Jason Shiga's Meanwhile and digital adaptability of non-traditional narratives in comics

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Abstract

The demand for digital comics has increased steadily with the growth of the mobile market. This has led many comic authors to consider the importance of the physicality of their work. While many comics are being digitally converted using existing delivery channels, comics that push the boundaries of narrative find this transition more difficult. Many of the current distribution channels either attempt to emulate books, or guide the reader from panel to panel, but many non-traditional narratives require greater engagement than is allowed for under these models. Jason Shiga's 'choose-your-own-adventure'-style comic Meanwhile serves as a valuable example of such a story. Shiga co-developed a stand-alone iPad app for his book, which incorporates the interactive elements of his physical comic. I discuss how the app translated the experience of the book object to the digital realm, and touch on other experimental attempts to engage with readers digitally.

As the mobile media device market has grown over the past 10 years, the demand for digital books and comics has increased. Exact sales figures for the digital market are hard to come by (McMillan 2012), as the main distributors are quite guarded with their figures. Comixology, one of the leading digital comics platforms, reportedly grossed $19 million in fiscal year 2011, and projected growth that would see them gross $70 million in fiscal year 2012 (Rosenblatt 2012). In the rush to take advantage of this burgeoning market, a number of companies jumped in and developed delivery and payment systems, like the Comixology app, and Amazon's Kindle reader—a standalone device and an application that can run on iOS and Android.

In this article, I explore different authors' and artists' responses to the move towards digital comics, look at some of the strengths and weaknesses of communicating narratives through both traditional, bound books and digital devices, and focus on some specific texts that are designed to take advantage of the formats in which they are presented. I focus on liminal cases in each medium in order to explore the boundaries of what is currently being produced, thereby exposing media-specific characteristics and opportunities comics can take advantage of. Digital narrative technologies are a nascent and growing medium. It is still too early to tell if these works point to the directions that digital comics reading may follow, but these examples propose ideas that are worth critical analysis and contemplation. It is important to make sure the focus for developing these reading apps is not placed solely on market shares and profit, but is extended to user experience and engagement. Reading strategies have not been solidified or codified yet, so creators have an opportunity to experiment with new methodologies of storytelling.

I focus on one comic narrative in particular, *Meanwhile* by Jason Shiga (2010a), which exists as a codex bound book, but also as an app, which was developed specifically for the narrative. I also look at examples both from within and beyond the world of comics, bringing in prose works that push the boundaries of narrative and interaction. Many of these works incorporate a variety of media beyond traditional text. The authors are using the variety of the tools at their disposal to question reading methods and problematise reader engagement, regardless of traditional definitions of their discipline. Certain hybrid texts blur the line between novels, comics, animation and games in an attempt to engage the reader in their story. This variety of examples should suggest a range of possible ways in which comics creators could further their own experiments into the digital realm.

Affordances, interfaces and digital content delivery systems

The majority of the interfaces designed for e-reading tend to use one of two conceptual models. Some try to translate directly the user interaction of paper book reading by taking advantage of the physical action of turning a page, using the previously learned affordances associated with reading a book (Norman 1998, p 9). This technique of mimicking the attributes of the physical object is popular among applications, like the Kindle, that cater to a wide range of users, many of whom may not be digital natives (those who have lived their whole lives with digital technologies being commonplace). These apps almost ignore the fact that the reader is using a digital device, and may actually strive to create an experience in which the user forgets as well. While Thierry Groensteen (2013, loc 1148-1150) supposes that programmers use this method in order to make up for the perceived 'loss' of the physical book object that readers have become attached to, Christian Vandendorpe (2008, n.p.) posits in his essay 'Reading on Screen' that the use of prior reading metaphors is necessary in the development of a new reading paradigm: 'A culture does not progress by erasing the past, but by weaving it into its future'. Centuries of reading codex books has predisposed us to expect a set of specific interactions that we associate with reading. In *Writing Machines*, N. Katherine Hayles draws attention to the 'material metaphor' of the book that we so often take for granted and points out that 'To change the physical form of the artifact is not merely to change the act of reading…but profoundly to transform the metaphoric network structuring the relation of word to world' (2002, p 22–23). E-readers that mimic the affordances of the book try to undercut this media materiality, but Hayles's argument points to the futility of this approach. The medium changes how a reader interacts even with apps and programs that purport to mimic linear books, for these programs still take advantage of the mutable nature of the digital to allow for interactive highlighting, note-taking and mark-ups, definitions, and hypertextual linking.

The other conceptual model is used by comics-specific apps like Comixology. These apps introduced a 'guided view', zooming and panning across the comic page showing a single panel at a time. According to Comixology's website, this operates 'in a way that mimics the natural motion of the user's eye through the comic' (2013). This feature acknowledges, and attempts to counteract, the limitations of the small screens many are reading on, but it does so by stripping the individual panels from the overall page layout that the artist composed when drawing the comic for print. Decontextualising the image from the overall layout may change how the reader understands the panel; as well as detracting from the overall aesthetic, it could shift the emphasis, disrupt flow or visual braiding, where visual or design elements are placed in the same position on the page in multiple spreads which forms a mnemonic bond for the reader.

This automated panel-to-panel transition does not simply disrupt layout, but also rhythm and pacing. The reader's sense of the page rhythm is affected by the regularity of panels, and pacing by the size of the panels, the number of panels per page, their spacing, as well as panel borders. While the reader is often shown an overview of the page before diving into the individual panels, any visuals or information in the gutters is discarded or cropped once the reader has zoomed in. Panel borders are also affected, especially if there is no border and this lack is key to the understanding of the panel in context. By isolating the panel, the edges of the reading device become an implicit panel border, regardless of the artist's page construction.

Vandendorpe discusses one of the drawbacks to digital reading, the scrollbar. Readers develop a mental relationship between the physicality of the book and their position within it to aid in recall. A scrollbar 'excludes the participation of visual memory in the reading process' (2008, n.p.). This issue of delocalisation is particularly pertinent when discussing comics, as visual memory relates not simply to a page's context within the corpus as a whole, but also each panel's context in the page. This sense of locality and the use of visual memory to build meaning is directly related to Groensteen's (2013) definitions of rhythm and braiding.

A number of critics, including Scott McCloud to Groensteen, have discussed how time behaves on the comic page. Almost all discussions of the operation of time in comics touch on the closure that happens between two panels on a page, two discreet instances of time that are physically separated. Attention must be paid to how this closure is achieved in a digital device if the panels are decontextualised from a page and shown in isolation. Padmini Ray Murray (2012, p 137) argues that the dynamic zooming and scrolling from panel to panel in some digital comics apps takes agency over timing and pace away from the reader, and this agency is integral to comics as a medium. Daniel Goodbrey discusses how some creators have adapted to this format of story telling in order to take advantage of what he refers to as 'panel delivery' (2013, p190). Specifically designing for panel delivery allows the creator to take back control of rhythm by determining how many panels are revealed to the reader with each click. This assumes content creators are given the ability to customise these transitions, which is not the case in Comixology.

Some publishers may accept the current tools, but they do not suit every narrative. Publishers and creators have entered the digital marketplace for a variety of reasons; many larger companies, for instance, were more focused on battling piracy issues than content delivery (Groensteen 2013). The publishers may not have been overly concerned about the quality of the interaction for the consumer, as long as the experience is easier and preferable than pirating. Thierry Groensteen is explicit in his distaste for the capitalistic drive he sees in current mainstream digital comic offerings:

> For the informed reader attached to the linguistic and aesthetic properties of comics, a sense of depletion and deterioration must logically be uppermost.... For publishers, in contrast, the digitalization of their back catalogue offers the hope of new financial gain. (2013, loc 1193-1195)

For publishers with large back catalogues of traditional material, the current models may be sufficient, but these standardised delivery methods do not suit work that attempts to push the boundaries of narrative form. For these narratives, the digital transition proves more problematic. Current titles such as Marvel's *Hawkeye* and *Young Avengers* play with page format and are creatively designed, and DC has recently released titles such as *Batwoman* by J.H. Williams III which are much more painterly in style. The digital format in which these titles are distributed by their publishers makes no accommodations for the design of these comics that take full advantage of the printed page; Groensteen refers to such digital transformations as 'inadequate and damaging' (2013, loc 1175-1176). Some creators do not have much choice in how their comics are distributed digitally, being tied to large publishers, although Goodbrey (2013 , p 191) cites experiments Marvel has made into digital native comics, specifically "Guardians of the Galaxy" Infinite Comics by Brian Michael Bendis and Michael Avon Oeming (2013).

Other artists are not tied to specific sites and apps, but their content may be suited to the methods of engagement discussed above. Distributing comics via these channels allows creators to reach a wide audience, something that can be incredibly important, especially to independent artists. Apps like Comixology and Kindle may provide suitable methods for digitally interacting with traditional comics, but even for those works which suit these mainstream implementations, it is still important to pay attention to how the presentation of materiality informs reading and understanding. Hayles (2002, p 107) points out that even an interface that attempts to negate its own materiality impacts on how the reader accesses the content, and informs the reader's relationship with the text.

Like Hayles (2002, p 33), I am not focusing my attention on emergent techniques in order to assert their superiority, but to examine different narrative treatments and glean what these works may show us about the

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nature of digital interaction. The current, standardised digitisation techniques are not suitable for all comic content. While Groensteen (2013, loc 1166-1171) argues that longer narratives are less well suited to screen-based reading, he does not mention the suitability of stories that focus on creative engagement and non-traditional narrative techniques. He does mention the growth of more 'auteuristic comics' (2013, loc 141-145) since the 1990s which have stretched the printed comics medium, but not how these experiments could impact and be impacted by technological advancements. In a similar way to how artists' books explore the limits of print (Hayles 2002, p 20), there have been auteurist digital narratives that stretch the limits of this newer medium. Exploring these pieces, especially those that have printed counterparts to allow for comparison, will hopefully shed some light onto the media specificity of digital comics. These techniques could be useful to all creators, regardless of publisher affiliation or lack thereof.

Medium specific narratives and digital suitability

The conceptual models used in apps such as Comixology and the Kindle reader have caused a backlash against digital comics from some creators. In the past few years there have been graphic narratives made and published that are so wedded to being physical objects that they could not be translated into the digital realm. This is not a trend particular to comics, as Jessica Pressman (2009, p 467–468) points out: 'This focus on and fetishization of the bookbound nature of the codex as reading object has, in some respects, always been the case for certain strains of literature, experimental writing in particular.'

One work that not only fetishizes the physical but also draws attention to the codex-bound nature of most comics is Chris Ware's *Building Stories* (2012), 11 objects of various sizes that mimic very specific printed formats and carry with them the associated meanings of these formats. As part of the experience of reading this narrative is caught up in the physicality of the objects that are referenced, a satisfactory digital equivalent cannot be created.

One of the books that make up *Building Stories* has a stiff cardboard cover and gold spine, which recalls the Little Golden Book series popular with children in the United States from the 1940s onwards. Ware worked with designer Chip Kidd to make the experience of holding the book much like the adult reader would remember from childhood (Tanenhaus 2012). Kidd scaled the book up, so that it would have the same size ratio to an average adult as a real Little Golden Book would have to a child. It was even printed by the same company that produces the Little Golden Books, who mistakenly used the actual Golden Book spine in the first dummy version (Tanenhaus 2012). In a talk at the Edinburgh International Book Festival in August 2013, Ware (2013) spoke about these physical memory triggers being specific down to a quarter of an inch. This kind of memory association is untranslatable to any other format, either a digital device, which is a static, proscribed size, no matter what the scale of the content, or a traditionally bound codex book that contained the various narratives amalgamated into a single object.

Ware is not rejecting digital comics outright, but he is certainly making a statement about the appropriateness of media to the narrative being delivered. Certain stories work as bound books, others as newspapers and pamphlets, and, by extension, there are certain stories that work best in interactive screen-based media. Ware is almost unwittingly performing an act of media archaeology, in Siegfried Zielinski's meaning of the phrase. Zielinski's thesis in *Deep Time of the Media* is built upon the idea that media archaeology should seek to 'find something new in the old' (2006, p 4) and take an approach to traditional methods of working that allows us to be inspired by what is novel about different media. Ware uses formats that are edging towards obsolescence, like the broadsheet, in order to draw attention to the formal qualities we associate with them. By using the syntax of these media to present comics, content that may not usually be associated with these formats, Ware reminds creators and readers of the structural opportunities inherent in each form.

It may be of interest to note that one section of *Building Stories*, 'Touch Sensitive', was originally commissioned by Wired magazine for their iPad app (Reid 2012). Ultimately, what Ware submitted was too complex for their needs, so they rejected it, but the publisher McSweeney's eventually took on the creation of an app for it. Ware wanted to explore how, 'in any relationship,… the electric touch of affection starts to become aggressive as you become more familiar with the person' (2013). He was also interested in the idea that a reader could manipulate memories with their hands. Once the app was completed, however, despite it being made to his exact specifications, he felt the interaction was unsatisfying. He feels there is something 'mean' about having to pay for ephemeral, electronic books; it is a bit like 'someone breathing into your mouth' (Ware 2013).

Ware freely admits that, for certain kinds of media, like news, digital distribution makes the most sense and is the way forward (Larimer 2012). His characters use their internet-enabled devices throughout *Building Stories*, just as he and his wife do in real life. Ware is certainly not anti-tech, but his work is broadly concerned

with memory and a longing for a fictionalised past. *Building Stories* is an exploration of memory that uses specific physical formats to trigger a nostalgia in the reader that mimics the internal state of the main character. Ware's sense of nostalgia is rooted in a very specific cultural moment, and is certainly pitched towards readers from his generation and social background. The Little Golden Book reference discussed above may mean nothing to readers 20 years younger, or from outside the United States. To evoke this particular middle-age, middle-class, middle-American melancholy nostalgia, Ware must avail himself of these shared reference points and play to the fetishisation of book objects that would appeal to this particular reader. The impersonal glowing screen of an e-reader is anathema to the stories he tells.

The way Ware has approached representing memory, using discreet, disconnected chunks of story-frag-ments, references techniques used by modernist and postmodernist writers. Such texts might include Calvino's *If On a Winter's Night a Traveller* (1979 original/1981 first English translation), Cortázar's *Hopscotch* (1963 origi-nal/1966 first English translation), or even Perec's *Life A User's Manual* (1978 original/1987 first English trans-lation). Indeed, Perec's text has similarities to *Building Stories*, a fact that was noted by Stuart Kelly, the chair during the talk Ware gave at the Edinburgh Book Festival. Both works rely on the reader to form a whole from discreet chunks of disconnected narrative, and both are concerned with the architectural specificity of the spaces that the narratives inhabit. The case can be made that the codex book is not the form most suited to these critical engagements with narrative, simply the predominant form of mass-circulated textual media available to authors until the turn of the millennium. That is certainly the position Dirk Van Hulle espouses. Van Hulle (2008) argues that more 'writerly' texts (to use Barthes' terminology), or any texts that eschew linear narrative structure, are at odds with the codex format they are bound in. Yet I would argue that any of these works cited above creatively engage with the printed format in which they have been distributed, and in some cases actively take advantage of print's limitations to problematise the nature of narrative.

Breaking from the codex as Ware does in *Building Stories* draws attention to the nonlinearity of his narra-tive. Yet this work also signifies from the outset, being distributed in a box, that it must be approached differently from traditional comics. This changes how the reader engages with the text. A reader approaching *Hopscotch* (Cortázar, 1998), with its unique reading system devised from the titular children's game, has a different set of expectations and the juxtaposition of the reading method with the bound codex format is inherent to the reader's engagement with the text. Van Hulle (2008) asserts that by emphasising perspectivism over a singular narrative vision, texts such as these anticipate hypertextual reading strategies, refusing the necessity that narratives be read front to back, cover to cover. Yet a hyperlinked version of *Hopscotch* would return the narrative to an unprob-lematised linear reading mode, disrupting the sense of play and active interaction that Cortez was experimenting with.

Van Hulle (2008) discusses the hypertext version of William Faulkner's *The Sound and the Fury* (1929 original/2003 hypertext), which allows the reader to access the memory fragments that are originally printed as discreet elements throughout the book in a hyperlinked fashion. The text is available to be read as written, but each memory strand is colour-coded and linked together. Placing the disjointed memory fragments together as a narrative whole changes the reader's relationship to them. Van Hulle (2008) cites Jean Paul Sartre's assessment that the hidden linear narrative in Faulkner's book tells another story than the main narrative. I would argue that linearising a piece of writing that was laid out in a very particular manner in order to impede the linear flow of time and narrative direction actually undercuts the intention of the writing.

Certainly, creating holistic narratives out of our memories is part of identity formation and how we make sense of the world, but that is a far more conscious use of memory than the daily appearance of moments of our past that insert themselves into our current temporal experiences (Keightley and Pickering 2012). The snippets of memories scattered throughout Faulkner's work mimic the more passive form of remembering, whereas as-sembling these pieces into a whole presents them as a formation of active remembering. Here, digitising leads to a more linear reading than the codex bound version, thereby undoing the problematised nature of memory that Faulkner engages with.

As Hayles notes 'with **both** print and screen, the specificity of the medium comes into play as its charac-teristics are flaunted, suppressed, subverted, or re-imagined' (2002, p 33, emphasis added). Authors like Faulkner and Cortázar created work that experiments with how readers engage and interact with printed, codex books, and the specificity of the medium they worked in informs the nature of their texts. There are other, more physi-cal ways, of foregrounding the interactivity of print text, such as Raymond Queneau's *Cent mille milliards de poèmes* [*Hundred Thousand Billion Poems*] (1985, 1961 original), a book consisting of pages cut into strips, which allows the reader to combine the page-fragments into new wholes with each reading; or Paul Zimmerman's High Tension (1993), which also employs creatively cut pages in order to present the reader with multiple narrative strands (Hayles 2002, p 26).

Yet, a digital adaptation of these texts that downplayed their interactivity in favour of mimicking the bound books they were originally produced for would be counter-productive as well. The content should dictate the form of engagement, not be bound by tradition as to how textual content is delivered. An example of a prose book adapted to an app that managed to retain its playful qualities is Composition #1, designed by Visual Editions (2013). Written by Marc Saporta, Composition #1 was first published in the 1960s as 150 individual pages, each containing a standalone narrative that could be read in any order. Visual Editions republished this work in both print and digital form in 2011. To retain the Dada-esque quality of randomness inherent in the linked yet self-contained narratives printed on unbound sheets of paper, Visual Editions designed an app that continuously scrolls, unless the reader physically holds down the page with their fingers. Impressively for a digital work, this app has an almost tactile quality, allowing the order of the pages read to be determined by chance, like picking a page being blown in the wind.

It is important to point out at this stage that the issues posed by digital adaptation are not unique, and the challenges are present in any form of remediation or adaptation, even within different formats of print media. The act of collecting single-issue comics into a trade, graphic-novel-sized book changes the reader's interaction with and understanding of the work. Single-issues lack structural integrity, flop about in the reader's hands, get crushed in a bag, are ephemeral. The content can be quickly consumed, and perceived as disposable, fleeting, or of little value, but single-issues are also easier to manipulate in your hands and are cheaper to produce, which can make them good places for experimentation. Trade paperbacks are sturdier, are perfect bound like prose books, and fit into bookshelves. Their content is made to last, be savoured, may even aspire to be culturally accepted as literature.

To see how this affects the reading of a comic, take *The Unwritten* #17 'The Many Lives of Lizzie Hexam' (Carey 2010). This particular issue deviates in many ways from traditional comic-book norms, which were observed in every other issue of this series to that point. The pages, with the exception of the first page, are laid out in landscape, instead of portrait orientation, which causes the reader to spin the issue 90 degrees to read it. Each physical page is numbered with two 'story pages' at the bottom, and the narrative progresses via a 'choose-your-own-adventure'-style format. At certain points the reader is given options that require them to flip to various other pages in the issue and follow their choices to the end. The different narrative paths reveal a variety of moments in the life of one of the central characters, the titular Lizzie Hexam, as well as layering subjective experiences and motives behind certain narrative events.

I own and have read this story in its single-issue format, but it has also been collected into a trade paperback volume of *The Unwritten*. My experience of reading this issue would be different from someone who encountered the same content in a bound book. The physicality of the orientation change was mediated by not being immediately juxtaposed by a preceding story, although this disorientation is somewhat highlighted by the first page of the comic adhering to medium norms. The manipulation of the comic in order to adapt to the change in orientation is not problematic, as the limited page count and saddle-stitched binding allows the reader to lay the object flat open on a table. The glossy coated pages give fingers purchase, so that the reader may flip through the various pages with relative ease. I would imagine that I would have to stress or break the binding of a trade paperback in order to lay it flat on a table, and the cheaper paper often used would make the page turns harder and dry my fingers, making the experience less pleasurable. The interspersion of advertisements throughout the single issue can be jarring, and complicate the pagination, but as this story is not read linearly, I found that they interfered far less than is sometimes the case in traditional single-issue comics.

This is just one brief example to point out that print can be as blind to content considerations as digital media at times. The relative newness of digital technology simply foregrounds the materiality when readers encounter adaptations of texts they have also encountered in print. As Hayles points out, media-specific analysis 'insists that texts must always be embodied to exist in the world' (2002, p 31). By exploring how texts are adapted to different media, critics can focus on the methods used and how these methodologies manifest different opportunities for reading modalities.

In *Writing Machines* (2002, p 108–131), Hayles devotes a whole chapter to a novel that incorporates remediations of technology into a printed book, Mark Z. Danielewski's (2000) debut, *House of Leaves. House of Leaves* incorporates aspects of hypertextuality, a dense visual layout, multiple layers of subjectivity and remediated narration to create a holistic narrative that is somehow neither truly print or digital.

> In a sense House of Leaves recuperates the traditions of the print book and particularly the novel as a literary form, but the price it pays for this recuperation is a metamorphosis so profound it becomes a new kind of form and artifact. (Hayles 2002, p 112)

Van Hulle (2008) sees the novel as a study of how the human brain operates when confronted with an overload of data, a text that exists at the very edge of comprehension.

Danielewski has discussed his interest in experimenting with digital technologies in an interview with designer Peter Mendelsund. While both are excited about the possibilities for interaction and non-linear thinking that are opened up by digital formats, Danielewski wonders if another of his books, *Only Revolutions* (2006), in which the protagonists' tales are physically separate and the space between them is an integral part of the tale, could be transcribed into an e-book (Mendelsund 2012). This speaks to the author's concern over a media-specific loss of the physical dynamic between book and reader.

Danielewski's recent book, *The Fifty Year Sword* (2012), includes scanned images of embroidered butterflies and landscapes, some intact and some partly deconstructed, leaving only the needle holes to speak to the wholeness that was. By removing the tactility and physicality of the crafted objects from the book, the synthetic reproduction of these unique pieces is foregrounded. I would argue that the relationship between the original embroidery and the facsimile that is embedded in the text is the same as the perceived book object is to a digital device. We have placed a cultural importance on the existence of the object, yet in some cases, the digital reproduction can achieve the same purpose, and may even highlight the rarity of the object in its absence.

What all of these examples point to is the necessity to consider the implications of medium and its suitability to the story being told. Every text is in some way informed by the medium in which it is delivered. There is a symbiotic relationship between the advancements in technology and the feedback into print that keeps both media vibrant. There are aspects to digital interaction with graphic, narrative material that cannot be reproduced physically, and those aspects should be taken advantage of to create unique work, to create narratives that think within their medium, to use Marie-Laure Ryan's (2005, p 516) terminology: by taking advantage of the specific affordances of a medium, these narratives 'create an original experience which cannot be duplicated in any other medium, an experience which makes the medium seem truly necessary'. At present, digital reading technologies are still relatively plastic, as standardised reading modalities are only beginning to cohere. There is room to manoeuvre and experiment with conceptual models, which is a position that can be taken advantage of in order to advance narrative methodologies.

Adapting an interactive print comic to digital: *Meanwhile* by Jason Shiga

In her essay 'Machine Poetics and Reading Machines', Jessica Pressman (2011, p 777–778) discusses Bob Brown's Readies manifesto. Brown, a contemporary of Ezra Pound and Gertrude Stein, envisioned a machine that would flash text in front of the reader's eyes, allowing her to ingest textual information faster than previously possible. Brown's machine was never realised, but he commissioned pieces for his theoretical machine from modernist writers.1 These poems and stories display a wide range of approaches used by the writers to optimise their language for a flashing display. This demonstrates Brown's assertion that 'changing the way we read would in turn change what we write' (p 779). Brown's assertion has come true in many ways, and there are writers today who are critically conscious of how reading methods can shape narrative.

Comics theorist Scott McCloud (2001) was one of the earliest to highlight the potential for comics to take advantage of digital technology. In 2000 he published *Reinventing Comics*, in which he theorised how creators might adapt to screen-based reading. One of the concepts he espoused in his book is the infinite canvas— a call to arms for artists to design comics that eschew page formatting and take advantage of the limitlessness of abstract screen-space. Online and on digital devices, comics are no longer bound by the conventions of physical book reading.

> In a digital environment there's no reason a 500 panel story can't be told vertically—
> or horizontally like a great graphic skyline. We could indulge our left-to-right and
> up-to-down habits from beginning to end in a giant descending staircase – or pack it
> all into a slowly revolving cube. (McCloud 2001, 222–223)

Goodbrey notes that the infinite canvas has spawned a whole subset of digital comics that take advantage of the concept McCloud proposed. The infinite canvas 'brings to the foreground the concept of comics as a temporal map, where a change in the spatial relationship between panels can be used to influence the reader's interpretation of fictional time within the comic' (Goodbrey 2013, p 189). Whereas I have discussed how certain digital adaptations of comic content can disrupt the structure of time in comics, artists who have designed comics for the screen using an infinite canvas layout reassert the architectural construct of time on a comic page. By using multiple axes, variety of panel size and transitions, they give agency back to the reader's interaction with the comic in order to form meaning. Groensteen (2013) criticises McCloud's enthusiasm for the infinite canvas, asserting that it is born from McCloud's preference for an unbroken linearity in comics, the equivalent of a preference for scrolls over codex books. Be that as it may, there are certainly opportunities available to artists using this method that would be physically impossible to replicate in print, even on a scroll, especially when these methods are coupled with the other manifestation of 'plurilinearity' that Groensteen (2013) lays out, namely

narratively interactive, choice-based comics.

It is these notions of plurilinearity that inspired Jason Shiga to create the narrative on which I now focus—*Meanwhile*—which is ostensibly a choose-your-own-adventure story in comic form. Unlike most comics, which are more or less laid out in a linear manner, the reader cannot simply open this book and read it top to bottom, left to right, start to finish. There are panels for many different story-threads on each page of the book. The reader begins at the first panel and follows a tube to the next. At certain points, the reader must make a choice. For example, do you choose vanilla or chocolate ice cream? At these points, a tube leads out of each choice panel and guides you to a new set of panels on the same page, or possibly on another page, by way of tabs along the side of the book.

Given Shiga's background in mathematics (he received his BA from the University of California, Berkeley in 1998), his interest in comics that explore probabilities, computer programing, and interactivity is perhaps not surprising (Shiga 2013). Since the early 2000s, Shiga has been creating a variety of traditional and experimental comics, freelancing for newspapers and magazines, as well as self-publishing (2011). Shiga was always interested in the interactive possibilities posed by the format he chose, yet it was some time before he was able to realise his interactive comic digitally. This manifestation of the capabilities of the infinite canvas was first distributed as a bound book; Shiga originally self-published *Meanwhile*, and Abrams re-published the book commercially in 2010. There is a web iteration of the original, self-published version of the book available online which seems to date from the early 2000s. Perhaps given the bandwidth limitations of the web at the time, it did not seem to satisfy Shiga, and is not actually linked to on his website (Shiga 2010b). There has been a significant jump in computing power in the more than a decade since *Meanwhile* was first published. This computational shift opened up possibilities of delivering the book to a wider audience in a digital form that would simply not have been available in any mainstream way in the early 2000s. This is not to say that in the early 2000s there were not methods for creating or distributing *Meanwhile* digitally, but that they tended not to be available to a large majority of readers. For example, the Electronic Literature Organization was formed in 1999, but, while it produced CD-ROM discs full of cutting-edge experimental digital literature, their publications never reached a mainstream audience (ELO 2013).

As portable digital devices became more commonplace and digital reading platforms accessible to a wider audience, Shiga decided it was time to realise *Meanwhile* on screen as well. Owing to its non-linear storytelling, *Meanwhile* requires more active participation from the reader than is allowed for in the previously discussed digital comic apps. Thus in 2011, Shiga took the route of developing a standalone iPad app for his book, which incorporates the interactive elements of his physical comic. Yet the book version remains, and in fact has received a new printing, a testament to both the adaptability of the book medium and the unique user experience achieved by each version of the story. Exploring each of these iterations allows us to compare the different incarnations of the same content across screen and print media.

Media Commons (2013), a self-described digital scholarly network, ran a Future of the Book series in 2011, which commissioned a variety of commentators to write essays and create videos to discuss where they saw books going in the digital age. Mark Sample (2012) highlighted the *Meanwhile* app, comparing the different versions of the story to different map projections used by cartographers. For example, the Mercator projection, which is the version of the map most commonly recognised, was introduced in the 1500s as an aid for sailors, creating a tidy grid with parallel latitude and longitude lines, yet it distorts the size of landmasses closer to the poles (Snyder 1987, p 38). Landmasses nearest the poles are stretched disproportionately, so that Greenland looks to be significantly larger than Australia. In reality, Greenland has less than one third the landmass of Australia. Other projections, such as the Mollweide, show a more accurate representation of landmass but would be more complicated to navigate with, as latitude and longitude are plotted on parabolic curves, rather than straight lines (p 249). Certain meanings and understandings are gained through displaying data in each manner, while others are lost or obscured. The same can be said for the print and screen versions of *Meanwhile*. It is important to stress that neither iteration is superior to the other, that both versions of the narrative provide the reader with a unique experience that has elements unique to the materiality of the presentation.

There are 3856 possible story iterations in *Meanwhile*, which Shiga (2011) first began plotting as a matrix on his wall. The print book version certainly stretches the boundaries of traditional comic narratives. There are limitations to the physical manifestation of *Meanwhile*. In book form, following your chosen story can be confusing, with disparate storylines often sharing a page. On one double-page spread there can be six story-lines and two choice points. Yet, there is certainly an element of childhood joy flipping backwards and forwards, trying to figure out where your choices will lead. Shiga warns readers at the outset to avoid the temptation to scan the whole book out of order, though there are two 'Easter eggs' to be found which you will not get to by following any of the story-paths (Shiga 2010a). Shiga also hid misleading pages that contain keys for two puzzles in the

book in an attempt to dissuade 'cheating'.

Shiga teamed up with Andrew Plotkin to create a standalone app, which allowed the two men to customise the user interface to the content. Great care was taken to optimize the interface. *In The Design of Everyday Things*, Donald Norman (1998) set out some of the basic tenets for user-centred design. Norman's guidelines call for the use of a good conceptual model for the interface to be based on. In Norman's terms, a good model takes advantage of previously learned affordances that the user brings with them, learned behaviour, and expectations. The designer should make things visible to the user, giving the user feedback along the way. There should be a strong association between the mapping of the functions to the interface, and constraints should be taken into account. Users invariably make mistakes when interacting with a design, so errors should be anticipated and allowed for. Whether consciously or not, Shiga and Plotkin created a user interface that follows many of Norman's usability guidelines.

The mechanism for moving the story forward is highly visible: a yellow, blinking box surrounds the panel the reader is on, or their current choice options, and the reader must click the box to advance. For those who find it hard to follow the tubes and layout of the book, the interactive nature of touchscreen devices creates a more straightforward reading experience. The iPad app zooms in and greys out the panels you are not actively viewing, which may make it easier for readers who have dyslexia, dyspraxia and other conditions that cause a reader's eye to dart about the page, and easily lose their place in a work as visually dense as *Meanwhile*.

Feedback is immediate, moving the story into the next panel. Errors are allowed for: the bottom of the interface uses the affordance of back and home buttons, common in browsers. The mapping, location of buttons and navigation seem logical. In a complicated choice, such as which of three inventions to choose, discreet yellow bubbles highlight the options in a clear manner.

There is very little that could be faulted in the usability of the interface, according to Norman's rubric. It may be tempting, then, to assume that this digital version would be a more appropriate manifestation for this form of story. Goensteen (2013) mentions how we may be predisposed to assume that a digital incarnation of 'work designed to exploit the potential of multimedia', which *Meanwhile* certainly is, is superior, but that we should take care to evaluate critically what each media adds before making judgements. In many ways, this is the same argument that was made in the section above about hypertextual novels that predated electronic literature, such as *Hopscotch* and *The Sound and the Fury*. In this case, however, the author was directly involved with the creation of the digital version of the text, so the concern over a loss in authorial intention is lessened.

The directness of the interface interaction may make the app easy to navigate, but it requires far less user engagement, and therefore investment, than decoding the dense physical object. The linearisation of the story also takes away some of the elements of play. Sample speaks of an example in which the protagonist, Jimmy, is attempting to save the world. Jimmy needs a code to make a time-machine work. Depending on which path the reader has chosen, she may know the code required. To move on to the next section, the reader picks a code to enter, and then she must trace the tube leading from that choice through a tangled mass to the appropriate tab. As Sample (2012) points out, in the physical book this takes time—the loops and doubling back of the lines parallel the internal indecision of the protagonist, and the effort the reader expends relates to real-time in the book. In the app, your choice instantaneously brings you to an outcome, and if you click on the wrong option, you can easily go back and try again. In the book, you may not know immediately if you've chosen the wrong path, whereas the app gives you the 'error' of 'Drat! I don't know the access code.'

Yet the app also introduces features that are simply impossible in a book. The reader can pull back and see the whole flow-chart, much like Shiga's original wall matrix. From this view, the reader can access the two self-contained pieces of the story which would otherwise be lost from the digital version. One of the most helpful and unique features of the app is the ability to see your personal story so far. The app presents the panels you have viewed in a traditional comic-strip format, arranged left to right, top to bottom, and allows the reader to revisit any panel previously viewed, including choice points. Should, for example, the reader arrive at an unsatisfactory ending, she can revisit previous choices and try a new plot path.

The concept of playing with the linearity of plot paths is something Daniel Goodbrey experiments with in his comic 'A Duck Has an Adventure' (2012). 'A Duck Has an Adventure' is similarly a choose-your-own-adventure story, but unlike *Meanwhile* there is no way physically to manifest the story options with which the reader is presented. The reader follows the titular duck through different life choices, with various achievements being displayed and objects, such as hats, being collected along the way. Here Goodbrey employs game conventions in his comics by incorporating goals. The reader is told from the outset that there is the possibility of finding 12 achievements, collecting 7 hats and finding 16 possible endings. Certain paths and endings are only available to

Jason Shiga's *Meanwhile* and digital adaptability of non-traditional narratives in comics by Kat Lombard-Cook

the reader after a certain combination of previous storylines have been completed. Goodbrey describes this accumulation of options as a way to visually map ' all the possible directions one person' s life…might take' (2013, p 190). Along with the tallying of in-game achievements, which arguably is not inherent to the understanding of the narrative, it is the twist of unlocking story paths which makes this comic inherently digital. It would be physically impossible to create an analogue book in which certain sections are only unlocked if other sections have been read.

It is worth briefly touching on how remediation can be used as a way of informing the reader/user about the conceptual model that the digital comic will employ for navigation and interaction. In the above example, Goodbrey starts the narration on a 'home screen' panel, which explains how to interact with the comic. Superimposed on this and all panels is a toolbar on the upper left that allows the reader to zoom out and reset the story, and a bar along the bottom of the panel that lists the reader' s current number of achievements. These two elements signify to the reader that this story will behave a bit like a game, as opposed to a story that behaves a bit like a book or a scroll.

This breaking down of barriers between media types is a continuation of what Bertrand Gervais (2008) notes happened within literary text around the turn of the twenty-first century with the rise in popularity of browser-based reading. Gervais speaks about 'generic markers' that we, as print readers, understand and which allow us to know how to approach a text: for example, a newspaper looks, and is approached differently to a literary text. Screen reading erases these markers or renders them moot: 'Books and magazines, literary texts, and press releases share the same space, the window of a browser, and they are subject to the same initial reading strategies' (Gervais 2008, n.p.). This is important to keep in mind, especially when creatively using the variety of media available in the digital realm. Creators must build in cues for readers to understand and correctly engage with the information we are presenting to them. Here, user interface and interaction design are key. Designing methods of creative engagement that are too oblique to be decoded is counter-productive if the end result is a lack of understanding by the reader.

Conclusion

At present, trends are establishing themselves for modes of screen reading, but unique structures for the parsing of digital narratives have not been wholly codified. This makes the time ripe for experimentation that attempts to push screen narrative forward, while the format is still mostly plastic. This timeliness is something Zielinski urges media archaeologists to take advantage of:

> As a matter of course, [media] will be a part of everyday life, like the railways in the nineteenth century or the introduction of electricity into private households in the twentieth. Thus, it is all the more urgent to undertake field research on the constellations that obtained before media became established as a general phenomenon, when concepts of standardization were apparent but not yet firmly entrenched. This undertaking may be of some help to those who have not given up on Rimbaud's plan to steal the fire and reinvent the worlds of texts, sounds, images, and apparatus each day anew. (2006, 33)

Consciously taking advantage of the media in which narratives are presented and disseminated is critical in creating effective engagement. Non-linear narratives may prove the most directly translatable to interactive media, yet it is important to keep in mind the aims of the narrative, as providing the ability to form a more linear understanding of the work may actually detract from the intended reading. Pressman (2009, p 480) points to the need for a relationship between print and digital reading that is less binary, and more complimentary. *Meanwhile* presents a conversion from print to app which allows us, as readers and creators, to consider the possibilities for unique experiences with digital and physical media. The book and app version share the same content, but present two very different user experiences for the reader; yet neither version is superior.

There are certain conventions in print comics reading which operate differently on screen, specifically the notions of panel borders and gutters, which can be key in the reader's understanding of time and context. By consciously designing for digital devices, creators can integrate different forms of media in order not just to compensate for any perceived loss, but actually to progress narrative engagement. When designing the interface for such a work, it is important to take into account the affordances a user will expect to use to interact with such a narrative. As the rules for engaging with digital narratives have not been firmly codified, creators are still able to challenge these conventions, within certain limits. Readers have developed ways of quickly identifying the printed material they are interacting with and changing their reading methods accordingly, and soon they will be able similarly to approach digital media and know what methods to use most effectively: linking, swiping, clicking, tapping, pinch and zooming, etc.

The experimental cases I have discussed speak to opportunities available in digital media and give some indication of the direction digital-exclusive visual narratives might take. Creators are only starting to take advantage of the opportunities inherent in digital media, and we may soon see a new breed of digital native graphic narratives, as well as the continuation of boundary-pushing printed work.

Note

1. While Brown did not live to see a manifestation of his concept, the modern editor of Brown's work has built a digital simulation of the readies on the internet.

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