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Modelling the experience of reading fiction

Literary stylistic frameworks have long been dominated by text-driven analysis (see e.g. [1] on the principle of text-drivenness). The present study takes a more holistic approach to explaining the experience of reading fiction, incorporating (1) information about individual properties of readers — characteristics that make individual readers different from each other, (2) measures of readers' emotional engagement with a text during reading, and (3) properties of the text, which remain stable across readers and reading contexts.

In order to evaluate the relative contributions of these factors on the fiction-reading experience, we presented two groups of readers with different versions of a fictional text, described below. After reading the text, readers indicated the extent of their (dis)agreement with a number of statements about the text — these responses served as a measure of both a reader's accurate recall of information contained in the text, and the rate at which they made inferences based on, but not explicitly entailed by, elements of the text. The readers also reported their agreement with statements about their reactions to aspects of the text. Finally, we also collected information about the individual-level characteristics of each reader. We describe the different features of the experiment below.

The texts were written specifically for the study, and were designed to convey the same information while foregrounding and backgrounding different aspects of the story. One version was primarily character-driven, foregrounding the emotional context of the main character, but providing only indirect information about concrete story elements (e.g. time, place, physical objects). By contrast, the plot-driven text contained the same basic information as the character-driven text, but conveyed this information in a manner that more directly emphasized the sequence, timing and location of events. Text type was manipulated between subjects, with each reader seeing just one version of the story.

There were three categories of **'agree/disagree' statements**. First, some statements were either true or false based on information present in the text (either contained explicitly or entailed by information contained in the text; e.g. "The graveyard was next to a church", "It was raining"). This provided a measure of *recall accuracy* for each participant. A second set of statements represented inferences that the reader might have made on the basis of information in the text, or their own prior experience (e.g. "The main character is a widower", "The main character finds the graveyard peaceful"). This provided a measure of *likelihood of making inferences* about different aspects of the story, under the guise of a true/false recall task. A final set of statements provided a measure of readers' emotional reactions to different elements of the text (e.g. "I empathized with the main character in the story", "I found the story suspenseful") — aspects of an individual reading experience characterised by [2] as relating to location, mood, disposition, attention, motivation, sensations, feelings, emotions and self-awareness. This last set of statements were included to allow us to ask whether strength of *emotional engagement with story elements* had an impact on readers' likelihood of making text-based inferences about those elements.

Participants completed a **post-test questionnaire**, which included questions about their reading-related behaviour (e.g. their reading and media consumption habits, genre preferences, preferred/dispreferred characteristics of fictional texts), as well as general questions about their individual social and behavioural characteristics (e.g. Empathy Quotient and Systematizing Quotient [3-4]).

Analysis. We analysed three subsets of responses separately: true/false statements, statements that could be inferred based on elements in the text ('text-based inferences'), and statements that could be inferred based on general/world knowledge ('experience-based inferences'; e.g. people who visit graveyards tend to be old/sad/grieving). In each case, the responses were fitted with a mixed-effects regression model predicting the relevant type of response (true, false, or inference/agree responses) [5]. Fixed effects included:

1. Text type: plot- or character-driven
2. Reading experience variables: indicators of emotional response to different aspects of the story (third set of agree/disagree statements described above)
3. Reader characteristic variables: individual properties (post-test questionnaire)

Participant and item were included as random effects. Predictors that did not contribute to model fit (or were collinear with other predictors) were eliminated stepwise using model comparison.

Results. Responses to the true/false statements suggested that participants were generally quite accurate in correctly accepting true statements (mean agreement 5.51 out of 7), and somewhat accurate in correctly rejecting false statements (mean agreement 3.48 out of 7). Importantly, agreement scores did not differ by text type for either true or false statements. The regression model predicting (dis)agreement with true/false statements included a combination of reading experience and reader characteristic variables; none of these were strong predictors of accuracy.

The model predicting agreement with text-based inferences included all three categories of variables described above: text type, reading experience, and reader characteristic variables. The model also included significant interaction terms between text type and reader characteristics, and reader characteristics and reading experience. More importantly than exactly what these predictors were is that all three types of predictors were important in accounting for how likely readers were to make text-based inferences.

The responses to experience-based inferences — inferences licensed by general knowledge about the world rather than by specific elements in the text — provide an interesting contrast with the text-based inferences. The regression model predicting agreement with experience-based inferences included only reading experience and reader variables, including one interaction term between a reader experience and a reader profile variable. The absence of text type in this model suggests that much of what is inferred when a reader reads a text is explained by a combination of what kind of person they are and aspects of their reading experience, rather than by any feature of the text itself.

Our results reveal that individual reader characteristics (even those apparently unrelated to reading) and individual reactions to a text during reading both have broad influences on readers' likelihood of making inferences based either on elements of the text or on general/world knowledge. By comparison, properties of the text itself had a selective effect, influencing only responses to inferences that were explicitly linked to textual elements. We suggest that an explanation of the experience of fiction-reading [cf. 6] must into account aspects of the reader's background, and engagement in the moment of reading.

[1] Gavins (2007). Edinburgh U Press. [2] Whiteley (2015). In Sotirova, ed. Routledge. [3] Baron-Cohen & Wheelwright (2004). *J Autism & Developmental Disorders*. [4] Baron-Cohen et al (2003). *Phil Trans Royal Soc B*. [5] Baayen et al (2008). *J Memory Language*. [6] Stockwell (2012). *Edinburgh U Press*.