and pronouns *he/she* to refer to the character.

Example 1:

1a: "*You*" perspective: *With a full bag in your hand, you make your way home. It feels quite heavy, but that does not really matter. You had assumed that you would have to spend so much more today. You had been trying to save up for a while, and this was a real bargain. You look at your bag with great satisfaction*.

1b: "*He/She*" perspective: *With a full bag in his hand, Peter makes his way home. It feels quite heavy, but that does not really matter. He had assumed that he would have to spend so much more today. He had been trying to save up for a while, and this was a real bargain. He looks at his bag with great satisfaction*.

For the third person perspective, there were equal numbers of passages with female and male protagonists. After each item, participants were asked to rate their own emotional state (positive vs. negative) after reading the text. Ratings were given on a 10-point scale from *negative* (1) to *positive* (10).[1]

Design

The main focus of the experiment was to investigate perspective effects on processing. In line with this aim, the first of the two factors included in the 2 × 2 design was perspective (onlooker *him/her* versus personal *you*). Second, we counterbalanced texts and compared perspective effects along emotional valence (*negative* versus *positive*). Two lists were created containing equal numbers of second and third person perspective items. Therefore, each participant read 12 items per condition, half of them presented a positive, and the other half a negative, emotion. Across the experiment, texts were counterbalanced by perspective, valence and gender of the character.

In addition to the experimental items, we included 24 additional distractor passages that included emotional information about characters. Distractors were texts of a similar length and written in third ("*he/she*") or first ("*I*") person perspectives in order to conceal the experimental manipulation. The distractor items were the same or similar to those in the studies reported by Gygax et al. (2003), with the personal pronouns changed from third to first person and/or shortened. In contrast to the experimental items, the final sentence of the fillers did not contain an explicit emotion and the texts were therefore more ambiguous.

Procedure

The texts were presented using the computer software E-prime 2.0 (Schneider, Eschman, & Zuccolotto, 2012) on a PC screen (Dell, 17 inches; white background with font size 24 and black font colour). They appeared in a different random order for each participant. Reading times for each sentence as well as final responses were recorded.

After an introduction and three practice trials, the main text passages were presented sentence by sentence. After having read the final sentence, participants typed in their self-rating i.e. the number rating their own emotion. After the response, the next trial began following a two second break.

Results

Reading times

We entered all the reading time data for each sentence in every experimental item and from all participants into the analysis. Before the analysis, 2.33% of the data, outliers 2.5 standard deviations below or above the mean reading times per sentence, were removed for each participant (means were calculated from remaining items).

The reading times were analysed using linear mixed effect models. A natural log transformation was performed in order to normalise the data. We accounted for length effects of different passages by regressing (log) reading times against the number of characters per sentence. These regressions were calculated by participant. As a result, log-residual reading times with a mean (intercept) of zero (per participant) were entered into the analyses.

The data were analysed using R (version 0.99.893; packages: lme4; Bates, Maechler, Bolker, & Walker, 2016, lmerTest, Kuznetsova, Brockhoff, & Christensen, 2015, for linear mixed effect modelling with Satterthwaite approximations for the degrees of freedom and lsmeans, Lenth, 2016, for least-squares means contrasts). Perspective as well as valence were included as fixed-effects into the analysis using deviation coding. In addition, we also included participants and items with random intercepts[2] and slopes into the mixed models. For parameter reports, we used the default restricted maximum likelihood estimations provided by the lme4 package. In order to decide the best model fit, the AIC (Akaike Information Criterion, Bates, 2010) was calculated (only for models meeting the convergence criteria). Also, following Bates, Kliegl, Vasishth & Baayen (2015) we checked model fit via screeplots of Principal Component Analyses (PCA) of the related sets of random-effects (associated with participants and with items) with the help of the RePsychLing package (Baayen, Bates, Kliegl, & Vasishth, 2015). We decided on, and report, models that met the convergence criterion, that generated lowest AIC scores, and did not show signs of overparameterization (and, hence, overfitting) in the PCA analysis (Bates, Kliegl, Vasishth, & Baayen, 2015). For reading times, the final model included random intercepts of participants and items, but not random slopes (due to lowest AIC scores).

The analysis revealed an effect of perspective on reading times (see Table 1).

Participants were slower when reading about another character (third person perspective: $M = 2282$, SD = 1346) than when reading a text about themselves (second person: $M = 2193$, SD = 1277). The analysis did not reveal a main effect of valence (see Table 1). Participants read negative and positive texts equally quickly (positive: $M = 2276$, SD = 1320; negative: $M = 2195$, SD = 1303).

An interaction of valence and perspective was found (see Table 1). For items describing negative emotions, there was no reading time difference ($t = 0.32$, $p > 0.1$)

Table 1. LMM coefficients and effects of perspective and valence on reading times, Experiment 1.

	Residual reading times		
	B	CI	*p*
Fixed effects			
(Intercept)	−0.00	−0.02–0.02	.963
Perspective1	0.01	0.00–0.02	.019
Valence1	−0.01	−0.03–0.02	.547
Perspective1:Valence1	−0.02	−0.03–−0.00	.005
Random effects			
σ^2		0.132	
$\tau_{00,\ Part}$		0.000	
$\tau_{00,\ Item}$		0.002	
N_{Part}		35	
N_{Item}		24	
ICC_{Part}		0.000	
ICC_{Item}		0.019	
Observations		4431	
R^2 / Ω_0^2		.025 / .024	

Table 2. LMM coefficients and effects of perspective and valence on self-ratings of emotions, Experiment 1.

	Self-ratings of emotions		
	B	CI	*P*
Fixed parts			
(Intercept)	5.11	4.85–5.38	<.001
Perspective1	−0.04	−0.08–0.00	.078
Valence1	−1.79	−1.97–−1.60	<.001
Perspective1:Valence1	0.07	0.03–0.11	<.001
Random parts			
σ^2		2.021	
$\tau_{00,\ Part}$		0.325	
$\tau_{00,\ Item}$		0.200	
N_{Part}		35	
N_{Item}		24	
ICC_{Part}		0.128	
ICC_{Item}		0.079	
Observations		4392	
R^2 / Ω_0^2		.652 / .652	

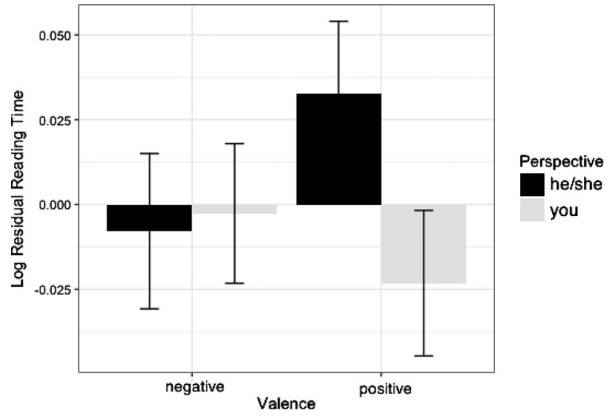

Figure 1. Reading times for different valences (negative/ positive) in each perspective.

between second ($M = 2194$, SD = 1270) and third ($M = 2206$, SD = 1336) person perspectives. However, for positive emotions, reading times were faster for passages that were written from a personal perspective ($M = 2201$, SD = 1284) than from an onlooker perspective ($M = 2350$, SD = 1351; $t(4408) = 3.73$, $p < .001$; see Figure 1).

Hence, perspective effects were found to be valence specific and only evident for positive texts.

Emotion ratings

Similar to reading times, perspective and valence were included as fixed factors for the analysis of emotional ratings. Random intercepts for participants and items were also included. The PCA (Baayen et al., 2015) indicated overparameterization in the maximum model (including random slopes for both effects and their interaction). Therefore, the model with random intercepts only is reported.

For the self-ratings of emotions we found differences between negatively and positively valenced texts (see Table 2) with the readers' own emotional states being rated more positively for positive ($M = 6.93$, SD = 1.75) than negative texts ($M = 3.33$, SD = 1.38). Self-ratings were only marginally affected by perspective (see Table 2) with emotions being rated as marginally more positive for the personal perspective ($M = 5.25$, SD = 2.48) than for the onlooker perspective ($M = 5.16$, SD 2.31).

The analysis revealed an interaction between perspective and valence for self-reported emotions (see Table 2). Again, least-squares pairwise comparisons were used. Participants gave similar ratings for both perspectives when they were presented with a negative emotion ("*he/she*": $M = 3.36$, SD = 1.29; "*you*": $M = 3.30$, SD = 1.46; $t = 1.08$, $p > 0.1$), but they gave higher ratings for the second person perspective *you* ($M = 7.04$, SD = 1.77) than for the third person perspective ($M = 6.82$, SD = 1.73) when reading about a positive emotion (perspective effect for positive emotion: ($t(4335) = 3.67$, $p < .001$, see Figure 2).

Similar to reading times, perspective effects were only evident for texts including *positive* emotional information. Both sets of analyses of reading times and self-

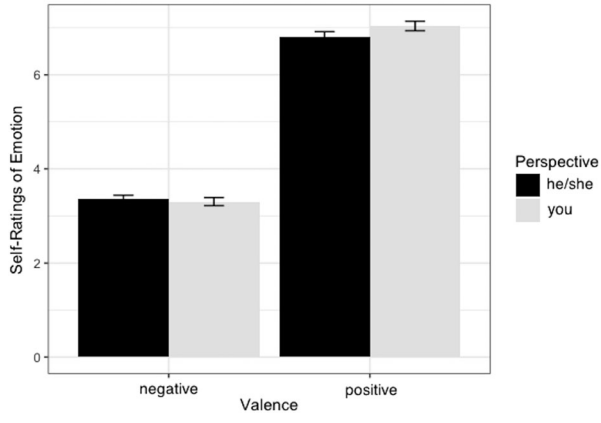

Figure 2. Self-ratings of emotions for perspectives (personal/ onlooker) and valences (negative/positive).

ratings showed evidence of an interaction between perspective and valence that indicate a stronger engagement with texts in the personal perspective particularly for positive texts.

Discussion

We investigated whether the perspective taken when reading a text influences comprehension, and in particular the processing of emotional information. Reading times were measured for text passages describing either a negative or positive emotion and presented from either the second person "*you*" or third person "*he/she*" perspective. Participants also rated their affective response from negative to positive on a scale from 1 to 10. They read faster overall when reading a text that was written from a personal perspective (*you*) as compared to passages presenting another character (onlooker perspective). Also, emotional responses differed for the positive texts, in that participants rated their own feelings as more positive after reading a text presented in a personal perspective than one presented from the onlooker perspective.

These findings for positive (happy) items were in line with our predictions (see Ruby & Decety, 2001). The results demonstrate that readers are more engaged with positive events described in text when they experience them from their own viewpoint, i.e. when they take the agentive perspective.

In contrast to positive items, no perspective effect was found for negative texts. Reading times were similar regardless of perspective. This result was not predicted, but may be explained on the basis that readers effectively try to protect themselves from negative emotions, and are more resistant to imagining themselves as the agent of the situation. Therefore, they do not engage more with the text that is presented from a personal perspective as compared to a text that is presented from an onlooker perspective. Our reading time results are also reflected in the self-ratings of emotions. Similar to Brunyé et al. (2011) readers gave higher emotional ratings for the personal perspective, but only for positive items. Again, this shows that they simulate the situation and, therefore, experience the emotion more intensively when they are put in the perspective of the agent. However, we found that this is not the case for negative texts, which indicates that readers are reluctant to simulate negative situations (from the perspective of the agent) leading to negative affective responses.

This experiment showed that readers are influenced by the perspective they take during reading, but the picture is not yet complete. It seems that readers prefer positive emotional information when they experience a situation from the personal perspective. We further want to investigate whether a stronger engagement with the text, due to perspective (and valence) also affects the strength of the mental representation that includes the implicit emotional information extracted from the text.

To test the effects of perspective on the salience of mental representations we conducted a second experiment. In addition to the manipulation of the perspective, we employed a match/mismatch paradigm, similar to that used in previous studies (e.g. Gernsbacher et al., 1992; Gygax et al., 2003). We used passages similar to those in Experiment 1, except that the explicit emotion at the end of the text either matched or mismatched the emotion implicit in the earlier part of the text. We predicted that readers would anticipate text continuations with emotion words that are in line with the emotional inference made from the text (Van Berkum et al., 2005) and slow down when they encountered an emotional mismatch regardless of perspective (Gernsbacher et al., 1992; Gygax et al., 2003). However, we also predicted that participants would react more strongly (with slower reading times) to emotional inconsistencies when they experienced the text from their own perspective. This would show that engagement with a situation in text that is described from a personal perspective is strengthened, and that the emotional information within the text becomes more salient.

Experiment 2

Method

Participants

Eighty participants were recruited at the University of Sussex, using the School of Psychology's subject pool. Participants' ages ranged from 18 to 46 years with $M = 20.58$ and SD = 3.64. None of the participants had taken part in Study 1 or were aware of the study's purpose. Participants who had any reading disorders or problems were excluded from the study. The research was approved by the Sciences & Technology Cross-Schools Research Ethics Committee C-REC, University of Sussex.

Items

We used the same passages as in Experiment 1. In contrast to Experiment 1, this study included a match/mismatch condition with regard to the emotion word in the final sentence of the text. Therefore, half of the explicit emotion words (12 items) mentioned in the last sentence matched the context of the passage overall (ex. 2a, similar to Experiment 1). For the other half (12 items), the final explicit emotion mismatched the emotion implicitly described before. Mismatching emotion words (ex. 2b)

represented an emotion opposite to that implied by the context.

Example 2:
2a: Match ("he/she"): *With a full bag in his hand, Peter makes his way home. It feels quite heavy, but that does not really matter. He had assumed that he would have to spend so much more today. He had been trying to save up for a while, and this was a real bargain. He looks at his bag with great* ***satisfaction*****.**
2b: Mismatch ("you"): *With a full bag in your hand, you make your way home. It feels quite heavy, but that does not really matter. You had assumed that you would have to spend so much more today. You had been trying to save up for a while, and this was a real bargain. You look at your bag with great* ***discontentment***.[3]

Design

The study had a 2 × 2 design (perspective: *you*/ *he/she*; match/mismatch of emotion). Following a Latin Square Design, four lists were created, with each item occurring in one condition and once per list. There were six items in each of the main experimental conditions in each list. Moreover, 24 filler items (the same as in Experiment 1; Gygax et al., 2003) were included to distract participants from the study's purpose. Filler items did not include a match/mismatch manipulation, but the final sentence was ambiguous.

Procedure

The procedure was the same as for Experiment 1. Items were presented sentence by sentence on a Dell monitor (17 inches) in black on white background with font size 24 using the E-Prime 2.0 software (Schneider et al., 2012). Reading times were recorded for each sentence. After each passage, participants rated how the text made them feel on a scale from 1 to 10 (1 *negative*, 10 *positive*).

Results

Reading times

We analysed reading times for the last sentence, which included the explicit emotion and at which match and mismatch effects occurred. As in experiment 1, we applied a natural-log transformation to reading times (due to a negative skew in the data), performed an outlier removal and calculated log residual reading times per character (including spaces) for each last sentence of the passage, and for each participant separately, using linear regression. Data points (logarithmic reading times for the last sentence) with a standard deviation of more than 2.5 from the mean per participant were removed, which led to the exclusion of 1.30% of the data. For the remaining data, we compared reading times per sentence for fixed factors including the perspective (personal or onlooker), emotional matches or mismatches between the explicit emotion and the main body of the text, and valence of the text (negative or positive) using deviation coding. The analysis with linear mixed effect models followed the same procedure as in Experiment 1 (using the REML default in lme4; Bates et al., 2016, and Satterthwaite approximations, lmerTest, Kuznetsova et al., 2015). Again, model fit was assessed by the AIC as well as by the PCA method suggested by Baayen et al. (2015), provided that models were not subject to convergence errors. Hence, the final model reported in this analysis contained random intercepts for both participants and items.[4] Pairwise comparisons are reported using the lsmeans package (Lenth, 2016).

We found an overall main effect of emotional (in-)consistency (see Table 3).

Reading times for the last sentence were longer when the emotion presented after the main text did not match the emotion implicit in the earlier part of the text (Mismatch: $M = 2524$, $SD = 1391$; Match: $M = 1857$, $SD = 837$). We did not find main effects of perspective or valence (Table 3). However, we found a three-way interaction of the fixed factors (Match/Mismatch, Perspective and Valence) that were included in the analysis (Table 3). Pairwise comparisons revealed that for negative texts, emotional match/mismatch effects were stronger in the personal perspective (*you*: $t(1865) = 12.71$, $p < 0.001$) than in the onlooker perspective (*he/she*: $t(1864) = 3.86$, $p < 0.001$). As can also be seen in Figure 3, this interaction was not evident for positive texts, for which match/mismatch effects were similar in

Table 3 . LMM coefficients and effects of match, perspective and valence on reading times, Experiment 2.

	Residual reading times		
	B	CI	*p*
Fixed parts			
(Intercept)	0.00	−0.03–0.03	.977
Perspective1	0.01	−0.01–0.03	.355
Match1	0.12	0.11–0.14	<.001
Valence1	0.00	−0.02–0.02	.812
Perspective1:Match1	−0.01	−0.03–0.00	.103
Perspective1:Valence1	−0.00	−0.02–0.02	.978
Match1:Valence1	−0.00	−0.02–0.01	.656
Perspective1:Match1:Valence1	−0.02	−0.04–−0.01	.008
Random parts			
σ^2		0.107	
$\tau_{00,\ Subject}$		0.000	
$\tau_{00,\ Exp}$		0.005	
$N_{Subject}$		80	
N_{Exp}		24	
$ICC_{Subject}$		0.000	
ICC_{Exp}		0.045	
Observations		1895	
R^2 / Ω_0^2		.187 / .186	

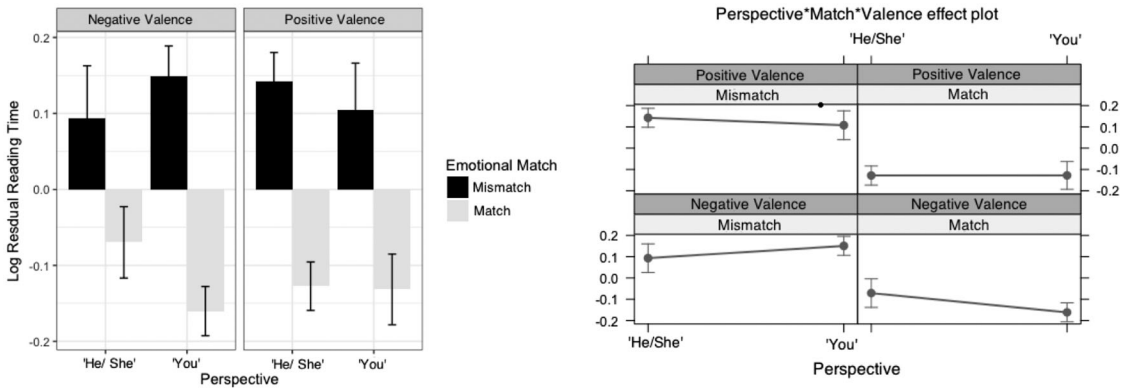

Figure 3. Three-way interaction between and effects of match/mismatch, perspective and valence on reading times.

both perspectives (*you*: $t(1867) = 5.62$, $p < 0.001$; *he/she*: $t(1867) = 10.96$, $p < 0.001$).

Hence, reading time differences between emotional matches and mismatches were found to be particularly strong when participants were presented with negative texts and engaged with the text from a personal perspective.

Emotional responses

As with previous models, we used convergence, AIC and PCA criteria to assess best model fit. The final model included emotional match/mismatch, perspective and valence as fixed effects, random intercepts and slopes for perspective and match/mismatch for participants and random intercepts and slopes for perspective for items.

For the self-ratings of emotions we found main effects of match ($M = 5.32$, SD = 2.61) vs. mismatch ($M = 4.91$, SD = 2.65) (see Table 4). Also, the interaction between the match/ mismatch variable and the valence was significant (see Table 4). With positively-valenced texts, participants reported feeling more positive when the emotion word matched the overall context of the text ($t(372) = 7.56$, $p = 0.001$; *emotion match*: $M = 6.29$, SD = 2.38; *emotion mismatch*: $M = 5.24$, SD = 2.92). Whereas for negative texts, they reported more positive feelings when the negative text was followed by a positive emotion word ($t(372) = 3.07$, $p = 0.002$; *emotion match*: $M = 4.36$, SD = 2.47; *emotion mismatch*: $M = 4.59$, SD = 2.29).

We did not find a main effect in relation to perspective, but an interaction between perspective and match/mismatch was evident (see Table 4). This interaction rose because the differences between the ratings for emotional matches and mismatches were only evident in the personal perspective ($t(371) = 5.21$, $p < 0.001$) with more negative ratings for emotional mismatches ($M = 4.96$, SD = 3.30) and more positive ratings for emotional matches ($M = 5.47$, SD = 2.74). The effect of match/mismatch was not evident for the onlooker perspective ($t(391) = 0.72$, $p > 0.1$; *emotional mismatches*: $M = 4.87$, SD = 1.76; *emotional matches*: $M = 5.17$, SD = 2.46).

Table 4 . LMM coefficients and effects of match, perspective and valence on self-ratings of emotions, Experiment 2.

	Self-ratings of emotions		
	B	CI	*p*
Fixed parts			
(Intercept)	5.15	4.53–5.78	<.001
Perspective1	−0.04	−0.20–0.11	.573
Match1	−0.18	−0.30–−0.06	.004
Valence1	0.01	−0.15–0.18	.861
Perspective1:Match1	0.24	0.14–0.35	<.001
Perspective1:Valence1	0.09	−0.06–0.23	.244
Match1:Valence1	0.43	0.33–0.54	<.001
Perspective1:Match1:Valence1	0.04	−0.08–0.16	.532
Random parts			
σ^2		4.096	
$\tau_{00,\ Part}$		0.158	
$\tau_{00,\ Exp}$		2.322	
ρ_{01}		−0.526	
N_{Part}		79	
N_{Exp}		24	
ICC_{Part}		0.024	
ICC_{Exp}		0.353	
Observations		1891	
R^2 / Ω_0^2		.443 / .441	

Discussion

Experiment 2 explored whether a reader's perspective influences the strength of their representation of a character's emotional state. We tested whether readers react more strongly to mismatching information when they experience the text from their own perspective than from an onlooker perspective. It was found that reading times for the last sentence were similar for both perspectives when the explicit emotion matched the emotional valence of the main text. However, findings revealed that when the final emotion word mismatched the previous context, reading times were slower for the personal perspective.

We found that, for both perspectives, participants built up a mental representation including information

of an emotional nature. Match and mismatch effects demonstrated that participants were able to map consistent emotional information onto their mental representation of the text (Gygax et al., 2003; Rapp & van den Broek, 2005), and that new information that was not in line with readers' predictions leads to processing difficulties (Van Berkum et al., 2005), regardless of whether they experience the text form a personal or onlooker viewpoint.

We predicted that mismatch effects would be evident for both perspectives, but that they would be stronger for the personal "*you*" perspective. Our findings were mostly in line with our predictions. We found a perspective effect only when the emotional word was inconsistent with the emotion suggested in the text, with longer reading times for the personal perspective. We assume that when readers process texts that are presented from a personal perspective, they are better at simulating the situation described in the text and engage more with the affective state that is presented in the context. This deeper engagement leads to more detailed (stronger) mental representations of the implicit emotional information and therefore to stronger mismatch effects when new information does not match the context (Gygax et al., 2003).

With regard to reading times, this effect was, however, specific to texts describing a negative situation. Whereas mismatch effects for the third person perspective were less pronounced (they did not react very strongly to positive information following a negative text), readers seemed to have problems with the integration of positive information that mismatched a negative text when they took the agent perspective. There is a wealth of evidence that negative emotions in text lead to stronger empathic responses in the reader and that more empathic readers prefer negative stories (Altmann et al., 2012; Keen, 2006; Kidd & Castano, 2013). This valence effect, together with a generally stronger engagement caused by the personal perspective can explain our findings and the particularly strong inconsistency effects for negatively valenced texts. When readers image the stories from their own perspective, and imagine (simulate) their emotional responses to a negative situation, a sudden shift to a positive emotion leads to longer processing times because the final explicit emotion is not in line with the overall emotional experience. However, in the third person perspective, where the text is about a different character, an emotional shift might be perceived as more likely (due to the unpredictability of the *other* character and the lower degree of emotional simulation).

In line with the reading time results, we found consistent mismatch effects when we asked readers for their self-assessed emotional ratings. Our findings provide evidence that readers simulate the emotion of the text more strongly when emotional information is consistent throughout the text (whether positive or negative) and when the text is presented from a personal perspective.

The results from in Experiment 2 are consistent with our predictions, and provide evidence that mental representations are stronger when readers access the text from a personal point of view. This finding is reflected in stronger inconsistency effects (when the emotion word mismatched the implicit emotion in text) for the second person "*you*" perspective, though specifically for negatively valenced texts. The inconsistency effect (for negative items) was less pronounced for the third person perspective than for the personal perspective. We concluded that participants might be more open to emotional changes when they were not encouraged to identify closely with another character, therefore the emotional experiences of the (other) character are less predictable and readers have fewer difficulties in processing mismatching emotional information (especially from negative to positive). However, as representations are stronger for the personal perspective, emotional changes are more difficult to accommodate.

Conclusion

Our studies suggest that representations of emotional situations are influenced by the perspective taken during reading. Experiment 1 tested whether online processing is affected when readers read from a personal perspective. We found that positive events are more readily processed when readers read from their own perspective. Negative events were read at a similar rate regardless of perspective, which indicates that readers are less likely to engage with negative events even from a personal perspective. Experiment 2 tested the strength and depth of mental representations built up from different perspectives by employing a match/ mismatch paradigm (Gygax et al., 2003). In the match condition readers were able to map an explicit emotion to the implicitly described emotion and its mental representation for both perspectives. However, in the mismatch condition, readers reacted more strongly to inconsistent information when they read from a personal perspective. This suggests that they internalised the emotional valence of the text more deeply when the pronoun "*you*" instead of "*he/she*" was used. The interaction between perspective and the match and mismatch condition was qualified by the valence of the text. Difficulties with integrating inconsistent information were particularly evident for the personal perspective when reading negative texts. Therefore, we

suggest that the readers' engagement with the text is particularly strong when reading as though from their own perspective in a negative situation. We conclude that the personal perspective makes readers more sensitive to emotional inconsistencies and the emotional valence of a text, and therefore emotional changes are harder to process. Conversely, the onlooker perspective might cause readers to be more tolerant of mismatching information as emotions of another character are less predictable compared to one's own.

Our experiments showed that the perspective from which readers access a text influences not only offline (Brunyé et al., 2009, 2011) but also online measures. In the second person "*you*" perspective we found a greater ease of processing but a higher sensitivity to inconsistent emotional information. These findings are in line with and extend research investigating relationships and overlaps between readers' and characters' emotions (Dijkstra et al., 1995). Future research might investigate whether readers who are more empathic by nature are more able to engage in perspective taking i.e. whether perspective effects are affected by an individual's ability to understand characters' emotions more generally. Hartung et al. (2017) suggested that perspective taking during comprehension is not necessarily linked to the pronouns used in the text, but to the readers' preference to adopt an enactor's or observer's point of view. Also, Brunyé et al. (2016) found evidence of individual differences in response to different pronouns on reading comprehension. Future studies might therefore explore a reader's predisposition or ability to take a certain perspective during reading and explore whether these tendencies affect the engagement with text in relation to the pronoun *you*. For example, readers could be asked to respond to some trait measures that assess their abilities to engage with text and understand other's emotions (e.g. theory of mind skills, e.g. Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001) and their ability to mirror emotions in text (affective empathy, e.g. Johnson, 2012). It would be interesting to explore whether these trait measures are related to readers' sensitivity to perspective cues in text.

Also, given the differences between emotional match and mismatch in the different perspectives, it would be interesting to explore the ease with which readers accommodate emotional changes within the character, and whether it depends on the direction of the change (as defined by valence). Moreover, we explored the relationship between readers' and characters' emotions in just one direction (character to reader). It would also be interesting to assess whether readers' emotions influence their interpretation of emotional situations described in a text.

Notes

1. A full list of items is provided in the appendix. In addition, items were rated along their emotionality and sensibility. For more details see appendix (emotionality and sensibility ratings).
2. Because of known, and unresolved, problems in the reporting of parameter estimates for lmer models with no random intercepts (see Bolker, 2013; Walker, 2014), we focused on models that included random intercepts. For the RT data estimates of the variability of the intercepts for participants were correct at 0.
3. For list of items and emotionality/sensibility rating analyses see appendix.
4. The majority of models including random slopes and interactions of slopes were subject to convergence issues or were overfitted (Baayen et al., 2015).

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No potential conflict of interest was reported by the authors.

References

Altmann, U., Bohrn, I. C., Lubrich, O., Menninghaus, W., & Jacobs, A. M. (2012). Fact vs fiction—How paratextual information shapes our reading processes. *Social Cognitive and Affective Neuroscience*, *9*(1), 22–29.

Baayen, H., Bates, D., Kliegl, R., & Vasishth, S. (2015). *RePsychLing: Data sets from psychology and linguistics experiments*. R package version 0.0, 4. Retrieved from https://github.com/dmbates/RePsychLing

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., & Plumb, I. (2001). The "reading the mind in the eyes" test revised version: A study with normal adults, and adults with asperger syndrome or high-functioning autism. *Journal of Children Psychology and Psychiatry*, *42*(2), 241–251.

Bates, D. M. (2010). *lme4: Mixed-effects modeling with R*. Retrieved from http://lme4.0.r-forge.r-project.org/lMMwR/lrgprt.pdf

Bates, D., Kliegl, R., Vasishth, S., & Baayen, H. (2015). *Parsimonious mixed models*. Retrieved from https://arxiv.org/pdf/1506.04967.pdf

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2016). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1), 1–48.

Bolker, B. (2013). *Gmane - Mail to newsgroup lme4*. Retrieved from http://permalink.gmane.org/gmane.comp.lang.r.lme4.devel/9637

Brunyé, T. T., Ditman, T., Giles, G. E., Holmes, A., & Taylor, H. A.. (2016). Mentally simulatingnarrative perspective is not universal or necessary for language comprehension. *Journal of Experimental Psychology Learning, Memory, and Cognition*, *42*(10), 1592.

Brunyé, T. T., Ditman, T., Mahoney, C. R., Augustyn, J. S., & Taylor, H. A. (2009). When you and I share perspectives: Pronouns

modulate perspective taking during narrative comprehension. *Psychological Science*, *20*(1), 27–32.
Brunyé, T. T., Ditman, T., Mahoney, C. R., & Taylor, H. A. (2011). Better you than I: Perspectives and emotion simulation during narrative comprehension. *Journal of Cognitive Psychology*, *23*(5), 659–666.
Calvino, I. (1981). *If on a winter's night a traveler*. New York, NY: Houghton Mifflin Harcourt.
Dijkstra, K., Zwaan, R. A., Graesser, A. C., & Magliano, J. P. (1995). Character and reader emotions in literary texts. *Poetics*, *23*(1), 139–157.
Fludernik, M. (1994). Second-person narrative: A bibliography. *Style*, *28*(4), 525–548.
Gernsbacher, M. A., Goldsmith, H. H., & Robertson, R. R. (1992). Do readers mentally represent characters' emotional states? *Cognition & Emotion*, *6*(2), 89–111.
Gygax, P., Oakhill, J., & Garnham, A. (2003). The representation of characters' emotional responses: Do readers infer specific emotions? *Cognition & Emotion*, *17*(3), 413–428.
Hartung, F., Hagoort, P., & Willems, R. M. (2017). Readers select a comprehension modeindependent of pronoun: Evidence from fMRI during narrative comprehension. *Brain and Language*, *170*, 29–38.
Johnson, D. R. (2012). Transportation into a story increases empathy, prosocial behavior, and perceptual bias toward fearful expressions. *Personality and Individual Differences*, *52* (2), 150–155.
Kacandes, I. (1991). *Narrative apostrophe: Case studies in second person fiction* (*Doctoral dissertation*). Harvard University, Cambridge, MA.
Keen, S. (2006). A theory of narrative empathy. *Narrative*, *14*(3), 207–236.
Kidd, D. C., & Castano, E. (2013). Reading literary fiction improves theory of mind. *Science*, *342*(6156), 377–380.
Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2015). *Package "lmerTest"*. R package version 2.
Lenth, R. V. (2016). Least-squares means: The R package lsmeans. *Journal of Statistical Software*, *69*(1), 1–33.
McHale, B. (1985). You used to know what these words mean: Misreading gravity's rainbow. *Language and Style*, *18*(1), 93–118.
Phelan, J. (1994). "Self-help" for narratee and narrative audience: How "I"-and "you"?-read "how". *Style*, *28*, 350–365.
Rapp, D. N., & van den Broek, P. (2005). Dynamic text comprehension an integrative view of reading. *Current Directions in Psychological Science*, *14*(5), 276–279.
Ruby, P., & Decety, J. (2001). Effect of subjective perspective taking during simulation of action: A PET investigation of agency. *Nature Neuroscience*, *4*(5), 546–550.
Schneider, W., Eschman, A., & Zuccolotto, A. (2012). *E-Prime reference guide*. Pittsburgh, PA: Psychology Software Tools.
Schofield, D. (1998). *Second person: A point of view? The function of the second person pronoun in narrative prose fiction* (*Doctoral dissertation*). Deakin University, Geelong.
Silverman, K. (1983). *The subject of semiotics*. New York, NY: Oxford University Press.
Traxler, M. J., Foss, D. J., Seely, R. E., Kaup, B., & Morris, R. K. (2000). Priming in sentence processing: Intralexical spreading activation, schemas, and situation models. *Journal of Psycholinguistic Research*, *29*(6), 581–595.
Van Berkum, J. J., Brown, C. M., Zwitserlood, P., Kooijman, V., & Hagoort, P. (2005). Anticipating upcoming words in discourse: Evidence from ERPs and reading times. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *31*(3), 443–467.
Walker, S. C. (2014, February 18). *Github lme4 issues: Random slopes associated with a categorical predictor requires some dummy coding*. Retrieved from https://github.com/lme4/lme4/issues/182
Zwaan, R. A. (2004). The immersed experiencer: Toward an embodied theory of language comprehension. *Psychology of Learning and Motivation*, *44*, 35–62.
Zwaan, R. A., & Radvansky, G. A. (1998). Situation models in language comprehension and memory. *Psychological Bulletin*, *123*(2), 162–185.