

4. Digital Mediality

The form of comics is undergoing a transition, as digital display becomes an increasingly popular mode of consumption. This is a transition that has been underway since before the general adoption of the World Wide Web and recent developments in portable display devices have advanced the pace of this change. Smart phones and tablet computers have been widely adopted, providing platforms that support a wide range of visual, narrative and interactive forms. Rather than print, many people now use these digital devices as their primary “reading” media. As comics gradually leave behind the trappings of print and embrace those of the screen, it becomes necessary to re-examine the fundamental storytelling practices of the form in the context of these changes.

This chapter examines the impact of the transition from print to digital display on the key characteristics of the form of comics that were identified in Chapter Three. In addition to comics theory, the chapter draws ideas from scholarship concerning digital media. It applies these theories in an examination of some of the new formats of comic that have resulted from the digital remediation of the form. In this manner the chapter provides a critically grounded exploration and analysis of how the key characteristics of the form have been impacted by the range of new storytelling tropes emerging amongst digitally mediated comics.

The rise of digital display

Over the course of the last thirty years, the widespread adoption of the computer and digital display has opened comics to new avenues of creation, distribution and consumption. Groensteen notes that computers have ‘become omnipresent in comics production’ (2013, 64) and that in the creation of modern comics, ‘a scanner, and software for graphic design and coloring are now standard equipment for most artists’ (ibid). Priego similarly observes that these new tools have

'complemented and augmented' the traditional artistic processes of comic creation (210, 222).

Initially however, the comic form's colonisation of the digital domain came via the world of videogames, with the appearance of early hybrids such as the hypercomic adventure game *Redhawk* (Silhouette Software 1986) (see Chapters Five and Six). At the time these comics were still, as McCloud notes in his seminal *Understanding Comics*, 'the territory of games and strange little experiments' (1993, 106). But by the year of *Understanding Comics*' publication, a more profound change was already underway. The addition of inline image display to the *Mosaic* web browser in 1993 contributed to a massive surge in popularity for the World Wide Web, with web use growing by a factor of 341,634% (Campbell 2006, 15). It also led to the emergence of the first webcomics; comics created specifically for digital display and distribution via the web (17).

As the web grew in popularity through the 1990s, the webcomics scene expanded and matured, bolstered by a rapidly expanding community of new readers and creators. The web offered creators an opportunity to reach a widening audience of readers without incurring the prohibitive production costs of publication and distribution associated with print (ibid). By the early 2000s a dominant model for webcomics had begun to emerge, based around regularly updated, creator-owned serials. These were typically presented as horizontal strips of three to four panels, similar in format to that of daily newspaper comic strips. While these webcomics were presented to readers free of charge, creators of popular series were able to generate income via advertising and merchandising (Johnston 2015, 5).

Today, digital distribution and display is an increasingly popular mode of consumption for the form of comics. Portable touchscreen devices such as smart phones and tablet computers have provided a single platform of consumption for comics, film, animation and videogames. Traditional print comic publishers had been wary of making the leap to the web and were reluctant to adopt the "free content" business model established by creator-owned webcomics. But the

prevalence of touchscreen devices and an increased acceptance of paying for digital content has led to a significantly different publishing landscape. As a result, the larger comic book publishers have moved to embrace digital formats, both as an avenue for additional income and as an outreach to new audiences (Smith 2013, 19). *Comixology* is a popular digital comics distributor used by several of the major US comics publishers. This service offers ‘a cloud-based digital comics platform... [for] discovering, buying, and reading comics’ (Iconology Inc 2013) on tablets, smartphones and personal computers.

However, in terms of the key characteristics of the form, many digital comics do not operate significantly differently from their print forbearers. An explanation for this can be found in Bolter and Grusin’s concept of remediation, which they define as ‘the representation of one medium in another’ (2000, 45). In the case of webcomics that follow the format of the newspaper strip or the *Comixology* versions of monthly comic books, the computer screen serves primarily as a new means of accessing a pre-existing format. Bolter and Grusin note that it is as if:

the content of the older media could simply be poured into the new one. Since the electronic version justifies itself by granting access to the other media, it wants to be transparent... ...so that the viewer stands in the same relationship to the content as she would if she were confronting the original medium (ibid).

Accordingly, in most of today’s digital comics, the key characteristics of the form remain largely unchanged. Already a good fit for the dimensions of the computer screen, the format common to newspaper comic strips has been adopted by webcomics without any real change to its spatial layout. At this structural level, the relationships between panels in ‘printed comics and webcomics are not essentially different’ (Priego 2010, 113). In terms of digital comics intended for reading on tablets, the business models of the larger US comic publishers are still built chiefly around selling printed products via speciality comic shops and book stores. As a result, the digital comics offered by companies like *Comixology* are a

straightforward digital remediation of comics originally designed for the printed page.

A typical printed comic book can be displayed one page at a time on a computer screen, with a mouse click replacing the traditional page turn. In print comics that receive their initial distribution via the web, some creators willing to embrace the dimensions of the computer screen may opt to use landscape rather than portrait page dimensions. Although with tablet computers now offering an easily rotatable reading platform, this is becoming more of an aesthetic choice than an issue of readability. Smith asserts the suitability of tablet computers for comic reading, noting that their physical dimensions 'demonstrate a clear correlation to the traditional comic book portrait format' (2013, 19). The touchscreen common to tablet computers is also significant for introducing the idea of swiping the screen in order to turn the page. This gesture, with a physical motion more akin to that of the traditional page turn, can be seen as an example of increased immediacy or 'a style of visual representation whose goal is to make the viewer forget' the digital nature of the comic being consumed (Bolter and Grusin 2000, 272).

At present there are still relatively few digital comics that have been designed specifically for primary consumption via tablet computer or smartphone. There does however exist a wealth of experimental work carried out by independent creators in the field of webcomics that points towards the potential offered by these new formats. In exploring this potential such works often tend towards a state of 'hypermediacy' in which the reader is increasingly reminded of the digital nature of the medium (ibid). Ultimately, it is only when creators start to question the tropes common to print and the form pushes towards hypermediacy that we begin to see significant impact on the key characteristics of the form. For the purposes of this chapter, this impact has been broken down across three broad categories:

- Page turns versus panel delivery
- Pages versus windows
- Space versus time

Page turns versus panel delivery

One approach to the flexibility of digital space is demonstrated in panel delivery based comics. Panel delivery retains the concept of the page as a grouping of panels into a single 'design unit' (Hatfield 2009, 139) and as such draws on a wealth of already established compositional tricks and tropes. In printed comics, stories are built around the turn of the page, which allows creators to delay the delivery of punch lines and to craft moments of surprise or suspense within their narratives. Each page displays its constituent panels in simultaneous juxtaposition with each other, allowing for both linear and nonlinear readings of the comic's spatial network. The important difference with panel delivery, is that the content of each page grouping is not treated as being permanently fixed in space. One of the original pioneers of panel delivery was webcomic creator John Barber, who here outlines his approach to laying out a sequence using the technique:

The screen will act as an unmoving stage onto which panels will appear. Initially, a single panel (or group of panels) is presented to the reader. The reader clicks on the stage and a new panel (or group of panels) appears. [...] These new panels join the previous ones, often replacing or obscuring some (or all) of them (2002, 63).

The tension between page and screen inherent in this approach is highlighted by Barber, who describes the result as being 'a "malleable page", using "page" somewhat ironically as this can only occur on-screen' (ibid).

Panel delivery can be seen at work in *Insufferable* (2012-2015), an ongoing superhero webcomic written by Mark Waid and illustrated by Peter Krause. The

webcomic follows the adventures of Nocturnus and Galahad, a dysfunctional father and son superhero team who are forced to reunite after years of separation. The online nature of the series was a departure for Waid, who had built his reputation over the previous two decades writing primarily for the two major US monthly comic book publishers, Marvel and DC. Waid lays out his reasons for making the jump to a digital delivery and distribution platform, stating that he believes strongly that:

comics can and will be a thriving mass medium in the digital age if – IF – they're created for modern media devices and not exclusively for printed pamphlets that are overpriced, uninviting to new readers, and abominably distributed in only a relative handful of storefronts nationwide (2012a).

Insufferable offers an example of remediation where the newer medium presents itself, to use Bolter and Grusin's phrase, as a 'refashioned and improved' (2000, 17) version of the original. In a traditional comic book the pace at which the reader advances through the story is fixed to the repetitive interval of the page turn. In contrast, advancement through a digital comic does not have to be tied to the same rhythm throughout the narrative.

During the majority of the first chapter of *Insufferable* (Krause and Waid 2012), the reader clicks to advance through the story one page at a time, with each page consisting of fixed arrangements of separate panels. However, during a key sequence towards the end of the narrative, there is a change in the pace of advancement. Nocturnus finds himself stuck in a pit beneath an old abandoned warehouse. As he struggles to rescue a kidnapped woman from the bottom of the pit, the building starts to collapse above him. During the rescue each click reveals only a single panel of the page at a time, so as to more slowly reveal the events being depicted. This slows our experience of time within the narrative, increasing the tension for the reader before revealing a surprise rescue by Galahad in the very last panel.

Although it originated on the web, panel delivery is also now used in some tablet-based digital comics. In an initiative led by Waid, US publisher *Marvel Comics* has begun to experiment with the process in their *Infinite Comics* imprint on *Comixology*. Unlike the majority of *Marvel* titles available via the service, digital comics like *Avengers vs. X-Men #1: Infinite* (Immonen and Waid 2012) and *Guardians of the Galaxy Infinite Comics #1* (Bendis and Oeming 2013) have been designed specifically for consumption via the screen using panel delivery. To understand the significance of this, it is important to make a clear distinction between panel delivery and the standard ‘guided view’ (Iconology Inc. 2013) that *Comixology* includes with the majority of the remediated print comics that it offers for download.

When following a guided view, the reader consumes each page of a comic from a zoomed viewpoint that shows one image at a time. A simple animated transition is then used to show how each image or panel relates to the next in sequence. It is a technique necessitated by the difficulty of adapting print comic pages to the smaller dimensions of smartphone screens (and similar issues between double-page spreads and tablet screens). It is unfortunately also a reductive experience, which severely limits the reader’s ability to appreciate the ‘dechronologized mode’ (Groensteen 2007, 147) of the original print comic’s spatial network. The guided view itself is created by the *Comixology* service without direct input from the creators of the original print comic. As such it offers none of the fine control over pacing, panel positioning or page composition that is available to a creator making deliberate use of panel delivery in the creation of a digitally native comic.

The panel delivery approach taken in *Insufferable* and *Infinite Comics* has been heavily influenced by the work of cartoonist Yves Bigerel and his manifesto, *About Digital Comics* (2009), which Waid cites as ‘the foundation... [for his] ...entire mindset and mission’ (2012b). The manifesto takes the form of a webcomic in which Bigerel demonstrates the new ‘story telling possibilities, [and] new ways to create time with space’ (2009) that panel delivery has to offer. Bigerel stresses the flexibility panel delivery brings to panel layouts, while noting that it still allows for

the use of traditional page composition techniques where appropriate. He suggests that by controlling how many panels are revealed each time the reader clicks to advance, the reader's perception of diegetic time can be sped up or slowed down. Controlling when panels appear and the order in which they appear can also be used to create surprises for the reader or foreshadow dramatic events (techniques that were previously only achievable in print at the turn of the page).

These processes can be seen at work in the previously discussed rescue sequence from *Insufferable*. As the reader clicks, the sequence of revealed panels builds towards a close-up of Nocturnus, his eye opened wide in panic as he tries to think of a possible escape. Once the close-up is revealed, further clicking causes the other panels to disappear, leaving this image as the sole visual element on the page and extending the protagonist's moment of panic. A further click then reveals a single word balloon with its tail leading off-page, foreshadowing the arrival of someone new to the scene. Only with a final click is the sequence completed, revealing a panel behind the speech balloon that shows a hand reaching in to offer rescue from above.

It is useful in considering the effects of panel delivery to return to Cohn's concept of time in comics. Cohn proposes that time is not necessarily created by the immediate juxtaposition of two panels, but rather by groupings of 'units of attention' (such as complete narrative actions, distinct states of action and aspects of narrative setting) that segment a 'conceptual space that is additively built throughout the sequence' (2010, 142). Much of the impact achieved through panel delivery lies in allowing creators to play games with these units of attention. The delivery of a given sequence to the screen can be more finely regulated, while existing sequences can also be modified, broken down, reused or reconfigured in service of the narrative. As shown in the example above, this increased granularity of elements can allow for new approaches to word and image blending. The arrival of panels on the screen can also be used to subvert usual compositional practice for deliberate effect.

In one sequence within *Guardians of the Galaxy Infinite Comics #1*, hostile aliens surround the story's protagonist, Drax the Destroyer. The sequence begins with a full-page establishing shot that shows Drax drinking at a bar while the first of the aliens talks to him from the right of the page. When the reader taps to advance, the following panel in the sequence then overlays the establishing shot on the left of the page, reversing the usual left-to-right reading order. Further taps bring up more panels overlaid against the original establishing shot, each depicting close-ups of more of the hostile aliens. Drax is eventually left in the middle of the establishing shot, surrounded by panels on all sides just as in the story he now finds himself surrounded by enemies.

Barber notes that panel delivery 'defies the necessity of a left-to-right reading arrangement, as the movement of the new panel automatically draws the reader's attention, regardless of the placement'. (2002, 65) The overall effect of such techniques is to suggest a perception of time that is far less fixed and rigid than is easily achievable in print. This plasticity of space and sequence allows for alternation, surprise and suspense to be achieved in the individual delivery of panels. However, the more such effects are relied upon, the more they weaken the use of simultaneous juxtaposition and decrease the potential for less linear readings of the spatial network.

The role of the page must also be considered within the context of multipage formats. In printed comic books and graphic novels the reader can flip either forwards or backwards through the pages and, as Hague observes, 'the changing shape of the comic indicates the progression of the narrative' (2014, 108). Gazzard and Goodbrey note that such print formats provide 'a fixity to the physical location of all the information' in the spatial network of the comic (2014). These qualities of multipage comics are summed up by Nichols under the term of 'flippy-throughiness' (2016, 97). Digital comics, by their lack of fixed physical structure and the loss of 'the physical handling of the book' (Groensteen 2013, 66), erode the quality of flippy-throughiness. Gazzard and Goodbrey state that the more a comic 'embraces the mutable nature of the screen and seeks to control the individual

display of panels' the worse the erosion of flippy-throughiness becomes (2014). They caution that as 'the reader's concept of a comic's wider spatial network becomes less manageable, this can serve to interrupt the rhythms of reading that are inherent in how we read and explore multipage comics' (ibid).

Pages versus windows

One way to approach to the erosion of flippy-throughiness in digital comics is to make use of McCloud's concept of the 'infinite canvas' (2000a, 222). In *Reinventing Comics*, McCloud proposes the idea that 'the monitor which so often acts as a page may also act as a window' (ibid) onto a much larger arrangement of panels. McCloud identifies the page as simply an artefact of print rather than an intrinsic element of the comics form. He then goes on to offer a prediction that once 'released from that box, some will take the shape of the box with them but gradually, comics creators will stretch their limbs and start to explore the design opportunities of an infinite canvas' (ibid).

In an infinite canvas comic, all the panels in the comic's network are given a fixed spatial relationship on one large plane or canvas. The window of the screen is then placed directly under the reader's control, allowing them to move around this plane in order to read and navigate the comic. As Gazzard and Goodbrey assert, this provides the reader with 'a fixed spatial configuration or shape to hold in their head and full control over their progression and place within the network' (2014). Thus, despite the diminishment of the page as a design unit, the infinite canvas best captures within a digital environment 'the spirit of how a multipage work is traditionally read, explored and flipped-through' (ibid).

To return to a quote from Groensteen in the previous chapter, it should be noted that 'comics panels, situated relationally, are, necessarily, placed in relation to space and operate on a share of space' (2007, 21). Space in the world of print comics is a finite resource and every panel in a print comic has to be allotted its

share of that resource. The space of the comic is broken down into the fixed, homogenised groupings of panels that we call pages. Stories are then often told across fixed, pre-determined and conventionalised page counts. For print comic creators, space is at a premium. They have been trained to get the most narrative impact possible out of every page and to make every panel count. While it is still possible to experiment with layouts that vary the distance between panels for deliberate effect (Lefèvre 2009, 161), such approaches operate under tight spatial limitations. However, on the screen, the space a comic occupies is no longer finite or fixed by the physical constraints of industry-standard processes and conventions.

The concept of the Infinite canvas has been taken up by many different webcomic creators since McCloud proposed the idea in 2000. With space no longer at a premium, the potential to experiment with the spatial relationship between panels becomes much more appealing to the creator. McCloud's suggestion to treat comics as a 'temporal map' (2000a, 207) encouraged creators to explore the use of space as a way to influence the reader's perception of fictional time within the comic. In McCloud's own *Zot! Online: Hearts And Minds Part 3* (2000b), the usual flow of panels in the webcomic is replaced with one long vertical panel lasting across six screens worth of scrolling. A mid-air explosion sees the story's protagonists falling through the sky with the vertical panel used to slow the experience of free fall, before the usual panel structure is abruptly resumed as the protagonists finally reach the ground.

In Drew Weing's *Pup Ponders the Heat Death Of The Universe* (2004), the webcomic's protagonist sits pondering the entire future history of the Universe. As the reader scrolls through, the comic's panels become larger and then drop away altogether as the scale of both the events and time being pondered expands out beyond the edges of the screen. The sun expands to supernova, filling the screen and consuming the earth. The stars wink out and the reader is left scrolling through screen after screen of black as the protagonist tumbles through the void, lost in thought.

Conversely in Manien Bothma and Jason Turner's *True Loves 3: Business is Brisk* (2011), we see the infinite canvas used to differentiate between small moments of everyday life. During the protagonist's wordless journey to work, individual moments from the journey are shown and plenty of white space is left between the panels to suggest they are part of a larger passage of time. Once the protagonist arrives at work and enters into conversation with a colleague, the gaps between the panels shrink to suggest a more condensed experience of relative time.

Groensteen asserts that in a printed comic, 'every panel exists, potentially if not actually, in relation with each of the others' (2007, 146). Infinite canvas comics can build on this aspect of the spatial network; once the reader is given the ability to easily zoom in and out of the canvas, it becomes possible to see the spatial relationship between every panel in a narrative. This is the "space" of comics, not just as a temporal map but as a narrative map, giving a clear visualisation or shape to an entire story. McCloud notes how this can be used to 'provide a unifying identity' (2000a, 227) to a story, with the layout directly reflecting the events or tone of the narrative.

This strategy is evident in my own *Never Shoot the Chronopath* (Goodbrey 2007), within which the shape of the whole story is shown as three lines of panels that all cross through a shared jumble of panels positioned towards the right of the screen. Zooming in to follow one of the lines reveals one of three parallel narratives that intersect during the jumble of panels. Within the jumbled intersection of the storylines there is a breakdown in the usual flow of narrative time, which is mirrored in the confused order and spacing of the panels. As the reader zooms back out to follow a different line through the story, the presence of the jumble in the overall shape of the comic remains a reminder of what's to come, creating a sense of foreboding and inevitability within the narrative. The choice of pathways on offer in *Chronopath* also signifies a shift into the medium of the hypercomic. Hypercomics can be described as comics with multicursal narrative structures. Different trails within an infinite canvas hypercomic can reveal divergent timelines,

different sequences of events, points of view or narrative outcomes. They will be examined in more detail in Chapter Five.

While the infinite canvas has remained a popular choice amongst webcomic creators, unlike panel delivery it has yet to see much adoption amongst digital comics created for smartphones and tablet computers. The hypermediacy of treating the screen as a window remains a more marked departure from notions of the traditional page. As such it does not fit well alongside the prevalent trend towards immediacy seen in the majority of comics delivered via touchscreen devices, whereby the page turns of print comics are emulated. However, as Bolter and Grusin note:

As each medium promises to reform its predecessor by offering a more immediate or authentic experience, the promise of reform inevitably leads us to become aware of the new medium as a medium. Thus, immediacy leads to hypermediacy (2000, 19).

The more comfortable that comic readers become with the concept of tablets and smartphones as media distinct from that of the printed page, the more accepting they will be of new, screen-based tropes. During the development of this thesis, part of my own work as a practitioner has been based on exploring this potential for innovation in digital comics. In my hypercomic smartphone app *A Duck Has an Adventure* (Goodbrey 2012), the reader is given the opportunity to make key, life-changing decisions for the story's protagonist. To do this the comic makes use of a zooming infinite canvas approach. Each decision opens up a new pathway to follow, with a new trail of panels being created as the reader advances.

The more the reader explores the result of making different decisions for the protagonist, the more the story builds into a map of all the possible directions one person's life might take. Certain alternate timelines can be seen to mirror each other in their layout, leading to points of thematic and narrative crossover between the different trails. Some endings to the story can only be reached once the reader

has visited these crossovers via both of the mirrored pathways. The comic's spatial network thus becomes the site of puzzle-solving gameplay on behalf of the reader, as they attempt to find all the points of convergence in order to unlock further progress through the narrative. This will be examined in more detail in Chapter Six.

Space versus time

In Chapter Three, the form of comics was established as being spatially based in contrast to time-based forms such as film or animation. However, another result of comics' move to digital display is that it has become possible for creators to easily include animated, time-based elements as part of a comic's spatial network. In discussing the uses of animation in digital comics, we need to consider both animation of the content inside the panel and animation and movement of the panel itself.

Movement of the panel can essentially be considered as an extension of the ideas of panel delivery covered in the earlier part of the chapter. Animation in this case is used to provide a level of visual continuity to changes in the page layout. This plays into one of the characteristic pleasures Murray identified as being inherent to digital environments, 'the pleasure of transformation' (1997, 154). Murray notes that: 'Anything we see in digital format – words, numbers, images, moving pictures – becomes more plastic, more inviting of change' (ibid).

Animation of the panel provides a visualisation of this process of change. Rather than seeing simply a new spatial arrangement of panels as a result of a click, animation can be used to suggest the movement and rearrangement of the pre-existing panels as the direct result of reader interaction. Panels and sequences of panels can slide in, off or around the screen. The speed and style of panel movement can also be used to affect the meaning of the content within the panel or of the panel's relationship to other panels in a sequence. Barber describes this process as 'visual onomatopoeics' (2002, 66), illustrating the phenomena with a

simple example: 'For instance, a panel of a character falling might drop down quickly or slowly depending on the speed at which the character falls' (ibid).

My own *The Mr. Nile Experiment 11: Burning Your Map* (Goodbrey 2003a) is a webcomic that presents some of the applications of panel movement. The story is a metafictional narrative in which the protagonist has turned his comic into a conceptual time machine. Upon the reader's activation of the time machine, a panel is animated to move back up the sequence of panels to the beginning of the comic, creating a divergent timeline that changes the existing sequence of panels to show new events. In a later instalment of the series, *The Mr. Nile Experiment 15: We All Fall Together* (Goodbrey 2003b), constantly moving panels that cannot be controlled by the reader are used to suggest a breakdown of the usual flow of time within the narrative. Here, the loss of the reader's control over the animated element is used to mirror the protagonist's own loss of control over his metafictional reality.

Animation of content inside the panel is a technique common to many webcomics. Part of the reason for the popularity of its use can be seen as a result of the ubiquity of the GIF image format on the web, which provides a straightforward way to integrate animations into a comic. Short loops of animation can be used inside a panel without disturbing the process of closure or challenging the primacy of space as time. They can be used to add atmosphere, for dramatic effect or to draw attention to specific qualities of the story world.

In one sequence from Demian 5's wordless webcomic *When I Am King* (2001), we see animation being used in three different ways. First it is used to establish the character of a store owner, whose pretensions to rock and roll stardom are embellished in a single animated loop of the owner dancing in his darkened store. Second it adds atmosphere to the scene, with the shop owner's boredom at his lack of customers highlighted by an animated panel of repeated foot tapping. Lastly it is used in place of the textual content in a word balloon, with an animated image of

the store owner giving a vigorous hand shake being used to suggest the eager verbal greeting given to a customer entering the store.

One of the reasons looped animation can be made to work successfully within the digital comics form is that there is already a working precedent for its existence on the printed page. Cohn draws attention to the phenomenon he defines as 'polymorphic' (2010, 131) panels. These panels 'show a single entity repeated in multiple positions of an action while remaining in a single encapsulated frame' (ibid). A simple example might be a dog chasing its own tail. The reader sees within a single panel the same dog in multiple positions as it rotates in place, trying to catch its tail. Cohn notes that these panels 'seemingly represent the duration of time, rather than a single instance where the entity would seem to be in multiple positions at the same moment' (ibid).

In the panel itself there is no clear indicator where the motion starts or stops. As such, a polymorphic panel may appear to represent a continuous movement. But resolution of the action is provided by the rest of the sequence of panels of which the panel is a constituent; the dog cannot have chased its tail forever, as we see it walking along with its owner in the next panel. In this way the process of closure resolves and incorporates the continuous action into the larger sequence of panel. In the same manner, looped animation content within a digital panel has its resolution provided by the sequence of which the panel is part, therefore maintaining the primacy of spatial arrangement as time.

The integration into panels of un-looped, fixed duration animations is a more difficult proposition. Lefèvre asserts that the reader of a comic is not 'a passive agent: he or she looks at images with prior knowledge and activates the images' (2009, 162). When exploring the spatial network of a comic the reader is in control of the comic's pacing. They activate the words and images in the network and, through the process of closure, create the fictional passage of time that exists within the narrative. Gazzard and Goodbrey describe the reader as building up 'rhythms of reading' while exploring the 'spatial-temporal relationship between the

reader's experience of time and the portrayal of time within the story world' (2014). Groensteen outlines the problem this can present for the inclusion of fixed duration animations in a digital comic:

Comic readers generally set their own rhythm, with no constraints; as soon as they have to make allowances for the exact length of an animated image or sound, the reading process must be synchronised with these additional factors, and readers' freedom is sacrificed (2013, 70).

Groensteen also draws parallels between the active reader of a digital comic and the role of the 'user' (68) in interactive hypermedia. Gazzard and Goodbrey (2014) propose a way to examine temporal relationships in this context based on Juul's work on time in videogames. Juul proposes the idea of 'play time' (2005, 142) which Gazzard and Goodbrey equate in comics to 'the time the reader takes to navigate and read' a comic (2014). Opposed to this 'reading time' (ibid) is the 'fictional time' that occurs within the narrative itself (Juul 2004, 142).

Gazzard and Goodbrey state that the reader's control of pacing in a comic relies on 'negotiating the control of their own reading time alongside the fictional time depicted in the narrative' (2014). The short, indefinite loops of animation used within webcomics provide minimal interruption to the reader's control over their reading pace. However, digital comics which include animations of fixed duration can disrupt 'the normal rhythm of this relationship by adding what in videogame terms can be described as "cut-scenes;" moments of animation or animated transitions where control is taken away from the reader' (ibid). This can result in an unsatisfying reading experience in which the reader's sense of 'agency' (Murray 1997) within the rhythm of their reading is eroded. As Groensteen suggests (2013, 70), these issues associated with the integration of animation in digital comics also have implications for the integration of audible sound. Sound in digital comics will be examined in more detail in Chapter Seven.

While digital mediation clearly opens up new possibilities for the inclusion of animation and sound, Groensteen notes that it also 'poses the problem of the right dosage, the correct ration – with the twin hazards of overdoing it or undercooking it' (2013, 71). Ultimately it is a comic creator's own notions regarding the nature of the form which shapes the extent to which they will explore the possibilities on offer. Motion comics are one new digital format that many creators identify as having crossed the line between comics and animation. Smith describes motion comics as a type of 'hybrid animation, directly influenced by existing comic book narratives and artwork' (2013, 254). While they often use existing print comics for their raw material, motion comics remediate this artwork into a style of cut-out animation which is then further augmented via the addition of time-based soundtracks and voiceovers.

Waid makes his opinion of the format clear: 'I kind of think of motion comics as the devil's tool. [...] They're many things with voiceovers and music and so forth, but they're not comics' (O'Reilly Media 2013). Such understandings regarding what features constitute the form of comics (and what features do not), ultimately establish limits on the ways in which many digital comic creators incorporate animation within their work. Waid identifies motion comics as a type of 'cheap animation' (ibid), lacking the fidelity of a traditionally animated cartoon while at the same time having lost their status as comics. Priego similarly describes motion comics as being 'closer to film, video games and video' than comics (2010, 225). Hague believes the unclear nature of the format to be one of its chief weaknesses, noting the uncertainty as to whether a motion comic 'is a comic with a lot of animation or an animation with very little' (2014, 76). But at what point does this potential transition from comic to animation occur?

Motion comics lack many of the key characteristics of the form of comics. They replace space as time with time as time, do not operate as spatial networks and lessen the reliance on closure between images. Some examples of the format go further, minimising or removing the simultaneous juxtaposition of images and replacing word and image blending with a full, voice-acted soundtrack. Smith notes

that in these more ‘cinematic’ motion comics, the form of comics is subsumed within a ‘full-screen mise en scène’ (2013, 256). Perhaps most crucial of all is the absence of the characteristic of reader control of pacing. Hague observes that:

Motion comics are generally released in a video format [...] and offer no more control than a standard film in terms of navigation of the text; the use of the term “reader” to describe the consumer of motion comics is perhaps somewhat inaccurate – “viewer” would be more appropriate (2014, 76).

A motion comic is viewed, not read. The reader has ceded all control over the pacing of the comic to the animator, who now determines the rate at which information in the motion comic can be absorbed. It is this characteristic of reader control that Waid asserts to be ‘what makes comics, comics’ (O’Reilly Media 2013) and it is the absence of this characteristic which places motion comics most clearly into the category of animation.

Conclusion

This chapter has analysed a variety of ways in which comic creators have made use of the narrative potential of digital display. The remediation of the form of comics has been examined, highlighting the ways in which comic creators have responded to the new tropes and opportunities offered by digital display. This has included panel delivery as a replacement for page turns, which leads to a malleable page that offers greater fidelity in the pace of advancement. Increased fidelity has resulted in new techniques for influencing the passage of time, creating surprises and raising dramatic tension. These techniques, first seen on the web, are now being adopted by tablet-native digital comics, where they offer an alternative to repurposed print comics and the guided view.

The infinite canvas has also been examined as an alternative to page-based compositions that foregrounds the importance of the spatial network. It is an

approach that offers greater freedom to determine panel spacing and size, which can be used to influence the reader's experience of a comic's diegetic time. Lastly, there has been a consideration of the ways in which animation can be integrated into digital comics. This has included its use to animate the process of panel delivery and how this usage in turn influences narrative. It has also looked at the animation of the content inside comic panels and the pre-digital precedents for its inclusion. This examination has concluded by showing how the integration of screen-based tropes such as animation has highlighted the importance of reader control as a key characteristic of the form.

References

Barber, J. (2002) *The Phenomenon of Multiple Dialectics in Comics Layout*. Master's thesis, London College of Printing.

Bendis, B. and Oeming, M. (2013) *Guardians of the Galaxy Infinite Comic #1*. Available at: <https://www.comixology.com/Guardians-of-the-Galaxy-Infinite-Comic-1/digital-comic/37951> [Accessed 20 July 2015]

Bigerel, Y. (2009) *About Digital Comics*. Available at: <http://balak01.deviantart.com/art/about-DIGITAL-COMICS-111966969> [Accessed 20 July 2015]

Bolter, J. and Grusin, R. (2000) *Remediation: Understanding New Media*. Cambridge, Massachusetts: MIT Press.

Bothma, M. and Turner, J. (2011) *True Loves 3: Business is Brisk*. Available at: <http://www.webcomicsnation.com/jasonturner/trueloves3/series.php?view=archive&chapter=47882> [Accessed 26 August 2012]

Campbell, T. (2006) *A History of Webcomics*. San Antonio: Antarctic Press.

Cohn, N. (2010) 'The limits of time and transitions: challenges to theories of sequential image comprehension.' *Studies in Comics*. 1(1) pp. 127–147.

Demian 5 (2001) *When I Am King 36*. Available at:
<http://www.demian5.com/king/036.htm> [Accessed 20 July 2015]

Gazzard, A. and Goodbrey, D. (2014) 'Electricomics: Digital Pages and Rhythms of Reading.' Available at: <http://electricomics.net/2014/07/digital-pages/> [Accessed 11 August 2016]

Goodbrey, D. (2003a) *The Mr. Nile Experiment 11: Burning Your Map*. Available at:
<http://e-merl.com/mrnile/day11.htm> [Accessed 20 July 2015]

— (2003b) *The Mr. Nile Experiment 15: We All Fall Together*. Available at: <http://e-merl.com/mrnile/day15.htm> [Accessed 20 July 2015]

— (2007) *Never Shoot the Chronopath*. Available at: <http://e-merl.com/chrono.htm> [Accessed 20 July 2015]

— (2012) *A Duck has an Adventure*. Welwyn Garden City: E-merl.com.

Groensteen, T. (2007) *The System of Comics* (trans. Beaty, B. and Nguyen, N.). Jackson: University Press of Mississippi.

— (2013) *Comics And Narration* (trans. Miller, A.). Jackson: University Press of Mississippi.

Hague, I. (2014) *Comics and the Senses: A Multisensory Approach to Comics and Graphic Novels*. New York: Routledge.

Hatfield, C. (2009) 'An Art of Tensions.' In Heer, J. and Worcester, K. (eds.) *A Comic Studies Reader*. Jackson: University Press of Mississippi.

Iconology Inc. (2013) 'About us – comics by Comixology.' Available at:

<http://www.comixology.com/about> [Accessed 20 July 2015]

Immonen, S. and Waid, M. (2012) *Avengers vs. X-Men #1: Infinite*. Available at:

<http://www.comixology.com/Avengers-vs-X-Men-1-Infinite/digital-comic/23267>

[Accessed 20 July 2015]

Johnston, P. (2015) 'Bad Machinery and the Economics of Free Comics: A Webcomic Case Study.' *Networking Knowledge*. 8(4) pp. 1-12.

Juul, J. (2005) *Half-real*. Massachusetts: MIT Press.

Krause, P. and Waid, M. (2012) *Insufferable Volume 1 Chapter 1*. Available at:

<http://thrillbent.com/comics/insufferable/insufferable-volume-1-chapter-1/#1>

[Accessed 20 July 2015]

— (2012-2015) *Insufferable*. Available at:

<http://thrillbent.com/comics/insufferable/> [Accessed 21 February 2017]

Lefèvre, P. (2009) 'The Construction of Space In Comics.' In Heer, J. and Worcester, K. (eds.) *A Comic Studies Reader*. Jackson: University Press of Mississippi.

McCloud, S. (1993) *Understanding Comics*. New York: HarperPerennial.

— (2000a) *Reinventing Comics*. New York: Paradox Press.

— (2000b) *Zot! Online: Hearts and Minds Part 3*. Available at:

<http://scottmccloud.com/1-webcomics/zot/zot-03/zot-03.html> [Accessed 20 July

2015].

Murray, J. (1997) *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Massachusetts: MIT Press.

Nichols, J. (2016) 'Comics on Screen: Pages and Places in the Cloud.' In Peppas, M. and Ebrahim, S. (eds) *Framescapes: Graphic Narrative Intertexts*. Oxford: Inter-Disciplinary Press.

O'Reilly Media (2013). 'Mark Waid on Reinventing Comics and Graphic Novels for Digital - TOC 2013' Available at: <http://www.youtube.com/watch?v=vPikusZm2As> [Accessed 20 July 2015]

Priego, E. (2010) *The Comic Book in the Age of Digital Reproduction*. Doctoral thesis, University College London.

Silhouette Software (1986) *Redhawk*. Melbourne: Melbourne House.

Smith, C. (2013) *Motion Comic Poetics: A Study in the Relations between Digital Animation and the Comic Book*. Doctoral thesis, Queen's University Belfast.

Waid, M. (2012a) 'Welcome.' Available at <http://thrillbent.com/blog/welcome> [Accessed 20 July 2015]

— (2012b) 'Off to C2E2.' Available at <http://markwaid.com/digital/off-to-c2e2> [Accessed 20 July 2015]

Weing, D. (2004) *Pup Ponders the Heat Death of the Universe*. Available at: <http://www.drewweing.com/puppages/13pup.html> [Accessed 20 July 2015]