

Drawing Kafka's *Castle*

An experimental expansion of the theory of cognitive realism

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We investigated the effects of narrative perspective on mental imagery by comparing responses to an English translation of Franz Kafka's *Das Schloß* (*The Castle*) in the published version (narrated in the third person) versus an earlier (first-person) draft. We analysed participants' pencil drawings of their imaginative experience for presence/absence of specific features (K. and the castle) and for image entropy (a proxy for image unpredictability). We also used word embeddings to perform cluster analysis of participants' verbal free-response testimony, generating thematic clusters independently of experimenter expectations. We found no effects of text version on feature presence or overall entropy, but an effect on entropy variance, which was higher in the third-person condition. There was also an effect of text version on free responses: Readers of the third-person version were more likely to use words associated with mood and atmosphere. We offer conclusions on "Kafkaesque" aesthetics, cognitive realism, and the future of experimental literary studies.

Keywords: cognitive realism, drawing, Kafka, narrative perspective, natural language processing, image entropy

Introduction: Descriptive style, cognitive realism, and narrative perspective

What makes the opening paragraph of a novel suck us in, or fail to? In the first few lines of a long narrative, we contact a fictional world evoked from a particular perspective and through a particular linguistic style. We have the choice to carry on, or not: At this point, there aren't yet many sunk costs to weigh up. Nothing is committed; this is just trying out. Authors have many strategies for encouraging their readers to keep reading – arguably this is the only skill an author really

needs – and they are employed in every paragraph. But the stakes, we argue, are highest in the first, because the reader has so little invested yet. Some common strategies include plunging us straight into the action, confronting us with a mystery or a provocation, inviting us into a familiar and/or intriguing mind, setting a richly detailed or otherwise evocative scene, or some combination of the above.

The first paragraph of Kafka's third, final, unfinished novel *Das Schloß* (henceforth *The Castle*; written in 1922–24, posthumously published 1926) doesn't very convincingly do any of these.

Es war spät abend als K. ankam. Das Dorf lag in tiefem Schnee. Vom Schloßberg war nichts zu sehn, Nebel und Finsternis umgaben ihn, auch nicht der schwächste Lichtschein deutete das große Schloß an. Lange stand K. auf der Holzbrücke die von der Landstraße zum Dorf führt und blickte in die scheinbare Leere empor.

(Kafka, 1925/1982, p.7)

It was late evening when K. arrived. The village lay in deep snow. Of the castle hill there was nothing to be seen, fog and darkness surrounded it, not even the faintest glimmer of light hinted at the great castle. For a long time K. stood on the wooden bridge that leads from the country road to the village and looked up into the apparent emptiness.

(ET's translation)

The scene-setting has some evocative mystery to it, but a scene isn't really set. We get five items: a village, a bridge, a country road, and a hill with a castle on it (Figure 1). Two of them, the castle and its hill, are described only as being invisible because surrounded by fog and darkness. It's not much to go on. How does it strike you? Maybe the minimalism is a turn-off, maybe not. For one of us (ET), it feels like a frozen moment of anticipation and uncertainty, the firm ground of the wooden bridge poised against the only-possible castle above. For the other (JC), it communicates a sense of dread, like dipping your foot in the open ocean, not knowing what's lurking beneath.

What can we say about the effects of this kind of minimally determinate style beyond personal preference? In previous research (Troschianko, 2014a), ET proposed the concept of *cognitive realism* to get analytical purchase on the power of minimal visual descriptions like this one, arguing that if a text is cognitively realistic in its evocation of some aspect of human cognition, that may allow for a particularly direct appeal to be made to the reader. A text is cognitively realistic in a particular cognitive domain if its evocation of that aspect of cognition corresponds to the cognitive realities (as far as we understand them with the best available science), and cognitively unrealistic if it does not (for example, if it corresponds instead to common folk-psychological assumptions about cognition or about how cognition ought to be narrated). No value judgement is implicit in this realistic/unrealistic distinction; all texts include elements of both, and both have

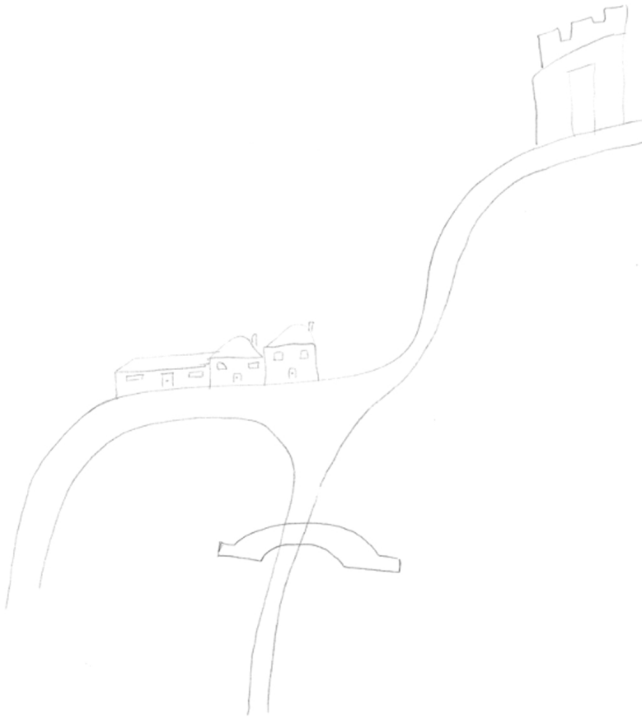


Figure 1. Descriptive minimalism in action

interesting and potentially powerful effects, separately and collectively. Cognitive realism is distinct from the aesthetic conventions of realisms/Realisms otherwise defined; indeed, “reality effects” created for example by 19th-century literary Realism may systematically privilege alignment with folk intuitions over the cognitive realities.

Cognitive realism can be investigated with respect to any author or genre and any cognitive domain, such as emotion (Troscianko, 2014a, Chapter 5) or memory (Troscianko, 2012, 2013). It offers a simple framework for placing scientific findings in direct dialogue with literary analysis, by allowing the workings of (a) readers’ minds, (b) readers’ intuitions about human minds, and (c) minds as evoked in the text to be analysed in concert. In the specific case of the visual imagination, or mental imagery in the visual mode, a large body of scientific research indicates that visual perception is action-driven, based on neural mechanisms that subserve reliable action guidance rather than prioritizing detailed and accurate representa-

tion of what is being perceived (Myin & Degenaar, 2014; Troscianko, 2013, 2014a). And because closely related neural and cognitive structures and processes are involved in visual perception and visual imagining (Reddy et al., 2010), the same principle applies for imagery: Having mental imagery is not consulting a mental screen on which detailed and comprehensive images are projected. This conclusion is not uncontroversial for mental imagery (Pearson & Kosslyn, 2015), but there is plenty of evidence in its favour (Clark, 2016, pp. 94–98; Foglia & O'Regan, 2016; Thomas, 2014; Troscianko, 2013, 2014a). Nonetheless, our intuitions may well tell us otherwise: Our folk-psychological models of how visual perception works tend to involve the brain building up a detailed and accurate representation of the world to guide reliable action, and likewise we tend to think (and talk) about imagining in terms of pictures in the head.

Given the substantial evidence for the non-pictorial nature of perception and the pictorial foundations of the folk psychology of perception, we are left with a disconnect between our best evidence about how our minds work and our instincts about how they do. This gap is illustrated by phenomena like change blindness, which has been subject to so much study (Simons & Rensink, 2005) largely because it is so surprising: We expect that big changes in a visual scene will jump right out at us, and often they simply don't. We have "change blindness blindness" (Levin et al., 2000), or blindness to the extent of our own blindness. This metacognitive error may contribute to the complexity of our responses to literary descriptions, and identifying it may therefore allow us to generate more precise hypotheses as to readerly responses than would be possible otherwise. For example, an author whose visual descriptive mode – i.e., their way of conveying what the fictional world looks like, and thereby prompting us to imagine it – is cognitively realistic can be expected to draw us in with the realism, the correspondence to how we perceive the world, but also to unsettle us by contradicting our beliefs about how we perceive the world. The combination may be more potent than either response in isolation.

Kafka tends to write in a cognitively realistic style when it comes to visual descriptions: The detail we are given is typically only that which is directly relevant to the protagonists' actions and emerges in a "just-in-time" manner as the character and therefore the reader needs to know about it. ET has argued in previous work (as cited above) that the dual cognitive effects this generates may be central to generating an effect of the "Kafkaesque," colloquial and formal definitions of which tend to foreground the same kind of "unsettling yet compelling" tension we can expect from any confrontation with our own metacognitive fallacies. The opening paragraph of *The Castle* is an excellent example of the principle that visual scene-setting has more cognitive realism if it conveys only the gist until more is needed. The hypothesis that this form of cognitive realism may

yield positive effects on reader engagement aligns with Kuzmičová's (2012) suggestion that increasing spatial description does not straightforwardly increase spatial imagery or presence, whereas references to object-directed bodily movement may heighten presence through first-person sensorimotor simulation. It is also supported by some empirical evidence, including Allington's (2011) finding that "too much 'describing' is grounds for negative evaluation" and often leads readers to simply skip over the description to get to something less boring (p. 323).

This opening paragraph is also a concise example of how to subtly destabilize narrative perspective. Like many Modernist authors, Kafka is known for his use of free indirect style. Like third-person narration with internal focalization, free indirect style uses the third person and past tense, but it is distinctive in removing explicit tags for speech, thought, and perception, and in adopting the idiom of the character's own thoughts, including for indicators of time and place (e.g., "She'd leave here tomorrow," rather than "She decided to leave that place the next day"). In the standard version of free indirect style, everything that is narrated is filtered through a single fictional mind, even while the grammatical forms suggest that someone else (a narrator) is voicing it. Kafka's version of the form, used in all three of his novels, introduces a distinctive variant on free indirect style: His version includes more or less frequent and subtle shifts away from the focalizing perspective, incorporating points of view that seem unavailable to and/or incongruent with the primary focalizer's (Troscianko, 2014a, pp. 187–195).

This passage is not unequivocally an instance of free indirect style, although it is the start of a novel that contains a lot of it. Here, the perspective could still be a simple case of zero focalization (omniscience) or external focalization (conveying only external information about the protagonist), were it not for the little phrase "the apparent emptiness." This throws everything subtly into question: On the one hand, we are given information that K. may or may not possess (that there's a castle hill there which he can't see), and on the other hand, we are aligned with his cognitive perspective by the situated specifics of his location and the direction of his gaze. This ambiguity makes it hard to know how to interpret "the apparent emptiness": Does it indicate knowledge on K.'s part that the emptiness is indeed only apparent, and that there really is a great castle there, or does the knowledge belong to another focalizer/narrator, omniscient or otherwise? Readers may or may not explicitly register this ambiguity and may or may not reach an explicit conclusion in response to it. Whatever they conclude or don't, the "apparent" nature of the emptiness gives the castle a strikingly layered "presence despite absence" and invites any number of mindreading games centred on the question "to *whom* is it (only) apparent?" These effects are arguably intensified by the present tense "leads," which is neutralized into the simple past tense in some published translations, but which gives the road (and by extension

the rest of the scene) a present reality that prevents it from being relegated into some vague and distant past. So, we have something between a third-person narration of external or zero focalization and free indirect discourse, and we would need to read more to find out which turns out to be more dominant.

Many claims have been made (perhaps most famously in Cohn, 1978; Pascal, 1977) about the capabilities and effects of free indirect style as opposed to the main alternatives (first-person narration of internal focalization [with direct speech/thought] or third-person narration of external or zero focalization [with direct or indirect speech/thought]). But a remark made 20 years ago by Willie van Peer and Henk Pander Maat (2001) still holds largely true for our “narrative intuitions, even our best narratological theories” today: “The problem with literary studies is that the given assumptions are usually vague and general – though often strong and unqualified – and have not been tested with real readers” (p. 24). Even the empirical work that does exist continues to be largely ignored in the mainstream of literary studies, a fact that is stuck in an unfortunate feedback interaction with the still patchy and inconclusive nature of the empirical evidence in most areas of literary response. Van Peer and Pander Maat also offer a more specific caution about narrative perspective: We should not assume that textual perspective is always processed by readers, nor that, if it were processed, it would necessarily always override other factors shaping readers’ interpretations, like knowledge, expectations, or reading goals.

These reminders are still worth heeding, since the evidence on processing of narrative perspective remains relatively limited and has generated mixed results. Early work in the 1990s showed that reading times increase when participants read a sentence that includes a shift in perspective, suggesting that readers do in fact incorporate narrative perspective into their mental models of the fictional world (Millis, 1995). Since then, generally speaking, the research conducted on narrative perspective in literary contexts has found differences between first- and third-person narration and/or internal versus external focalization, with first-person narration and/or internal focalization typically generating responses higher in qualities often considered desirable in readerly engagement. But the complexities and caveats are numerous. What follows is a summary of the main findings to date.

We begin with the findings supporting greater readerly engagement with internal focalization and/or first-person narration. In a 1996 study, van Peer and Pander Maat found a weak effect of increased sympathy for characters whose thoughts and feelings are internally focalized (with third-person narration). In a 2001 follow-up, they found that focalization affects readers’ interpretations of characters’ actions: Readers were more inclined to be charitable with an internal focalizer and to explain their actions with reference to situational rather than

dispositional factors (as we are inclined to do with our own behaviours). It was unclear, however, whether the focalization change affected interpretation of motives via increased sympathy for characters or vice versa, or affected both at once. Hakemulder (2000) also found that for one of the two short stories used in his experiment, internal focalization (with first-person narration) caused readers to attribute higher levels of morality to the I-narrator than did a third-person version in which focalizations were removed as far as possible. For the other text, however, Hakemulder later speculated that “the rewriting was not powerful enough to counterweight the ironic narrator” (Hakemulder & Koopman, 2010, p. 45). Hartung et al. (2016) reviewed a range of prior evidence suggesting that first-person pronouns may induce stronger and/or more flexible perspective-taking than third-person pronouns. Their study found that readers report higher immersion (transportation and mental imagery) in response to excerpts of internally focalized narrative narrated in the first person versus the third person, with levels of overall liking of the story unaffected by the pronoun change. Finally, Salem et al. (2017) concluded that a first-person condition and a psycho-narration condition (involving third-person omniscient descriptions of a protagonist’s subjectivity) were associated with a stronger feeling of being able to relate to the protagonist during reading than third-person narration of external focalization, whereas free indirect discourse was not. The highest proportion of *spatial perspective-taking* was observed in the psycho-narration condition (58%) and the lowest in the external focalization condition, with first-person narration and free indirect discourse falling between the two. No effect on identification was observed for any text condition.

On the side supporting greater engagement prompted by third-person narration, external focalization, or free indirect style, Bortolussi and Dixon (2003) reported on a study in which perspective and story roles were manipulated in a short story about a domestic argument, originally in free indirect style (pp. 230–235). They found that readers judged both protagonists to be more “reasonable and rational” when free indirect style was attributed to them, regardless of their gender and role in the story. More recently, Van Lissa et al. (2016) found that readers’ trust in a narrator may be affected by perspectival changes, and specifically that readers evinced greater trust in a third-person narrator (with internal focalization) than in a first-person narrator. Their interpretation of this finding is that the third-person authority validates the protagonist’s perspective whereas the first-person form brings out readers’ ambivalence, suggesting that, in general, attributions of motives and authority are malleable (and subject to bias) in textual engagement just as they are in real-world interactions. Hakemulder and Koopman (2010) found that readers of a free indirect version of a full short story (originally with an omniscient third-person narrator) reported higher visibility of the main

character's thoughts and feelings than readers of the original, but in general the effects of the perspective manipulation on sympathy, understanding, and moral judgement were less pronounced than expected.

Finally, a study investigating questions relevant to our converging interests here in narrative perspective and descriptive detail (Kotovych et al., 2011) found that free indirect style, creating a closer narrator/character association than other forms, prompted readers to attribute their own knowledge and experience to the character as well as the narrator, and that this attribution was obstructed in third-person narration of zero focalization. They also found (using a first-person narrative) that the more that was left implicit about a narrator's mental life, the more likely readers were to attribute their own knowledge and experience to the narrator. This suggests the perhaps counterintuitive conclusion that having to do more of the cognitive work of attributing and inferencing makes readers judge a fictional character to be more, not less, clear and understandable:

The result [of leaving more information implicit] is that the narrator's thoughts and behavior are easier to appreciate and understand. Paradoxically, this result occurs even though the implicit version of the text would seem to provide less information on the surface than the explicit version. Rather, it provides hints and clues without elaborating on any details. (Kotovych et al., 2011, p.273)

Thus, overall the hypothesis that narrative perspective is actively processed by readers seems borne out by the evidence, and internal focalization and free indirect style in particular seem to be engaging readers in interesting ways. This makes sense if we consider that free indirect style is as close to an intimate "first-person" effect as can be achieved in the third person. But the effects of these and other perspectival forms are hard to draw confident generalizations about.

In this experiment, we investigated the interactions between descriptive style and narrative perspective in the opening paragraph of Kafka's *Castle*, specifically whether and how a change in perspective changes how readers respond to the descriptive style. As we noted earlier, this passage is remarkable for how little it gives the reader in terms of descriptive detail: The only thing that is said about the castle, which the title may have primed us to care about, is that it (or rather the castle hill, the *Schloßberg*) cannot be seen. What does this level of abstraction mean for readerly engagement? To what extent is the castle a cognitively salient presence for readers, and what other forms of imaginative elaboration does the description make available to readers as they read? What is the role of narrative perspective, if any, in determining the perceptual perspective from which the scene is imagined, as well as the overall degree of imaginative elaboration and the salience of specific visual elements?

The creation history of this passage offers a natural mandate for asking questions about perspectival effects, since Kafka originally wrote it in the first person. After attempting a few chapters in which the protagonist was “I,” Kafka then went back to the beginning and converted the draft into a third-person narration, often with free indirect style. Other manuscript changes made at the same time or after the I/K. revision suggest various reasons why Kafka may have wanted the greater latitude of the third-person form: for example, a broadening of focus from a single self onto other characters; shifts from “being” to “seeming” with reference to K.’s manner; and inclusion in descriptions of K. of judgements he might not have applied to himself (Cohn, 1968, pp. 43–45). In general, we can infer, from the simple fact of Kafka having made the alteration, that something about the original choice was preventing him from achieving the effects he wanted. This discrepancy may well have been salient to Kafka from the opening onwards; certainly, the paragraph reads (to us) rather differently with “I” as its subject:

It was late evening when I arrived. The village lay in deep snow. Of the castle hill there was nothing to be seen, fog and darkness surrounded it, not even the faintest glimmer of light hinted at the great castle. For a long time I stood on the wooden bridge that leads from the country road to the village and looked up into the apparent emptiness.

This experiment was designed to pin down the nature of this difference, via an investigation of its effects on readers who are not us. It was also conducted to pilot methods for investigation of readerly responses in the field of cognitive literary science more widely.

We use Kafka’s novel as a case study to trial potentially useful methods for the field, showing the payoffs they can offer for enhanced understanding of specific authors and texts (which has always been one of the priorities of traditional literary studies) while also road-testing their capacity to generate insight into the features of literary construction and response that span historical and genre divides. Arguably, our focus on Kafka reproduces the fetishization of specific authors and works that gives, say, White male Modernists disproportionate prominence. Canonical authors can, however, be a useful testbed for innovative methods since they offer a chance to draw on the wealth of existing critical apparatus that would be lacking for an under-recognised author, as well as having a better chance of encouraging researchers who use primarily theoretical methods to engage with empirical methods and results. The defining feature of most experiments is that they investigate something highly specific in the attempt to shed light on something bigger, and this one is no exception.

Hypotheses, methods, measures

Hypotheses and research questions

For this study, we operationalized our general research questions – how does minimal description guide readers’ visual mental imagery at the opening of this novel, and how does narrative perspective (instantiated via pronoun choice) affect the way it does so? – in the form of three specific experimental hypotheses and one exploratory research question:

1. Hypothesis: The castle is more likely to be included in readers’ depictions of their imaginative experience in response to the first-person condition.

We predicted that the third person would be less likely to encourage readers to interpret the textual information about the castle’s existence-despite-invisibility as part of K.’s own knowledge. They would therefore be less likely to draw the castle because the epistemological status of the castle would be more uncertain, hence its existence less readily assumed. In the first-person version, by contrast, the existence and significance of the castle would be more likely to be interpreted as aspects of K.’s perspective on the fictional world: After all, it is me, K., who knows that the emptiness up on the hill is only “apparent.”

2. Hypothesis: The protagonist K. is less likely to be included in readers’ depictions of their imaginative experience in response to the first-person condition.

Our prediction was that the third-person form would, relative to the first-person form, be less likely to encourage readers to identify with K. They would therefore be more likely to draw K. because they would be imagining him from a perspective that is not his, rather than “seeing through his eyes.”

3. Hypothesis: Entropy is higher in readers’ depictions of their imaginative experience in response to the third-person condition.

By making knowledge of the castle and the wider environment less certain, the third-person perspective should result in less distinct, more unpredictable representations as participants try to portray an inherently ambiguous scene.

4. Question: What can we learn from readers’ verbal testimony on the differences between their imaginative experience and their pictorial depiction of it?

We saw in the Introduction that questions of literary interpretation like those animating the present study can be and have been engaged with via standard experimental methods designed for other purposes. However, experimenting with literary materials often presents problems that existing methods are not yet

adequate to resolve, and part of our aim here is to address this state of affairs. At the most general level, the methodological challenges derive from the complexity of both textual stimuli and reader responses.

Looking first at textual stimuli, the primary problem still facing empirical literary studies is the problem of presenting texts that have ecological validity and also satisfy the demands of experimental rigour. Van Peer and Pander Maat (2001) offer a useful characterization of this issue when discussing the opposition between *reliability* (in empirical literary studies often involving constructs that are precisely defined, and texts that are short and specially constructed) and *validity* (involving constructs that have rich theoretical backgrounds, and texts that people might actually want to read). Emphasising either of these characteristics at the expense of the other can result in studies that are not rigorous enough to convince the scientist or nuanced enough to persuade the humanities scholar, or both. As we explain below, the choice of the opening paragraph from *The Castle* as our textual stimulus avoids this problem.

The second issue – that of reader responses – is less easily resolved. Primarily, this is because it activates the distinction between “qualitative” and “quantitative” methods and entrains the problems specific to both. On the quantitative side, the numerical precision provided by quantification is extremely valuable for hypothesis testing but is typically achieved using blunt tools like rating scales, which predetermine the dimensions that participant responses can take. Conversely, qualitative methods, which typically involve interpretation of participant-generated linguistic data on responses to a text, may be sensitive to the idiosyncrasies of those data but lack any principled way of assessing whether these are objectively present or merely a reflection of the analyst’s subjective convictions. While these complaints are nothing new, their ubiquity does not seem to be matched by corresponding energy in coming up with innovative responses. Our aim here is to dismantle the quant/qual divide – at least as it pertains to participant responses in cognitive literary science. Below, we show how methods from information theory and natural language processing allow us to strike a middle ground between the too-many degrees of freedom implicit in qualitative analysis and the too-few associated with traditional quantitative approaches.

Participants

Eighty-two participants took part (56 female), with an age range of 18 to 62 ($SD=11.3$; $M=27.6$). Participants were recruited as part of a larger study investigating literary responses using reading research methods. Thirty-eight participants read the published version of the opening paragraph (in the third person /free indirect style), and 43 read the original manuscript version (in the first per-

son), both in English translation. One participant was found to have taken part twice, and the second response was discarded, leaving 81 responses.

Procedure

After reading an information sheet and giving informed consent, participants provided basic demographic details and then read on paper the text excerpt, presented as “a translation of the opening paragraph of Franz Kafka’s novel *The Castle* (*Das Schloß* in the German original).” After reading, participants were invited to turn over the paper. On the next page, they were given the following instruction:

Please draw as accurately as you can the image conjured up in your mind by reading this text. Use the space below, and don’t worry about creating a beautiful picture; we’re interested in the imaginative experience the text creates. Feel free to look back over the text if you need to, but try to draw what the text spontaneously makes you imagine.

After finishing the drawing task, participants turned over the paper again to answer three further questions:

1. Have you read the novel before?
2. Have you read any novels or stories by Kafka before?
3. Do you feel that there are any differences between what you imagined and what you drew? [“Yes” or “No, my drawing is a relatively accurate rendition of my imaginative experience.”] If participants answered yes, they were invited to “please briefly describe the difference(s) between what you imagined and what you drew.”

Test material and independent variable

The test material was the opening paragraph of *The Castle* and narrative perspective (instantiated via pronoun choice) was the independent variable. In the test condition, participants read Kafka’s revised (third-person) version, while the control group read his original (first-person) version.

Presenting the first paragraph as the test material offers two advantages. Firstly, it can be read in isolation without loss of ecological context. Literary texts, more than most, depend on thematic and symbolic connections that link otherwise separate sections of text; given that these are only newly activated in an opening paragraph, the totality of the reading experience can therefore be captured (allowing that subsequent paragraphs will drastically reframe this experience in

normal reading). This method makes a long novel amenable to empirical study via an ecologically valid choice of short excerpt.

A second advantage is that the differences between the two conditions are congruent with the writer's choices. For good reason, the use of "textoids" – simplistic, unappealing text fragments created by experimenters for the sole purpose of testing their hypotheses – has been criticised in empirical literary studies. In response, experimenters may use original texts but make changes to them to create control versions. Such changes are often arbitrary (why change this aspect and not another?), have low controllability and unintended cascade effects (does this change affect what you intended it to, and only that?), and/or usurp the author's prerogative (can two texts actually be versions of the same thing if the author has not sanctioned both?). Emotional objections to desecration of literary artefacts are often implicitly or explicitly at play here too: Tinkering with a masterpiece can elicit surprisingly strong reactions, especially from scholars in mainstream literary studies. By contrast, manipulations that are not the experimenters' but the author's have an intrinsic validity: The author wanted to achieve an effect (regardless of how knowable that effect was for the author or is for us now) and thought this change would help achieve it. Speculating on authorial intentions is always fraught with complexities, and those intentions are bound to include mixtures of more aesthetic and more pragmatic factors. But a prior version of a text that was later published in a different form offers a readymade matched-pair structure that is invaluable for empirical investigation and indicative of a generative process that resulted in the version that is familiar to us. They may not represent any kind of ultimate endpoint – in Kafka's case, all three of his novels were left unfinished – but it does give us a helpful foundation for a/b testing against one of its precursors a variant that led early critics to coin the term "Kafkaesque" (Troscianko, 2014a, pp.35–36). For these reasons, we argue that the opening paragraph of *The Castle* functions as a meaningful test material and its authorially generated variants as a robust independent variable.

Dependent variables

The main methodological innovations of the present study are in the choice of dependent variables. At all points, our aim was to provide participants with the freedom to articulate their own responses to the textual manipulation but in a way that was rigorously quantifiable. The dependent variables chosen were as follows:

Dependent variable 1: Local drawing features

Drawing offers several benefits in the current context. Firstly, a drawing offers a way of answering our question about imaginative salience (is the castle present in

readers' minds as a visualized entity or not, and is this affected by the narrative perspective?) and our question about imaginative perspective (where do readers place themselves when imagining the scene, and is this affected by narrative perspective?). A drawing answers these questions without prompting participants to attend specifically to those features and hence comes with a lower risk of biasing their responses: A perspective must be chosen, and a castle drawn or not drawn, regardless of a participant's beliefs about the experimenters' intentions. The explicitness of these aspects of response contrasts with the open-ended verbal response format, where equivocation and ambiguity can make it difficult to classify a participant's response in an empirically useful way. The drawing method also offers the potential to probe for both binary and scalar features of stylistic choice: A castle must be either present or absent, and if present, it must be evoked in ways that are in turn either scalar (e.g., size), or binary (e.g., presence or absence of specific subfeatures like door or arrow slits) (Figure 2). Precedents for our approach can be found in the psychiatric literature, where the presence/absence of features is sometimes used to interpret patients' mental states. For example, one psychiatric measure of attachment security requires respondents to draw a bird's nest, which is then analysed to provide insights used to inform art therapy treatment (Kaiser & Deaver, 2009). One highlighted benefit of this method as an alternative to direct questioning is the thematic obliqueness: Respondents are depicting a common image that is neither directly threatening nor anxiety-provoking, nor subject to obvious experimenter demand effects; that is, they are not being asked to draw their family. Another is the combination of binary and scalar features of stylistic choice: Any given instance of the bird's-nest prototype can be probed for yes/no features such as "the absence or presence of nurturing figures" or "baby birds drawn or omitted," as well as for non-binary choices like "the contents of the nest, the physical nature of the nest form, [...] and the fate of eggs" (Kaiser & Deaver, 2009, p.27). In a more recent investigation of adolescents' sleep patterns in residential care facilities (Roth et al., 2019), a more direct "self-figure while sleeping" task was used. Four indicators were scored on a binary yes/no scale ("peaceful facial expression," "monochrome," "presence of other people," "boundary") and one on a continuous scale ("size of figure"), and qualitative analysis of accompanying verbal narratives was also performed. The "boundary" indicator was found to be associated with a specific visual perspective (viewing the self from above). This combination, as well as monochromatic colours, were more common amongst participants in the test group than in the control group of adolescents living at home, and correlated with a stronger theme of exclusion emerging from the linguistic narratives. Meanwhile, in a literary rather than psychiatric context, several researchers have used picture-based methods to investigate readers' visuospatial perspective-taking (Bryant, Tversky,

& Franklin, 1992; Salem et al., 2017; Sato et al., 2012). Salem et al. (2017) provided participants with diagrams on which to mark a cross for the position from which they had imagined the scene and an arrow to indicate their viewing direction (they also used standard rating scales). A classic body of research on situation model construction involves asking readers about the locations of objects mentioned in the narrative and measuring response times to ascertain the perspective they have adopted. For example, Bryant, Tversky, and Franklin (1992) investigated readers' adoption of internal versus external perspectives on narrative scenes by having participants read narratives describing a scene and selecting the correct locations of objects mentioned in the narrative. When an internal perspective was given, response times to "front" questions were faster than to "back" ones. This also offers a method of determining what perspective a reader has adopted when the textual perspective is unspecified.

As noted at the start of this section, we tested two predictions with respect to participant responses on a drawing measure. Both involved evaluating whether a discrete element (a castle, K.) was represented in a participant's response.



Figure 2. Binary (Y/N castle and K.) and scalar (e.g., height of castle hill) features and subfeatures in a pictorial representation of imaginative response

Dependent variable 2: Global image entropy

Although the presence or absence of specific features in a drawing is easy for a coder to reliably tabulate, the textual intervention may also impact on subtle stylistic features that are more difficult to quantify but could give equally important information about readers' imaginative responses. We used image entropy as the dependent variable to capture this subtle stylistic variation. Based on the information-theoretic concept of Shannon entropy (Krippendorff, 1986; Shannon, 1951), image entropy measures how predictable an image is: Images with low visual entropy tend to be self-similar across patches, while images that have high entropy consist of patches that are less likely to resemble one another. Image entropy can be calculated in several ways, but it was extracted here using the Haralick features module of the Mahotas image processing library for python. Haralick features are 14 image texture metrics that evaluate the ways in which one patch of an image differs from other patches (Haralick, Shanmugam, & Dinstein, 1973; Löfstedt et al., 2019), with entropy being one of these ways. As Haralick features are calculated using a grey-level co-occurrence matrix, they are particularly useful for hand drawings where colour is not an important feature (our participants drew in pencil).

As noted, our hypothesis was that the third-person condition would produce drawings with higher entropy than the first-person condition.

Dependent variable 3: Qualitative drawing analysis

The drawings can also be mined for a range of specific features and general characteristics that offer insight into the imaginative experience being depicted and the capacities and constraints of the pictorial form relative to those of mental imagery. In our Discussion section below, we offer a sample commentary on the major points of interest derived from our set of drawings.

Dependent variable 4: Word embedding clusters for free text responses

Some of the hardest kinds of data to subject to robust statistical analysis are free text responses. Even highly structured experimental conditions can produce large variations in how participants express themselves, making it difficult to manually extract thematic patterns in a way that does not primarily reproduce the subjective biases of the analyst. A better solution involves multiple analysts (potentially blind to the experimental design and hypotheses) independently coding responses in accordance with a set of predefined or collectively generated categories. Still, this arguably imposes a top-down structure on the data and multiplies subjectivities rather than addressing the problems they create.

Our solution involved using methods from natural language processing (NLP) to extract thematic clusters from participants' free text responses. Specif-

ically, a corpus of the words used in these responses was created using a custom function from the spaCy NLP library for python. This involved tokenizing each text into words, removing stop words (e.g., “to,” “from,” “for,” “the,” etc.), and lemmatizing the remaining words into their root form (i.e., “drawing,” “drew,” “draws,” all reduced to “draw”); the result was a vocabulary of 294 unique words. A word-embedding vector was extracted for each word using spaCy’s large pretrained model for English, which was trained on a large variety of sources, including telephone conversations, newswire, newsgroups, broadcast news, broadcast conversation, weblogs, and religious texts. At the most general level, a word vector captures the associational patterns that attend a word’s use across many examples: Words with similar vectors will, on average, tend to co-occur with the same words. Word embeddings are therefore very useful for identifying the ways in which words cohere into larger groups of words with similar meanings. Specifically, because word vectors are geometric objects, the distance between them as well as their relative orientation can be measured; these measures can therefore be used as numerical proxies for semantic relatedness. We performed clustering on the distances between word embeddings using the agglomerative clustering module in scikit-learn, the machine learning package for python. In this instance, each word corresponded to a 300-place vector, which is the default value for the spaCy model (the figure of 300 is arbitrary, and word embedding vectors can exist in any number of dimensions). Because the clusters that emerged from this process are not the product of subjective pattern matching, they offer a useful alternative to purely qualitative methods performed by individuals or groups of individuals. Finally, we measured how heavily each participant weighed on the extracted clusters by constructing a probability measure that recorded the likelihood that the words used by the participant would belong to a given cluster.

Results

Drawing measures: The castle and K

Overall, 42 of the 82 participants (52%) drew the castle (e.g., Figure 3a); 39 did not (e.g., Figure 3b). Sixty (74%) drew K. (e.g., Figure 2); 21 did not (e.g., Figure 1). Logistic regressions were performed to test whether reading the text in the control or the test condition predicted depicting the castle or K. As there are plausible grounds for assuming that previous exposure to Kafka could affect responses, this variable was controlled for by including it in the regressions. (Since only four participants had read *The Castle* before, this variable was discarded in favour of the more general question of whether the participant had

read Kafka before, which 21 had.) The only relevant model assumption when exclusively categorical independent variables are used – absence of substantial multicollinearity – was tested by way of a correlation matrix and found to be satisfied ($r=0.126$). For inclusion of the castle, the relation between variables did not challenge the null hypothesis that presence or absence of a castle and text condition are independent ($\chi^2(1, 81)=-1.54, p=.122$). Inclusion of K. was also found to be independent of textual condition ($\chi^2(1, 81)=1.55, p=.11$). Likewise, this meant the null hypothesis that the variables are independent (i.e., that the textual intervention produced no effect) could not be rejected. (See Figure 4.)

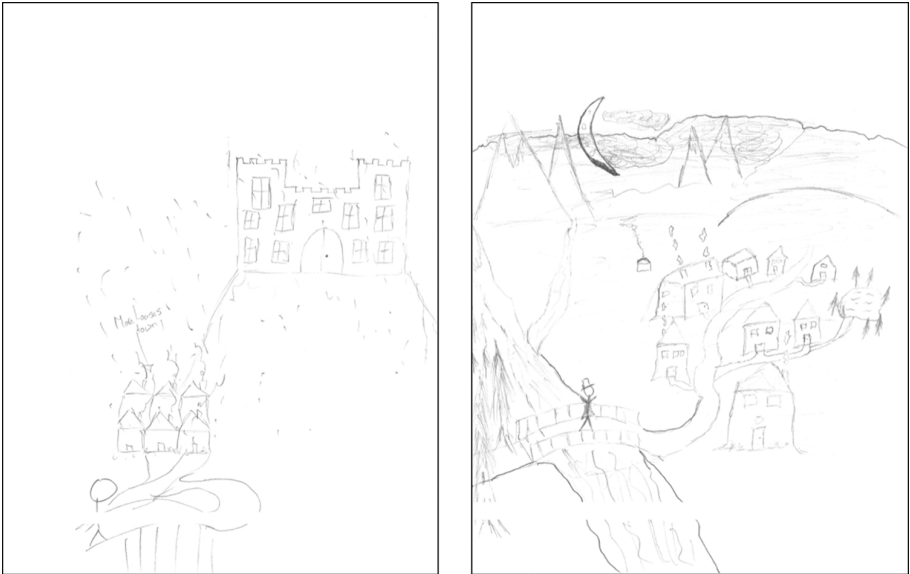


Figure 3. Images including (a) castle and (b) no castle

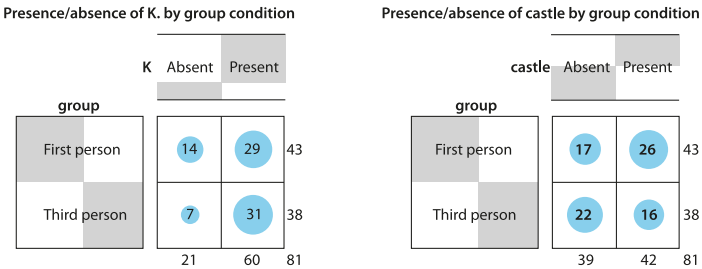


Figure 4. Participant drawings of a castle or K. by experimental condition

Given the possibility that interpersonal reader variables may affect responses in interaction with text variables, logistic regressions were performed to test whether age or sex predicted performance on the castle and K. variables. Model assumption of linear relation of continuous IV (age) to log-odds of the DV was evaluated by visual inspection and found to be acceptable. Logistic regressions of Castle and K. on sex and age showed there was no effect of sex on the likelihood of drawing either a castle or K. ($\chi^2(1, 81) = -0.628, p = .53$; $\chi^2(1, 81) = 1.078, p = .281$). Although there was no effect of age for K. ($\chi^2(1, 81) = -0.031, p = .151$), age negatively predicted the likelihood of drawing a castle at a statistically significant level ($\chi^2(1, 81) = -2.09, p = .037$) (i.e., older participants were less likely to include the castle in their drawings). Previous experience of reading Kafka was excluded from the outset as an independent variable in the regressions due to high multicollinearity with age: Older participants were more likely to have read Kafka due – presumably – to greater reading experience ($\chi^2(1, 81) = 2.13, p = .033$), meaning variables were not independent.

Image entropy

Entropy was regressed against experimental condition while controlling for previous exposure to Kafka. (“Controlling for” here meant allowing for the fact that previous exposure to Kafka may be responsible for some of the variation in language use and then assessing the effect of experimental condition. In effect, the impact of the exposure variable was accounted for and then removed from assessment of the impact of experimental condition.) As the data for entropy were skewed, a log transformation was applied to ensure that the distribution of errors satisfied model normality assumptions. No statistically significant differences were found ($\beta = 0.09, t(78) = 0.55, p = .58$) (Figure 5). Figure 6 shows the single highest and lowest entropy images across both conditions.

As our prediction for entropy was also consistent with there being greater variability in entropy in the test condition as well as entropy being overall higher, we tested whether the difference in spread was significantly different between the two conditions. As is recommended for heavy-tailed distributions (Brown & Forsythe, 1974), we used Levene’s test for inequality of variances on the trimmed mean of each distribution. (At kurtosis values of 6.27 and 7.57 respectively, Group 1 and Group 2 are heavily skewed according to the criteria set out in Bulmer [1979] – i.e., a kurtosis value of less than -1 or great than 1 .) Levene’s test gave a test statistic of 10.64 at a significance level of $p = .001$. This counts as evidence against the null hypothesis that both samples came from the same distribution.

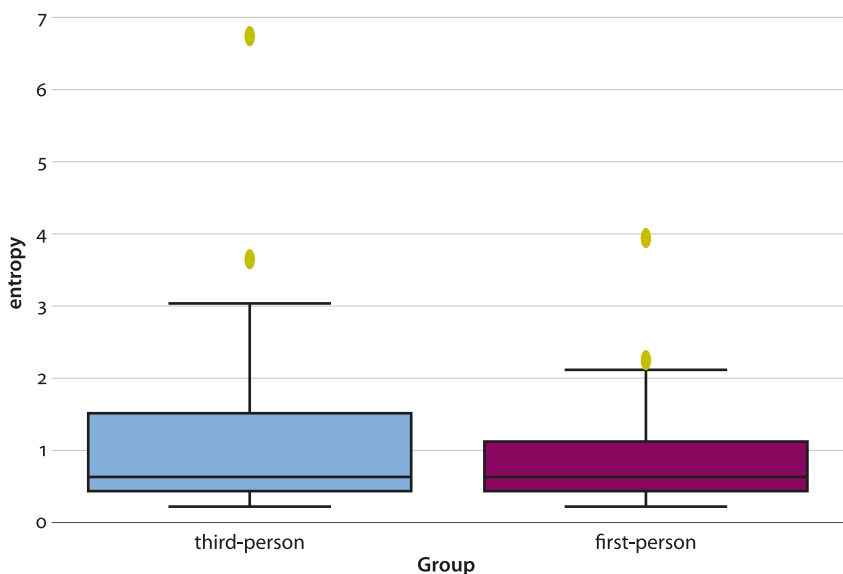


Figure 5. Distribution of entropy values in the two experimental conditions. The line through the coloured box is the median value of entropy in each condition. Note that the lower 50% of the data is compressed in a smaller range of values than the upper 50% for both distributions, which is responsible for the kurtosis (skewness) in the data

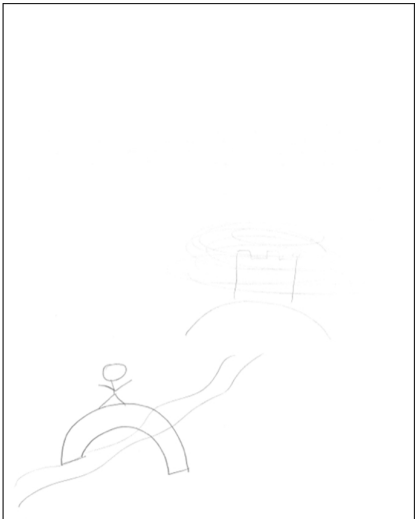
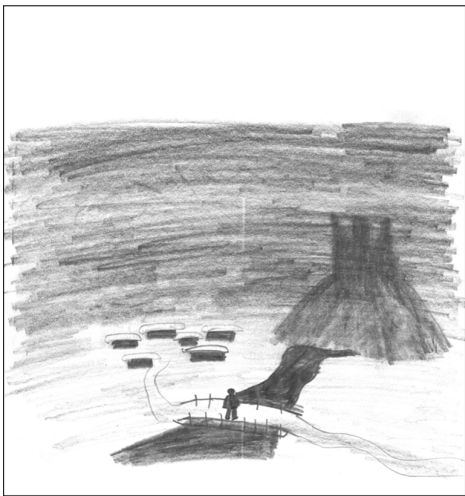


Figure 6. Images with (a) maximum and (b) minimum image entropy. Entropy is minimized in 6b due the highly predictable nature of the image: Much of it is a uniform background colour where one patch predicts another. This contrasts with the smearing of grayscale tones in 6a, which, at the granular level, is not self-similar in the same way

Cluster analysis of free verbal responses

Fifty-six participants (69%) reported differences between what they imagined and what they drew, and their written descriptions of the differences were subjected to cluster analysis as described above. Across trials, the optimum number of clusters converged to three, which were identified using a Euclidean distance measure and a Ward linkage. (Ward linkage merges clusters only when the new cluster represents the minimal increase of within-cluster variance relative to all possible new clusters. Euclidean distance was used in preference to the more usual cosine distance because the clustering results showed more thematic coherence than the clusters generated by cosine distance.) Figure 7 shows the results of the clustering projected into two-dimensional space by way of a principal components analysis – note that this has illustrative value only, as compressing 300-dimensional word embeddings into two dimensions causes severe distortion.

Investigation showed that the three emergent clusters could be represented as (a) scene-setting/perception (e.g., castle, village, mountain, water, ice, darkness, snowy, mist, sky, beautiful, wooden, black); (b) mood/atmosphere (e.g., bewilderment, loneliness, forebode, peacefulness, oppress, obliterate, muffle, loom); and (c) aesthetics, often relating to drawing ability or success (e.g., accuracy, difficult, explicit, depict, struggle, illustrate, distinguish, relatively, vary, close, capture, scale, perspective, realistic, powerful, useless, artistic). Although the word clusterings emerged algorithmically, it should be noted that the thematic assessment of the clusters is driven by human judgement. We then measured how much a participant's response loaded onto each of these categories by constructing a probability measure. This measure gave the probability that, if a word was randomly selected from a participant's response, it would belong to a given cluster. Naturally, if a participant used a lot of a words from a specific cluster, the probability would be high that a randomly selected word would come from that cluster. The result was that each participant could be associated with a triple of values, where each member of the triple expresses how strongly their reply loads onto one of the clusters.

A regression was performed to ascertain whether the two experimental conditions produced differences in how likely participants were to use language associated with specific clusters, controlling for previous exposure to Kafka. This operation showed no differences between groups. However, trend-level results for Cluster 2 ($\beta=0.04$; $t(59)=1.99$; $p=.051$) warranted further investigation. Partitioning the sample into participants who had previously read Kafka and those who had read no Kafka before showed a significant effect of group condition on Kafka-naïve participants by way of a Mann-Whitney U test ($N=60$; $U=148.5$; $p=.02$). (Partitioning involved removing entirely *all* the participants who had previously read Kafka, allowing effects of manuscript change to be evaluated specifi-

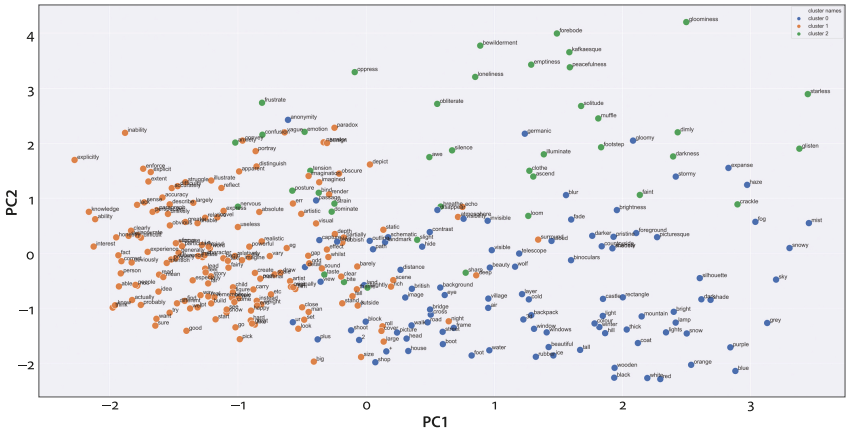


Figure 7. Two-dimensional projection of results of cluster analysis by way of two principal components (PCA1 and PCA2)

cally for the Kafka-naïve subpopulation of participants. A Mann-Whitney test was used in preference to an independent samples *t*-test because the data for Cluster 2 were non-normally distributed.) In other words, participants who had never read Kafka were more likely to use language from the mood/atmosphere cluster.

Discussion

What can we learn from readers’ drawings of their imaginative experiences while reading literature? Taking the first paragraph of Kafka’s *Castle* as a case study, we attempted to strike a constructive balance between sensitivity and rigour in our analysis of the drawings plus participants’ open-ended verbal descriptions of differences between their drawings and their mental imagery. Here we provide some qualitative analysis of the drawings created by participants and review these and our other findings in light of broader considerations about textual and mental imagery, narrative perspective, cognitive realism, and other text-reader variables in encounters with narrative.

The drawings

From a simple count of drawing features across both groups, we see that 74% of participants drew the protagonist K. and 52% drew the castle on its hill, often in a lot of detail (e.g., Figure 2, Figure 3a), despite the text describing it as invisible. The proportion of participants who drew the castle or K. did not vary significantly

across conditions (i.e., it was unaffected by narrative perspective as mediated through first/third-person pronoun change). Entropy levels were also unaffected.

The roughly 50/50 split overall for inclusion of the castle result suggests that the level of descriptive detail or salience is balanced neatly between forces tending towards making the castle visible and those making it invisible, and that the change in narrative perspective does not significantly affect this balance. Since the explicit description reads only that the castle hill cannot be seen, this suggests either (a) that textual cues to salience (making the castle “worth” imagining and drawing) are performing significant work here and/or (b) that the default is imagining rather than not (i.e., that a word denoting a feature in a visual description may function as a strong instruction to imagine, regardless of other instructions, e.g., “imagine as invisible”). Word order may play a role too: In the translation given to participants here, like in the German original but unlike in some of the published translations of the novel, the “castle hill” is mentioned before the information that it cannot be seen. This may contribute to cognitive-perceptual presence in a sense related to Alva Noë's (2004, 2005) notion of *perceptual presence* as a form of presence in absence. All typical experiences of perceptual presence involve more than we can see (e.g., the other side of the apple), and we experience this presence in absence by virtue of the sensorimotor availability of the concealed elements: our knowledge of the contingencies mediating between action and perceptual input should the percept or I the subject move in a certain way. The feeling that the castle is here, existing, waiting to emerge from the fog and darkness should circumstances change or should I/K. manage to get close enough to it, becomes a major part of the novel's superstructure, and it is prefigured here in an immediate perceptual sense: Right from the start, absence is strikingly inherent to the castle's presence.

The drawings can, of course, be visually inspected for other clues to the nature of the imaginative experience that are not directly captured by the entropy measure or the two present/absent features (the castle and K.). Degree of homogeneity or otherwise in the depictions of castles bears on the question of cultural/aesthetic influences. For example, 22 of the 42 castles drawn included crenellations (e.g., Figure 3a), which thus seem to have the status of a prototypical castle feature (arrow slits, ivy, and other characteristics also recurred but were less ubiquitous). Sixty-one drawings included representation of a bridge (not always portrayed with K. on it, e.g., Figure 1, even though if the entire bridge is visible K. logically ought to be). Eleven participants included trees in their drawings (e.g., Figure 2); these may be an example of a peripheral scenic feature that could be used as a quantitative proxy for overall detail.

K. was represented in a wide range of ways, from stick man to disembodied profile of face and shoulder to full shaded figure, and with varying outfits and

accoutrements (e.g., Figure 2): e.g., rucksack, suitcase, briefcase, or other bag; hat (including one wide-brimmed and two top hats), cape, and hair of various lengths. In one case, K. was depicted in the form of a large three-dimensional capital letter K shown from the side and wearing a hat and shoe (Figure 8a). These choices may reflect cultural norms as well as artistic confidence. All but two drawings depict K. as apparently male. Six participants included labels (e.g., Figure 3a) for parts of their drawings (one meta-labelling these as “labels for bad drawing”), and one participant’s drawing was entitled “The story expressed pictorially as a Venn diagram” (Figure 8b). In some other cases too, labels were a clear response to the invisibility problem (e.g., those for “darkness” and “snow,” as well as one attached to an arrow pointing to a blacked-in rectangle, stating “Solid black, if i could draw it that way... and should cover the whole page”). (See Figure 8c for a different solution to the snow problem, and 8d for a response to the darkness problem.) The fact that 28 of the 60 K.s were stick figures, but no one specifically mentioned having wanted to convey more physical detail about K., may reflect the indeterminate “everyman” status of K. (epitomized in his lack of more than an identifying initial): The specifics of his physical incarnation are beside the point. And although many participants described atmospheric elements they were unable to convey in their drawings (see below), only one described the mood specifically as a feeling of K.’s: “I suppose the big difference is the sense of bewilderment or confusion, or even awe, that I felt K had when standing on the bridge – this, I could not draw!” (But see Figure 8e for an illustration of K.’s emotional state by a different participant.)

The visual angle from which K. is depicted gives us further information about the participants’ specific imaginative experiences. Although in some cases (e.g., with stick figures without facial features or accessories) perspective cannot be reliably established, in none of the drawings was K. evoked from a top-down bird’s-eye perspective, and the most common angle (in roughly 25% of the drawings that included K.) was from behind or behind and to the side (e.g., Figure 9a), with a side view the next most common angle, followed by a view from the front. This supports the idea that free indirect style (or any perspectival structure in which character and narrator are aligned but non-equivalent) has a similar effect to the “point-of-view” shot in film, where what a character sees is shown along with part of their body (e.g., a shoulder or part of the back of head or profile) (Walton, 1990, pp.378–379). One methodological caveat is that six participants indicated that their imagined and drawn perspectives did not align: “I imagined each building to be closer and larger when I read it. I originally read the passage from my own perspective but drew from ‘K’’s perspective.” (See Figure 9b for an example of an interesting spatial and temporal perspective on K.’s presence/absence.) However, we may infer that for everyone else, perspectival mis-

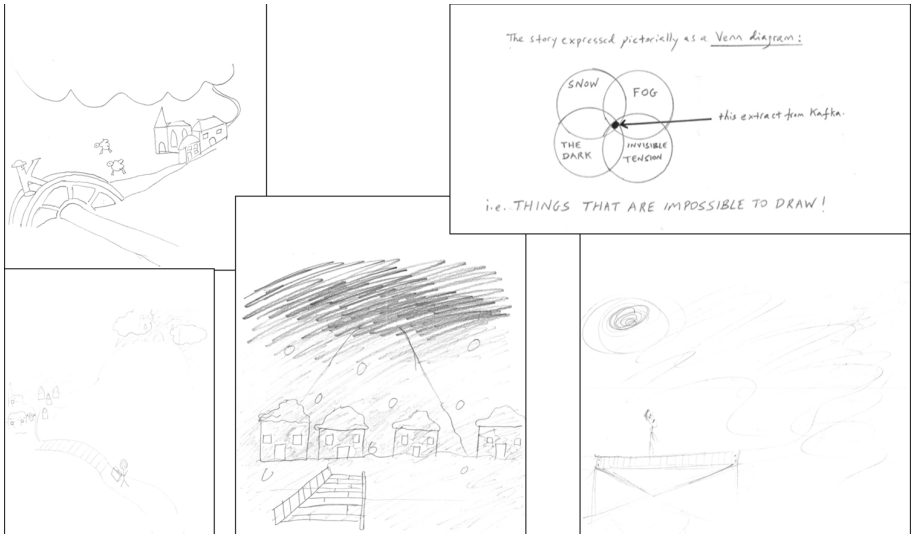


Figure 8. Pictorial variants on *The Castle* (left to right, top then bottom row): (a) K. as a K.; (b) a response to pictorial impossibility; (c) a response to the invisibility of snow (on white paper); (d) a response to the challenge of drawing darkness; (e) K. as physically minimal but emotionally expressive

alignment was not a salient factor in their assessments of drawing versus mental imagery. In future uses of this method, correlations between visual angle on a protagonist and other dimensions of response such as transportation into the narrative world, or empathy or sympathy for the character, could be investigated to establish whether visual angle is a reliable proxy for other forms of engagement. (See Figure 9c for an “immersive” example of perspective choice.)

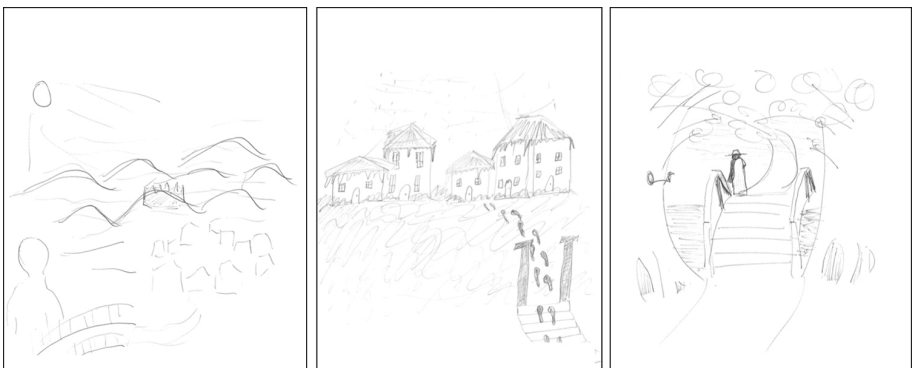


Figure 9. Pictorial variants on perspective: (a) an over-the-shoulder point-of-view shot; (b) K.'s presence represented through absence (via his footprints in the snow); (c) an immersive intradiegetic perspective on K

The verbal descriptions of differences between drawing and imagining

In the Introduction, we outlined evidence for the fact that the visual imagination is non-pictorial in nature, which may invite the question, Why did we ask people to draw, if mental imagery has important non-pictorial qualities (e.g., for indeterminacy and underspecification)? First, we have proposed that the drawing method offers a robustly quantifiable yet open-ended measure of the details of a perceptual response. Beyond this, in conjunction with a robust method for analysing participants' testimony on the differences between what they imagined and what they drew, it allows us to pinpoint the specific ways in which their drawings were pushing at the boundaries of what the pictorial form allows. As such, the drawings provide a strong *ex negativo* demonstration of the qualities of readers' non-pictorial imaginative experiences.

Correspondingly, the majority of participants (56 of 81, or 69%) stated that there were differences between their drawing and their imaginative experience. Our systematic analysis of participants' descriptions of these differences yielded three clusters: scene-setting/perception, mood/atmosphere, and aesthetics. Darkness, fog, and general invisibility (e.g., Figure 8c–d) were the most-cited reasons for differences between the drawn and the imagined scene, each receiving between 13 and 15 mentions. Drawing skill and depth or perspective issues (e.g., Figure 9) were both mentioned 13 times. Other factors mentioned less often included size/scale, colour, sound/silence, detail, realism, and the emotional or conceptual impression made by the text, as well as the castle paradox (see below). Very few participants explicitly mentioned that, when following the instruction to draw, they considered themselves to have been influenced by pictorial conventions to include features or other characteristics not present in their imaginative experience; almost all the details concerned things that were hard or impossible to draw. One mentioned that the imaginative experience had a film-like quality: "What I imagined was more like a shot from a film, in colour, in 3D, you could feel the oppressing clouds, it looked life like." But although cultural factors were likely at play in some respects, most participants were not aware of them in their assessment of the drawings' fidelity to their imaginative experiences. The exceptions include one participant who remarked that the drawn castle should have been "more British, less Germanic" (Figure 10a) and another who reported, "My imagined experience was much more vague. The detail in the drawing came partially from thinking about what such a scene would look like, rather than 'seeing' it in my mind's eye, at least to some extent." What such a scene "would" look like may be populated by imports from other versions of castles in snowy landscapes, some of them perhaps artistically mediated. A third participant specifically mentioned bias arising from having read the text before: "Knowledge of the novel's

atmosphere – Kafkaesque for want of a better word – and the relative anonymity of K may have had an effect on my image particularly of the man in the foreground (K) and the castle itself (not that I can remember many details of the castle from the novel).” As only four participants had previously read the novel, we could not reliably test for the effects of having done so. However, controlling for whether a participant had read Kafka before produced a significant result: While the 60 Kafka-naïve participants showed a group-level difference in their free responses with respect to the mood/atmosphere cluster (being more likely to use words in this cluster), the 21 Kafka-experienced participants did not. This suggests that reading experience makes a difference – specifically, that readers who anticipate a stylistic effect are insulated from it. Perhaps counterintuitively, coming to the reading of a text knowing what a “Kafkaesque” atmosphere feels like seems to make one less rather than more sensitive to it.



Figure 10. Variants on castles: (a) a too-Germanic castle; (b) a response to the “castle paradox” (imagining and/or drawing the castle despite knowing it to be invisible)

Amongst those participants who described differences between their mental imagery and their drawing, six identified the “castle paradox”: the fact that they had imagined and/or drawn the castle even though they knew it was invisible. They described the paradox as follows:

- “I imagined a castle but I know ur not meant 2 see castle.”
- “The castle is not meant to be visible, but I still imagined it.”

- “I imagined a castle and a hill in the background, even though the text clearly mentioned K couldn’t see anything because of the darkness and fog.”
- “I imagined the Castle on the hill surrounded by fog and snow, but because the narrator then went on to describe the fact that he looked into ‘apparent emptiness’ I did not draw the Castle.”
- “Err... It’s rather difficult trying to draw something that is explicitly stated to be invisible, but somehow dominates the paragraph and the village. Wasn’t sure how to portray a looming gap. So have gone for a schematic castle disappearing out of frame (yes that’s what it is) (honestly) Otherwise [no differences].” (See Figure 10b.)
- “Whilst reading I imagined myself in the snow and fog, straining through the darkness. But I also saw the dimly lit castle, which is a paradox alert (!) as I couldn’t have seen it had I been there.”

ET’s prior research has suggested that a central feature of the “Kafkaesque” is a convergence of opposites: a feeling of being, in the most general sense, simultaneously unsettled and compelled. Awareness of paradox, of being pulled imaginatively in two directions, is one possible manifestation of this; another is, of course, responding to a paradox without making it explicit to oneself. Probing participants specifically for direct or indirect markers of dissonance (e.g., through reading times or eye tracking, or more specifically through measures of compensatory responses to “meaning threat,” as proposed by Proulx and Heine (2009)) could shed further light on the dynamics of ambivalence that many literary texts induce in their readers. In this case, the six mentions of the paradox were split across the two groups, but our hypothesis would be that dissonance markers should be higher amongst readers of the edited version (i.e., the version of the text that Kafka had made “more Kafkaesque”).

The drawing method and the prompt to describe any differences between imagery experience and drawing output offer insight into numerous aspects of readers’ imaginative responses. In future, as one of our reviewers pointed out, the method could be enhanced by administering a simple quantitative measure of the drawing’s deviation from original experience via a Likert scale or a line bisection task to enrich the yes/no data with a scalar variance indicator. The potential for subjective bias in the cluster labelling protocols could also be reduced by use of one of the methods set out by Huth et al. (2016; supplementary information).

Reader versus text variables, and cognitive realism

Our three guiding hypotheses were that narrative perspective would affect (a) the visual salience of the castle in readers’ imaginative responses, (b) their visual

perspective on the protagonist, and (c) the degree of elaboration of their mental imagery. None of these hypotheses was supported. The visual salience of the castle did vary as a function of one state characteristic of the participants: age. However, linguistic perspective (specifically a heightened degree of perceptual/epistemological ambiguity as hypothetically created by the third-person pronoun) was found to have no bearing on the nature of the imaginative experience pictorially represented by participants with respect to feature salience or overall entropy. By contrast, the spread of entropy values in participants' responses to the third-person version was far greater than in response to the first-person text, which we interpret as an effect of interpersonal variation in ambiguity tolerance (more on this below). The only other detectable effect of the textual intervention was a difference in the participants' testimony on the differences between their drawing and their imaginative experience. Kafka-naïve participants reading the test condition (third-person pronoun) were more likely to use words belonging to the mood/atmosphere cluster (Cluster 2). This suggests that the effect of the textual change was to make emotional and atmospheric elements more salient – more Kafkaesque (“Kafkaesque” was in fact one of the words contained within this cluster) – in ways that were hard to convey pictorially, but only when the participants were not familiar with Kafka's work. The data therefore suggest that the changes made to the manuscript need to be evaluated with respect to prior expectations and experiences of reading and cannot be assigned a cognitive impact independently of the person who is doing the reading.

The support for the null hypothesis in the three hypothesis-driven findings presents a discrepancy with most literary-theoretical assumptions about the directness with which linguistic perspective translates into cognitive-perceptual perspective, and with some of the existing empirical results suggesting that narrative perspective (including first/third-person pronouns and free indirect style in particular) has specific effects on variables including sympathy, perspective-taking, and immersion. However, indications that text variables may have less power than is conventionally attributed to them can be found in some previous empirical studies. Van Peer and Pander Maat (1996), for example, found that heightened sympathy in response to internal focalization was manifest only amongst a group of 15-year-old readers, with no effect found for a sample of 17-year-olds. Hakemulder and Koopman (2010) concluded from the first two of the studies they presented that “[W]hat is striking about these results is the lack of effects for our text variable. We do find that the manipulation affected responses, but not to the extent that narratology would lead us to expect” (p. 11). They found that reader variables had notable effects: For instance, reading frequency affected understanding for the main character in one study, while academic field (students of theatre, film, and television studies versus students of literature) affected

reported visibility of character thoughts and emotions. The authors drew hesitant conclusions about the text/reader balance: “While some of our results suggest that reader variables are more important than text factors, we maintain that these are likely to interact. [...] Still, an important conclusion of our four experiments is that the effects of FID did not bear as far as theorists suggest” (Hakemulder & Koopman, 2010, p. 56). This and other studies make clear that textual variables are not the whole story when it comes to the determinants of readers’ responses.

Our entropy results offer further support for the idea that reader variation may sometimes trump textual variation. We found that there were statistically significant differences in the *distribution* of entropy values (but not the aggregate values) by experimental condition. Specifically, this result indicates that the free indirect version allows readers the freedom to draw in more entropically diverse ways. Although this challenges our initial hypothesis that the free indirect framing would produce higher entropy levels than the first-person condition, it still invites explanation as an effect of textual manipulation. We propose that the result comes from interpersonal variation in tolerance to ambiguity. Several studies show that ambiguity and unpredictability are occasions for anxiety, with individuals often trying to reduce anxiety by resolving an ambiguous stimulus into a determinate one (Davis et al., 2016; Grillon et al., 2004). However, individuals vary in the degree to which they find ambiguity aversive: Some people can sustain higher levels of ambiguity than others and even take pleasure in ambiguous situations and stimuli (Budner, 1962; Frenkel-Brunswick, 1949). This tendency covaries with other traits, including personality (Jach & Smillie, 2019), propensity for happiness (Bardi et al., 2009), and resistance to depression (Andersen & Schwartz, 1992). There are good reasons to think, therefore, that responses to ambiguous stimuli will be mediated by personality traits that make individuals more or less tolerant of uncertainty.

We did not take a measure of ambiguity tolerance in the present study, but we conjecture that the wider distribution of entropy values in the free indirect condition is a result of variation in this trait. When asked to draw a well-defined scenario, it is likely that all individuals will allow themselves to be explicitly guided by the prompts they are given and will then deliver a relatively determined evocation. When asked to draw an ambiguous scenario, however, an individual has two options: They can sustain the ambiguity in their drawing, or they can collapse the ambiguity into a determinate scene. All other things being equal, it is plausible that individuals with a high tolerance for ambiguity will preserve the ambiguity while those with lower ambiguity tolerance will resolve it. If so, the outcome will be more extreme values of high and low entropy across the sample – which is precisely what we found here. While this hypothesis is conjectural, some independent support comes from work by Swami et al. (2010), which shows that pref-

erences for surrealist films are predicted by higher levels of ambiguity tolerance. *The Castle*, to be sure, is not a film, and the label “surrealist” is problematic in relation to Kafka. Nevertheless, the fact that non-Realist, cognitively challenging modes of aesthetic representation are disproportionately appealing to ambiguity-tolerant individuals is clearly relevant to our result. We therefore provisionally propose that our entropy variance finding can be explained with reference to interpersonal variation in ambiguity tolerance in interplay with textual indeterminacy. Future studies could include standardized measures of readers’ ambiguity tolerance (Budner, 1962) and other relevant traits like vividness of visual imagery (Marks, 1973; Troscianko, 2013) to test out this and other hypotheses about inter-reader variability.

These converging indications of the significance of reader variables suggest an expansion and refinement of ET’s previous proposal (e.g., Troscianko, 2010, 2013, 2014b) that a key feature of Kafka’s writing and readers’ cognitive responses to it is underdetermination: on the textual side, a striking number of gaps in visual descriptions of the fictional world, and on the cognitive side, an ease with leaving these perceptual gaps unfilled. The framing concept of “cognitive realism” generates the broad suggestion that identifying, in textual evocations of cognition, degrees of convergence with or divergence from (a) cognitive realities and (b) folk-psychological tenets allows us to predict and account for readers’ responses to these textual features. In general, on this model, we can expect that cognitively realistic evocations (of whatever aspect of cognition) will broadly support close, compelled engagement, and conversely that evocations that contradict the folk psychology will broadly elicit uneasy, dissonant reactions. Given that folk psychology (how we think our minds work) is often at odds with reality, the two are likely to co-occur, and ambivalent responses may often ensue.

The current study suggests that personality factors like tolerance of ambiguity, as well as other individual factors like age and prior exposure to Kafka, may play a significant role in modulating readers’ responses to cognitively realistic and unrealistic textual evocations. For example, higher tolerance of or pleasure in ambiguity may shift an ambivalent response towards the “compelled” response to alignment with cognitive realities, and away from the “unsettled” response to contradictions of folk psychology. The framework of cognitive realism embraces the three poles of “psychology” (the facts of the matter about how human minds work), “folk psychology” (the facts about how humans think their minds work), and “psychology in the text” (the details of how characters’ minds are described as working). Our entropy-variance finding offers a neat illustration of how the “psychology” pole can and should be differentiated to take account of individual variation, and how doing so allows us to detect systematic effects on the dynamics of textual response that can be captured by the cognitive realism model.

We can apply this insight to specific aspects of textual construction and readerly responses, and can also bring medium-specific considerations to bear. One factor that makes a “surrealist” or at least not entirely “Realist” novel different from a surrealist film is how the visual imagination is recruited in the two cases. In film viewing, any self-generated imagery is likely subsidiary, peripheral, and/or subsequent to the dynamic moving pictures that the film itself consists of. In reading, meanwhile, mental imagery does much more of the work. In the Introduction, we touched on some of the evidence for the non-pictorial nature of the visual imagination. Xenon Pylyshyn (2003) gives a memorable characterization of this quality and its convergence with the capacities of propositional language in his book *Seeing and Visualizing: It's Not What You Think*:

I often feel I have a vivid image of someone's face, but when asked whether the person wears glasses, I find that my image is silent on that question: it neither has nor lacks glasses, much as the blind spot neither provides information about the relevant portion of the visual field nor does it contain the information that something is missing. You might note that *sentences* (and other languagelike compositional encoding systems) have this sort of content indeterminacy, whereas pictures do not. You can say things in a language (including any language of thought) that fails to make certain commitments that any picture would have to make (e.g., your sentence can assert that *A* and *B* are beside one another while failing to say which is to the right or left). (p.34)

Language can exploit qualities of the imagination that pictorial representations are unable to because pictures have a lower capacity to be what Block (1981, pp.12–13) calls “inexplicitly noncommittal.” Although pictorial representation can be inexplicitly noncommittal in limited respects (e.g., in not specifying what the other side of the painted apple looks like), verbal representation has a greater capacity to decline to specify without making clear that you're not specifying (e.g., by blurring-out a section of an image, as some participants in our study did to convey darkness or fog). In the general case, then, we can propose a caveat to variants of reader response theory (e.g., Ingarden, 1965) in which readerly gap-filling is central to all literary sense-making: In the visual mode (i.e., with respect to descriptions of the visible aspects of the fictional world) it may be that comfort with unfilled gaps is greater than might be expected in absence of a scientific account of the perceptual mechanisms involved. The current finding on entropy variance suggests, more specifically, that some readers may have more ease with minimal gap-filling than others, and, crucially, it may give us a principled way to predict and account for this variance. This may also speak to broader media preferences, in that some people will gravitate towards a pictorial medium in which more is made explicit than towards a linguistic medium in which being inexplicit

itly noncommittal is an easier default. Our age and prior-exposure findings also help us make predictions about this type of preference.

Similar mediating effects may apply to readers' cognitive-emotional, as opposed to visuoperceptual, engagement with fictional characters. As noted in our introduction, in their study on the effects of an implicit versus explicit textual "preamble," Kotovych et al. (2011) found that a character's thoughts and behaviours are easier to understand when information about her context (her family, situation, and views on others' reactions to her ambitions) is implicit than when it is explicit. This can be interpreted as reflecting the fact that using one's own knowledge and experience is easier and more satisfying than having to assimilate unfamiliar information – and so, more broadly, that we tend to make sense of other people via assumptions about their similarity to ourselves, rather than by starting with realities that apply to them. This suggestion directly implicates individual variation: What knowledge and experience one imports, as well as one's inclination to do so at all, is central here. And as in the imagery case, matters of degree are bound to be crucial. Implicit information is not the same as none: We need some kind of foothold for our interpretive acts, and the degree of detail that strikes any one of us as optimal, and/or leads to effects that an author may have designed their text to be an optimal elicitor of, will vary on the textual and readerly dimensions we have considered. The resulting notion of an informational sweet spot (enough but not too much) may apply across most or all domains of linguistic communication and is instantiated in different ways in models such as relevance theory (Wilson & Sperber, 2004) and theories of cognitive-linguistic categorization where a "basic level" category offers an optimal balance of information and efficiency (Lakoff, 1987; Rosch, 1975). Our findings, interpreted within the framework of cognitive realism, offer starting points for predicting and explaining where the sweet spot will fall for different media, genres, textual features, and readers, at different points in their lives.

The possibility that differences amongst readers may be an important complement to differences amongst (versions of) texts, or even outweigh them, has been rejected by some (e.g., Kotovych et al., 2011, p.286), but the weak version of this claim is incontrovertible: Any text–mind encounter is shaped by both (and numerous contextual factors in between). Hakemulder and Koopman (2010) proposed alternative questions to guide future research in this area: Rather than asking "Does style matter?," instead we might ask, "To whom does style matter?" or "At what particular moment does style matter?" (p.56). For instance, our finding that age was the only determinant of a significant difference in the depiction of castles (age correlating negatively with the probability of including a castle) suggests that age-related cognitive and other changes may impact on the processing and representation of concrete descriptive detail. Increased inhibition may

be one part of an explanation for the reduced likelihood of depicting the castle amongst older participants. More generally, one of us has previously written on the role of aesthetic style as a way of reducing anxiety by saturating the environment with material evidence for a predictive model (Carney, 2020). If this is the case, then background increases in a propensity to generalized anxiety (as tends to happen in ageing; Wittchen & Hoyer, 2001) will impact on receptivity to aesthetic styles and models. Likewise, the finding that prior exposure to Kafka makes readers less likely to use mood/atmosphere words in describing the limitations of their drawings highlights the role of familiarity in salience assessments. It feeds into the complex crossmodal evidence base on how familiarity versus novelty affects salience and preference (e.g., Liao et al., 2011; Seriès & Seitz, 2013), somewhere between the two equally recognisable poles of being grabbed and captivated by novelty versus experiencing only what we expect to and liking only what we know. From all these directions, the suggestion is reinforced that “for whom?” and “when?” questions about literary style may be important avenues in future exploration of what exactly happens in the encounter between text and reader, and why.

In this study, we have contributed specific findings to add to the empirical evidence base on the effects of narrative perspective. The negative results yielded for all three of our main hypotheses offer a note of caution for future attempts to apply the knowledge developed in literary criticism and theory to the empirical realm: In this and other studies reviewed here, textual features with the theoretical primacy of narrative perspective turn out to carry less weight than other factors to which literary studies has historically paid comparatively little attention, like reader variables. Empirical research can thus falsify intuitions derived from literary analysis. We have also trialled new methods that may be capable of resolving some of the issues preventing experimental literary studies – and any other empirical field that seeks to draw robust conclusions about complex subjective experiences, and/or relies heavily on analysis of complex verbal data – from being pursued in their most powerful form. Finally, we have outlined potential implications of our findings for predicting and understanding variance in reader responses via the cognitive realism framework. Via all three routes, we hope to offer encouragement to future innovation in the experimental techniques brought to bear within fields that still lack satisfying solutions to the sensitivity/rigour tradeoff.

Statement on code

All code used in this analysis is from standard python libraries. Data cleaning was performed using the pandas data science package; statistical analysis was

conducted using the *scipy*, *pingouin*, and *statsmodels* packages; clustering was performed using the *scikit-learn* machine learning library; natural language processing was performed using the *spaCy* NLP library; and image texture features were calculated using the Haralick features component of the Mahotas image processing package. All packages are freely available through the pip distribution channel.

Acknowledgements

We are grateful to Holly Joseph for recruiting participants and administering the test, and to the Research Centre at St John's College, Oxford, for financial support, as well as to participants in the "Trends datengetriebene Geisteswissenschaften" seminar (FU Berlin, 14 January 2021) for stimulating discussion whilst we finalized the manuscript. Our thanks also to two anonymous reviewers and to the journal editor, David Hanauer, for extremely helpful comments and suggestions during the review process.

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Publication history

Date received: 24 March 2021
Date accepted: 6 September 2021