

Why don't we read hypertext novels?

Anne Mangen

University of Stavanger, Norway

Adriaan van der Weel

Leiden University, The Netherlands

Convergence: The International
Journal of Research into
New Media Technologies
1–16

© The Author(s) 2015

Reprints and permission:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/1354856515586042

con.sagepub.com



Abstract

Ever since their appearance in the early 1990s, hypertext novels were presented as the pinnacle of digital aesthetics and claimed to represent the revolutionary future of literature. However, as a literary phenomenon, hypertext novels have remained marginal. The article presents some scientifically derived explanations as to why hypertext novels do not have a mass audience and why they are likely to remain a marginal contribution in the history of literature. Three explanatory frameworks are provided: (1) how hypertext relates to our cognitive information processing in general; (2) the empirically derived psychological reasons for how we read and enjoy literature in particular; and (3) the likely evolutionary origins of such a predilection for storytelling and literature. It is shown how hypertext theory, by ignoring such knowledge, has yielded misguided statements and uncorroborated claims guided by ideology rather than by scientifically supported knowledge.

Keywords

Cognitive processing, evolutionary origins, hypertext novels, interdisciplinarity, literary reading

Introduction: What happened to the revolution?

During the 1990s, claims were emerging about a new kind of literature, hypertext fiction (or novels), which were expected to radically alter the appreciation of literary reading. Hypertext and new media theorists claimed that 'hypertext fiction has become the most convincing [...] expression of the idea of hypertext' (Bolter, 1991: 121); that hypertext challenges us to reconsider fundamental assumptions about the social space of writing and may 'open the way to a new textual order with a new politics of knowledge and expression' (Moulthrop, 1991: n.p.); and that it 'will

Corresponding author:

Anne Mangen, The National Centre for Reading Education and Research, University of Stavanger, 4036 Stavanger, Norway.

Email: anne.mangen@uis.no

become an increasingly important part of literature in the new millennium' (Hayles, 2004: n.p. [online]). The revolution, however, proved not to be easily won. With the benefit of hindsight, we can reasonably say that such predictions were overly optimistic. Despite the continued enthusiasm of a dedicated few (e.g. Bell, 2010; Landow, 2006, 2007; Moulthrop, 2005, 2007), hypertext novels remain a marginal contribution in the field of literature, and there are even signs that the production and appraisal of electronic literature in general, low as it always was, is beginning to fade even more (Pinder, 2004).

In light of this mismatch between theorists' predictions and readers' neglect, an obvious question begs itself: Why don't we bother to read hypertext novels? Hypertext theory has always suggested reasons why hypertext novels *ought to* appeal to readers; in this article, we present some explanations as to why they have not and why the phenomenon is likely to remain marginal. The primary reasons for its lack of influence and popularity, we argue, can be found by taking a closer look at (i) psychological theories of cognitive processing, (ii) empirical research on the literary reading experience and (iii) evolutionary approaches to the function of narrative. We also aim to show how and why dominant paradigms of hypertext theory in general, and theories of hypertext novel reading in particular, suffer from flawed conceptualizations, often driven by ideology rather than by a cumulative advance of insight through building on established knowledge from relevant disciplines. The dominance of post-structuralist approaches enabled a theoretical development that was characterized by mainly adding novel theoretical approaches whilst simply abandoning existing ones, rather than by a gradual, theoretical advancement where existing constructs, theories and models are challenged, revised, elaborated or discarded in the light of new, empirically established knowledge.

In what follows we will turn first to the epistemological–theoretical shortcomings of hypertext theory of the 1990s and beyond. We then continue to discuss ways in which these shortcomings could be remedied: First, by a better understanding of how hypertext relates to our cognitive information processing in general; second, the (psychologically informed) reasons for how we read and enjoy literature in particular; and third, the likely evolutionary origins of such a predilection for storytelling and literature.

On epistemology: The caveats of (post-structuralist) ideology-driven theorizing

Theodor H Nelson provided the first explicit definition of hypertext, 'By "hypertext" I mean non-sequential writing – text that branches and allows choices to the reader, best read at an interactive screen. As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways' (Nelson, 1992: 0/2). Of crucial importance to the concept are the terms 'non-sequential', 'interactive', 'chunks' and 'links'. Often, the chunks of text are termed 'lexias', after Roland Barthes's *S/Z* (1993), commonly considered a theoretical anticipation of hypertextuality (Landow, 1997). The invocation of Barthes' seminal post-structuralist work launched the beginning of a lasting marriage of hypertext theory and post-structuralism.

Early proponents of hypertext theory (Delany and Landow, 1991; Joyce, 1995; Lanham, 1993; Landow, 1994, 1991, 1997) claimed that hypertext turned the reader into an author, liberating and empowering the reader to construct the text, as well as his/her own identity, and representing an anti-hierarchical and hence democratic replacement of the hierarchical and therefore elitist linearity of print. The reading mode developed and applied to linear print reading was dismissed as outmoded (Eskelinen, 2001; Landow, 1994; Lanham, 1993), thereby needing to be replaced by

revolutionary liberationist hypertext reading (Moulthrop, 1991, 1997). In light of the distinction above, between the (successful) application of hypertext in the World Wide Web (WWW) and the (not very successful) application of hypertext in hypertext novels, one can reasonably claim that, at least from its 2.0 incarnation, the WWW has indeed turned everyone into authors, thereby in a sense enabling a more democratic (some would even say anarchist) system of writing and communication compared with the highly controlled and hierarchical infrastructure of print (Van der Weel, 2011). At the same time, this particular hypertext affordance – that is, that of making every reader an author (potential), of turning an act of reading into a process of selecting text nodes, generating ‘new texts’, and designing one’s own path during a reading – is probably a major part of the reason why we *don’t* read hypertext novels. However, much we may aspire to be writers at other times, as outlined below, when we read novels and literature, we don’t want to be in charge of the course of events. Defining features of what makes literary reading so enjoyable, such as involvement with the fate of characters, or emotionally succinct and pleasurable responses to unexpected twists and turns in the plot, depend fundamentally on authorial control.

Hypertext novels could have provided a unique test bed for studying how different aspects of digital textuality affect processes of textual, literary reading. However, psychological processes involved in literary reading were never a subject of study for hypertext theorists, as indeed they are still not in many academic literature departments today. Nor was it, one might surmise, the theorists’ objective and intention to supply insights into aspects and facets of reading. Instead, (early) hypertext theorists tended to conflate reader–response theorists’ phenomenologically apt insights about literary reading and aesthetic response with erroneous claims about text–reader dynamics, as evident from Bolter’s early writing:

When Wolfgang Iser and Stanley Fish argue that the reader constitutes the text in the act of reading, they are describing hypertext. When the deconstructionists emphasize that a text is unlimited, that it expands to include its own interpretations – they are describing hypertext, which grows with the addition of new links and elements. (Bolter, 1992: 24)

The gaps to be filled by the reader as described by the reception theory of Iser (1974, 1978) are of a fundamentally different nature than the imposed and already filled-in lexias in a hypertext. Iser’s phenomenological approach defines literary reading as the realization of the literary text understood as ‘a potential reality [. . .] which requires a subject (i.e., a reader) for the potential to be actualized’ (1978: 92). There may seem to be a similarity between the virtual and implied meaning potential inherent in any authorial gaps of the (print; linear) text and the explicit, but temporarily invisible, already filled-in/written-out lexias waiting to be realized (by being clicked on) by the hypertext reader. However, such superficial similarity conceals ontological differences between the cognitive, mental operations involved in inference making and gap filling, the ongoing oscillation between anticipation and retrospection, continuous construction of situation models and mental representations of the text and the situation of a hypertext reader who finds him- or herself forced to continually adjust and readjust to the ongoing reconstruction of the text when faced with lexias that are frequently hard to reconcile, narratively and semantically as well as at different levels of syntax.

The politically, rather than scientifically, inspired nature of hypertext theory thus allowed it to disregard fundamental questions about how the digitization of texts in general, and their hypertextual presentation in particular, affect literary (and non-literary) reading. In what follows, we

propose three points of departure for an apposite understanding of literary reading that were ignored in hypertext theory to its peril.

Three keys to understanding the role and function of literary reading

Knowledge about human cognitive processing

In much hypertext theory, the open access network structure of hypertext was claimed to mimic the associative nature of the human mind/brain. This idea of hypertext as a ‘more natural’ mode of presentation than the linear and ‘constrained’ mode of print can be traced back to Vannevar Bush’s idea of the Memex (1945), a storage mechanism that would link data and information by way of association rather than hierarchically by indexes. This association-based organizing principle was claimed to mimic the cognitive processing of the human brain. However, Bush’s concept has been refuted by theories of discourse processing (e.g. Dillon, 1996).

Accusing many computer scientists and educators of falling prey to a technocrat dogma, Dillon explicates how such a ‘computer metaphor of the mind’¹ fails to capture what is essential about how human information processing occurs:

Naturalistic associationism as manifest in the hypertext literature holds that knowledge is represented cognitively in some form of semantic network or web. The exact form, however, is rarely precisely stated and terms such as schemata and networks, scripts, and webs are employed by writers on the subject with little or no recourse to contemporary psychological developments [. . .]. (Dillon, 1996: 28)

The result, according to Dillon, is an ‘uncritical acceptance of quasi-psychological notions of reading and cognition’ (1996: 27), where claims about the superiority of hypertext over linear print is circulated at the expense of references to established, evidence-based knowledge of how the human mind works. Miall and Dobson (2001: n.p.) go so far as to claim that ‘the embrace of hypertext for literature is possible only for those who have paid little attention to the nature of reading’.

Hypertext theorists’ defective conception of human cognition is also pointed out by theorists and scholars in other fields. Exposing the problems of hypertext design with respect to the ways in which it inherently thwarts human information processing mechanisms, Davida Charney (1994) observes how hypertext imposes cognitive demands exceeding human short-term memory capacity and that arbitrary navigation through a network distorts readers’ ongoing process of establishing meaning and coherence. Miall (1999) suggests that the linked or networked aspect of hypertext not only does not mirror the associative or networked nature of the human mind and its way of responding to literary texts but, rather, that it works *contrary* to it. Miall states that ‘from the perspective of the reader the inherent tendency of hypertext is, paradoxically, to disconnect text sections, and not to connect them’ (1999: 4).

It may be asked why, if this is the case, hypertext has still been shown to work very well in the case of the WWW. Closer scrutiny reveals that hypertextual presentation on the WWW concerns preponderantly links *between* unitary texts. That is to say, the WWW does not on the whole offer do-it-yourself paths *through* unitary texts. Insofar as it does offer intratextual navigation this is of a kind that mimics the same type of navigation available in print texts: for example, between text and footnotes or between chapters or other formal textual divisions that could equally be found on a contents page.

Why and how do we read literature and how does literary reading achieve its purpose

Apart from ignoring basic aspects of cognitive processing in general, hypertext theory has also ignored basic aspects of *literary reading*. Partly, hypertext theorists' emphasis on *writing* was the natural corollary of their ideological emphasis on breaking down the hierarchy between the reader and the writer. But in addition it must be admitted that, compared with the vast number of studies on cognitive aspects of reading (e.g. reading comprehension and metacognition) and the wealth of experimental research using textoids to examine low-level perceptual and linguistic processing, there is a scarcity of empirical research on typical pleasure reading of different genres of literary texts. In this respect, Victor Nell's *Lost in a Book: The Psychology of Reading for Pleasure* (1988) has been influential for later theoretical–methodological developments. Although still comprising a small number of scholars, empirical research on literary reading is an emerging, cross-disciplinary field investigating how and why readers take pleasure in reading literature; what psychological, physiological and neurological processes are at play during involvement and engagement in literary texts; and how do these differ from those processes typically at play during the reading of non-literary texts (e.g. expository prose, news)?

Considering the enthusiasm with which its advocates promoted hypertext novels, it is remarkable how little research interest they have triggered outside the electronic literature community. Empirical studies of hypertext novel reading involving actual readers are few and far between, and the studies that have been done tend to find that readers are frustrated, disoriented, confused and tend to get little pleasure from the reading experience (Gee, 2001; Miall, 2004, 2012; Miall and Dobson, 2001). Yet pleasure is exactly what chiefly motivates people to read literature. Norman N Holland (2009) believes that readers come to literature psychologically with two expectations, of which the first is a condition for the second: One, we will not be able to act on it. Two, we expect to take pleasure in the literary work:

Given a literary work, we agree to approach it with Kant's 'disinterestedness'. We adopt an 'aesthetic stance'. We agree just to take pleasure in it. Literature builds on the convention that we will not change the work by our actions. (Holland, 2009: 344)

The inaction described by Holland therefore takes two forms. The first is that the story does not cause us to act in real life, and we inhibit our actions (Holland, 2009; Keyzers, 2011). The second follows from the first, that is, we *cannot* change the work by any action in real life. The pleasure the reader derives from a fictional narrative thus depends on the reader being passive and being 'transported' by the reading experience:

when we are 'lost' in a book [...] [w]e go into a trance-like state that has four aspects. We cease to be aware of our surroundings or our bodies. We tend not to judge the reality of whatever fabulous story or film or play or poem we are 'lost in' [...]. [W]e feel real emotions toward fictional people and events [...]. We know we cannot possibly act to change what we are paying attention to [...]. There is an interesting exception: literature in which we do have to act on the work. With the advent of computers came hypertext, in which the reader must continually choose a path through a narrative or poem. Because the reader constantly acts on the work, the experience of being transported becomes impossible. The world cannot evaporate, nor can we feel transported into the world of the story. Instead, we are busy at the computer. I suspect this is why hypertext has never caught on with the reading public. We want that trance-like experience. (Holland, 2009: 40–41)

Note that non-acting does not of course preclude mental engagement with the text, as we shall see notably in the section ‘Why do humans enjoy stories and storytelling?’ subsequently. Indeed, a genre like detective fiction, as well as many literary texts, invites intellectual reflection. Being transported means that we engage with the fictional characters and events as if they were real, inviting deep psychological involvement (e.g. see Gerrig, 1993). Such transportation is only possible if the reader feels able to trust that the psychological conditions provided by the text justify this involvement.

Many commentators have drawn attention to this need to be transported. For example, David Miall (2012), writing from a literary and phenomenological perspective, stresses the need for what he calls ‘absorption’:

[W]hat hypertext sacrifices, through promoting the machinery of reader choice, is the absorption of the literary reader and its invitation to develop the feelings and self of the reader. A hypertext reader, in contrast, must be active in moving about the screen, clicking links, making decisions. The subtle and varying flow of attention typical of literary reading is likely to be thwarted from the outset by the dis-junctive structure of the hypertext, with its emphasis on manipulation of screen objects. (Miall, 2012: 203)

If such absorption depends on non-action on the part of the reader, this alone puts hypertext at a disadvantage. A hypertext is not consumed in a form predetermined by its author and functions precisely by expecting the reader to ‘interfere’ in the work. In view of the way this expectation of an active manipulation of the text clashes with the reader’s expectations, it should come as no surprise that hypertext as a genre seems largely unknown to the general reading public.

For most of us, the prospect of an emotionally or intellectually pleasurable experience is the main motivation for literary reading. Hence, the continuing focus in literary studies on *interpretation* of texts, rather than on the experiences gained from reading them, can be said to fail to acknowledge what is perhaps, for most people outside of academia, literature’s *raison d’être* (Miall, 2006). Possibly due to their background in literary studies, hypertext theorists doing research on hypertext novels (e.g. Bell, 2010; Douglas, 2000;)² eschew empirical research of the reading experience, producing instead theorized interpretations focusing on underlying ideology (e.g. gender politics in Shelley Jackson’s *Patchwork Girl* (Hayles, 2000, 2005)), an *alleged* effect on the reader, or analyses of single texts in light of some literary (or media) paradigm (Bell et al., 2013). In contrast, empirical studies of literary reading proceed bottom-up, often employing interdisciplinary experimental paradigms in order to determine aspects of literary reading online and offline, such as the degree to which the reader develops feelings for the characters in a story, or the ways in which manipulations of stylistic devices (e.g. point of view) affect readers’ sense of involvement in a text. Theoretical constructs such as immersion (Ryan, 2001), transportation (Gerrig, 1993), engagement (Busselle and Bilandzic, 2009), involvement (Klimmt and Vorderer, 2003), flow (Nell, 1988) or absorption (Kuijpers et al., 2014; Tellegen and Atkinson, 1974) are employed to denote the particular sense of becoming ‘lost in the book’, accompanying enthralling and emotionally pleasurable literary reading experiences.

One influential line of research (Kuiken, 2008; Kuiken and Miall, 2001; Kuiken et al., 2004; Miall and Kuiken, 1994, 1998, 2002) has shown that unique characteristics of a literary text (e.g. foregrounding of stylistic or formal features; literariness) typically elicit four kinds of feeling: (1) evaluative feelings of satisfaction, pleasure, or frustration towards the text, experienced during and/or in retrospect towards the text as a whole; (2) narrative feelings in response to specific aspects of narrative events, characters, plot, and so on; (3) aesthetic feelings in response to striking

or unusual stylistic moments; and (4) self-modifying feelings that restructure the reader's interpretation, thereby prompting the reader to new insights into herself or the world, enabling some transformation, through feeling, of understanding of self.

In one of the earliest empirical studies of hypertext fiction reading, Miall and Dobson (2001) found that the mechanics of hypertext distance the text from the reader, hence discouraging reader absorption and immersion in the literary text. Instead of being transported into the storyworld, the reader is kept busy selecting among links and – often unsuccessfully – attempting to reconcile inconsistencies and lack of coherence between one lexia and the next. However, in this study, Miall and Dobson used a print text, which they manipulated into a hypertext version; hence, their conclusions do not necessarily extend to hypertext novels that are deliberately authored for the hypertext node–link structure. Nevertheless, as they assert, the problems they identified are likely to occur for readers of 'native hypertext fictions' since hypertext design by its very nature disrupts the smooth and continuous involvement of a coherent, textually represented storyworld which is one prerequisite for reader immersion and transportation (Miall and Dobson, 2001). As Miall claims, 'the short lexias of hypertext [. . .] and the need to choose one from several links may disrupt the reader's own unfolding dynamic of reading or forestall its development' (2012: 207).

In another study, Miall (2004) performs a close reading of the award-winning hypertext fiction *These waves of girls* by Caitlin Fisher,³ focusing on how it enables the above-mentioned four types of feelings typically prompted by literary reading. Miall suggests that the evaluative feelings are less likely to be of an immersive than of an interactive kind, in which the reader typically finds pleasure in puzzling out relationships between successive lexias. Further, he finds that narrative feelings are likely to be short-lived, as the reader is only provided brief glimpses of characters and settings, affording little time for committed immersion in the storyworld. The ongoing difficulty of establishing the connection between one lexia and the next further frustrates narrative feelings. A third observation is that whilst aesthetic feelings are triggered by Fisher's work, these feelings 'are in most cases balked by the jump to a subsequent lexia that fails to develop their implications'. Finally, the fourth and perhaps most important type of feelings in literary reading, self-modifying feelings, are by necessity unlikely: 'The inability of the reader to sustain a particular focus, to experience a modification of feelings over a series of lexia, suggests that any transformation in understanding beyond the superficial is unlikely to occur' (Miall, 2004: n.p.).

In addition to the challenges presented by the hypertextual mechanics and the way the narrative is propelled, other studies have focused on how the ergonomic affordances of the hardware (e.g. computer mouse and keyboard) tend to disrupt a reader's immersion in a storyworld (e.g. Mangen, 2008; Ryan, 2001). These haptic aspects of hypertext reading seem to be largely incompatible with the kind of immersion typically aimed for in literary reading, whereas it is perfectly suited for a different kind of stimulus-driven absorption, namely, computer gameplay (Chaouli, 2005; Mangen, 2006).

Whether or not hypertext novels are de facto incompatible with narrativity is a matter for debate. The direction and outcome of such a debate, however, will largely depend on how one defines 'narrativity'. Marie-Laure Ryan (2009) outlines the basic condition of narrativity as 'a sequence of events involving thinking individuals, linked by causal relations, motivated by a conflict, and aiming at its resolution' (p. 43). Faced with the immense range of possible permutations offered to the reader by the hypertext structure, an author of hypertext fiction has to be content with merely offering *building blocks* for a narrative (the lexias), which need to be exchangeable across a number of possible sequences (thus contexts) generated by the reader. In other words, node texts (lexias) need to be open ended, and they have to accommodate multiple

possibilities for linking. Any resulting narrativity will be constructed largely by the reader. Also, fundamentally, hypertext cannot provide closure, even of the most elementary nature. To what extent these two phenomena fundamentally interfere with narrativity can perhaps be discussed. Ryan, for example, claims that hypertext has a problem creating narrative meaning and immersion in a fictional world due simply to the fact that ‘narrative is a linear, causal sequence of events whose significance depends on their position on a temporal axis’ (Ryan, 2009: 44). At any rate, any narrativity resulting from a hypertext reading is obviously constructed largely by the reader:

If readers are to construct a causal sequence of events out of fragments presented in a variable order, they will have to do so by mentally rearranging the fragments into other configurations than the order in which they were initially presented on the screen. (Ryan, 2009: 44–45)

Fortunately for hypertext authors, the brain’s need for narrative is great enough for the reader to be capable of making up for the lack of narrative guidance, but as the research cited above indicates, the experience may not be as enjoyable as when confronted with a more fully narrated story. The reader’s preferred (mental) activity is more likely to be that of pondering the characters and motives driving the narrative plot than trying to construct a coherent narrative structure in the face of technological barriers. A plot based on chance rather than psychological necessity does not make for a satisfactory experience. There are good reasons to suspect sound evolutionary reasons for this preference. We will explore these in the next section.

Why do humans enjoy stories and storytelling?

As we have seen, a chief characteristic of hypertext is that it leaves the constitution of a reading text (turning an assortment of chunks or nodes into a narrative) to the reader instead of it being the writer’s concern. We have suggested that a major psychological reason why hypertext novels never became a success is that when reading fictional stories, the reader does not aspire to an active role in constituting the text. Rather, the reader seeks to become ‘lost’ in the narrative in a way that presupposes submitting to it passively. We here suggest that the reader’s aversion to taking an active role, such as hypertext demands, is congruent with the way storytelling functions as a form of evolutionarily adaptive behaviour.

It must be noted at the outset that not everyone agrees that storytelling is evolutionarily adaptive at all. Norman N Holland, for example, dismisses all attempts at proving literature to be evolutionarily advantageous (Holland, 2009). Regarding literature from a purely psychological point of view, he believes that providing sheer enjoyment is the clue to its universality and universal popularity. In this sense, he is clearly of the opinion of Stephen J Gould, who has suggested that art (e.g. but also language) may have an evolutionary origin but as a by-product rather than as an intrinsically useful adaptation. In a famous comparison between the human brain and architecture, he likened the way the brain produces art with the way architects produce spandrels: as accidental flourishes arising from a design aimed at loftier purposes, such as survival in the case of organisms and constructional soundness in the case of a building (Gould and Lewontin, 1979).⁴

Over the last decade and a half, however, the hypothesis that storytelling does function as an evolutionary adaptation has garnered increasing support. Where Holland explicitly pronounces the view that ‘literature cannot train our brain for life’ (2009: 342), the evolutionary adaptation school of thought concentrates on the usefulness of the way storytelling stimulates and enhances the faculty of ‘counterfactual thinking’ (see, e.g. Carroll, 2006; Dutton, 2009; Gottschall, 2012; Gottschall and Wilson 2005; Pinker, 2007; Swirski, 2006; Tooby and Cosmides, 2001; Wilson,

1998). Fictional stories ‘provide a [...] complex and useful set of templates and examples to guide and inspire human action’ (Dutton, 2009: 112):

This faculty for imaginative practical reasoning obviously had immense survival value in the ancestral environment, enabling hunter-gatherer bands who were especially adept at it to exploit opportunities, cope with threats, and outplan and outcompete less articulate and imaginative groups and individuals. Fictional storytelling, which likely came later, does not function separately from this faculty but is an enhancement and extension of counterfactual thinking into more possible worlds with more possibilities than life experience could ever offer up to an individual. To the ability to think counterfactually, case-based reasoning adds a capacity to interpret and so gain knowledge by drawing analogies and identifying dissimilarities in richly complex situations that are confronted in reality and contemplated in imagination. (Dutton, 2009: 113–114)

The hypothesis that fictional storytelling serves ‘as an imaginative exploration of the larger possibilities of human intellectual and emotional life’ (Dutton, 2009: 120) or simply ‘mental scenarios’ (Wilson, 1998: 225) is now widely held, even if it has not been proved. As Carroll explains, the ‘vital adaptive function’ served by the arts, ‘including the oral antecedents of literature’ is that of ‘organizing human motives and thus ultimately regulating behavior’ (2006: 41). Acknowledging his debt to EO Wilson (1998), Carroll explains:

In his chapter on the arts in *Consilience: The Unity of Knowledge*, Wilson supposes that intelligence subserves adaptive flexibility, and he argues that in detaching human behavior from stereotyped instinctive responses, intelligence presented a new adaptive problem – the problem of confusion, uncertainty, and motivational disorientation. The human capacity for the arts, he suggests, evolved precisely as the solution for that problem. ‘There was not enough time for human heredity to cope with the vastness of new contingent possibilities revealed by high intelligence [...]. The arts filled the gap.’ (2006: 42)

So the arts in general, but especially storytelling (and its literary expressions), Dutton (2009: 120) claims, serve a particular adaptive feature for humans. Due to our large brains and the complex situations we faced when dealing with other human beings, humans have ‘risen well above the more simple, routinized responses to the environment characteristic of other animals. The fact that human beings in the Pleistocene outgrew automatic animal instincts created problems of its own: confusion and uncertainty in choices available for action’. (Dutton, 2009: 120)

Interestingly, the incapacity/undesirability to act that we encountered in Holland’s psychological explanation of the function of literature is also an essential part of the explanation of the way storytelling might function as evolutionarily adaptive behavior. This fits with the age-old notion of the author who subtly manipulates the emotions of his readers.

[T]he author remains the prime mover, the one who is trying to control the show—the interpretation of characters, their actions, and the events that befall them. Authors attempt this by persuading, manipulating, wheedling, planting hints, adopting a tone, and so forth: whatever will appeal to the reader and create a convincing interpretation. (Dutton, 2009: 125)

This hold over the reader is to a large extent the result of a compelling point of view:

Since individual identity is a crucial feature of the adaptive ecology of human beings, it is crucial also to the construction of meaning in literary texts. Writers are people, and people construct imaginative scenarios in order to satisfy their own psychological needs. The most general such need is the need to

articulate and affirm the writer's own characteristic stances or ways of coping with the world – his or her own beliefs, values, and attitudes. The total set of these beliefs, values, and attitudes constitutes a 'point of view', a certain perspective on the world. In this broad sense, there is a distinct point of view implicit in all literary art. Characters in a literary representation, like people in real life, need to affirm their own distinct points of view, but the author mediates among all represented points of view and encompasses them within a single, comprehensive interpretation. The ultimate shaping force behind any imaginative construct is thus the individual identity of the writer. It is for this reason, as Henry James declares, that 'the deepest quality of a work of art will always be the quality of the mind of the producer.' (Carroll, 2006: 45)

The cornerstone in the compelling point of view that Carroll identifies is a coherent theory of the mind: 'What drives the creative process is our hankering for mind-making and mind-reading' (Zunshine, 2006: 160). Zunshine suggests that it is one of the primary drivers of the act of writing to create a fictional world in which the characters fully obey the dictates of theory of mind. But though fully aware that this creative process deals with fictional characters with fictional minds, the reader, too, expects their motives to obey a sound theory of mind. Not only is it therefore one of the chief sources of enjoyment for the reader to try to understand the psychology of fictional characters but it is precisely in that challenge that the consumption of fictional narratives can be regarded as adaptive.

It appears that the hierarchical relationship between the author and a receptive, passive reader, despised by hypertext theoreticians, is really exactly what the reader of narrative fiction wants and expects. The reader, like the storytelling audience, actually *wants* to relinquish control and be at the receiving end of the author's manipulations and wants to be confronted with someone else's consistently and cogently presented point of view so as to be able to test his or her own theory of mind. If the reader were to act (and *a fortiori*, if the reader were capable of acting), he or she would be implicated in the narrative events. This would detract from the reader's sense of witnessing someone else's experiences, rather than his or her own, and is thus undesirable.

In the storytelling-as-adaptation perspective, as in Holland's psychological perspective, hypertext thus plays havoc with the expected passivity of the reader, which is needed in order for the 'transportation' by an author in charge to take place. In addition, by contrast to the manipulative precision of the author-led narrative, aimed to sweep the reader along by unseen manipulations, reader-joined nodes will necessarily appear to lack cogency and be arbitrary.

Conclusion: What can be learned from a failed paradigm?

In summary, the predominant practice of hypertext novel theorists/analysts appears deficient in several respects. Firstly, theorists have pursued an ideology-driven research agenda rather than aiming to put their claims and assumptions to empirical testing. Secondly, their theories have been built on flawed assumptions: they have neglected established insights into the mechanisms of human psychology and cognition. Thirdly, they have disregarded questions about why we read literature in the first place and questions addressing how actual readers experience different kinds of literary texts. Remedying the last of these neglects is particularly urgent in a time when digital technologies continue to marginalize literary reading as a pastime and leisure activity.

Literary reading, observes David Miall (2003), has a prestigious past; however, 'its future has been called into question, given the advent and rapid spread of digital media'. (pp. 350–351) One main reason why literature is becoming an endangered species and literary reading an obsolescent activity (e.g. Hayles, 2012: 55–57) is no doubt the intrinsic nature of digital textuality. The digital

reading environment (with the exception perhaps of dedicated e-reading devices) is characterized by distractions. This has given rise to a much more fragmented type of reading in which discursive, long-form texts are being substituted by snippets. Indeed, some suggest that the very different affordances of digital text forms are stimulating new types of reading, such as ‘hyper reading’, or machine ‘reading’, in which immersion no longer has any place at all (Hayles, 2012; Van der Weel, 2012; see also Moretti, 2005).

To judge by the ‘critical fashions’ of the past two decades in literary studies, according to Marie-Laure Ryan literature may not even be safe in the academy:

The close reading of texts has been replaced by the study of a particular brand of philosophy, known as ‘critical theory’, that uses the literary text as a springboard for its own self-centered activity [. . .]. The approaches that are currently most popular [e.g., Marxism, psychoanalysis, feminism, deconstruction, and postcolonialism] tend to be interested in everything that surrounds the literary text but not in the text itself, and they disregard the reasons why we read literature. (Ryan, 2011: 26–27)

In the meantime, the promises held out by hypertext theoreticians for the success of one type of digital reading, hypertext fiction, have not been kept. In that respect, it is regrettable that still today much of the research undertaken by new media/digital textuality scholars tends to focus on the social context of the reading practice (for a recent example, see, Lang, 2012) rather than on the reader’s phenomenological experience (for a thorough critique of the focus on (cultural, social, political and historical) contexts rather than on individual experiences of reading, see Armstrong, 2011). Reading is studied as a socially and culturally situated practice in which individuals construct their subjectivities and identities and enact their resistance in a cultural and textual combat zone. In this power struggle between discourses and subjectivities, the fixed linearity of print literary texts is still claimed to embody an elitist tyranny suppressing not only the reader himself/herself but also the other modalities potentially co-appearing alongside the (written) text, such as sounds, images and animations (cf., Page, 2010).

Given that digital textuality is obviously here to stay, how to counter these various challenges to reading literature and, especially, to literary reading for pleasure? How can reading research help establish what the future of digital literary reading might look like? Pointing to the need for more interdisciplinary research, Jerome Kagan (2009) criticizes fellow social scientists for not having arrived at satisfactory explanations of core phenomena in their fields, claiming that they suffer from a lack of consensus on concepts and research priorities, weak methods and a habit of abandoning a problem prematurely:

Many social scientists resemble impatient tourists at an exotic bazaar, skipping from one stall to another, continually distracted by a more attractive artifact at another location. [. . .] As a result, social scientists often replace one explanation of a phenomenon with another without a cumulative advance in understanding. [. . .] The absence of agreement of a unifying theoretical perspective that sorts research efforts in accord with their theoretical importance is a major reason for the current unhappy state of the social sciences. (Kagan, 2009: 214–215)

In light of our argumentation above, this description seems equally applicable to at least parts of the current research in arts and humanities departments on hypertext and other digital textualities. The failure of the hypertext novel (and the kind of hypertext theory nurturing and promoting it) can largely be explained by an ignorance of relevant existing knowledge from neighbouring fields, such as psychology, linguistics and discourse processing, neuroscience and evolutionary sciences/

biology/anthropology. What is called for is greater self-scrutiny and an explicit reconsideration of the practices and rhetoric among hypertext and new media theorists.

We would like to suggest an epistemological reorientation more in sync with established theoretical foundations and empirical evidence. To the extent that they intend to contribute to a common pool of knowledge on how, why and to what extent texts and reading are influenced by digitization, hypertext theorists would benefit from acknowledging and implementing obviously relevant research findings from neighbouring fields. Following EO Wilson's (1998) call for 'consilience', Edward Slingerland (2008) argues that scholars in the humanities should find their place in the explanatory hierarchy of scientific knowledge:

with the lowest levels of explanation (such as physics) setting limits on the sorts of explanations that can be entertained at the higher levels (such as biology). [...] Human-level meaning emerges organically out of the workings of the physical world, and we are being 'reductive' in a good way when we seek to understand how these lower-level processes allow the higher-level processes to take place. (2008: 261)

For hypertext theory, this form of 'vertical integration' (Slingerland, 2008; Tooby and Cosmides, 2001) would entail acknowledging and building on what is known, for instance, about human cognition and experiential aspects of literary reading and then developing models and paradigms from which to formulate precise research questions that can be put to empirical scrutiny. A better awareness of relevant knowledge about human cognition would also have 'a constraining function to play in the formulation of humanistic theories' (Slingerland, 2008: 9). This warrants heightened awareness of and increased interest in interdisciplinary research, particularly of the kind crossing the boundaries between arts and humanities departments and the natural sciences. A prerequisite for this to happen is that scholars take issue with the tendency to simply abandon paradigms in favour of some novel ones without consideration of whatever scientific rationale begets the replacement. In his trademark polemic, Raymond Tallis has urged for such self-scrutiny:

The expected collapse of poststructuralism under the weight of its self-contradictions has been postponed too long. My fear, however, is that, once it is gone, other rubbish may rush in to take its place [...]. Once the herd has woken up from its consensual hallucination and poststructuralism, etc. has been banished to the pathology museum where they belong, it will be important to conduct a post mortem as to how and why such 'thought' acquired a dominant position in so many reputed centers. It would be a pity to have to start all over again with something even more daft. After all, there are interesting questions to be addressed and pressing needs to be met and life is short. (Tallis, 1999: 71–72)

One of these questions, why we never bothered to read hypertext novels, we hope to have at least partly answered. However, many equally interesting and important questions remain: how and to what extent are the supposedly unique characteristics of literary reading experiences preserved and provided in digital format? How might an increasingly digital reading paradigm impact innate human proclivities for the creation and sharing of stories? Or vice versa, what digital reading environments might be devised that best answer those innate human proclivities? By adjusting epistemological dogmas and by acknowledging the need for interdisciplinary orientation and integration, hypertext theory and hypertext theorists may take on more relevance in what is often said to be a challenging time for humanities research and help answer widespread concerns about the future of literary reading.

Notes

1. In *Metaphors of Memory: A History of Ideas about the Mind* (Cambridge University Press, 2000), Douwe Draaisma describes how our understanding of memory and mind has been fundamentally influenced by a long history of technological change. Each subsequent metaphor, from wax tablets to computers, acts as an observational filter, drawing attention as much to current preoccupations as to any aspect of the way the mind deals with memory.
2. It is also of interest to note that Alice Bell, in her book-length study of hypertext fictions (2010), has chosen to focus on the four so-called ‘classic’ Eastgate hypertext novels: the aforementioned *Afternoon: a story* and *Patchwork Girl* (1995) and Stuart Moulthrop’s *Victory Garden* (1991), and Richard Holeton’s *Figurski at Findhorn on Acid* (2001). Besides being produced between 1987 (*afternoon*) and 2001 (*Figurski*) and hence requiring potentially obsolete software, these also frequently figure in analytic work of hypertext novels, which can be an indication either of alleged superior aesthetic value, or scarcity of appropriate texts.
3. Available online: <http://www.yorku.ca/caitlin/waves/navigate.html>.
4. Evolutionary approaches to literature (and art in general) are sometimes claimed to be reductive and/or deterministic. It is incumbent on scholars voicing such counterclaims to provide convincing counterarguments and prove evolutionary approaches wrong. Moreover, rather than necessarily reductionist or deterministic, an evolutionary approach allows the prediction, for instance, that narrativity will appeal more to young than to old people, simply because it is more *useful* to them. It remains to be empirically established whether reading preferences of older people actually tend towards moving away from fiction towards non-fiction. However, such an interpretation would certainly explain why most people think it important to narrate or to read stories to children.

References

- Armstrong PB (2011) In defense of reading: or, why reading still matters in a contextualist age. *New Literary History* 42: 87–113.
- Barthes R (1993) *S/Z*. Oxford: Basil Blackwell.
- Bell A (2010) *The Possible Worlds of Hypertext Fiction*. London: Palgrave Macmillan.
- Bell A, Ensslin A, and Rustad H (2013) *Analyzing Digital Fiction*. New York: Routledge.
- Bolter JD (1991) *Writing Space: The Computer, Hypertext, and the History of Writing*. Hillsdale: Lawrence Erlbaum.
- Bolter JD (1992) Literature in the electronic writing space. In: Tuman MC (ed.) *Literacy Online: The Promise (and Peril) of Reading and Writing with Computers*. Pittsburgh: Pittsburgh University Press, pp. 19–42.
- Bush V (1945) As we may think. *Atlantic Monthly* 176: 101–108.
- Busselle R and Bilandzic H (2009) Measuring narrative engagement. *Media Psychology* 12: 321–347.
- Carroll J (2006) The human revolution and the adaptive function of literature. *Philosophy and Literature* 30: 33–49.
- Chaouli M (2005) How interactive can fiction be? *Critical Inquiry* 31: 599–617.
- Charney D (1994) The impact of hypertext on processes of reading and writing. In: Hilligoss SJ and Selfe CL (eds) *Literacy and Computers*. New York: Modern Language Association, pp. 238–236.
- Delany P and Landow GP (1991) *Hypermedia and Literary Studies*. Cambridge, Mass: MIT Press.
- Dillon A (1996) Myths, misconceptions, and an alternative perspective on information usage and the electronic medium. In: Rouet J-F, Levonen JJ, Dillon A, and Spiro RJ (eds) *Hypertext and Cognition*. Mahwah: Erlbaum, pp. 25–42.
- Douglas JY (2000) *The End of Books – Or Books Without End?: Reading Interactive Narratives*. Ann Arbor: University of Michigan Press.

- Draaisma D (2000) *Metaphors of Memory: A History of Ideas about the Mind*. Cambridge: Cambridge University Press.
- Dutton D (2009) *The Art Instinct: Beauty, Pleasure, & Human Evolution*. Oxford University Press.
- Eskelinen M (2001) Cybertext theory and literary studies: a user's manual [Online] *ebr12*. Available at: <http://www.altx.com/ebr/ebr12/eskel.htm> (accessed 15 November 2014).
- Gee K (2001) The ergonomics of hypertext narrative: usability testing as a tool for evaluation and redesign. *ACM Journal of Computer Documentation* 25: 3–16.
- Gerrig RJ (1993) *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. New Haven: Yale University Press.
- Gottschall J (2012) *The Storytelling Animal: How Stories Make Us Human*. Boston: Houghton Mifflin Harcourt.
- Gottschall J and Wilson EO (eds) (2005) *The Literary Animal: Evolution and the Nature of Narrative*. Evanston: Northwestern University Press
- Gould SJ and Lewontin RC (1979) The spandrels of San Marco and the Panglossian paradigm: a critique of the adaptationist programme. *Proceedings of the Royal Society of London. Series B. Biological Sciences* 205: 581–598.
- Hayles NK (2000) Flickering connectivities in Shelley Jackson's *Patchwork Girl*: the importance of media-specific analysis. *Postmodern Culture* 10. Available at: <http://pmc.iath.virginia.edu/text-only/issue.100/10.2hayles.txt> (accessed 15 November 2014).
- Hayles NK (2004) Hypertext narratives, literature come alive *UCLA Today* [Online]. Available at: www.today.ucla.edu/1997/970411HypertextNarratives.html (accessed 15 November 2014).
- Hayles NK (2005) *My Mother Was a Computer: Digital Subjects and Literary Texts*. Chicago: The University of Chicago Press.
- Hayles NK (2012) *How We Think*. Chicago: University of Chicago Press.
- Holland NN (2009) *Literature and the Brain*. Gainesville: The PsyArt Foundation.
- Iser W (1974) *The Implied Reader: Patterns of Communication in Prose Fiction from Bunyan to Beckett*. Baltimore: Hopkin.
- Iser W (1978) *The Act of Reading: A Theory of Aesthetic Response*. Baltimore: Johns Hopkins University Press.
- Joyce M (1995) *Of Two Minds: Hypertext Pedagogy and Poetics*. Ann Arbor, Mich: University of Michigan Press.
- Kagan J (2009) *The Three Cultures: Natural Sciences, Social Sciences, and the Humanities in the 21st Century*. Cambridge: Cambridge University Press.
- Keyers C (2011) *The Empathic Brain: How the Discovery of Mirror Neurons Changes our Understanding of Human Nature*. Lexington: Social Brain Press.
- Klimmt C and Vorderer P (2003) Media psychology “is not yet there”: introducing theories on media entertainment to the presence debate. *Presence: Teleoperators and Virtual Environments* 12: 346–359.
- Kuiken D (2008) A theory of expressive reading. In: Zyngier S, Bortolussi M, Chesnokova A, and Auracher J (eds) *Directions in Empirical Literary Studies*. Amsterdam: John Benjamins Publishing Company, pp. 49–68.
- Kuiken D and Miall DS (2001) Numerically aided phenomenology: procedures for investigating categories of experience. *FQS – Forum: Qualitative Social Research* 2. Available at: <http://www.qualitative-research.net/index.php/fqs/article/view/976> (accessed 15 November 2014).
- Kuiken D, Miall DS, and Sikora S (2004) Forms of self-implication in literary reading. *Poetics Today* 25: 171–203.
- Kuijpers MM, Hakemulder F, Tan ES, et al. (2014) Exploring absorbing reading experiences. *Scientific Study of Literature* 4(1): 89–122.
- Landow GP (1991) *Hypertext: The Convergence of Contemporary Critical Theory and Technology*. Baltimore: Johns Hopkins University Press.
- Landow GP (1994) *Hyper/Text/Theory*. Baltimore: The Johns Hopkins University Press.

- Landow GP (1997) *Hypertext 2.0*. Baltimore: Johns Hopkins University Press.
- Landow GP (2006) *Hypertext 3.0: Critical Theory and New Media in An Era of Globalization*. Baltimore: Johns Hopkins University Press.
- Landow GP (2007) Comparative literature from text to hypertext or what do electronic media have to offer the discipline? In: Sanz A and Romero D (eds) *Literatures in the Digital Era*. Newcastle: Cambridge Scholars Publishing, pp. 23–40.
- Lang A (ed) (2012) *From Codex to Hypertext: Reading at the Turn of the Twenty-First Century*. Amherst & Boston: University of Massachusetts Press.
- Lanham RA (1993) *The Electronic Word: Democracy, Technology, and the Arts*. Chicago: University of Chicago Press.
- Mangen A (2006) *New Narrative Pleasures? A Cognitive-phenomenological Study of the Experience of Reading Digital Narrative Fictions*. PhD Dissertation, Department of Art and Media Studies, Faculty of Arts, Norwegian University of Science and Technology, Trondheim, Norway.
- Mangen A (2008) Hypertext fiction reading: haptics and immersion. *Journal of Research in Reading* 31: 404–419.
- Miall DS (1999) Trivializing or liberating? The limitations of hypertext theorizing. *Mosaic: A Journal for the Interdisciplinary Study of Literature* 32: 157–171.
- Miall DS (2003) Literary discourse. In: Graesser AC, Gernsbacher MA, and Goldman SR (eds) *Handbook of Discourse Processes*. Mahwah: Lawrence Erlbaum Ass, pp. 287–319.
- Miall DS (2004) Reading hypertext: theoretical ambitions and empirical studies. *Forum Computerphilologie* 3: n.p.
- Miall DS (2006) *Literary Reading: Empirical & Theoretical Studies*. New York, Peter Lang.
- Miall DS (2012) Confounding the literary: temporal problems in hypertext. In: Lang A (ed.) *From Codex to Hypertext: Reading at the Turn of the Twenty-First Century*. Amherst & Boston: University of Massachusetts Press, pp. 203–216.
- Miall DS and Dobson T (2001) Reading hypertext and the experience of literature. *Journal of Digital Information* n.p. Available at: <http://jodi.ecs.soton.ac.uk/Articles/v02/i01/Miall>.
- Miall DS and Kuiken D (1994) Beyond text theory: understanding literary response. *Discourse Processes* 17: 337–352.
- Miall DS and Kuiken D (1998) The form of reading: empirical studies of literariness. *Poetics* 25: 327–341.
- Miall DS and Kuiken D (2002) A feeling for fiction: becoming what we behold. *Poetics* 30: 221–241.
- Moretti F (2005) *Graphs, Maps, Trees: Abstract Models for Literary History*. London/New York: Verso.
- Moulthrop S (1991) You say you want a revolution? Hypertext and the laws of media. *Postmodern Culture* 1(3) Available at: <http://xroads.virginia.edu/~DRBR/moulthro.txt> (accessed 15 November 2014).
- Moulthrop S (1997) Pushing back: living and writing in broken space. *Modern Fiction Studies* 43: 651–674.
- Moulthrop S (2005) What the geeks know: hypertext and the problem of literacy. In: Reich A and Tzagarakis M (eds) *Proceedings of the sixteenth ACM conference on Hypertext and hypermedia*. Salzburg, Austria, 06–09 September 2005, pp. 227–231. New York: ACM Press.
- Moulthrop S (2007) Learning, change, and the utopia of play. *Learning Inquiry* 1: 51–57.
- Nell V (1988) *Lost in a Book: The Psychology of Reading for Pleasure*. New Haven: Yale University Press.
- Nelson TH (1992) *Literary Machines: The Report On, and of, Project Xanadu, Concerning Word Processing, Electronic Publishing, Hypertext, Thinkertoys, Tomorrow'S Intellectual Revolution, and Certain other Topics Including Knowledge, Education and Freedom*. Sausalito: Mindful Press.
- Page RE (2010) Introduction. In: Page RE (ed.) *New Perspectives on Narrative and Multimodality*. New York: Routledge, pp. 1–13.
- Pinder J (2004) The codex unbound: The (failed?) promise of the hypertext novel. *Philament – An Online Journal of the Arts and Culture* 11: 39–57.
- Pinker S (2007) Toward a consilient study of literature. *Philosophy and Literature* 31: 162–178.
- Ryan M-L (2001) *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. Baltimore: Johns Hopkins University Press.

- Ryan M-L (2009) From narrative games to playable stories: toward a poetics of interactive narrative. *Story-worlds: A Journal of Narrative Studies* 1(1): 43–59.
- Ryan M-L (2011) Meaning as spectacle: verbal art in the digital age. In: Alber J, Iversen S, Jacobsen LB, Kraglund RA, Nielsen HS, and Reestorff CM (eds) *Why Study Literature*. Aarhus: University of Aarhus Press, pp. 25–54.
- Slingerland EG (2008) *What Science Offers the Humanities: Integrating Body and Culture*. Cambridge: Cambridge University Press.
- Swirski P (2006) *Of Literature and Knowledge: Explorations in Narrative Thought Experiments, Evolution and Game Theory*. London: Routledge.
- Tallis R (1999) *Theorrhoea and After*. London: Macmillan.
- Tellegen A and Atkinson G (1974) Openness to absorbing and self-altering experiences (“absorption”), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology* 83: 268–277.
- Tooby J and Cosmides L (2001) Does beauty build adapted minds? Toward an evolutionary theory of aesthetics, fiction, and the arts. *SubStance* 30: 6–27.
- Van der Weel A (2011) *Changing Our Textual Minds: Towards a Digital Order of Knowledge*. Manchester: Manchester University Press.
- Van der Weel A (2012) Feeding our reading machines *the media res* [Online]. Available at: <http://www.the-mediare.com/pages/parlance/reading-machines.html> (accessed 15 November 2014).
- Wilson EO (1998) *Consilience*. New York: Knopf.
- Zunshine L (2006) *Why We Read Fiction: Theory of Mind and the Novel*. Columbus: Ohio State University Press

Author biographies

Anne Mangen is Associate Professor of literacy at the Reading Centre, University of Stavanger, Norway. Her main research interest concerns the impact of digitisation on reading – at different levels (sensorimotor/ergonomic; perceptual; cognitive; emotional); of different kinds of texts (linear & non-linear; narrative & expository; literary); for different purposes (news reading; information search; study; pleasure reading). She is currently doing empirical research comparing literary reading on paper and different kinds of screens, measuring in particular how material features of the technologies may affect the reading experience.

Adriaan van der Weel is Bohn extraordinary professor of Modern Dutch Book History at the University of Leiden, Book and Digital Media Studies, with research interests in the digitisation of textual transmission and reading; publishing studies; and scholarly communication. He is editor of a number of book series on these subjects, and European articles editor of *Digital humanities quarterly*. His latest books are *Changing our textual minds: Towards a digital order of knowledge* (Manchester: Manchester UP, 2011), and *The Unbound Book* (Amsterdam: Amsterdam UP, 2013), a collection of essays jointly edited with Joost Kircz.