Reading, Fast and Slow

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Abstract Reading literature is often contrasted to the use of digital media in terms of speed. While readers engage slowly with a book, they rush through digital environments at an ever faster pace. This article argues against a simple binary between slow/literary and fast/digital. This binary is in fact not native to the public debate about literature in the digital age but can be traced back from the digital revolution to modernist attitudes on literature, as they emerge in Viktor Shklovsky and Walter Benjamin. Drawing on results about reading speed in reading science and on current narrative theory, this article devises an alternative argument for literary reading as a process that unfolds over multiple time scales linked to different layers of meaning making. Reading literature, from this perspective, is not exclusively slow but, rather, works through a combination of both fast and slow processes. The article develops its argument through the example of Alexander Pushkin's classical novella "The Queen of Spades" and then applies this new theoretical account of multispeed literary reading to two novels engaging explicitly with the digital revolution.

Keywords: reading speed, slow reading, predictive processing, digitization, and literature

Reading literature has come to be included under the so-called slow movement. Like slow food, slow clothes, and slow academia, slow reading stands against acceleration, in this case of the digitized world. Reading a poem or a novel, preferably on paper, engenders the possibility of taking a breath and thinking deeply. It can certainly do that. However, this article challenges the assumption that reading literature is exclusively slow and the notion that literature stands in an inevitable rivalry with the digital world. To develop that argument, I begin by linking the notion of slow reading with larger discourses about speed and deceleration that reach back beyond digitization and into high modernism. "Reading, Fast and Slow" does not aim to map Daniel Kahneman's two systems of thought, developed in *Thinking, Fast and Slow* (2011), onto reading. Indeed, I argue for a multiplicity of time scales instead of a binary. This argument is based on results from reading science about the speed of literary reading, which reveal that the processes of reading unfold across multiple time scales rather than follow a single time line along which it

would accelerate or decelerate. Focusing on the example of Alexander Pushkin's "The Queen of Spades" ([1834] 2005), I argue that literary texts are written to tie in with these different temporalities and to manipulate readers' inferences across both slow and fast temporalities. The final section looks at two contemporary examples from literary fiction, where the multiple temporalities of literary reading are used to comment on the multiple temporalities at play in the twenty-first century. This article argues for a more differentiated approach to literary reading in the digital age, linking media discourses to literary analysis and developing a series of hypotheses about reading speed that could be tested empirically.

1. Deep Reading, Digitization, and Making Things Strange

In *The Gutenberg Elegies* (1994), Sven Birkerts discusses the challenges that reading literature faces in the digital age. He links literary reading to making meaning in the world and to developing a rich and complex sense of self. In a digitized and mass-mediated world, he sees these things to be under threat: "Reading, because we control it, is adaptable to our needs and rhythms. We are free to indulge our subjective associative impulse; the term I coin for this is *deep reading*: the slow and meditative possession of a book" (Birkerts 1994: 146). Reading literature (Birkerts' examples are novels by Virginia Woolf and Thomas Hardy) leads to a cognitive engagement that he characterizes as "deep." With deep reading comes the notion that reading must also be slow. The notion that slow and deep go together are also taken up by later works that attempt to formalize slow reading, such as John Miedema's *Slow Reading* (2009) and David Mikics's *Slow Reading in a Hurried Age* (2013).

The reading strategies that go with slow reading are largely akin to the close reading of literary studies. Mikics, a professor of English literature, presents twelve rules for how to accomplish slow reading, most of which are familiar from the literature classroom. Readers are

invited to identify the voice of a narrator or competing voices of narrators and characters, to look for stylistic choices, to pay attention to beginnings and endings, and to discern the different parts of a narrative that build its structure. Slow reading, in other words, is rather like close reading. And such reading is usually done with a paper book and a pen in hand. Both Miedema and Birkerts stress the importance of the paper book for giving reading its “slow” dimension.

Fast reading, by contrast, is usually connected to reading on digital devices. Skimming and scanning are reading practices associated with the superficial attention fostered by the screen (as discussed, e.g., by Carr 2010). N. Katherine Hayles (2012) discusses different modes of reading and points out that deep reading is not always the best possible strategy for reading. Indeed, sometimes one needs to skim read to get to a particular item of information quickly, if finding that information is the reason one has opened the book in the first place. Digital texts seem particularly well suited to such reading practices that rely on hyperattention (e.g., attention to the surface level of the text when one scans for a particular word). Indeed, the search function can make information-driven reading much more efficient in a digital text. Those readers who intend to read an entire text at high speed can make use of speed-reading apps, such as Spritz, that move text in front of their eyes much faster than the usual reading speed of about 250 words per minute. Speed-reading apps like Spritz, which make use of rapid serial visual presentation (RSVP), do away with the need to move our eyes across the text by presenting one word at a time for our eyes to focus on and then change from one word to another at a top speed of about 750 words per minute. RSVP steers readers’ eye movements across the text, but as reading science has argued (e.g., Rayner et al. 2016), these “saccades” between “fixations” on individual words are also necessary for readers to infer connections between words. Speed-reading devices might lead to very fast progress through text, but it is also clear that such a reading process is

unlikely to produce the “slow and meditative possession of a book” that Birkerts identifies as deep reading.

The alignments between fast, digital, and superficial and slow, paper based, and deep are usually presented as a given. However, they reach back much further in our critical past than the shift toward the digital. As early as the beginning of the twentieth century, some of the foundational statements in modernist aesthetics invoked the fast-superficial versus slow-deep dichotomy. In his 1917 essay “Art, as Device,” Viktor Shklovsky describes the function of the work of art: “Automatization eats things, clothes, furniture, your wife, and the fear of war. . . . And so this thing we call art exists in order to restore the sensation of life, in order to make us feel things, in order to make a stone stony” (Shklovsky [1917] 2015: 162). A literary work of art, Shklovsky famously argued, can provoke defamiliarization (*ostranenie*), which makes readers slow down and pay proper attention to the text they read. It is not enough simply to have light hit your retina and process the visual information automatically; we need to *see* things properly. In the language domain, literary works of art serve better than anything else to take readers back before “automatization.” The focalization shifts in Tolstoy’s short story “Kholstomer” and in *War and Peace*, which Shklovsky uses as his examples, lead readers to see the world in a deeper fashion because farm life comes to be redescribed from the point of view of a horse (“Kholstomer”) or a drama from the point of view of someone who has never been to the theater (*War and Peace*). These unexpected focalisations make the familiar strange again, and they slow down our perception, leading to a deeper understanding.

Walter Benjamin links the special nature and depth of the work of art explicitly to technology and the means of production in “Das Kunstwerk im Zeitalter seiner Technischen Reproduzierbarkeit” (“The Work of Art in the Age of Mechanical Reproduction”), originally

published in 1935. With the invention of photography and film, Benjamin argues, the character of art has changed fundamentally, because works of art are no longer limited to their existence in a unique and original copy. The unique and original copy of a painting, he goes on to say, has an “aura,” while the photograph or the film lacks this dimension.

Einmaligkeit und Dauer sind in diesem so eng verschränkt wie Flüchtigkeit und Wiederholbarkeit in jener. Die Entschälung des Gegenstandes aus seiner Hülle, die Zertrümmerung der Aura, ist die Signatur einer Wahrnehmung, deren ‚Sinn für das Gleichartige in der Welt‘ so gewachsen ist, dass sie es mittels der Reproduktion auch dem Einmaligen abgewinnt. (Benjamin [1935] 1974: 440; italics removed)

Uniqueness and permanence are as closely entwined in the latter [the work of art with an aura] as are transitoriness and repeatability in the former [the photograph or the film]. The stripping of the veil from the object, the destruction of the aura, is the signature of a perception whose “sense for all that is the same in the world” so increased that, by means of reproduction, it extracts sameness even from what is unique. (Benjamin 2008: 23–24)

Repetition, automatization, and speed are once again aligned with one another, and they are figured in opposition to a deep appreciation of the natural world (which also has qualities of the aura, according to Benjamin) and of the work of art. Benjamin foregrounds visual media in his essay, but he links the sense of “collectedness” (*Sammlung*) that the aura gives to poems by German poet Rainer-Maria Rilke. Literary texts can also have an aura, Benjamin argues. Films and also photographs, on the other hand, can achieve their own aesthetic effects (e.g., shock), but Benjamin claims that, as they become more and more dominant in our everyday experience, a general degeneration of our capacity to perceive the aura of a work of art ensues.

The high modernist manifestos of Shklovsky and Benjamin, which look critically upon the developing mass culture of the twentieth century, work from the same dichotomies as the contemporary critics of twenty-first-century digitization. Shklovsky comes perhaps closer than Benjamin to writing something like a slow-reading manifesto, while Benjamin articulates the links to contemporary media culture and change more explicitly. Shklovsky develops his notion of estrangement mainly in relation to the realist nineteenth-century author Tolstoy (one of Shklovsky's favorite authors to write about) rather than through an iconoclast avant-garde author. The notion of estrangement, and the deautomatization that comes with it, has turned into a hallmark of any kind of literary text through its further development in the writings of theorists like Jan Mukarovsky and Roman Jakobson. Also according to the critical discourse of slow reading, any kind of literary text in principle supports the deep reading engagements that Birkerts posits, and indeed, many readers report an almost meditative engagement with literary texts.¹ However, beyond the alignments between technology and speed in the discourses on digitization and their ancestors in the early twentieth century, nothing commits us to accept that reading literature is in fact slow just because it is deep. Do we really need to stare at the stone until it gets stony? Or is there something in the design of a literary work of art that allows us to engage deeply with it without slowing down?

2. Reading across Multiple Time Scales

The sheer physiological speed of reading can be measured accurately through the method of eye tracking, where the movement of readers' pupils is recorded as they travel across the words of a text. Other methods for capturing reading speed include readers clicking forward from one word to another (in self-paced reading studies in the lab) or readers reporting how long it took them to read a book (in more realistic setting where they read at home). A recent survey of studies in

reading speed finds that, across 190 studies conducted since the beginning of the twentieth century, the average reading speed was found to be around 175–320 words per minute (Brysbaert 2019). The reading speed for reading fiction, it appears, is faster than the reading speed for nonfiction.²

The survey's author, Marc Brysbaert, explains the higher speed in reading fiction through differences in average word length. Since nonfiction has a longer average word length than fiction, we are slower in reading nonfiction. While we read nonfiction at 238 words per minute (wpm), fiction allows us to accelerate to 260 wpm (Brysbaert 2019: 21). These findings are somewhat surprising, when you consider the claims in popular discourse around reading literature in the digital age. Is reading literary fiction, then, not the “the slow and meditative possession of a book”?

In the conclusion to his survey, Brysbaert (2019: 23) points out that “word length is unlikely to be the main cause of differences in text difficulty. It should not be too difficult to make two texts that match in terms of average word length but vary considerably on reading rate”; rather, in “spontaneous language use word length is correlated with a range of variables that also make texts easy or difficult.” This correlation, however, does not conceptually relate word length to difficulty in processing; it is necessary to take into account other features of texts to arrive at better predictions of reading speed. Closer attention to textual features as they are linked to different moments in the reading process, and to how texts both challenge and support readers, can supplement the reading studies that Brysbaert surveyed.

Brysbaert's (2019) finding that reading fiction is faster than reading nonfiction is especially surprising given the results on foregrounding and reading speed reported by David S. Miall and Don Kuiken (1994) in their classic paper “Foregrounding, Defamiliarization, and

Affect: Response to Literary Stories.” Miall and Kuiken conducted a self-paced reading study for three literary texts and found that for all three texts reading speed decreases for passages that were also, on the one hand, identified as deploying stylistic strategies of foregrounding and, on the other, evaluated as “striking” by readers. Do these findings about reading speed contradict each other? Not necessarily. Brysbaert reports the average reading speed for an entire text, while Miall and Kuiken address the relative reading speed for sections within a text (and they do not report how fast their readers went through the texts). Readers could be slowing down at passages they consider “striking” but generally read fictional texts faster than nonfictional texts, these foregrounding effects notwithstanding. Discerning the relation between local slowing in response to striking moments of a fictional text and the overall reading speeds associated with fictional and nonfictional texts would be an empirical question to resolve, and to my knowledge no such study has been conducted yet.

A second point to consider is the difference between physical reading speed and phenomenological reading speed. Katalin Bálint et al. (2016) shift the empirical attention on foregrounding from textual features and physiological measures to the experience of readers. In in-depth interviews with readers, Bálint and colleagues asked readers to describe their strategies for dealing with deviations in written narrative and films. Only one of seven strategies, “obstruction/adjustment,” suggests that reading is decelerated by the difficulty of the text, that “an instance of deviation was perceived as an obstacle that made processing slow and effortful” (193). The other strategies are associated with richer and deeper modes of reading, but they do not refer to a sense of deceleration and the “slowness of perception” central to the accounts of Shklovsky and Mukarovsky.³ Bálint and colleagues instead identify “absorption,” “agency,” and “valence” as the central dimensions of the foregrounding experience, where slowness and

difficulty is only one, rather particular point of alignment. They go on to argue that defamiliarization might well go hand in hand with very absorptive reading experiences, where the difficulty of the text contributes to readers' (self-)involvement in these texts. A comparative study of the physical in relation to the phenomenological speed of reading has to my knowledge not been conducted, but it is possible that the physical speed of moving one's eyes across a text could slow down, while the phenomenological experience of how reading is unfolding could be experienced as fluid and swift. It might be possible to track readers' physical eye movements and ask them to indicate their experience of accelerating or deceleration on the phenomenological level through a hand movement or pushing/pulling a lever, and then check for correlations between these two online measures.

Such hypotheses can be supported through evidence from reading science that reading unfolds over more than a single time scale. Joshua Snell and Jonathan Grainger (2019) present a comprehensive argument for assuming that we do not read in an exclusively linear fashion. It appears that, while readers read an individual word, part of their attention is also allocated to the surrounding words. Snell and Grainger (2019: 541) argue that reading is a process that unfolds in parallel and that it is expectation driven. "You that read wrong": most readers automatically correct this sentence to the grammatically correct version, "You read that wrong," without even noticing that they do this. If we read only one word at a time, we could not help but notice the grammatical mistake. Instead, Snell and Grainger argue, in reading attention is distributed across multiple words and strongly informed by predictions we make about the likely sequence of words. We already see the next word to come, and the grammatically correct versions that we have internalized predetermine when and how we pay attention. Reading is not strictly serial; rather, we read multiple words in parallel at different levels of processing. Indeed, Keith Rayner

et al. (2016) emphasize that reading is not just concerned with visual processing—readers spend more time on a word than needed to simply recognize it as a word; rather, language comprehension is centrally involved in the reading process. If reading is not only visual perception but also language comprehension, and if reading depends not only on word recognition but also on the syntactic and semantic inferring of linkages between different elements of the text, then speed-reading devices and practices result, almost inevitably, in a loss of accuracy in understanding (see Rayner et al. 2016).

Taking into account these multiple, parallel processes, reading research conceptualizes reading as an activity that unfolds across several temporal scales. Maryanne Wolf (2007: 144) traces the progression of reading a text across a very fine-grained time line. When a word appears in the visual field, readers first need to pay attention to the visual stimulus (between 0 and 100 ms); they begin to analyze visual features (at 50 ms) before recognizing the word proper (at about 150 ms). Then semantic and phonological processes set in (between 100 and 200 ms), to identify the meaning and sound of the word, before the next saccade begins (at around 250 ms) and the eyes move on to the next fixation in the text or, indeed, back to an earlier word. The processing that happens during reading, however, continues for longer (between 200 and 500 ms). Decoding individual words is not the same as comprehending a text (Wolf 2007: 137). Readers continue to relate the word they have just read to other words in the syntax of the sentence, and they infer, for example, to which character name personal pronouns refer. Comprehension builds further on the unfolding of larger metaphorical structure, the focalization of the narrative, or the development of characters' and narrators' voices in free indirect discourse. These longer processes, as Wolf points out, are related to more "literary" aspects of

language and, perhaps, are less likely to be found in nonfictional texts. They contribute to the complexity of a text but are not necessarily founded on the length of words.⁴

These “literary” aspects of a text, I would argue, are necessary for the process that Wolf also calls deep reading, but they do not inevitably contribute to a slowing down in reading speed. As readers get better at reading, Wolf observes, they spend less and less time on the early stages of the process, such as identifying words, and therefore can spend more of their time engaging the complex semantic and comprehension processes that integrate a word into larger contexts of meaning. Wolf (2007: 161-162) argues that the readers’ developing skills can be traced in the right-hemisphere language system in the brain, which “becomes as expansive and broadly distributed as the left-hemisphere-language areas [where decoding happens].” These larger contexts of meaning, in turn, could support the recognition of individual words in earlier, faster stages of reading. When you read a narrative like Pushkin’s “Queen of Spades,” you likely recognize words related to the dynamics of a game of cards more swiftly, since you come to expect them on the basis of what you have read before. Narratives establish structures of predictions, or “probability designs,” that guide and support readers’ meaning making and supplement their expertise (more on this in the next section).

The somewhat surprising higher reading speed for fiction that Brysbaert (2019) reports could be explained in terms of how the textual complexity in literary fiction supports swift meaning making in experienced readers. Indeed, such an effect would be predicted if we consider literary texts as probability designs, that is, as language formed to lead readers to revise their predictions (about the word that follows, about the next thing to happen, etc.) as the text unfolds (see Kukkonen 2020). The notion of probability designs is based on predictive processing and the view that cognitive processes work through preconscious predictions that are

continuously adjusted whenever the sensory signal from the real world provides a prediction error.⁵ In the case of reading, the sequence of letters in a word and the sequence of words in a sentence depend on different predictive structures. The sequence of letters in a word is assessed through readers' knowledge of the vocabulary and the spelling in a language (see Norris 2006), and the sequence of words in a sentence is likewise assessed through readers' knowledge of syntactic structures and the regularities of pacing and timing between different perspectives, the structures of style, and other elements that have been built up throughout a narrative. The form of language in style and narrative thus devises a probability design that informs not only how readers make sense of the novel but also how much ease and speed they experience in the reading process. A "flow experience," in Hungarian-American psychologist Mihaly Csikszentmihalyi's (2008) sense, can be supported by the probability design of a literary text, as such a design scaffolds readers' developing mastery in the predictive patterns of the text and nevertheless keeps enough prediction errors in play that the text does not settle into boredom (Kukkonen 2020). The predictive patterns of probability designs can be linked to narrative and plot, but also to thematic or stylistic resonances that are more typical of modernist prose.

3. The Multiple Temporalities of Probability Designs

The sheer activity of reading, as shown by the reading studies surveyed here, unfolds across multiple different cognitive processes that each comes with its own time scale. These different time scales relate to different aspects of meaning that are encoded in the literary text and its probability design. In this section I attempt to map the relation between the time scales of the reading process and the multiple time scales of the literary text in more detail. My examples are the sounded qualities of free indirect discourse, focalization shifts, and repetitions in the conceptual and verbal structures of a narrative.

Stanislas Dehaene (2009) points to a difference between modes of reading that appears to me particularly relevant for literary reading: the distinctions between the phonological route and the lexical route in how reading takes effect in the brain. The phonological route turns letters into sounds, and the lexical route transforms letters into meaning. These two routes operate in parallel (Dehaene 2009: 26), supporting each other in the meaning-making process. The phonological route appears to be more dominant when reading is learned, as we might recall when we still had to spell out words to ourselves, but recedes in expert readers who can rely on a well-developed mental lexicon (see also Wolf 2007: 152). “At a deeper level, however, information about the pronunciation of words is automatically retrieved,” writes Dehaene (2009: 26). Brysbaert (2019: 22) mentions research that links the activation of the phonological route to short-term verbal memory, necessary to weave different elements of the text together. It appears that phonological processing, or the “inner speech” while reading, is particularly relevant for the comprehension of complex texts where multiple concepts are combined. Rayner et al. (2016: 16; 23) report multiple studies where readers did worse on test for such deep comprehension when they were forced to suppress their inner speech in reading.

Arguably, different modes of writing in the probability design of a literary text can bring the phonological route to the fore again in reading. Perhaps the best-known example are different types of speech representation in the written text, in particular, so-called free indirect discourse, in which the voice of a character is rendered in the narrator’s discourse but also in other modes of speech representation. We find an example in Pushkin’s ([1834] 2005: 20) “Queen of Spades”: “Lizaveta Ivanovna looked at him [= Hermann]; in her soul echoed Tomsy’s words: *on his conscience are at least three evil deeds!* Hermann sat down beside her, on the window seat, and told her everything.” The phrase “on his conscience are at least three evil deeds!” is an

indirect quotation that had been uttered by Tomskey in direct speech only a couple of pages earlier, when Lizaveta met both Tomskey and Hermann at a ball. Lizaveta is courted by Hermann, and she lets him into her great-aunt's house for a secret rendezvous. What she finds, however, is that Hermann used the opportunity to force her great-aunt to reveal the secret of her winning cards and that he scared her to death in the process. These are the events that recall Tomskey's remark to Lizaveta. The character's direct speech is rendered here in the discourse of the third-person narrator, but it gains a voiced quality through, on the one hand, the italics indicating emphasis and, on the other hand, the shift in syntax from "words" to "on his conscience." Alison J. S. Sanford et al. (2006) investigated how, for example, visual foregrounding through italics works as an attention-capturing device while reading, and how speakers are more likely to place emphasis on an italicized word while reading a sentence. Attention-capturing devices are elements of foregrounding that draw attention to the style of communication (Sanford et al: 2006, 128), and they limit attention to its content. The syntactic difficulty, switching stances between direct and indirect speech modes, might activate the phonological route in reading more strongly than usually. Pushkin's "Queen of Spades," published in 1834, is an early example of free indirect discourse and related styles in Russian.⁶ The "voiced" quality of indirect speech representation would thereby come to the fore through the involvement of the phonological route. The phonological route might be experienced as "deeper" and "richer" when reading, but it is not necessarily slower in expert readers and literary texts that deploy free indirect discourse.⁷

These strategies are relevant not just at the level of individual sentences. Pushkin draws attention to the narrator's voice through changes in style, and stylistic and narratological analysis can complement the empirical evidence, especially for the discussion of larger narrative units. Shortly after her conversation with Hermann, Lizaveta comes to realize that "she herself had no

power to assuage his desires and make him happy. The poor ward had been nothing but a blind accomplice to a brigand, to the murderer of her aged benefactress!” (Pushkin [1834] 2005: 20).

The second sentence here brings the narrator to the fore through an emotionally charged exclamation. It also features no less than three adjectives and a longish apposition (“to the murderer of her aged benefactress!”), stylistic flourishes that are relatively rare elsewhere in Pushkin’s short story. They are, however, typical of the sentimental novel in Russian, and it appears that Pushkin moves into the register of that genre here, perhaps directly referencing Nikolai Karamzin’s “Poor Liza” (1792) with the appellation “poor ward.” Here, readers’ knowledge of Russian literature around 1800 might contribute to locating more precisely the new register in which Pushkin’s narrator speaks. Pushkin draws attention to his narrator’s voice, and he might even provoke a stronger activation of the phonological route, through the exclamation and the stylistic shift. However, even though these moments are foregrounded stylistically, they do not necessarily translate into slower processing of these passages by readers, since they are closely integrated in the overall design of the narrative.

Identifying the stance from which the narrative is told involves several of the inferencing processes that Wolf (2007) discusses as central to reading comprehension, namely, identifying anaphoric references and inferring perspective. Pushkin ([1834] 2005: 26) makes an important shift in focalization at the main turning point of the plot in “The Queen of Spades”:

Chekalinsky dealt; his hands were trembling. To the right—a queen; to the left—an ace.

“My ace wins,” said Hermann, turning over his card.

“Your queen’s lost,” Chekalinsky said courteously.

Hermann shuddered. Before him, instead of an ace, stood the Queen of Spades. He couldn't believe his eyes, unable to understand how he could have played the wrong card.

At that moment the Queen of Spades seemed to him to wink and smirk. Hermann was struck by an extraordinary likeness.

"The old woman!" he cried out in horror.

How does the focalization shift work here? The first half of the passage is told from a neutral point of view. We would answer the question, Who sees? with "no one in particular," since Chekalinsky's shaking hands and Hermann's turning of the cards are perceptible to everyone present, and thereby register as "external focalization" (according to Genette 1972). In the second half of the passage, however, it becomes clear that what we observe is tied to Hermann's visual perception and that we have a case of "internal focalization" here (again, according to Genette 1972). No one else at the card table sees the image of the card "wink and smirk," and no one else is haunted by the ghost of the old countess.

The shift in focalization unfolds through a series of prediction errors that range from readers' embodied meaning making to more conscious and propositional inferences (see Kukkonen 2019a, 2020). It all starts when the queen of spades "stands" before Hermann. Cards do not stand; they lie on the table. (The same is true for "стола" in the Russian original.)⁸ The prediction error is minimal, and it is probably ignored by most readers, but it leads to a change in orientation from neutral to personal perspective and prepares the quasi-corporal dimension that the card will take in the following sentences. Only then does the (capitalized) Queen of Spades will come to life and "wink and smirk," and then Hermann comes to recognize the face of the countess on the image on the card. The prediction errors across different levels of reading align

and come to reinforce each other. While the recognition is surprising, and perhaps defamiliarizing, it arguably does not lead to a disruption of flow in the reader because it has been prepared earlier in this passage.

At the very beginning of the same chapter in “The Queen of Spades,” Pushkin has already prepared this focalization shift:

Two *idées fixes* cannot coexist in the moral sphere, just as two bodies cannot occupy the same space in the physical world. The image of the dead old woman was soon eclipsed in Hermann’s imagination by the three, the seven and the ace. The three, seven and ace were always in his thoughts and on his lips. Seeing a young woman, he would come out with, “She’s so slender! A real three of hearts.” When asked the time he might reply, “Five minutes to the seven.” A pot-bellied man always made him think of an ace. (Pushkin [1834] 2005: 23)

After he has learned the sequence of the winning cards (three, seven, and ace), Hermann begins to perceive his entire surroundings in terms of these cards on his way to Chekalinsky’s gaming table. Here, readers are explicitly aligned with his internal focalization. The plot’s turning point, a couple of pages later, then reverses the direction. While Hermann in the beginning imposes his perception of the cards on the world, now the card imposes itself on his perception of the world. Throughout the chapter, in other words, the prediction error has been prepared, and it unfolds at different moments in the narrative at different levels of the probability design. The reversal of direction makes the processing easier, while arguably not diminishing the surprise when the Queen of Spades “winks and smirks.”

The sequence of the winning cards has an even “slower” dimension when we take into account the entire narrative, because it is in fact prepared from the beginning. When Hermann

reflects early in the short story on why he refuses to play cards, we read, “Calculation, moderation and hard work—those are my three sure cards, they are what will trebble my capital, increase it sevenfold and win me peace and independence” (Pushkin [1834] 2005: 12). “Three sure cards” and a “sevenfold” increase of his money are already prefigured in the sequence of the winning cards; only the final card is missing. When the old countess is introduced in the beginning of the same chapter, we read the following:

The old Countess—was in her dressing room, sitting in front of the mirror. Three maids were standing around her. One was holding a pot of rouge, the second a box of pins, the third a tall bonnet with flame-coloured ribbons. The Countess had no pretensions to beauty, her own having faded long ago, but she maintained all the habits of her youth, still kept strictly to the fashions of the seventies and took as much time and trouble over her toilette as she had done sixty years before. By the window, sitting at an embroidery frame, was a young lady, her ward. (Pushkin [1834] 2005: 8)

Here, we have “three maids” and the fashion of the “seventies” (that is, the 1770s). Both these passages set up the sequence of the three and the seven, but the ace is absent. In the passage about Hermann, it is replaced by “peace and independence” and in the passage about the countess by “a young lady” who turns out to be Lizaveta. Since Hermann uses Lizaveta to gain access to the old countess (this project starts in the very same chapter), Lizaveta, in many ways, comes to replace “peace and independence” in the conceptual scheme of the novel.

Pushkin set up very carefully the pattern of the repetition (three, seven) and the instability (ace) here. While the repetition remains stable until the third instance at the gaming table, the ace keeps shifting, first into “peace and independence,” then to Lizaveta, and finally to the Queen of Spades. The conceptual shape of the entire narrative is organized around the sequence. When

first reading “The Queen of Spades,” it is unlikely that readers pay attention to the mentions of the three and the seven, since these are well hidden among the details of the text. However, across the multiple temporalities of the narrative’s probability design, they arguably set different prediction errors in the readers’ multiple time scales of reading. The words will be recognized in a matter of milliseconds, but their repetition arguably affects readers’ making sense of larger units, both within the final chapter and Hermann’s superimposition of perception, and within the first two chapters and the final chapter. When we consider reading as a single, linear process, then word recognition is “fast,” and the sense making across larger units is “slow.” My perspective on reading as a process that unfolds across multiple temporal scales and that is shaped by probability designs, however, shows that the final prediction error is an issue both of work recognition and of overall meaning making. The standing Queen of Spades is both fast *and* slow.

4. Digital Temporalities in Contemporary Fiction

Discussions of speed in narrative are usually developed through the analysis of novels that take up the development of communication technologies (the telegraph in Alexandre Dumas’s *Count of Monte Christo*), mass transportation (the train in Leo Tolstoy’s *Anna Karenina* or Émile Zola’s *La Bête humaine*), or individual means of travel (the motorcycle in Julio Cortázar’s “The Night Face Up”). I chose Pushkin’s “Queen of Spades” as an example exactly because the novella does not obviously thematize speed, slowness, or technological change. The multiple speeds of reading, however, can certainly be connected to thematic concerns of acceleration and deceleration. I close this article with a short discussion of two contemporary novels that thematize speed in connection to the technological change that gave rise to the slow reading movement: digitization.

Berit Glanz's *Pixeltänzer* (2019) tells the story of a programmer in Berlin who begins to investigate the biography of an early twentieth-century artist, Lavinia Schulz, working on masks and dance. Glanz introduces short passages of code at the beginnings of some of the early chapters in her novel:

```
// S-Bahn-Beobachtungs-Statement

if (IsSBahnAccelerating {

    currentSpeed++;

} else {

    System.out.println ("Die Frau steht am

    Fenster.");

}
```

(Glanz 2019: 7)

The first chapter then begins in the focalization of the main protagonist, who likes to stand at the window of her Berlin apartment, naked and smoking, and who entertains the thought that someone who sits in a train on the S-Bahn sees her and thinks about her. The programming command describes either that the train accelerates or that the observation “Die Frau steht am Fenster” (The woman stands at the window) comes to be processed. The chapter then “runs” this command, so to speak. In the second part of the first chapter, the focalization shifts to the imagined observer, and shifts back only at the very end of the chapter:

Doch das Bild der Frau hinter doppeltem Glas bleibt in seinem Kopf hängen und inspiriert ihn zu irgendetwas furchtbar Analogem, das eine greifbare Spur in der Welt hinterlässt. Ich liebe diesen Gedanken.

But the image of the woman behind a double layer of glass remains stuck in his head and inspires him to something terribly analogue that will leave a tangible trace in the world. I love this thought. (Glanz 2019: 8)

Pixeltänzer spells out the algorithm twice in its narrative prose. The novel thereby establishes its underlying logic, according to which narrative and algorithmic sequences translate into one another.

Throughout the novel, the narrative's progress is tied to the programmer's apps and the social protocols of the digital (e.g., marathon hacks or motivational group exercises). The programmer starts using an app that lets her wake up to a phone call and conversation with a random stranger, and through one of these random phone calls she learns about Lavinia Schulz and her strange masks. The probability design gets further linked to the digital devices, as the programmer then uses blog conversations and decoding to pursue the random find in a more determined fashion. The seemingly random constellation of an avant-garde artist from the early twentieth century and a programmer interested in 3D printing and a marathon hack leads to a narrative in which the protagonist develops a program that allows everyone to print out face masks to fool facial recognition software. The digital possibilities look to be as determining as the programming commands that preface the early chapters in the novel, certainly when one takes into account the immediate effects. Across the entire novel, however, especially along the interfaces between the analogue and the digital (in Lavinia's masks and in the programmer's

obsession with 3D printing), a slower process unfolds in which the programmer assumes agency and the relevance of the first chapter and its double focalization comes to be realized.

Johanna Fried's *Nora, eller Brinn Oslo Brinn* (2018) similarly addresses how digital and analog lives are entwined, again without establishing a simple correspondence with the fast and the slow. Here, the main protagonist, Johanna, comes to be obsessed with her boyfriend's Norwegian former girlfriend Nora. She follows Nora on Instagram, and similarly, the narrative comes to be paced through the updates from Nora and her mother. While Johanna learns everything possible about Nora and her life in Oslo, readers get a very detailed sense of this life through the representation of social media, even though the protagonist has only one direct exchange with Nora through a message, and even though the narrative never takes us to Oslo. Indeed, as Johanna and her boyfriend move from Stockholm to Copenhagen at the end of the novel, the final sentence nevertheless reads: "Vid utfarten ur Stockholm pekade alla skyltar mot Oslo" (At the motorway exit from Stockholm, all signs pointed towards Oslo; Fried 2018: 184). The marked timings of the updates of the Instagram accounts never lead, however, to a plot event in the relationship between Johanna, her boyfriend, and Nora. Just like Nora's represented life on Instagram is never actually realized in the narrative, and, even though the Instagram updates appear to force Johanna into action, they never actually change the course of the narrative itself.

Fried's narrative brings to the fore a logic of the digital that Wendy Hui Kyong Chun (2017) describes as "updating to remain the same," where actions constantly have to be taken that produce no actual effects in the world. Users of social media, Chun argues, develop habits of constant actions just in order to keep running: "The twinning of crisis and code/habit has not diminished crises, but rather proliferated them through an unending series of decisions and unforeseen consequences that undermine the agency they promise" (70). In Fried's novel, the

logic of updating becomes tangible through the timing of the Instagram updates in relation to the plot events of the narrative, leading to a probability design of constant crises in Johanna's life that enacts the quasi-addictive habits of updates. The Instagram updates happen quickly, and demand quick responses, but they do not take the narrative forward. A second time dimension is introduced in the novel, too, because Johanna suffers from endometriosis, a painful affliction of the uterus that gets worse with menstruation. Endometriosis affects the progress of the narrative much more than the Instagram updates, but it takes Johanna much longer to realize this connection. Fried (2018: 000) thematizes the issue of timing through "två av vår tids stora kvinnosjukdomar—Instagram och endometrios" (two of the great female afflictions of our time—Instagram and endometriosis), as the blurb has it, and explores the one in light of the other, as they come to be tied to the multiple temporal scales of the narrative.

Literature itself might not be slow, certainly not exclusively slow, and its temporality does not need to stand against the experience of the digital world. Indeed, as I hope to have shown through these very swift discussions of Glanz' *Pixeltänzer* and Fried's *Nora, eller Brinn Oslo Brinn*, the multiple temporalities of the literary text and its reading experience can be deployed to investigate our experience of time in the age of digitization. These novels get us away from the tradition of worry that Birkerts (1994) had established twenty-five years ago with *The Gutenberg Elegies*. Through the deep reading that these literary novels demand, they get readers to both experience and think through the digital experience anew. Literature is not diminished when reading moves between fast and slow. It rather gains the opportunity to articulate time, speed, and rhythm constantly anew.

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¹ On the relationship between literary reading and mindfulness meditation, see Kukkonen 2019b.

² Brysbaert 2019 does not detail the principles that underlie his categorization of fiction versus nonfiction. From the additional materials available online for the article (see www.osf.io/9qnhy), it appears that descriptions were taken from the articles surveyed, such as "novel chapter" or "news article," and these were tagged as "fiction," "nonfiction," or "unclear" to aggregate the data.

³ These formalist theorists are also referenced by Miall and Kuiken 1994 , and Bálint et al. 2016: 201 point to style and foregrounding as important issues for future empirical research.

⁴ Brysbaert (2019) mentions only some of the fictional texts by title and author, which makes it difficult to assess how far “literary” corresponds with “fictional” in his survey.

⁵ For an accessible introductory account to predictive processing, see Clark 2013.

⁶ For similar evidence in early examples of free indirect discourse in English, see Kukkonen 2019a.

⁷ To my knowledge, no empirical work has compared the relative reading speeds when either phonological or lexical routes are dominant.

⁸ My thanks to Fabian Heffermehl for our discussion of what verbs go with playing cards in Russian.